City of Riviera Beach

Assessment, Analysis and Corrective Action Related to Consent Order for Utility District

RFP 803-16

Submitted By:

U.S. Water Services Corporation
4939 Cross Bayou Boulevard
New Port Richey, FL 34652

September 20, 2016

City of Riviera Beach

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Submitted By:

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Water Distribution System Level I #15999

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1.0 Introduction

U. S. Water Services Corporation (USWSC) was hired by the City of Riviera Beach Utility Special District (City) to complete the comprehensive Public Water System Assessment as mandated by the Palm Beach County Health Department (PBCHD) consent order WP-020-16. The assessment team included Gary Deremer, Class A drinking water plant operator & licensed distribution system operator; Bradford Labella, FL registered professional engineer; Chris Saliba, certified drinking water treatment plant operator & OSHA authorized trainer; Mike Miller, certified drinking water treatment plant operator and Melisa Rotteveel, certified drinking water treatment plant operator and compliance manager. USWSC began their assessment on August 9, 2016 and the final report was delivered on September 20, 2016. The assessment was conducted in conformance with the Level 2 Assessment methodology under the revised total coliform rule and utilized the draft Florida Department of Environmental Protection (FDEP) Form 62-555.900(15). USWSC inspected all of the City's water supply and treatment equipment. The inspection did not include any underground investigations or interior tank investigations. USWSC relied on past inspection reports and City staff for these components.

2.0 Background

The City has encountered long term problems with maintaining disinfection residual in the western portion of the distribution system. This area is the furthest point from the water treatment plant and contains minimal pipe loops. This increases the age of the water which leads to reduced residuals and promotes bacteriological growth. Over the last twelve months the City has tested positive for total coliform sampling on the following dates:

- August 20, 2015
- October 7, 2015
- October 30, 2015
- November 2, 2015
- November 29, 2015
- January 31, 2016
- February 7, 2016
- February 25, 2016
- February 26, 2016
- March 31, 2016
- April 1,2016
- August 31, 2016
- September 1, 2016

3.0 Scope

The mandatory scope of services for the pubic water assessment outlined in Consent Order WP-020-16 is shown below:

Public Water System Assessment:
The Respondent shall have a comprehensive assessment of the Public Water System completed. The assessment shall meet the following minimum requirements and schedule:
5.e.a. Assessment Requirements:

- *i. The assessment shall be conducted by a third party team selected by the Respondent and approved by the Department.*
- *ii. The assessment team shall, as a minimum, include a Professional Engineer(s) licensed in the State of Florida experienced with Water Treatment Plant and Distribution System Design, Operation and Maintenance; a Licensed Drinking Water Treatment Plant Operator (Class A); and a Licensed Distribution System Operator. The members of the team shall be experienced with Water Treatment Plant and Distribution System Design, Operation, and Maintenance.*
- *iii. The assessment shall be conducted in general conformance with a Level 2 Assessment under the Revised Total Coliform Rule. The Respondent is allowed to use the Florida Department of Environmental Protection's draft Form DEP Form 62-555.900(15) to document the assessment.*
- *iv. The assessment shall provide a list of all critical equipment, a description of the equipment and an assigned rating between 0 and 3 to reflect the operational condition.*

5.e.c.4 The Respondent shall also evaluate staffing needs, operational procedures, policies, and the ability of the plant operators to control plant operation, chemical feed, and any other parameters that affect the ability of the plant to optimize disinfection.

4.0 Executive Summary

USWSC inspected the water treatment plant components, the potable water wells and the distribution sampling sites. USWSC also interviewed and observed the operations staff to evaluate their capabilities and competency. The results of the USWSC assessment are shown in the Level 2 Assessment FDEP form table in Appendix A. The consent order also requires each piece of water production and treatment equipment to be evaluated and rated. The equipment was assigned a rating between 0 and 3 to reflect the operational condition. The ratings are defined by the Florida Department of Environmental Protection Consent Order WO-020-16 as:

0. Assigned to critical equipment that is non-operational at the time of assessment
1. Assigned to critical equipment that is in poor operational condition; in need of immediate maintenance, repair or replacement, lacks redundancy, or has an expired certification
2. Assigned to critical equipment that is in fair condition but lacks sufficient redundancy or requires minor maintenance.
3. Assigned to critical equipment that is in good operational condition.

As part of USWSC's comprehensive review of the water system we investigated the current operational status and protocols in use at the water treatment plant. This included measuring the disinfectant residuals with USWSC owned equipment as a means of verifying City lab data. Residual measurements were taken at the point of entry (POE) into the distribution system and at the outer limits of the distribution system. The results showed that the City is operating without adequate residuals in certain areas and has tested positive for total coliform bacteria. USWSC also met with the operational staff to discuss these results and confirm our assumptions of plant operations.

USWSC recommends that the City initiate a free chlorine burn as soon as possible. This will improve disinfectant residuals and ensure the safe delivery of potable water. Once the chlorine burn is completed the City can return the system to chloramine disinfection and utilize enhanced operation protocols recommended by USWSC in this report. However, the free chlorine burn must be conducted in a manner that is productive and measurable. USWSC recommends the following steps be taken to complete the burn:

Free Chlorine Burn:

- A qualified person is necessary to supervise the free chlorine burn. This will ensure that the burn is conducted in a correct manner and appropriate monitoring is being performed to determine when the system can be returned to chloramination.
- Ensure adequate water supply is available for robust distribution system flushing. Flushing is essential to ensure the free chlorine can work effectively. This may require completing repairs to some of the larger wells that are out of service before commencing the burn. Currently the City is repairing Well #802. Further investigation is needed to determine which additional wells may need to be repaired to meet the City demand and flushing consumption. The investigation

should take into consideration how much effort is required to repair each of the remaining 9 off-line wells compared to the capacity of each with the goal of meeting at least 1.5 times the average daily flow.

- Develop and execute a distribution system flushing plan with an emphasis on the western areas and Singer Island.
- Flushing must be conducted in a manner that provides sufficient velocity of the water in the pipes. The flushing should target a minimum velocity of 3 fps, which requires specific pipe sections to be isolated in a radial feed mode.
- Install temporary chlorine feed system at the Singer Island booster station. The booster stations will provide additional chlorine necessary to bolster residuals during the burn and allow the burn to reach the extremities of the distribution system more effectively.
- Recirculate free chlorine at the plant ground storage tank (GST) and the Singer Island GST. It has been observed that these tanks are major points of nitrification and loss of residual. By circulating the water while feeding chlorine the bacteriological density in the tanks will be reduced more effectively and the tanks returned to service quicker.
- Ensure the effectiveness of the free chlorine burn. Weekly heterotrophic plate count (HPCs) sampling should be conducted until there is a substantial reduction in microbial densities. Weekly samples should be collected at each of the City's 40 existing sampling points.
- Achieve complete ground storage tank(s) turnover every 2 days. The chlorine residual will decline as the water sits in the tanks. The amount of residual loss can be reduced by turning the water over frequently. This will require operations training and new operations protocol for all operators.
- Follow all public notice requirements as mandated by the PBCHD.

The report outlines the equipment deficiencies found throughout the entire water system. However, USWSC also observed numerous deficiencies with plant operation and staff knowledge relative to chloramination. It is imperative that these observations be addressed as early as possible.

<u>Observation #1 – In-plant process break point chlorination</u>

On at least three occasions USWSC observed free chlorine (Cl_2) residual break point occurring in lime softening unit 3 due to gross overfeeds of Cl_2 without a corresponding ammonia feed. This results in free chlorine mixing with total chlorine in the filters and clearwell which causes destruction of the monochloramine residual and subsequent reduction in total chlorine. The total chlorine was measured as low as 2.0 mg/l at times in the finished water. The low residuals were also confirmed by field samples at the extremities of the distribution system. As a result of working with operations staff and residual measurement, USWSC was able to assist with reducing the Cl_2 dosed in unit 3 from approximately 350 lb/day to approximately 100 lb/day.

Observation #2 - Gross Overfeed of Ammonia in finished water

On more than one occasion USWSC observed high levels of free ammonia in the finished water (higher than 0.55 mg/l, maximum range of meter). Ammonia in free form is an available nutrient for microbial growth including nitrifying bacteria Nitrosomonas & Nitrobacter. High free ammonia results in nitrification in the distribution system converting NH_3 (ammonia nitrogen) to NO_3 (nitrate nitrogen), a primary contaminate with a Maximum Contaminate Level (MCL) of 10 mg/l in drinking water. However, USWSC does not believe the City experienced a nitrate violation based on the ammonia feed rates observed and the subsequent nitrification. USWSC performed field measurements for free ammonia at the Singer Island Pump Station and at the western end of the distribution system. In both cases USWSC measured zero free ammonia in the water. This confirms that there is a significant level of nitrification occurring in the distribution system, which is causing a loss of residual Cl_2. As a result of these observations, USWSC assisted the City with the dosing and measuring of free ammonia leaving the plant and remote pump stations. These efforts provided a reduction of the amount of ammonia being fed at pumps stations U & C by more than 80%. However, the overfeeding of ammonia has put the distribution system in an advanced state of nitrification. Even with the operational changes of minimizing free ammonia within the distribution system, the nitrification will continue without intervention by the City by means of a free Chlorine (Cl_2) burn.

Observation #3 – GST at Water Plant Reducing Finished Water Residuals

On a daily basis water is conveyed from the plant to the ground storage tank on the located South side of West Blue Heron Blvd. Stored water is then returned to the clearwell to facilitate filter backwashing and to meet peak demands. In every case when water is returned to the clearwell the finished water chlorine residual dropped substantially. USWSC observed the residual drop to less than 2.0 mg/l on finished water during this activity. Free ammonia levels were measured in the GST and found to be zero with accompanying Cl_2 total residual at zeros as well. This could only be measured be physically climbing to roof hatch on the GST using a pole to dip a sample since no sample tap exists at this location. On-line water trending in the SCADA system confirmed the loss of residual in the GST during these activities.

Observation #4 Lack of Understanding of Disinfection Principles

USWSC spent 4 weeks working on-site with operations staff to learn the facility, its operating procedures and to assess their ability to operate the system effectively. USWSC observed a general lack of understanding of basic chloramine disinfection techniques for the water supply. The daily plant operating parameters are not consistent. The parameters are changed by each operating shift without any adherence to an operating protocol. USWSC observed minimal input from the lead operator or plant superintendent relative to changes in operating flow rates and chemical dosing.

Observation #5 – Laboratory Equipment & SOP's

Inadequate analytical equipment available for the measurement of monochloramine and free ammonia. This equipment is essential for the proper monitoring, dosing and management of chloramination. Field equipment for measurement of total chlorine was poorly maintained and not calibrated. USWSC performed independent testing which confirmed that the City's equipment was providing erroneous information. The City's color meter was also providing erroneous results which was further confirmed by the City's consultant and independent analysis. The same unit to measure color is also used to measure pH. Overall, the utility lacks SOPs, quality control and quality assurance practices which makes any self-performed analytical results suspect. Management and the PBCHD have relied on these results for state and county reporting, compliance, information to the public, communications to the council and operational directives. USWSC provided the City with proper equipment to measure free ammonia and monochloramine and trained a number of shift operators to use the equipment. The shift operators took initiative to learn how to use the USWSC provided equipment and to develop an operator's log sheet for recording of parameters at key locations within the plant. USWSC also provided replenishment of necessary reagents to continue testing until the City was able to procure their own equipment to perform these tasks.

Observation #6 – Significant Volume of Equipment Out of Service

Below is a list of the functionality of the City's water system.

- 37% Drinking water wells out of service (10 out of 27 wells); currently all working wells must run 24/7 to meet daily demand.
- 53% Lime softening capacity out of service (Unit 3 & Flow Reduction at Unit 1)
- 75% Lime feed out of service (3 out 4 slakers)
- 60% Polymer feed out of service (3 out of 5 feed systems)
- 33% Ammonia feed out of service (1 out of 3 ammonia injections)
- Much of the plant instrumentation is either not calibrated or out of service; more than 50% (flow meters, turbidity analyzers, clearwell level control, etc.)
- 50% High Service Pumping at each remote booster station (3 out of 6 pumps)
- Overall system readiness is below 50%

Observation #7 – Well #17

USWSC was denied access to Well 17 during the system evaluation. USWSC later learned that the well was in service and delivering water to the facility. This well had been previously shut down by the EPA due to its proximity to superfund cleanup activities. Further investigation into the history of the well indicated that it never delivered contaminated water. It was replaced by a new well, Well #2004, paid for by the EPA. The new well was located further from the contaminated plume. Recent testing of well 17 was performed to ensure that the well was not delivering contaminated water. The test included all of EPA's volatile organic contaminates, nickel and fluoride. USWSC was

informed by the City's consultant that the test results indicate no discernible contamination. However, the well has been shut down and will be rendered inoperable.

Observation #8 – Distribution Management

The absence of a viable distribution management process was clearly evident during USWSC's evaluation of the system. The City staff was unable to provide written standard operating procedures for any tasks typically performed by other similar sized utility systems. These include valve location and exercising, water system flushing, fire hydrant flow testing and flushing, distribution system sampling and other related activities. There is a high probability that numerous valves are either closed or broken throughout the distribution system. This creates dead ends and circulation problems which decreases water quality and pressure. The lack of distribution system operating protocols is a contributing factor which may have impacted the total coliform sampling results. As part of the preparation for the free chlorine burn USWSC requested that the City verify valve operations at ten key locations in the distribution system. At a number of locations, valves were unable to be located, accessed or found broken in an undetermined position. The City must develop, implement and maintain a distribution management plan

Observation #9 – Physical Potential Sources of Finished Water Contamination

USWSC identified several potential areas where bacteria can be introduced into the finished water. These areas are:

A number of high service pump base penetrations leak into the clearwell. This allows contaminates on the high service pump room floor to potentially enter the finished water clearwell.

The elevational difference and manual controls between the water plant GST and the clearwell causes overflows in the filter gallery. The receding overflow water can transmit contaminates from the filter gallery floors into the clearwell. The SCADA system needs to be repaired to mitigate this problem and minimize the potential for clearwell overflows. A physical form of protection, similar to an air gap, should be provided if possible.

An improperly sealed clearwell hatch located on filter bank 1-8. This allows contaminates on the South filter gallery floor to potentially enter the finished water.

A cross connection exists at the "Save-All Basin". USWSC observed a connection between the fire hydrant and the save-all pump. Under certain circumstances save-all water flow can be conveyed into the potable drinking water.

All GST overflow vents are inadequately screened. They are screened with coarse mesh screens that can allow insects and other small animals to enter the finished water. The screens should be replaced with smaller mesh size typically provided in these applications.

The filter backwash pumping system is not equipped with a proper backflow prevention device. This provides a physical connection between the filter backwash water and finished water. Under

certain circumstances (valve leakage and siphoning) contaminates can enter the clearwell. A backflow device should be installed on the filter backwash supply piping.

General Recommendations:

The main purpose of USWSC water system analysis is to determine the root cause(s) of the positive coliform samples and low disinfectant residuals. The USWSC observations outlined above are direct contributing factors that are causing the City to experience positive total coliform results in their monthly distribution system sampling. These observations are also contributing to a lack of a measurable disinfectant residual in the extremities of the distribution system. The low residuals coupled with the overfeeding of ammonia creates an environment that promotes bacteriological growth. Positive total coliform results are likely to continue under these circumstances. USWSC recommends the following General Recommendations to return the system to normal operation and protect public health and safety.

1. Conduct a system wide free chlorine burn. The City authorized USWSC to assist with the free chlorine burn.
2. Restore all components of the water system to 100% operation. This will require both repairs and replacements (R&R) and capital projects.
3. Develop and maintain a distribution system management plan.
4. Improve operations. The City should focus on standard operating procedures, protocols, training, reorganization, redefining job descriptions, filling vacancies and interim/permanent increase of staff levels.
5. Develop and maintain a computer maintenance management system (CMMS). A computerized work order tracking system is essential for a water utility of this size.
6. Modify the plant to achieve a 4-log disinfection process. This will provide substantial improvements to the overall disinfection.
7. Proper utilization of existing procurement processes. This is needed to provide timely repairs and replacement of critical equipment.

USWSC provides an overview of the City's supply and treatment components in the following sections. Some deficiencies noted are listed for the City's information and are not part of the FDEP Level 2 assessment. However, it is not part of USWSC's scope to perform a detailed repair list. The deficiencies and recommendations noted in this report were observed from August 9 – 26, 2016. The City has taken note of the USWSC recommendations and has begun correcting these deficiencies and in some cases completed a number of the repairs since the time of USWSC's inspection.

The cost estimates depicted in this report are planning level estimates. The USWSC scope did not include equipment diagnostics to determine the actual cause or identify the broken component for each piece of equipment. Therefore, further investigations are needed by the City.

USWSC did not inspect the motor control centers throughout the water system. However, some of the motor control centers appear to be in poor condition and in need of repair or replacement. These should be inspected by a licensed electrical engineer.

5.0 Wellfields and Wells

The City's wells are separated into two well-fields, West and East. The West well-field consists of ten (10) wells and the East well-field consists of seventeen (17) wells. All of the wells utilize submersible pumps to convey the raw water except for well #801 which consists of a vertical turbine well pump. The inspection focused on the Tier 2 checklist and other parameters pertinent to providing the City with a thorough overview of the condition of their overall potable water source. Currently there are ten (10) wells out of service which puts the City at risk of running out of water should more wells become inoperable or during periods of high demand. The City has needed to purchase water through the interconnects with the City of West Palm Beach and Seacoast Utility Authority on several recent days. Overall the wells are in poor condition

On August 16, 2016 US Water inspected the City's potable water wells. Two wells were not inspected, Well #17 and #805. City staff did not provide access to these wells. Pictures of the wells and the deficiencies of each well are outlined below. USWSC has learned that Well #17 was running at the time of our inspections when it is supposed to be off-line and capped pursuant to EPA direction. The well has since been turned off.

5.1 West Wellfield

Well #862; Out of Service; Location - Park Avenue

<table>
<tr>
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Well #862</td>
<td> 
Extensive Corrosion</td>
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<tr>
<td> 
Fire Hydrant Tied into Well Piping</td>
<td> 
Extensive Corrosion</td>
</tr>
</table>

Well #921; In Service; Location – Park Avenue

Well #921

Well Piping

Corrosion on Well Head

Prior Leakage

Well #861; In Service; Location – Park Avenue

Well #861

Well Piping

Pipe Corrosion

Extensive Corrosion on Well Head

Well #922; In Service; Location – End of dirt road extending from Park Avenue

Well #922

Well Piping

Leak on Blow-Off

Extensive Corrosion on Well Head

Well #852; Out of Service; Location – 45 St & Arjaro Dr

Well #852

Well Piping

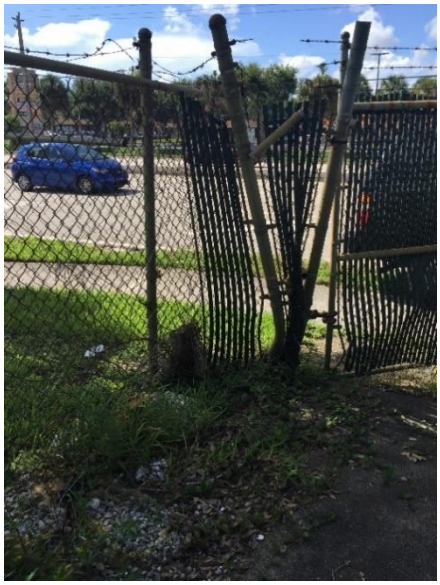
Meter Location

Extensive Corrosion on Well Head

Well #851; Out of Service; Location – 45th St

Well #851

Well Piping



Fence Damage from Vehicle

Extensive Corrosion on Well Head
Conduit Penetration not Sealed

Well #871; In Service; Location – Apartment Complex off Caribbean Blvd

Well #871


Well Piping


Possible Crack in Well Head


Well Piping

Well #961; Out of Service; Location – Military Trl & Canterbury Dr

Well #961

Well Piping

Piping Corrosion

Corrosion on Well Head

Well #802; Out of Service; Location – Port W Blvd

Well #802

Well Piping

Open Well

Open Well

Well #803; Out of Service; Location – Military Trail across from water park

Well #803

Well Piping

Corrosion on Well Head

Corrosion on Well Head

Table 5-1
Western Wellfield
Critical Equipment

Item	Recommendation	Consent Order Rating	Estimated Cost
Well #862	Rehabilitate well to return to service. Remove piping from nearby hydrant. Sandblast and recoat	**0**	$15,000 - $50,000
Well #921	Sandblast and recoat	**1**	$ 3,000
Well #861	Sandblast and recoat	**1**	$ 3,000
Well #922	Sandblast and recoat	**1**	$ 3,000
Well #852	Rehabilitate well to return to service. Replace fence	**0**	$ 15,000 - $ 50,000
Well #851	Rehabilitate well to return to service. Replace fence	**0**	$ 15,000 - $ 50,000
Well #871	Sandblast and recoat	**1**	$ 3,000
Well #961	Rehabilitate well to return to service. Replace fence	**0**	$ 15,000 - $ 50,000
Well #802	Well rehabilitation ongoing at time of inspection. Ensure rehabilitation is completed to return well to service. Rehabilitate fence	**0**	$ 15,000 - $ 50,000
Well #803	Rehabilitate well to return to service.	**0**	$ 15,000 - $ 50,000
Well #805	USWSC not provided access to this well. City informed that the Well is out of service. Rehabilitate Well to return to service	**0**	$ 15,000 - $ 50,000

Other Observations and Comments:

- Corrosion exists on most wells' piping
- Due to the visible corrosion on the well casing, USWSC recommends further investigation including but not limited to televising all well casings at the time of well replacements
- USWSC observed evidence of piping leaks. A thorough investigation is recommended while pumps are in operation.
- Insufficient upstream and downstream pipe lengths for meter accuracy.
- Sample taps improperly located downstream of check valves
- Extensive vegetation overgrowth throughout locations
- Fence and barbed wire repairs are needed in some locations
- Electrical penetrations through wellhead require sealing in many locations

5.2 Eastern Wellfield

Well #801; Out of Service; Location – MLK Dr & Railroad

Well #801


Well Piping & Right Angle Drive


Well Head Penetrations Unsealed


Vertical Turbine Motor Historical Leakage

Well #2004; In Service; Location – Off Congress behind Wal-Mart

Well #2004

Well Piping w/ Pressure Regulating Valve

Well Head

Meter w/o Readout

Well #21; In Service; Location Barracuda Park

Well #21

Well Piping

Well Head

Quick Disconnect on Well Blow-off

Well #9A; In Service; Location – W 23rd St

Well #9A

Well Piping

Well Head

Previous Leaking

Well #10A; In Service; Location – W 25th St

Well #10A

Well Piping

Well Head

Previous Flooding of Well Site

Well #12A; In Service; Location – Blue Heron Blvd & Avenue P

Well #12A


Well Piping w/ Meter Located on Tee


Well Head


Previous Leakage on Well Piping

Well #1; In Service; Location – WTP Ground Storage Tank

Well #1 Underground

Leak at Meter

Well Head w/ Standing Water

Well Vent Exhaust Above Ground Unscreened

Well #7; Out of Service; Location – City storage yard South of GST

Well #7

Well Piping

Equipment & Debris Adjacent to Well

Well Head Minimal Ground Clearance

Well #14; In Service; Location – Wells Recreation Park

Well #14

Well Piping

Well Piping

Well Head Minor Corrosion

Well #15; In Service; Location – Wells Recreation Park

Well #15

Well Piping

Well Head Corrosion

Meter not Registering While Pump Running

Well #18; In Service; Location – W 28th at St Suncoast High School

Well #18

Well Piping

Electrical Conduits Exposed/Disconnected

Well Head Minor Corrosion

Well #16; In Service; Location – W 28th St

Well #16

Well Piping

Well Piping

Well Head Minor Corrosion

Well #13; In Service; Location – WTP North side

Well #13

Well Piping

Lime Sludge on Well Site

Algae Growth on Air Release Valve

Well #4; In Service; Location – WTP South of maintenance building

Well #4

Well Head w/ Holes in Casing

Vehicles Stored Adjacent to Well Site

Evidence of Flooding at Well Casing

Well #5; In Service; Location – WTP South of maintenance building

Well #5

Well Piping

Well Head Penetration Not Sealed

Hoses Stored on Well Site

Well #6; In Service; Location – WTP South of maintenance building

Well #6

Thick Lime Sludge on Well Site

Electrical Connections Missing/Exposed

Loose Penetrations in Well Head

Table 5-2
Eastern Wellfield
Critical Equipment

Item	Recommendation	Consent Order Rating	Estimated Cost
Well #801	Rehabilitate Well to return to service. Sandblast and recoat	**0**	$ 15,000 - $ 50,000
Well #2004	Sandblast and recoat	**1**	$ 3,000
Well #21	Sandblast and recoat	**1**	$ 3,000
Well #9A	Sandblast and recoat	**1**	$ 3,000
Well #10A	Sandblast and recoat	**1**	$ 15,000 - $ 50,000
Well #12	Sandblast and recoat	**1**	$ 15,000 - $ 50,000
Well #1	Repair well vent and install vent screen. Sandblast and recoat	**0**	$ 5,000
Well #7	Rehabilitate Well to return to service. Install perimeter fence.	**0**	$ 15,000 - $ 50,000
Well #14	Sandblast and recoat	**2**	$ 15,000 - $ 50,000
Well #15	Sandblast and recoat	**2**	$ 15,000 - $ 50,000
Well #18	Sandblast and recoat	**2**	$ 3,000
Well #16	Sandblast and recoat	**2**	$ 3,000
Well #13	Sandblast and recoat. Replace meter	**1**	$ 5,000
Well #4	Replace well casing. Sandblast and recoat. Install perimeter fence	**0**	$ 10,000 - $ 15,000
Well #5	Sandblast and recoat	**2**	$ 3,000
Well #6	Sandblast and recoat	**1**	$ 3,000
Well #17	USWSC not provided access to this well. City informed that the well was pumping. USWSC learned that the Well had been previously shut down by the EPA. The well was shut off within 2 days of USWSC inspections. Remove pump and cap well until further direction is received from EPA.	**0**	$ 20,000

Other Observations and Comments:

- Corrosion exists on most wells' piping
- Due to the visible corrosion on the well casing USWSC recommends further investigation including but not limited to televising all well casings at the time of well replacements
- USWSC observed evidence of piping leaks. A thorough investigation recommended while pumps in operation.
- Insufficient upstream and downstream pipe lengths for meter accuracy.
- Sample taps improperly located downstream of check valves
- Extensive vegetation overgrowth throughout locations
- Fence and barbed wire repairs are needed in some locations
- Electrical penetrations through wellhead require sealing in many locations

6.0 Plant Security

The perimeter fence at the water treatment plant is not adequately secure. There are complete fence sections missing and many damaged sections. The operations staff reported that intruders have gained access to the water treatment plant in the past during after-hours. The facility is located at a shared site with Public Works employees so there is substantial vehicle traffic throughout the day. In addition, equipment is also stored on the site which may require after-hours access. The facility is equipped with a security camera system but the video resolution observed in the control room does not afford the operators the ability to positively identify possible intruders. There are also cameras that are out of service.

The City should perform a complete inspection and repair of all of the security components at the plant. This should include:

- Gates and intercom
- Closed circuit television system
- Site lighting
- Alarm systems

7.0 Aerators

The City constructed the force draft aeration system in 1988. This new treatment unit was funded by the Environmental Protection Agency due the potential contamination of Well 17 from a nearby EPA superfund site. The air strippers are designed to remove VOC's (volatile organic compounds) in the pre-treatment phase of the process. The raw water flows through a single flow meter used to report daily flows for the treatment process and then evenly split through four forced drafter aerators. In addition to flow measurements raw water pressure is monitored and reported back to the SCADA (Supervisory, Control and Data Acquisition) system. A chlorine injector is located in the raw water piping immediately before the aerators but the injection point is currently not used.

It was reported by operations staff that, until recently (July 2016), 75% of the aerators were generally not functional. In July of 2016 the aerators were fully rehabilitated and returned to normal operation. The fans and fan motors were all replaced during this rehabilitation project and the overall condition of the units are generally very good. A small centrifugal pump is used to feed acid into the aerators as part of routine cleaning and maintenance. This pump is corroded and should be replaced. Additionally, broken conduits with exposed wiring were observed on the clearwell. Further investigation is needed to determine what equipment the conduits feed and if electrical service should be repaired.

After aeration the water flows into a common clearwell located beneath the aerators. The water is then pumped into the lime softening process via six (6) transfer pumps. The header pipe on the pump discharges is capped in the center which dedicates three (3) pumps for the north lime softening unit (pumps 1B, 2B and 3B) and three (3) for the south and center lime softening units (pumps 1A, 2A and 3A). The center cap in the pump discharge header was achieved by removing a short, spool piece of pipe and replaced blind flanges. The clearwell has two (2) screened openings but both screens are damaged leaving the clearwell unprotected. There are multiple packing leaks that were observed on the transfer pumps resulting in heavy algae accumulation on the top and sides of the clearwell in addition to the sidewalk adjacent to the clearwell.

Aerators were rehabilitated in 2016

Multiple seal leaks observed

Install isolation valve to increase redundancy

Clearwell screens damaged

Table 7-1
Forced Draft Aerators Critical Equipment List

Item	Recommendation	Consent Order Rating	Estimated Cost
Aerator Number 1	No repairs needed	**3**	
Aerator Number 2	No repairs needed	**3**	
Aerator Number 3	No repairs needed	**3**	
Aerator Number 4	No repairs needed	**3**	
Transfer Pump 1A	Investigate pump condition, repair as necessary. Replace seals, pressure gauges & other appurtenances	**2**	$ 4,000
Transfer Pump 2A	Investigate pump condition, repair as necessary. Replace seals, pressure gauges & other appurtenances	**2**	$ 4,000
Transfer Pump 3A	Investigate pump condition, repair as necessary. Replace seals, pressure gauges & other appurtenances	**2**	$ 4,000
Transfer Pump 1B	Replace VFD	**0**	$ 20,000
Transfer Pump 2B	Investigate pump condition, repair as necessary. Replace seals, pressure gauges & other appurtenances	**2**	$ 4,000
Transfer Pump 3B	Investigate pump condition, repair as necessary. Replace seals, pressure gauges & other appurtenances	**2**	$ 4,000

Other Observations and Comments:

- Inspection window removed from aerator unit number 2
- Sulfuric Acid Feed Pump in poor condition
- Clearwell hatch not properly sealed or fully closed
- Broken and damaged conduit observed on top of clearwell
- Heavy accumulation of algae growth on clearwell top and sides
- Clearwell screens damaged
- Need proper pipe support for drain line
- Transfer pump discharge manifold segregated which limits redundancy

8.0 Chlorine

The water treatment facility utilizes chlorine gas as the primary disinfectant. Chlorine gas is extracted from one (1) ton cylinders under vacuum and then injected in carrier water via an educator. The one (1) ton cylinders are placed on scales before being put into service. By monitoring the weight of each cylinder as the chlorine is extracted the amount of chlorine remaining in each cylinder is observed and tracked. Under normal operation the chlorine system is designed to have four (4) cylinders connected to the chlorine feed system at all times. Two (2) of the cylinders are designed to be in service and two (2) serve as standby. Each cylinder rests on a separate, dedicated scale during normal operation. However, all of the chlorine scales were found to be inoperable during the plant assessment. There is an automatic switchover that switches from the in-service cylinders to the standby cylinders when vacuum indicates the chlorine has been depleted. This allows the two (2) in service cylinders to be completely depleted of chlorine and automatically switched over to the two (2) standby cylinders without interrupting chlorine feed. The automatic switchover is out of service and physically bypassed. The operations staff routinely places four (4) chlorine cylinders in service with no standby cylinders connected. This eliminates the redundancy as originally designed and puts the water plant at risk of running out of chlorine.

The chlorine cylinder units appear to be in fair condition but the flexible chlorine tubing is blistered and damaged. The overhead hoist was recently replaced and is in very good condition. A class B repair kit was found in the vicinity of the chlorine storage area and appeared to be a complete repair kit. There are multiple SCBA's (Self Contained Breathing Apparatuses) stored throughout the facility, but not all cabinets have an SCBA stored in them.

There is insufficient water pressure to provide reliable chlorine feed rates. The pressure is being depleted through water usage by other plant components, spray rings in the accelators, and insufficient hydraulic conveyance. Reliable pressure in the carrier water is necessary for consistent chlorine dosing. It was reported and observed that the limiting factor of chlorine dose is the lack of differential pressure required to create a vacuum. A dedicated water line or an inline booster should be installed to provide consistent and reliable chlorine feed.

The original flow paced chlorinators are all out of service and abandoned in place. Three (3) of the four (4) chlorinators were replaced with manually operated chlorinators. The chlorinators are dedicated as follows: one (1) to the north accelator, one (1) to the center and south accelators and one (1) for the clearwell. Once in solution the chlorine flows through flow meters mounted on the wall in the chlorine room, all of which are non-functional. Severe corrosion was observed on the metallic hardware in the chlorine room. The operations staff controls the chlorine feed rate to the four (4) application points in the south and center units via ball valves. This method does not allow for accurate chlorine dosing and creates the potential for uncontrolled intermittent breakpoint chlorination throughout the treatment process.

Damaged scales

Blistered and deteriorated chlorine tubing

Damaged flow meters

Severely corroded metallic hardware

Table 8-1
Chlorine Storage & Feed
Critical Equipment List

Item	Recommendation	Consent Order Rating	Estimated Cost
Chlorinator Number 1	Perform annual preventative maintenance	**2**	$ 500
Chlorinator Number 2	Perform annual preventative maintenance	**2**	$ 500
Chlorinator Number 3	Perform annual preventative maintenance	**2**	$ 500
Chlorinator Number 4	Perform annual preventative maintenance	**2**	$ 500
Chlorine Scale Number 1 (West Scale)	Replace scale	**0**	$ 10,000
Chlorine Scale Number 2 (East Scale)	Replace scale	**0**	$ 10,000
Automatic Switchover Device	Replace automatic switchover	**0**	$ 6,000
Rotameter (Rate of Feed Controller-V10k) 1	Perform annual preventative maintenance	**1**	$ 800
Rotameter (Rate of Feed Controller-V10k) 2	Perform annual preventative maintenance	**1**	$ 800
Rotameter (Rate of Feed Controller-V10k) 3	Perform annual preventative maintenance	**1**	$ 800
Rotameter (Rate of Feed Controller-V10k) 4	Replace rate of feed controller	**0**	$ 15,000

Observations and Comments:

- Chlorine tubing blistered and damaged
- Inadequate water pressure resulting in intermittent reduction in chlorine feed
- Missing SCBA's in cabinets
- Severe corrosion in chlorine room
- Original chlorine injector at aerator transfer well removed by operations staff
- Insufficient feed control for south and center accelators
- New liquid chlorination system has been designed and is awaiting bid process.

9.0 Ammonia

The facility feeds anhydrous ammonia that is combined with chlorine to form the chemical compound monochloramine. Monochloramines are used to reduce the formation of disinfection by-products (TTHM's and HAA5's) that are readily formed in the presence of free chlorine. The ammonia system consists of an ammonia storage tank, two (2) ammoniators and associated appurtenances. The storage tank was recently replaced by the chemical supplier and is in very good condition. The two (2) ammoniators are both out of service. Ammonia feed rates are controlled manually through a rotameter using ball vales to regulate the flow rates. Ammonia is delivered in a gaseous state to the point of injection. There is a minor ammonia leak in the ammonia room and the ammonia injection point to the north accelator is clogged. Ammonia can only be injected at two locations throughout the treatment process, into the north and south riser pipes that feed the lime softening units. An additional ammonia injection point should be installed in the clearwell to provide a redundant ammonia injection and the ability to increase the chlorine residual in the finished water.

Out of service ammoniators

Course control via ball valves

Table 9-2
Ammonia Storage & Feed
Critical Equipment List

Item	Recommendation	Consent Order Rating	Estimated Cost
Ammoniator Number 1	Replace ammoniator	**0**	$ 40,000
Ammoniator Number 2	Replace ammoniator	**0**	$ 40,000
Additional Ammoniator 3	Install additional ammoniator	**0**	$ 40,000
Ammonia Storage Tank	No repairs needed	**3**	
Ammonia Injection 1	Replace injector	**0**	$ 5,000
Ammonia Injection 2	Replace injector	**0**	$ 5,000
Additional Ammonia Injection 3	Install additional Ammonia inject	**0**	$ 5,000

Other Observations and Comments:

- Ammonia leak in ammonia room
- Ammonia leak at unit 3 injector
- Original ammonia injector at aerator transfer well removed by operations staff
- Provide post ammonia injection at finished water clearwell location

10.0 Lime

Softening is accomplished by the use of lime (calcium hydroxide) to remove or reduce hardness (calcium and magnesium) naturally found in ground water. The lime raises the pH of the water which causes the calcium and magnesium to precipitate out of solution. The facility has four (4) lime silos and four (4) lime slakers used to create lime slurry. Two (2) silos with dedicated slakers are located in each of the two (2) chemical buildings, designated as the north and south chemical buildings. Slaker one (1) and two (2) are located in the south chemical building and slaker numbers three (3) and four (4) are located in the north chemical building. Slakers three (3) and four (4) are out of service. When the north accelator went out of service lime was left stored in the silo. The stored lime eventually absorbed enough humidity to swell which damaged the silo and the north chemical building. The City is aware of the damage and a structural evaluation is pending.

Slaker number one (1) is also out of service leaving Slaker number two (2) as the only means of feeding lime into the system. Grit is separated during the slaking process from the lime and dropped into buckets. During the plant assessment USWSC found evidence of the grit buckets being emptied through third floor windows onto the ground below.

The lime slurry splitter box used to control the lime slurry feed to the south and center softeners does not provide accurate controlled feed rates. Only course adjustments can be made while using a single slaker.

Lime slaker number one out of service

Lime slaker number two out of service

Lime slaker number three out of service

Poor grit removal process

Table 10-2
Lime (Calcium Hydroxide)
Critical Equipment List

Item	Recommendation	Consent Order Rating	Estimated Cost
Lime Slaker Number 1	Repair Slaker as necessary	**0**	$ 20,000 - $ 80,000
Lime Silo Number 1	No immediate repairs needed	**2**	
Dust Collector 1	No immediate repairs needed	**2**	
Lime Slaker Number 2	Repair Slaker as necessary	**1**	$ 20,000 - $ 80,000
Lime Silo Number 2	No immediate repairs needed	**2**	
Dust Collector 2	No immediate repairs needed	**2**	
Lime Slaker Number 3	Repair or Replace	**0**	$ 100,000
Lime Silo Number 3	Repair or Replace	**0**	$ 400,000 - $ 800,000
Dust Collector 3	Repair or Replace	**0**	$55,000 - $75,000
Lime Slaker Number 4	Repair or Replace	**0**	$ 100,000
Lime Silo Number 4	No immediate repairs needed	**2**	
Dust Collector 4	Repair or Replace	**0**	$55,000 - $75,000

Other Observations and Comments:

- Damage observed on the north chemical building
- Grit removal system from chemical buildings is insufficient

11.0 Polymer

Polymer is fed at the water treatment facility as a necessary coagulant in the lime softening treatment process. Polymer is essential to remove the suspended particles that will not settle out naturally. There are five (5) polymer feed skids installed in the polymer feed room. They consist of a metering pump in combination with a carrier water pump used to deliver polymer to the point of application. There are two (2) inoperable scales mounted to the wall in the polymer room and one (1) functional scale. The current operation requires two (2) polymer skids to feed polymer concurrently. With only one functional scale in the room it is not possible to monitor polymer usage via weight as originally designed. Also, there are only two (2) operational polymer feed skids, the other three (3) are out of service and/or missing critical parts.

Single scale for multiple skid systems

Missing chemical feed pump

Table 11-1
Polymer
Critical Equipment List

Item	Recommendation	Consent Order Rating	Estimated Cost
Polymer Feed System 1	Replace chemical metering pump	**0**	$ 20,000
Polymer Feed System 2	Perform routine preventive maintenance	**2**	$ 1,000
Polymer Feed System 3	Replace chemical metering pump	**0**	$ 20,000
Polymer Feed System 4	Perform routine preventive maintenance	**2**	$ 1,000
Polymer Feed System 5	Duplicate spare. Repair and replacement not needed at this time	**N/A**	

Other Observations and Comments:

- Single scale is not sufficient to monitor polymer dosage and inventory
- Calibrate polymer scales and properly tare scales out when replacing drums
- Remove stored polymer drums adjacent to the chlorine area

12.0 Aluminum Sulfate

Alum (aluminum sulfate) is fed at the primary mixing zone of the accelators. Alum is fed as a coagulant to aid in flocculation and settleability. Alum is pumped into the softening units by a chemical pump skid consisting of four (4) pumps. Further investigation is needed to ensure the alum is being dosed at the optimal dose. There are two steel storage tanks for alum storage; the north storage tank has a large repair on the end cap. There is no means to monitor the level of alum in the storage tank. Level measurement is accomplished by an operator climbing to the top of the tank to perform a visual measurement.

Alum skid system

Alum storage vessels

Table 12-1
Alum
Critical Equipment List

Item	Recommendation	Consent Order Rating	Estimated Cost
Alum Skid Feed System (4 Pumps)	No repairs needed	**3**	
Alum Storage Vessel - North	Replace Alum storage tanks	**1**	$ 30,000
Alum Storage Vessel - South	Replace Alum storage tanks	**1**	$ 30,000

13.0 Lime Softening

13.1 South Accelator

The south accelator has a rated capacity of 3.5 MGD (million gallons per day) and is in service. The chlorine and ammonia are injected in the riser pipe that delivers water to both the south and central accelators. Flow to both units is also measured in the riser pipe. Polymer is added in the primary mixing zone of the accelator as a coagulant. Chlorine is added again in the effluent launder of the accelator. The launder is severely corroded at the chlorine injection point. The south accelator cannot operate at its designed capacity because the effluent pipe leaving the accelator has excessive scale buildup and cannot convey the designed flow rate to the filters. Currently, the south accelator is limited to 1.7 MGD treatment capacity. Also, USWSC observed significant corrosion of metal surfaces throughout the unit. The unit should be thoroughly evaluated when taken out of service to replace the outlet piping.

13.2 Center Accelator

The center accelator has a rated capacity of 6.5 MGD and is in service. The chlorine and ammonia are injected in the riser pipe that delivers water to both the south and central accelators. Flow to both units is also measured in the riser pipe. Polymer is added in the primary mixing zone of the accelator as a coagulant. Chlorine is added again in the effluent launders of the accelator. The "save-all" water from the lime sludge dewatering process is also added to this accelator, but it is not metered. This intermittent, unmetered side stream flow is substantial and results in varying chemical dosage rates. Operations staff does not attempt to compensate chemical dosages for the introduction of "Save-all" flow. The condition of the sludge blow-down valves is unknown but appear to be functional. The condition of the main drain valve is unknown. The "save-all" side stream flow should be metered to allow the proper adjustments to be made in the chemical feed systems or to allow the raw water flow to be reduced to maintain a constant flow rate to the accelators. The splitter box that diverts flow to the south accelator or the center accelator is not easily adjusted. Existing inlet flow meters for south and center accelators need calibration.

Significant corrosion was observed at and above the water line of the treatment unit. Several patches were observed on the lower third of the exterior of the unit from prior leaks through the metal structure. The entire structure should be sand blasted and coated. The main drive gear box has an exposed, unprotected rotating shaft located in the middle of the walkway. The spray ring or mud jet sprayers are in disrepair; this is apparent based on the leaks on the exterior of the unit. In addition to the surface rust and corrosion, the hand rails and walkways are also severely corroded.

13.3 North Accelator

The north accelator has a rated capacity of 7.5 MGD and is out of service due to a reported oil leak in the main drive unit. Chlorine and ammonia are injected in the riser pipe of the accelator. Flow to the unit is also measured in the riser pipe but the flow meter is out of service. This flow meter is critical in setting and adjusting the flow rates to other basin(s) and adding the correct amount of chemicals to properly treat the water. Polymer is added in the primary mixing zone of the accelator as a coagulant. Chlorine is added again in the effluent launders of the accelator. The "save-all" water is also added to the accelator which is metered; however, the flow meter is not operational. The intermittent unmetered side stream flow results in varying chemical dosages as previously discussed. The condition of the sludge blow down valves are unknown but appear to be functional. The condition of the main drain valve is unknown. Additionally, numerous leaks were observed around the perimeter ring of the treatment unit. These leaks should be repaired or sealed while the unit is out of service for repair. The operation of the sludge blow down valves should be verified and the spray ring (mud jets) should also be repaired and/or replaced as necessary.

Table 13-1
Lime Softening
Critical Equipment List

Item	Recommendation	Consent Order Rating	Estimated Cost
South Accelator (3.5 MGD) (unit #1)	Repair or replace effluent pipe going to Filters. Complete rehabilitation including sandblast, coating, structural evaluation, spray ring, walkways, handrails, flow meters, etc.	1	$ 235,000 - $ 335,000
Center Accelator (6.5 MGD) (unit #2)	Complete rehabilitation including sandblast, coating, structural evaluation, spray ring, walkways, handrails, flow meters, etc.	1	$ 175,000 - $ 225,00
North Accelator (7.5 MGD) (unit #3)	Replace main drive unit. Drain and clean. Complete rehabilitation including sandblast, coating, structural evaluation, spray ring, walkways, handrails, flow meters, etc.	0	$ 300,000 - $ 400,000

Other Observations and Comments:

- Unit 1 treatment capacity limited to approximately 1.7 MGD
- Structural evaluation of the accelators, handrails and walk ways should be performed.
- Significant corrosion to the steel structures on all three units
- The spray ring or mud jets should be evaluated and rehabilitated if necessary
- The sludge blow down valves should be evaluated and rehabilitated if necessary
- The drive shaft on Unit 2 is exposed causing an unsafe condition
- The "save-all" side stream flow should be monitored and adjustments made to chemicals or raw water flow to compensate to additional flow.
- Unit 3 main drive is out of service. Unit 3 used as a flow-through tank with no treatment in order to meet system demand
- Calibrate, repair or replace all meters

14.0 Filters

The City's water treatment plant utilizes two filter banks consisting of 8 filters each to provide filtration as the final treatment process. The South filter bank, filters 1 – 8, was constructed in 1958 as part of the original plant construction. These filters are primarily used for filtering the water from the south softening unit, Unit 1. The north filter structure contains filters 9 - 16 and receives water from the center and north softening units. The north filters were constructed approximately 5 feet higher than the south filters. This elevational difference prevents proper distribution of filter inlet water to each filter bank, therefore filter banks 1-8 are isolated to accept water from the south accelator. US Water observed several filters with impacted media which is likely due to calcium carbonate scaling.

The filters are typical down flow sand/anthracite filters commonly found in lime softening plants in South Florida. Backwashing is achieved in the south filters by an up-flow backwashing system with air scour. The north filters also utilize an upflow backwash system but employ a surface wash system in lieu of air scour.

The filtration system was inspected on August 17, 2016. Overall the filter equipment is in good condition. It should be noted that filter five was out of service due to an apparent damaged underdrain system. There are some minor deficiencies with the piping and filter media that are outlined below. Based on our observations it appears the City should consider dosing a filter sequestrant to prevent scaling in the filter cells.

USWSC measured the filter bed depths in each filter. This was done by measuring from the top of the media to the wash trough launders and comparing to the as-built drawings.

Table 14-1
Filter Bed Measurements

Filter	Distance from Top of Media to Wash Trough
1	55.0"
2	44.5"
3	59.0"
4	48.75"
5	Out of Service
6	42.0"
7	48.0"
8	Not measured
9	52.0"
10	70.0"
11	60.0"
12	60.0"
13	59.0"
14	51.0"
15	51.0"
16	51.0"

The measurements above indicate there are various amounts of filter media in each filter. USWSC believes that some of the filters have experienced substantial filter bed loss through the backwashing system. It is also likely some filter media expansion has taken place due to calcium carbonate buildup on the media. Further investigation including media testing and core sampling should be conducted to determine an appropriate media schedule. Original plans from 1980 indicate filter media should be 51 inches from the top of the wash trough launders to the top of the media.

South Filter – Clearwell Hatch Corrosion

Filter #5 – Missing Valve Actuator

Filter #5 - Controls

Evidence of Past Leakage

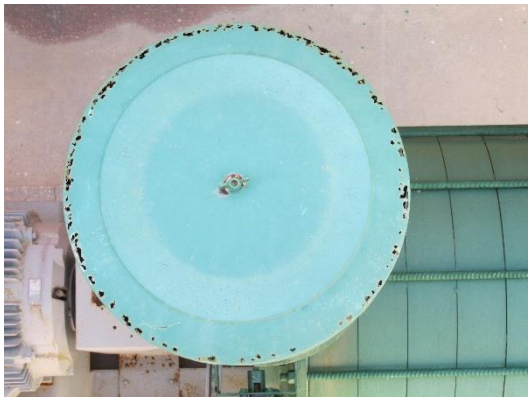
Leakage – Minor Corrosion on Pipe Support

Filter #3 – Past Leakage at Wall Penetration

Filter #4 – Leakage at Wall Penetration

Filter #1 – Missing Acuator on Inlet Valve

Filter #5 – Out of Service



South Filters – Corrosion on Blower intake

North Filters – Exposed Wiring

North Filters – Clearwell Access

North Filters – Leak/Corrosion at Electrical Panel

Filter #12 – Leakage from Valve Actuator

Table 14-2
Filters
Critical Equipment List

Item	Recommendation	Consent Order Rating	Estimated Cost
Filter Number 1	Replace missing actuator on inlet valve	**1**	$ 8,000
Filter Number 2	No repairs needed	**2**	
Filter Number 3	No repairs needed	**2**	
Filter Number 4	No repairs needed	**2**	
Filter Number 5	Repair underdrain, replace valve actuators and media to restore to service	**0**	$ 50,000 - $ 75,000
Filter Number 6	No repairs needed	**2**	
Filter Number 7	No repairs needed	**2**	
Filter Number 8	No repairs needed	**2**	
Filter Number 9	No repairs needed	**2**	
Filter Number 10	No repairs needed	**2**	
Filter Number 11	No repairs needed	**2**	
Filter Number 12	No repairs needed	**2**	
Filter Number 13	No repairs needed	**2**	
Filter Number 14	No repairs needed	**2**	
Filter Number 15	No repairs needed	**2**	
Filter Number 16	No repairs needed	**2**	

Other Observations and Comments:

- Minor leakage at pipe penetrations
- Filter Media level varies throughout filters. Hazen & Sawyer Master Plan some of the filters are contaminated with calcium carbonate
- Filter 1-8 clearwell hatch has moderate corrosion and is not properly sealed
- Air scour blower was observed to have moderate corrosion
- Filters 9-16 pipe gallery has moderate corrosion due to chlorine injection
- Filters 9-16 pipe gallery south wall; observed exposed electrical conductors and junction box not properly sealed
- Filter gallery 9-16 accumulated debris and trash were observed
- Filter turbimeters, flow meters and loss of head indicators all providing questionable results.

- Filter turbimeters, flow meters and loss of head indicators all providing questionable results.
- Several SCADA filter control panels were inoperable
- Media replacement schedule should be developed

15.0 Clearwell, Transfer Pumps and GST (1MGD)

The outlet water from filters 1-8 flows via gravity into the south clearwell and then north to the finished water clearwell at Filters 9 - 16. Chlorine is added into the north clearwell only. The north filter clearwell also serves as the clearwell for the high service pumps, filter backwash pumps and transfer pumps. There are two (2) transfer pumps that transfer the water to the (GST) ground storage tank which also serve as filter backwash pumps. The transfer pump controls are operated manually by the operations staff and are not automated. Transfer pump number one (1) has a compromised floor seal and both transfer pumps have significant corrosion.

The chlorine injection into the clearwell is injected above the water surface and does not provide adequate mixing. The chlorine injection point should be located at a point in the process flow to achieve the greatest amount of mixing possible with the filter outlet water and the water brought into the clear well from the ground storage tank located on the south side of Blue Heron Blvd. Based on USWSC review of plant as-builts and the clearwell tank inspection reports it appears that the outlet line from the GST blends in the clearwell water downstream of the chlorine application point, which does not provide re-chlorination of the water from the GST. Further investigation of the clearwells and supporting piping is needed to ensure proper mixing of the chlorine. USWSC recommends a physical inspection of the clearwells to verify locations of pipe penetration. This could be accomplished using remote controlled underwater televising equipment.

It was observed that when the operators use the ground storage tank water located on the south side of Blue Heron Blvd the chlorine residual at the POE immediately declines. This indicates the water quality is degrading in the GST and there is likely localized nitrification occurring in the ground storage tank. This was verified via grab samples obtained from the GST for both chlorine and ammonia. No chlorine or ammonia residual was present in the GST. With the current chlorine application points there is not a way to re-chlorinate the water stored in the GST prior to the POE. We recommend modifying the clearwell chlorine application point to mix with the GST outlet water and the addition of an ammonia application in the clearwell.

Table 15-1
Clearwell, Transfer Pumps and GST
Critical Equipment List

Item	Recommendation	Consent Order Rating	Estimated Cost
Transfer Pump #1	Investigate pump condition, repair as necessary. Replace seal, pressure gauges other appurtenances. Install appropriate backflow device	**1**	$ 7,000
Transfer Pump #2	Investigate pump condition, repair as necessary. Replace seal, pressure gauges other appurtenances. Install Appropriate backflow device.	**1**	$ 7,000
Ground Storage Tank	Replace vent screens with tighter mesh	**2**	$ 500

Other Observations and Comments:

- Further investigation of the clearwell and piping configuration is needed
- Sample tap needed on the outlet of GST
- Need improved mixing for Cl2
- Install new ammonia feed injection in clearwell

16.0 High Service Pumps

There are seven (7) high service pumps in addition to the two (2) transfer pumps. All pumps are located above the finished water clearwell. The high service pumps consist of both VFD's (variable frequency drives) and constant speed pumps. It should be noted that some high service motors have low oil levels and some oil is dark in color indicating the need for preventative maintenance. USWSC also recommends that all pumps be analyzed via thermography and vibration analysis.

All motors and pumps should be sandblasted and coated. All floor seals should be repaired and maintained as necessary to prevent contamination of the finished water clearwell. All seal drain water should be plumbed outside the building to keep the floor dry and clean.

Table 16-1
High Service Pumps & Ground Storage Tank
Critical Equipment List

Item	Recommendation	Consent Order Rating	Estimated Cost
High Service Pump # 1	Excessive vibration. Investigate pump condition, repair as necessary. Replace seal, pressure gauges other appurtenances	**1**	$10,000 - $15,000
High Service Pump # 2	Excessive vibration. Investigate pump condition, repair as necessary. Replace seal, pressure gauges other appurtenances	**1**	$10,000 - $15,000
High Service Pump # 3	investigate pump condition, repair as necessary. Replace seal, pressure gauges other appurtenances	**2**	$ 4,000
High Service Pump # 4	investigate pump condition, repair as necessary. Replace seal, pressure gauges other appurtenances	**2**	$ 4,000
High Service Pump # 5	Failed check valve. Black oil in motor. Investigate pump condition, repair as necessary. Replace seal, pressure gauges other appurtenances	**0**	$ 15,000
High Service Pump # 6	investigate pump condition, repair as necessary. Replace seal, pressure gauges other appurtenances	**2**	$ 4,000
High Service Pump # 7	Broken seal. Investigate pump condition, repair as necessary. Replace seal, pressure gauges other appurtenances	**1**	$ 10,000
Plant Auxiliary Power	Perform routine preventive maintenance	**2**	$ 2,500

Other Observations and
Comments:

- Corrosion observed throughout high service pump building
- Floor seals should be inspected and replaced as necessary
- Algae growth on floor
- Minor leaks were observed from the ground storage tank
- There is no means of on-line measurement of monochloramine residuals or free ammonia concentration in the finished water outlet

17.0 Sludge

The sludge thickener and vacuum filter both were out of service during the assessment and appear to have been abandoned some time ago.

The "Save-All" basins were in operation. The save-all basins receive water from the sludge blow pits and the filter backwash waste lines and are located immediately north of the treatment facility. The save-all basins use gravity to separate the sludge from the clear water. The clear water is pumped back and blended into the treatment flow at either the center or the north accelator. The save-all basins consist of two (2) sloped basins and two (2) duplex pump stations. An unprotected cross connection was observed with a fire hydrant to one of the East save-all pumps. An unprotected fire hose is connected directly to the pumps and fire hydrant creating a cross connection between the sludge recovery pumps and the potable water distribution system.

The "save-all" basin return water operates independent of the operators via level controls. The uncontrolled additional side stream flow is detrimental to treatment as the chemicals are not properly adjusted to compensate for the additional flow. The side stream flow operates intermittently making process control very difficult for the operations staff. USWSC recommends replacing or repairing the save-all flow meter. The meter should also be tied into the SCADA system to assist the operations staff set the chemical dosages or complete raw water flow to maintain constant flow rates.

18.0 Remote Booster Stations

There is generally insufficient turnover of the ground storage tanks both at the water treatment plant and the remote pump stations. Water age is detrimental to maintaining proper chlorine residuals in the distribution system. It is imperative that the ground storage tanks be turned over regularly to reduce water age in the system.

Recent tank inspections noted damaged or missing screens on the ground storage tanks. Staff reports note that while the screens were ordered and received they have not been installed yet. The hydropnuematic tanks were not inspected at the same time as the GST's and are in need of inspection as required by the DOH and FDEP rules.

18.1 North Singer Island Booster Station

The North Singer Island booster station consists of a one-million-gallon ground storage tank, hydro-pneumatic tank and two variable frequency drive high service motors. The station does not have the capability to feed chlorine or ammonia at this time. The station is in generally very good condition having been rehabilitated in 2009. One high service pump was inoperable at the time of USWSC inspection

Exterior of the North Singer Island Booster Station

Interior of North Singer Island Booster Station

Fill valve at the North Singer Island Booster Station

Interior of North Singer Island Booster Station

Table 18-1
North Singer Island Booster Station
Critical Equipment List

Item	Recommendation	Consent Order Rating	Estimated Cost
High Service Pump Number 1	No repairs needed	**3**	
High Service Pump Number 2	Repair pump and motor	**0**	**$ 25,000**
1 million gallon ground storage tank	Replace vent screens with tighter mesh	**2**	**$ 500**
Auxiliary power		**3**	
Hydro-pneumatic tank	Tank inspection reports have been requested	**2**	

Other Observations and Comments:

- No means to increase chlorine residual at the booster station
- High service pump #2 out of service

18.2 Avenue C Booster Station

The Avenue "C" Booster Station is located near the port of West Palm Beach and consists of a one-million-gallon ground storage tank, hydro-pneumatic tank, a duplex pump system, and chlorine and ammonia feed system.

Ammonia storage and feed pump

Chlorine storage (no scales)

High Service pump out of service and seal leak

Backup diesel drive unit out of service

Table 18-2
Avenue C Booster Station
Critical Equipment List

Item	Recommendation	Consent Order Rating	Estimated Cost
High Service Pump Number 1	Rehabilitate pump assembly	1	$ 5,000 - $ 15,000
High Service Pump Number 2	Rehabilitate pump assembly	**0**	$ 5,000 - $ 15,000
1 million gallon ground storage tank	Replace screens with tighter mesh	**1**	$ 500
Chlorine Cylinder Unit Number 1	No repairs needed	**2**	
Chlorine Cylinder Unit Number 2	Replace removed chlorine cylinder unit	**0**	$ 5,000
Chlorine Scales	Replace removed chlorine scales	**0**	$ 4,000
Chlorine Automatic Switchover	Install new Cl2 switchover	**0**	$ 2,500
Hydro-pneumatic tank	Tank inspection reports have been requested	**2**	
Auxiliary Pumping system	Install auxiliary generator	**0**	$ 75,000 - $ 150,000
Chlorine Leak Detector	Replace leak detector	**1**	$ 4,500

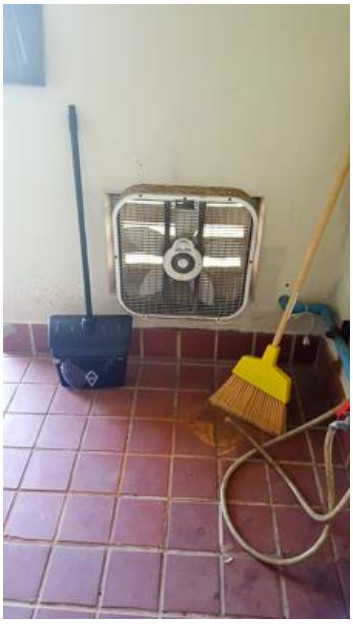
Other Observations and Comments:

- Chlorine and ammonia are injected at an improper locations
- Violent water hammer when high service pumps are turned off
- Loss of vacuum alarm was not observed
- The Hach CL17 was not providing stable results
- Investigate feasibility of repairing gas chlorine system and converting to liquid Cl2
- Switch to ammonium sulfate. Safer than ammonia gas

18.3 Avenue U Booster Station

The Avenue U Booster Station consists of a one-million-gallon ground storage tank, hydro-pneumatic tank, a duplex pump system, and a chlorine and ammonia feed system.

Chlorine Storage (no scales)



Improper exhaust fan

Heavy corrosion and seal leak

Heavy corrosion and seal leak

Table 18-3
Avenue U Booster Station
Critical Equipment List

Item	Recommendation	Consent Order Rating	Estimated Cost
High Service Pump Number 1	Rehabilitate pump assembly	**1**	$5,000 - $15,000
High Service Pump Number 2	Rehabilitate pump assembly	**0**	$5,000 - $15,000
1 million gallon ground storage tank	Replace screens with tighter mesh	**0**	$ 500
Chlorine Cylinder Unit Number 1		**2**	
Chlorine Cylinder Unit Number 2	Replace removed chlorine cylinder unit	**0**	$ 5,000
Chlorine Scales	Replace removed chlorine scales	**0**	$ 4,000
Chlorine Automatic Switchover	Install automatic switchover	**0**	$ 2,500
Chlorine Leak Detector	Replace leak detector	**0**	$ 4,500
Auxiliary power	Automatic transfer switch out of service. Replace	**0**	$5,000 - $25,000
Hydro-pneumatic tank	Tank inspection reports have been requested	**2**	

Other Observations and Comments:

- Chlorine and ammonia are injected at an improper locations
- Loss of vacuum alarm was not observed
- The Hach CL17 was not providing stable results
- Investigate feasibility of repairing gas chlorine system
- Switch to ammonium sulfate. Safer than ammonia gas

19.0 Distribution Sampling

Evaluation of the distribution sampling stations was conducted on August 24th and 25th. City staff conducts distribution compliance sampling two (2) weeks each month which consists of collecting forty (40) bacteriological samples per month. The sample taps, which are at varying levels of maintenance, are located at private residences, local government facilities and businesses. Furthermore, access to the sample taps required careful attention to terrain and vegetation growth which also presented potential cross-contamination issues. Specific water plant operators are assigned each month to conduct the sampling activities.

Some deficiencies were discovered in the conduct of the evaluation. The most significant of those challenges is the lack of stand-alone compliance sampling stations. None of the current sampling taps meet FDEP standards. Lack of maintenance, by owner or City staff, was notable at most sample locations. Fourteen (14) of the sample stations exhibited potential cross-contamination concerns while less than 10% provided adequate security from tampering. The installation of stand-alone sample stations can increase the integrity of the collection process.

The City staff could not provide a written SOP for distribution sampling. Collection of four (4) of the sample stations is actually being conducted at different addresses compared to those listed on the chain of custody. Additionally, the operator assisting in the evaluation indicated torching the sample tap prior to collection which is contrary to FDEP rule. Shortages of analytical reagents, supplies, and equipment were also noted by the staff.

The City must also develop a distribution system management plan which would include protocols for sample collection, system maintenance as well as a robust flushing program. This flushing plan should provide a map showing location of all sampling and flushing points with descriptions and addresses, as well as, flushing criteria triggers and response action levels with timeframes based on disinfectant residual levels. Finally, consideration should be given toward the creation of a compliance office which specifically manages all aspects of drinking water sample management, analytical activities and regulatory reporting. In addition, it is highly recommended that the City hire a Level-1 Distribution Lead Operator (DLO) who is dual-licensed as a water treatment plant operator. The DLO and compliance coordinator can play an integral role in the development of the distribution system management plan which must be certified by a professional engineer. This plan would include tasks such as determining a baseline HPC for the distribution system, flushing procedures, analytical activities, bacteriological sample plan, etc. A review of the historic performance of the distribution system will be performed to determine whether actions are required to rectify any deficiencies to include booster stations and related telemetry. For a system of this size, one compliance coordinator and a dedicated Distribution Lead Operator would provide a holistic approach toward improving the regulatory and operational effectiveness of the distribution system.

Recommendations:

- Development of Distribution System Management Plan
- Installation of dedicated FDEP-approved sample stations
- Increased staffing - Compliance Coordinator and Distribution Lead Operator (Level 1)

20.0 Staffing

20.1 Operational

Based on initial observations the number of operators appears sufficient for the daily workload requirements. However, we are recommending reorganization which will be discussed further in Section 20.4. Staff knowledge of the treatment process, operability of equipment and systems, as well as standard procedures varied greatly. This knowledge variance can be moderated with greater engagement of the staff by the Lead Operator. Although clearly demonstrating the ability to delegate, the Lead Operator and entire staff could benefit from additional training and routinely performing the various tasks associated with daily operations. As such with the differing levels of competency, the work practices of individual operators also expanded the range of extremes. SOP's and O&M manuals were not readily available during the evaluation. Another area of improvement relates to a more comprehensive safety program. Instances of potential safety hazards were noted to include casual nature of dealing with gaseous ammonia leak; corroding walkways and stairways, various tripping hazards and general housekeeping.

Utility management is responsible for development and implementation guidelines for operations, maintenance, management and communication among the staff. Staff should conduct a re-assessment of all work functions within the department to determine whether staffing levels are adequate for 24/7 operation. With regard to scheduling of shifts, it is recommended that two (2) operators are on evening shifts to accommodate workload and mitigate security concerns. A training program is essential to ensure staff meets quality performance relative to the treatment process, equipment functionality and overall plant reliability. The current management team, the Superintendent and Lead Operator specifically, should be afforded the opportunity to attend leadership and management training as soon as possible. Additionally, a mentorship program, established by the new Utility Director, Assistant Director or outside consultant, would be valuable to expedite development of the current management team. Before any training can begin, however; all SOPs and O&M manuals must be either developed or updated. The operations staff should also conduct a site hazard assessment. Upon completion of the assessment, management can implement corrective safety actions for any potential/actual concerns and establish daily safety tailgate meetings and formal monthly safety training.

Recommendations:

- Implement specific training relative to chloramines disinfection
- Specific training relative to chemical dosage calculations
- Conduct a comprehensive safety audit
- Develop log sheet for specific sample locations and expected ranges for water quality parameters
- Establish sound practical communication among staff and between shifts, recommend implementing a mandatory shift change meeting at each shift change

- Establish/update written standard operating procedures and training for the operation of all unit processes and equipment according to their manuals, as well as state and federal standards
- Schedule and track training for personnel
- Establish operator checklists for work tasks, duties and process control
- Establish a safe workplace through security measures, training, facility inspection and safety equipment
- Develop emergency response and risk management plans related to:
    - Chemical leaks/spills
    - Personnel emergencies
    - Explosion/fire
    - Major equipment failures such as pipe, valve and pump failure
    - Process failure
    - Power failure
    - Loss of access to the facility site
    - Extreme weather conditions including high wind and flooding
    - Sabotage and breaches of security
- Develop electronic monthly reporting for communication to the City and regulatory agencies

20.2 Maintenance

Current staffing level is significantly inadequate for the maintenance division's work requirements. Essentially two (2) mechanics and one (1) electrician are responsible for all maintenance functions at the treatment facility as well as the distribution pumping systems. The shortage of personnel has a direct correlation to the widespread disrepair witnessed on site and in the field. Staff is reacting to problems as opposed to managing their maintenance obligations. This cycle of inadequate or lack of maintenance is a primary reason for the poor performance of the utility system. Additionally, as noted earlier among the operations group, staff knowledge of the maintenance procedures, equipment functionality and ancillary monitoring systems (SCADA and controls) vary widely among the three (3) technicians for this section. Another negative constant is the unavailability of SOPs and O&M manuals. Serious safety concerns exist within the facility compound and the distribution system.

The need for additional staffing is evident for the maintenance crew. As discussed previously, a re-assessment of all work functions within the department is required to determine whether current staffing levels are adequate for 24/7 on-call maintenance response. With only three (3) employees dedicated to the water utility system maintenance, needed repairs are often delayed or not accomplished at all. Additional staffing as well as restructuring of the maintenance department would improve the timely repair of the drinking water system assets. Recommended changes include creation of a Maintenance Manager and CMMS Administrator while also providing dedicated staff in the form of two (2) Maintenance Technicians, an Instrumentation Control Technician and Electrician.

A robust CMMS program is necessary to develop realistic maintenance schedules and to track the status of work detail through completion. An asset management plan will allow the utility to monitor the operability and functionality of major equipment in order to successfully forecast capital needs in the future. Training programs for CMMS and asset management systems, along with other maintenance-related activities, are necessary to improve staff skills as well as enhancing management skills of supervisors. A hazard assessment should be performed to identify the potential on-site and field safety issues. Daily safety tailgate meetings and formal monthly safety training will help to communicate concerns and address immediate safety issues.

Recommendations:

- Devise plan to accelerate deferred maintenance
    - Specialized contractors – Electrical, Mechanical, Design/Build
    - City water department staff
    - City departmental support
- Implement CMMS (preventative maintenance schedule) and asset management protocols
- Establish schedules for instrumentation and equipment calibration
- Department reorganization
- Increase staffing – Maintenance Manager and CMMS Administrator
- Ensure equipment and system control (SCADA) functionality
- Prepare and maintain inventories of expendable supplies and spare parts
- Specialized training such as vibration and thermography analysis
- Safety training to include lockout-tagout, confined space, hazard communications (HAZCOM), electrical safety, fall protection and PPE
- Ongoing external maintenance support including annual service agreements with factory-trained personnel for preventative and corrective maintenance
    - Lime slakers
    - Gaseous chlorine feed equipment
    - Gaseous ammoniators
    - PLC
    - Armature services
- Provide input and update emergency response plans
- Develop job site-specific Standard Operating Procedures (SOPs)
- Color-code all process chemical piping for identification purposes in accordance with AWWA standards

20.3 Laboratory

The current environment within the laboratory does not meet the professional expectations for such a critical aspect of regulatory compliance. Information from laboratory results have significant impact on the decision-making on many levels to include City Council, state and federal regulatory agencies, operations and maintenance, capital spending, and most importantly, the health and safety of the community. SOP's were not available which was clearly demonstrated by the inconsistent work practices among the staff. Typical laboratory equipment required for process and compliance analyses was either nonexistent or not adequately serviceable for accurate results. Internal communication breakdowns appear to be a significant factor in the delayed procurement for timely replenishment of tools and/or supplies. Most glaring was the lack of quality assurance/quality control measures (QA/QC) as verification that the analytical procedures employed produced the necessary results to meet all state and federal regulatory requirements. Furthermore, appropriate policies and procedures for sampling were not available during the evaluation. Operator knowledge and skills in this area varied widely and raised concern of potential unintended compliance violations due to improper sample collection or handling. Again, access and availability of proper equipment, tools and supplies were an issue expressed by staff during field sampling events.

A complete review of all laboratory procedures from sampling to analysis and all associated documentation should be conducted. Developing a framework to maintain high quality service within the laboratory is critical to the overall success of the utility. Laboratory deficiencies of particular interest include appropriate process protocol, laboratory readiness, and inventory management. Laboratory standard operating procedures (SOP), QA/QC program and compliance sampling plans are needed immediately to begin the recovery of this section to regulatory acceptance. Plans must be developed to conduct periodic training followed by practical examination to measure each employee's level of understanding. Implementation of a scheduling program could be helpful in maintaining adequate supplies to complete daily work activities. Establishing a Compliance Coordinator position would go a long way toward providing structure to the laboratory and maintaining regulatory adherence. This individual can assist in training operations and distribution personnel on compliance rules and procedures. In an effort to ensure the integrity of this position, given its responsibility as an internal oversight mechanism, it is recommended that this office reports to the Assistant Executive Director.

Recommendations:

- Chief Operator should be designated for primary responsibility for all lab activities
- QA/QC Plan and SOPs
- Additional laboratory oversight provided newly-created Compliance Coordinator position

20.4 Administrative

Mr. Troy Perry is currently acting in the role of Interim Utility Director with assistance from an outside utility consultant, Mr. Bevin Beaudet, P.E. The recent vacancies in the Utility Director and Assistant Director positions have necessitated this temporary action by the City. The City should make every effort to fill these leadership openings as soon as possible with verifiably competent replacements. It is recommended that the City convenes a selection committee of internal and external industry professionals to hire the most qualified candidate for each position who can meet the enormous challenges facing the City. The successful candidates must embrace the roles as agents of cultural change. In addition to filling these executive positions, the City should give serious consideration in the hiring or contracting a Water System Program Manager. This senior staff position will be primarily responsible for overseeing capital improvement plans, timely execution of recommendations contained within this report as well as those provisions within the consent order. The Program Manager must be able to develop a master schedule for major projects and have the essential communication skills to articulate the City objectives to many and varied audiences. Taking into consideration the previously mentioned positions of Compliance Coordinator and Distribution Lead Operator, the addition of the Program Manager would increase the water department staffing by three (3) full-time employees (FTEs). Please reference the current and proposed organizational charts at the end of Section 20.

During the course of the evaluation it appeared that some position titles and associated roles and responsibilities were not as clear cut to USWSC, as well as to some City staff. Given the current vacancies in the Director and Assistant Director positions, now may be an appropriate opportunity to reorganize and redefine utility titles and roles in accordance with actual operational needs. As such, the USWSC has proposed restructuring of the Water Division, and correspondingly, has provided a potential organizational chart. In addition to the two proposed new hires, Compliance Coordinator and Distribution Lead Operator, a CMMS administrator position will also be created. Overall, the reorganization will require increasing the staff by two (2) FTEs. The primary function of the CMMS administrator will be to input the utility assets data into a computer program so as to develop a maintenance schedule and assist with inventory and asset management. Title changes to other positions are suggested below although the responsibilities are essentially the same: Lead Operator to Chief Operator; Senior Mechanic to Maintenance Manager; and dividing the Electrical Instrumentation Technician position to separate roles as Instrumentation Control Technician and Electrician.

- Culture Change - clearly define goals & objectives of the utility system
- Fill vacancies – Executive and Assistant Utility Directors
- Hire or contract Water System Program Manager
- Develop job descriptions in accordance with proposed staffing plan
- Development and maintain progressive schedule to address report recommendations

- Schedule standard meetings with:
    - City Manager and/or City Council
    - Senior utility staff
    - Operations staff
    - Other City departments (Purchasing, Public Works, etc.)
    - Contractors/Vendors
- Ensure organizational functionality and standards of quality performance
- Implement and develop staff training and leadership programs
- Salary and compensation survey
- Incentive program for the rank and file employees with defined goals and objectives with specific criteria for employee renumeration
- Review emergency response plans
- Initiate public relations and community support efforts
- City should fill all vacancies as soon as possible

Based on discussions with the City staff several complained of historical delays related to requests for maintenance or operational purchases. Additionally, there appeared to be internal communication breakdowns among the water department staff during this process. However, recent changes in the Purchasing Department have been beneficial in improving the process although further assessment of procurement protocol may be necessary. The delayed procurement process appears to be a significant contributor to the current maintenance deficiencies that the utility is experiencing. Additionally, the City should consider maintaining standard contracts for emergency, maintenance or limited construction activities with various contractors or vendors, therefore, reducing response & work-completion times. The Executive Director could be instrumental in establishing a more robust and efficient procurement process to ensure the utility is adequately positioned to meet its daily and emergency operational responsibilities. Establishing reasonable procurement procedures and policies, to include development of accounting and financial reporting protocols, will only enhance the utility's maintenance process and ensure operational effectiveness.

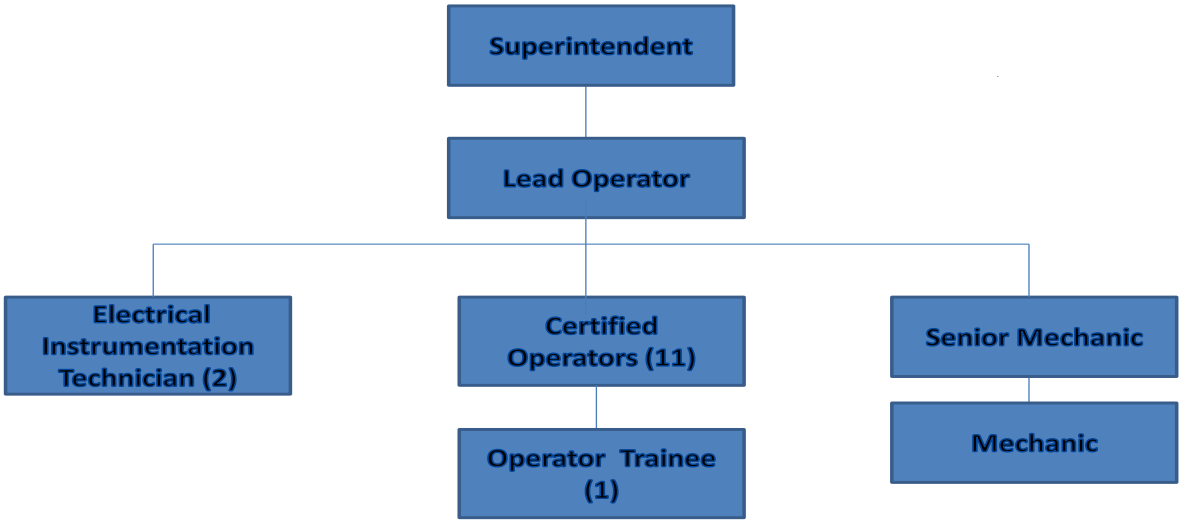
Recommendations:

- Consider Program Manager for capital projects completion
- Establish a productive relationship with the regulators
- Establish and review the procurement process and vendor contracts
- Review current maintenance and asset management programs

Riviera Beach Utility District Organizational Chart – Water Department

Total FTEs - 18

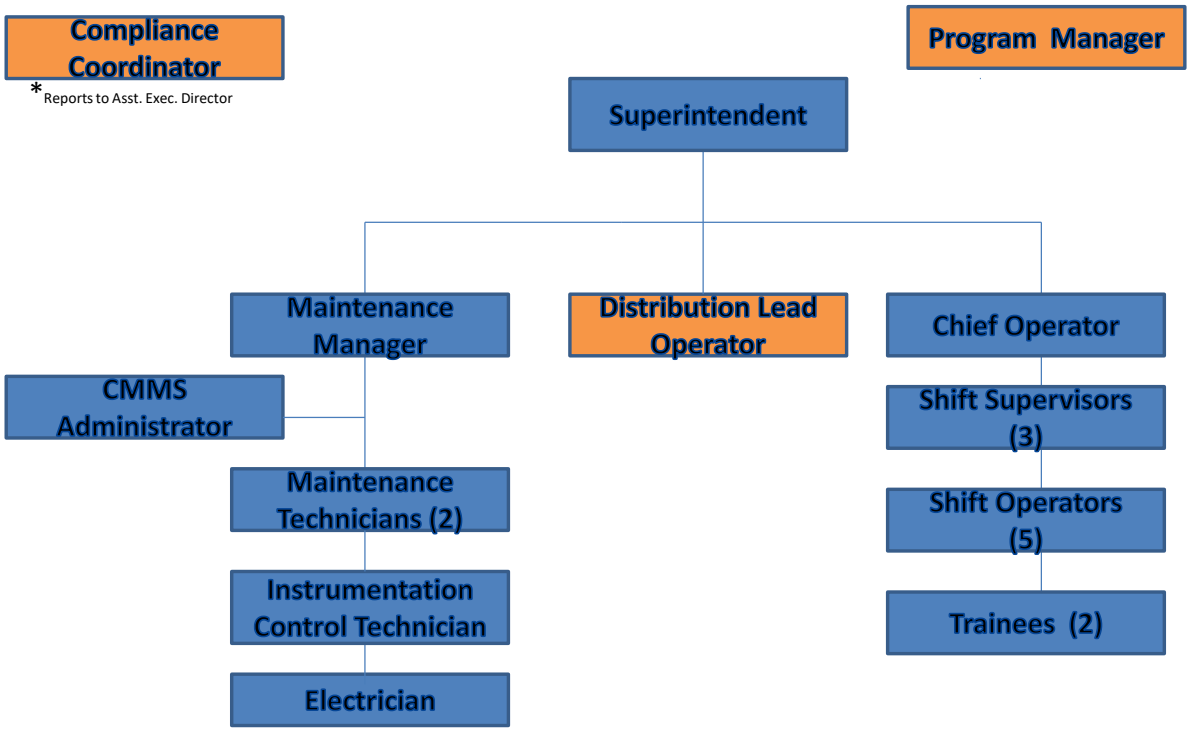
Current



Riviera Beach Utility District Organizational Chart – Water Department

Total FTEs - 21

Proposed



21.0 Financial

The City is financially well-positioned to achieve the system upgrades necessary to meet acceptable regulatory and industry performance standards. With $40 million set aside for capital projects and $12 million for the repair and replacement budget, the Utility is afforded the funding to meet the operational, personnel, and infrastructure demands within the water treatment facility and distribution system. Given the many significant system deficiencies identified during the evaluation, the City could find itself one malfunction away from reaching a critical event resulting in the purchase of water from the City of West Palm Beach and Seacoast Utility to meet demand. Moreover, depending on the specific cause of such an event, rapid service restoration cannot be guaranteed. Given the realistic probability of a significant operational malfunction, it is our recommendation that the City expedite the financial resources necessary to immediately begin rectifying the aforementioned system deficiencies.

Appendix A

Level 2 Assessment

Questions	Reviewed and Checked? (" ✔ " if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)
1. Have any of the following occurred at relevant facilities prior to the collection of TC samples?				
a) Were there any operation or maintenance activities that could have introduced total coliforms?	☑	Y	Unknown water quality at Well #17 - not sampled for total coliform as other wells.	
		Y	Open tankage and lack of 4 log disinfection process	
		Y	High service pump seal leakage was observed into the clearwell	
		Y	The elevation difference between the clearwell (below) and ground storage tank lacks SCADA control (due to a malfunction) therefore requiring manual operation. Inconsistent operator monitoring has caused recent overflows from the GST which could potentially introduce contaminants into the clearwell.	
		Y	Improperly sealed clearwell hatch on filter bank 1-8	
		Y	Onsite GST water demonstrates nitrification condition with subsequent introduction of stored water into the clearwell and filter backwash for demand purposes. When introduction occurs Cl2 residual in the finished water is rapidly depleted. This condition was verified via SCADA trend charts.	
		Y	Chlorine feed system lacks automatic switchover function - high probability of chlorine feed interruptions	
		Y	Cross connection exists at the "Save-All Basin"	
		Y	All ground storage tank overflow vents inadequately secured and screened	
		Y	Damaged well casings at ground level on wells (See well report)	
		Y	The backwash pumps are not protected via a backflow preventer device. A backflow device should protect the clearwell via the backwash line.	
b) Have there been any interruptions in the treatment process?	☑	Y	Inability to provide lime feed to treatment unit #3 due to mixer malfunction.	
		Y	3 of 4 aerators inoperable during the last year; all units are operable as of August 2016	
		Y	Improper control of chlorine and ammonia dosages; found localized breakpoint chlorination, reduction in total chlorine residual and over feeds of ammonia during our observations (see report)	
		Y	Intermittent lime feed to units 1 and 2 due to equipment breakdown, inconsistent lime deliveries and mechanical failures at the units	
		Y	Disinfectant feed at Remote Booster Stations Avenue U & C; Observed unreliable chemical feed equipment or lacking chemical feed equipment altogether. No SCADA or consistent operator monitoring to notify of chlorine feed loss and nonexistence of scales could likely lead to chlorine being depleted.	

Questions	Reviewed and Checked? (" ✔ " if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)
c) Has the system lost pressure to a point below 20 psi?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected the	
d) Has there been any vandalism and/or unauthorized access to facilities?	☑	Y	The water treatment facility security is inadequate and operations staff have reported unauthorized visitors. Additionally the facility is a shared public works compound. Several production well sites with damaged fencing (see well report)	
e) Are there any visible indications of unsanitary conditions observed?	☑	Y	See 1.A	
f) Have there been any analytical results or any additional samples collected, including source samples not for compliance, which were positive?	☑	N	The Utility District indicates no additional samples were collected for analysis within the last 12 months.	
g) Have there been any suspected community illness suspected of being waterborne (e.g. Does the public health officials indicate that an outbreak has occurred.)	☑	N		
h) Did the water system receive any other TCR monitoring violations in the past 12 months? If yes, indicate when.	☑	Y	Within the last 12 months the Utility District experienced "Positive" results for TCR compliance and repeat samples on the following dates: (2015) - August 20; October 7 & 30; November 2 & 29; (2016) - January 31; February 7, 25 & 26; March 31; April 1; August 31; September 1	
i) When was the last satisfactory total coliform sample collected?	☑	N	Fifteen (15) bacteriological samples were collected on September 1st with 15 unsatisfactory results.	
j) Has there been a fire fighting event, flushing operation, broken/damaged hydrant, etc.?	☑	Y	Increased flushing duration and frequency as a result of low disinfectant residuals found primarily in the western distribution system	
k) Any other potential causes that can be found on records or maintenance practices?	☑	Y	Contributing factor may be nitrification on the western portions of the distribution system as well as nitrification at the ground storage tank locations; i.e. North Singer Island, WTP and potentially pump station at	

Questions	Reviewed and Checked? (" ✔ " if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)
2. Have there been any recent treatment or operational changes?				
a) Have any inactive sources been introduced or re-introduced into the system (e.g., auxiliary systems)?	☑	Y	Introduction of water from well #17	
b) Have there been any new sources introduced into the system?	☑	Y	Refer to Item 2.a	
c) Is there evidence of any potential sources of contamination (main breaks, low pressure, high turbidity, loss of disinfection, etc.)?	☑	Y	Refer to Item 1.c	

	Questions	Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.1 Evaluate sample site #1						
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering. Sample station painted.		
c)	What is the location of the tap? (provide description)	☑	NA	600 W 28th St - Inlet Grove High School		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine lawn maintenance and janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	No cross connection present at time of evaluation		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Backflow device was operational and maintained by school board staff. Inspection report submitted to Utility District annually.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap located at school and accessible by students which could increase potential for contamination		

Questions		Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.2 Evaluate sample site #2						
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering.		
c)	What is the location of the tap? (provide description)	☑	NA	110 West 23rd St. - Private residence		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine lawn maintenance and janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	No cross connection present at time of inspection, although potential for such an event is evident based on attached photo.		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	Y	Utility does not provide backflow inspection to private residences. No backflow device was visible at the time of this evaluation.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap located at private residence which was not listed on the chain of custody form. Being accessible to public could increase potential for contamination. Possibility of cross connection issue if hose attached and in contact with ground surface.		

	Questions	Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.3 E	Was the sampling SOP available/followed?					
a)		☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering.		
c)	What is the location of the tap? (provide description)	☑	NA	118 W 10th St, - Private residence		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine lawn maintenance and janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	No cross connection present at time of evaluation		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility does not provide backflow inspection to private residences. No backflow device was visible at the time of this evaluation.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap located at private residence which was not listed on the chain of custody form. Being accessible to public could increase potential for contamination. Possibility of cross connection issue if hose attached and in contact with ground surface.		

Questions		Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.4 Evaluate sample site #4						
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering. Sample station painted.		
c)	What is the location of the tap? (provide description)	☑	NA	35 West 11th St. - Private residence		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine lawn maintenance and janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	Sample station was connected to hose which was in contact with ground surface at time of inspection.		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility does not provide backflow inspection to private residences. No backflow device was visible at the time of this evaluation.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap located at private residence. Being accessible to public could increase potential for contamination. Possibility of cross connection issue exhibited by hose attached and in contact with ground surface. Another connection was observed but inaccessible as it disappeared from site behind a fenced area.		

	Questions	Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.5 Evaluate sample site #5						
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering.		
c)	What is the location of the tap? (provide description)	☑	NA	2300 Avenue E - Fish and Bait Shop		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	No cross connection present at time of inspection, although potential for such an event is evident based on attached photo.		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility does not provide backflow inspection to this location. No backflow device was visible at time of this evaluation. Backflow Technician indicated businesses are responsible for annual inspection which is performed by private contractors.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap location is accessible by public which could increase potential for contamination. Possibility of cross connection issue if attached hose makes contact with ground surface.		

	Questions	Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.6 Evaluate sample site #6						
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering.		
c)	What is the location of the tap? (provide description)	☑	NA	249 East 23rd St. - Private residence		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine lawn maintenance and janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	Sample station was connected to hose which was in contact with ground surface at time of inspection.		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility does not provide backflow inspection to private residences. No backflow device was visible at the time of this evaluation.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap located at private residence. Being accessible to public could increase potential for contamination. Possibility of cross connection issue exhibited by hose attached and in contact with ground surface.		

Questions		Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.7 Evaluate sample site #7						
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering; however, valve handle has been removed to limit access.		
c)	What is the location of the tap? (provide description)	☑	NA	274 West Blue Heron Blvd - Dental Office		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine janitorial maintenance		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	No cross connection present at time of evaluation		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility does not provide backflow inspection to this location. Backflow device was visible at time of this evaluation and appeared operational. Backflow Technician indicated businesses are responsible for annual inspection which is performed by private contractors.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap contamination limited with valve handle removed. However, close proximity to air conditioner drain could potentially result in contamination issues.		

	Questions	Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.8	**Evaluate sample site #8**					
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering.		
c)	What is the location of the tap? (provide description)	☑	NA	225 East 28th St. - Private residence		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine lawn maintenance and janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	No cross connection present at time of evaluation		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility does not provide backflow inspection to private residences. No backflow device was visible at the time of this evaluation.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap located at private residence. Being accessible to public could increase potential for contamination.		

	Questions	Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.9	**Evaluate sample site #9**					
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering; however, valve handle has been removed and within secure fence which limits access.		
c)	What is the location of the tap? (provide description)	☑	NA	Avenue A - Coast Guard		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	No cross connection present at time of evaluation		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility does not provide backflow inspection to this location. Backflow device was visible at time of this evaluation and appeared operational. Backflow Technician indicated federal government agencies are responsible for annual inspection.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap contamination limited with valve handle removed. However, sampling collection procedure could be enhanced with an FDEP approved spout		

	Questions	Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.10	**Evaluate sample site #10**					
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which violates FDEP rule.		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Protection provided by recessed enclosure with lid.		
c)	What is the location of the tap? (provide description)	☑	NA	900 E. Blue Heron Blvd - Phil Foster Park		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	No cross connection present at time of evaluation		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility provides backflow inspection to this location. Backflow device was visible at time of this evaluation and appeared operational.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap contamination limited with valve handle removed. However, sampling collection procedure could be enhanced with an FDEP approved spout		

Questions		Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.11 Evaluate sample site #11						
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering.		
c)	What is the location of the tap? (provide description)	☑	NA	2425 Lakeshore Dr. - Private residence		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine lawn maintenance and janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	Sample station was connected to hose which was in contact with ground surface at time of inspection.		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility does not provide backflow inspection to private residences. However, this backflow device was visible, operational and properly maintained.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap located at private residence. Being accessible to public could increase potential for contamination. Possibility of cross connection issue exhibited by hose attached and in contact with ground surface.		

Questions		Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.12 Evaluate sample site #12						
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering.		
c)	What is the location of the tap? (provide description)	☑	NA	300 Edwards Lane - Private residence		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine lawn maintenance and janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	Sample station was connected to hose which was in contact with ground surface at time of inspection.		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility does not provide backflow inspection to private residences. No backflow device was visible at the time of this evaluation.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap located at private residence. Being accessible to public could increase potential for contamination. Possibility of cross connection issue exhibited by hose attached and in contact with ground surface. Tap was in use by construction crew at the time of this evaluation.		

Questions		Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.13 Evaluate sample site #13						
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering.		
c)	What is the location of the tap? (provide description)	☑	NA	107 Inlet Way - Private residence		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine lawn maintenance and janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	Sample station was connected to hose which was in contact with ground surface at time of inspection.		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility does not provide backflow inspection to private residences. No backflow device was visible at the time of this evaluation.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap located at private residence. Being accessible to public could increase potential for contamination. Possibility of cross connection issue exhibited by hose attached and in contact with ground surface. Chain of custody (CoC) indicates different address (101 Inlet Way). This address change should be recorded in the sampling SOP as well as the CoC. FDEP should also be notified of		

Questions		Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.14 Evaluate sample site #14						
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering.		
c)	What is the location of the tap? (provide description)	☑	NA	2700 N. Ocean Dr. - Private residence		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine lawn maintenance and janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	No cross connection present at time of evaluation		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility does not provide backflow inspection to private residences. No backflow device was visible at the time of this evaluation.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap located at private residence. Being accessible to public could increase potential for contamination.		

	Questions	Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.15	**Evaluate sample site #15**					
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering.		
c)	What is the location of the tap? (provide description)	☑	NA	3100 N. Ocean Beach Dr. - Island Beach Resort		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	No cross connection present at time of evaluation		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility does not provide backflow inspection to private residences. No backflow device was visible at the time of this evaluation.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap located at private residence. Being accessible to public could increase potential for contamination. Close proximity to gutter increases potential for contamination.		

Questions		Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.16 Evaluate sample site #16						
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering.		
c)	What is the location of the tap? (provide description)	☑	NA	111 Grand Bahama Lane - Private residence		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine lawn maintenance and janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	No cross connection present at time of evaluation		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility does not provide backflow inspection to private residences. No backflow device was visible at the time of this evaluation.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap located at private residence. Being accessible to public could increase potential for contamination. Possibility of cross connection issue exhibited by hose attached and in contact with ground surface. Chain of custody (CoC) indicates different address (110 Grand Bahama Lane). This address change should be recorded in the sampling SOP as well as the CoC. FDEP should also be notified of such changes.		

Questions		Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.17 Evaluate sample site #17						
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering. Sample station painted.		
c)	What is the location of the tap? (provide description)	☑	NA	1051 Pine Point - Private residence		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine lawn maintenance and janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	No cross connection present at time of evaluation		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility does not provide backflow inspection to private residences. No backflow device was visible at the time of this evaluation.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap located at private residence. Being accessible to public could increase potential for contamination.		

Questions		Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.18 Evaluate sample site #18						
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which violates FDEP rule.		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering. Sample tap painted.		
c)	What is the location of the tap? (provide description)	☑	NA	5010 N. Ocean Dr. - Singer Island Fire Station		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	No cross connection present at time of evaluation		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility provides backflow inspection to this location. Backflow device was visible at time of this evaluation and appeared operational.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Being accessible to public could increase potential for contamination.		

Questions		Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.19 Evaluate sample site #19						
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering.		
c)	What is the location of the tap? (provide description)	☑	NA	5480 N. Ocean Dr. - Dunes Tower Condominium		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	Sample station was connected to hose which was in contact with ground surface at time of evaluation.		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility does not provide backflow inspection to this location. No backflow device was visible at time of this evaluation. Backflow Technician indicated businesses are responsible for annual inspection which is performed by private contractors.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Being accessible to public could increase potential for contamination. Possibility of cross connection issue exhibited by hose attached and in contact with ground surface. Additional plumbing of unknown origin also connected to sample		

Questions		Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.20 Evaluate sample site #20						
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering.		
c)	What is the location of the tap? (provide description)	☑	NA	2300 Old Dixie Highway - Arnold Baker		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	No cross connection present at time of evaluation		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility does not provide backflow inspection to this location. No backflow device was visible at time of this evaluation. Backflow Technician indicated businesses are responsible for annual inspection which is performed by private contractors.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Increased potential for contamination given lack of protection. Additional plumbing of unknown origin connected to sample station. A secure fence limits		

	Questions	Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.21	**Evaluate sample site #21**					
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering. Sample station painted.		
c)	What is the location of the tap? (provide description)	☑	NA	1057 W. 6th St. - West Riviera Elementary School		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine lawn maintenance and janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	No cross connection present at time of evaluation		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Backflow device was operational and maintained by school board staff. Inspection report submitted to Utility District annually.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap located at school and accessible by students which could increase potential for contamination		

Questions		Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.22 Evaluate sample site #22						
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering. Sample station painted.		
c)	What is the location of the tap? (provide description)	☑	NA	1160 W. 10th St. - Lincoln Elementary School		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine lawn maintenance and janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	No cross connection present at time of evaluation		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Backflow device was operational and maintained by school board staff. Inspection report submitted to Utility District annually.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap located at school and accessible by students which could increase potential for contamination. However, valve handle has been removed to limit usage.		

Questions		Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.23 Evaluate sample site #23						
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Protection provided by recessed enclosure with lid.		
c)	What is the location of the tap? (provide description)	☑	NA	1501 Avenue U - Bethune Elementary School		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine lawn maintenance and janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	No cross connection present at time of evaluation		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Backflow device was operational and maintained by school board staff. Inspection report submitted to Utility District annually.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap located at school but lid and requirement for specialized key limit potential for contamination and access.		

Questions		Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.24 Evaluate sample site #24						
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Protection provided by recessed enclosure with lid.		
c)	What is the location of the tap? (provide description)	☑	NA	1901 Avenue S - Kennedy Middle School		
	What is the regular use of the connection? (provide description)	☑	NA	Routine lawn maintenance and janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	No cross connection present at time of evaluation		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Backflow device was operational and maintained by school board staff. Inspection report submitted to Utility District annually.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap located at school but lid and requirement for specialized key limit potential for contamination and access.		

Questions		Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.25 Evaluate sample site #25						
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which violates FDEP rule.		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering.		
c)	What is the location of the tap? (provide description)	☑	NA	600 W. Blue Heron Blvd - City Hall		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	No cross connection present at time of evaluation		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility provides backflow inspection to this location. Backflow device was visible at time of this evaluation and appeared operational.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Being accessible to public could increase potential for contamination.		

Questions		Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.26 Evaluate sample site #26						
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering.		
c)	What is the location of the tap? (provide description)	☑	NA	1357 Silver Beach Rd. - Private residence		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine lawn maintenance and janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	Sample station was connected to hose which was in contact with ground surface at time of evaluation.		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility does not provide backflow inspection to private residences. Backflow device was visible but unable to determine degree of maintenance or operational effectiveness.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap located at private residence. Being accessible to public could increase potential for contamination. Possibility of cross connection issue exhibited by hose attached and in contact with ground surface.		

Questions		Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.27 Evaluate sample site #27						
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering.		
c)	What is the location of the tap? (provide description)	☑	NA	1229 W. 25th St. - Private residence		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine lawn maintenance and janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	Sample station was connected to hose which was in contact with ground surface and adjacent to sewer clean out port at time of evaluation.		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility does not provide backflow inspection to private residences. Backflow device was not visible at the time of evaluation.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap located at private residence. Being accessible to public could increase potential for contamination. Possibility of cross connection issue exhibited by hose attached and in contact with ground surface and adjacent to sewer clean		

	Questions	Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.28	**Evaluate sample site #28**					
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering.		
c)	What is the location of the tap? (provide description)	☑	NA	1601 Broadway - Webb's Cleaners & Laundry		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	No cross connection present at time of evaluation.		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility does not provide backflow inspection to this location. No backflow device was visible at time of this evaluation. Backflow Technician indicated businesses are responsible for annual inspection which is performed by private contractors.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap has limited accessibility as the valve handle has been removed. Chain of custody (CoC) indicates different address (1619 Broadway). This address change should be recorded in the sampling SOP as well as the CoC. FDEP should also be notified of such changes.		

Questions		Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.29 Evaluate sample site #29						
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering.		
c)	What is the location of the tap? (provide description)	☑	NA	1301 Grandview PL. - Newcombe Hall		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Newly constructed building within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	No cross connection present at time of evaluation.		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility provides backflow inspection to this location. Backflow device was not visible at time of this evaluation.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap has limited accessibility as special key is required to gain access. However, the tap is still accessible to public which could increase the potential for contamination. Sampling collection procedure could be enhanced with an FDEP approved spout attachment.		

Questions		Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.30 Evaluate sample site #30						
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering.		
c)	What is the location of the tap? (provide description)	☑	NA	1709 W. 30th St. - Washington Elementary School		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine lawn maintenance and janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	No cross connection present at time of evaluation.		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Backflow device was operational and maintained by school board staff. Inspection report submitted to Utility District annually.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap located at school and accessible by students which could increase potential for contamination. However, valve handle has been removed to limit usage.		

Questions		Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.31 Evaluate sample site #31						
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering.		
c)	What is the location of the tap? (provide description)	☑	NA	7535 Enterprise - 2 Fat Guys		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	No cross connection present at time of evaluation.		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility does not provide backflow inspection to this location. No backflow device was visible at time of this evaluation. Backflow Technician indicated businesses are responsible for annual inspection which is performed by private contractors.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap located at place of business. Being accessible to public could increase potential for contamination.		

	Questions	Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.32	**Evaluate sample site #32**					
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering.		
c)	What is the location of the tap? (provide description)	☑	NA	4152 W. Blue Heron Blvd. - Centerpoint Plaza		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	No cross connection present at time of evaluation.		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility does not provide backflow inspection to this location. No backflow device was visible at time of this evaluation. Backflow Technician indicated businesses are responsible for annual inspection which is performed by private contractors.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap located at place of business. Being accessible to public could increase potential for contamination.		

Questions		Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.33 Evaluate sample site #33						
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which violates FDEP rule.		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering. Sample tap painted.		
c)	What is the location of the tap? (provide description)	☑	NA	7101 N. Military Tr. - Fire Station		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	No cross connection present at time of evaluation.		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility provides backflow inspection to this location. Backflow device was visible at time of this evaluation and appeared operational.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Being accessible to public could increase potential for contamination.		

Questions		Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.34 Evaluate sample site #34						
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering.		
c)	What is the location of the tap? (provide description)	☑	NA	2002 Bonisle Cir. - Private residence		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine lawn maintenance and janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	No cross connection present at time of evaluation, although potential for such an event is evident based on attached photo.		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility does not provide backflow inspection to private residences. No backflow device was visible at the time of this evaluation.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap located at private residence. Possibility of cross connection issue if hose attached and in contact with ground surface. Chain of custody (CoC) indicates different address (2000 Bonisle Circle). This address change should be recorded in the sampling SOP as well as the CoC. FDEP should also be notified of		

	Questions	Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.35	**Evaluate sample site #35**					
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering.		
c)	What is the location of the tap? (provide description)	☑	NA	6598 N. Military - Travel Park		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	No cross connection present at time of evaluation.		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility does not provide backflow inspection to this location. No backflow device was visible at time of this evaluation. Backflow Technician indicated businesses are responsible for annual inspection which is performed by private contractors.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Being accessible to public could increase potential for contamination. Sample station should have only one dedicated port for collection.		

Questions		Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.36 Evaluate sample site #36						
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering.		
c)	What is the location of the tap? (provide description)	☑	NA	2548 Maniki Dr. - Private residence		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine lawn maintenance and janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	Sample station was connected to hose which was in contact with ground surface at time of evaluation.		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility does not provide backflow inspection to private residences. Backflow device was not visible at the time of evaluation.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap located at private residence. Being accessible to public could increase potential for contamination. Possibility of cross connection issue exhibited by hose attached and in contact with ground surface.		

Questions		Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.37 Evaluate sample site #37						
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which violates FDEP rule.		
b)	What is the condition of the tap? (provide comments)	☑	Y	Sample collected from check valve port		
c)	What is the location of the tap? (provide description)	☑	NA	7301 Haverhill Rd. - Dyer Park		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	No cross connection present at time of evaluation		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility provides backflow inspection to this location. Backflow device was visible at time of this evaluation and operational.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sampling collection procedure could be enhanced with an FDEP approved spout attachment.		

Questions		Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.38 Evaluate sample site #38						
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering.		
c)	What is the location of the tap? (provide description)	☑	NA	4860 Caribbean Blvd. - Private residence		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine lawn maintenance and janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	Sample station was connected to hose which was in contact with ground surface at time of evaluation.		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility does not provide backflow inspection to private residences. Backflow device was not visible at the time of evaluation.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap located at private residence. Being accessible to public could increase potential for contamination. Possibility of cross connection issue exhibited by hose attached and in contact with ground surface.		

Questions		Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.39 Evaluate sample site #39						
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering. Sample station painted.		
c)	What is the location of the tap? (provide description)	☑	NA	5783 S. Bermuda Cir. - Private residence		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine lawn maintenance and janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	No cross connection present at time of evaluation		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility does not provide backflow inspection to private residences. No backflow device was visible at the time of this evaluation.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap located at private residence. Being accessible to public could increase potential for contamination.		

Questions		Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)	Photograph of Sample Site
3.40 Evaluate sample site #40						
a)	Was the sampling SOP available/followed?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to		
b)	What is the condition of the tap? (provide comments)	☑	Y	Threaded hose bib not within FDEP specifications. Tap without protection thus susceptible to natural environment and tampering.		
c)	What is the location of the tap? (provide description)	☑	NA	5766 Parke Ave. - Private residence		
d)	What is the regular use of the connection? (provide description)	☑	NA	Routine lawn maintenance and janitorial activities		
e)	Have there been any plumbing changes or construction? If yes, when and what was repaired or changed?	☑	N	Utility does not have record of any plumbing changes or construction to sample location within last 12 months.		
f)	Have there been any plumbing breaks or failures? If yes, when and where?	☑	Y	Utility has no record of plumbing breaks or failures.		
g)	List any identified cross connections after the service connection or in premise plumbing. (provide description)	☑	N	No cross connection present at time of evaluation		
h)	Were all the backflow prevention devices present, operational and maintained properly?	☑	N	Utility does not provide backflow inspection to private residences. However, this backflow device was visible, operational and properly maintained.		
i)	Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when and where?	☑	N	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.		
j)	Is there any treatment devices after the service connection or in premise? (Circle the correct response if applicable)			Point of Use (POU)		
k)	Any other comments regarding sample site and/or site conditions?	☑		Sample tap located at private residence. Being accessible to public could increase potential for contamination.		

Questions	Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)
4. Sample protocol followed and reviewed				
a) Flush tap, remove aerator, no swivel, fresh sample bottles and proper sample storage?	☑	Y	No written sampling SOP located on site. FDEP contacted to determine if sampling plan submitted previously by City. Awaiting response. Collector indicated torching of hose bib prior to sample collection which is contrary to FDEP rule.	

Questions	Reviewed and Checked? (" ✔ " if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)
5. Distribution System				
a) System pressure: is there any evidence that the system experienced low and/or negative pressure? If yes, when?	☑	Y	Historical SCADA trending indicates significant low pressure events within the system on 4/13/16 and 11/7/15 at 22.6 and 22.7 psi, respectively, due to water main breaks within the last 12 months. The incidents occurred at 112 Canterbury Drive and 3721 Lewis Drive. However, there is no clear evidence that either event affected this sample location, and, no record of service line issues was available.	
b) List any identified cross connections.	☑	Y	A cross connection was discovered near the "Save-All" basin at the water treatment facility between a fire hydrant and a pump used to return water from the save-all basins to the treatment process.	
c) Pump station: Are there any sanitary defects in the pump station? Are pump(s) operational?	☑	Y	All pump stations are duplex pump stations with one pump out of service.	
d) Last pump service/maintenance date. (Respond and record if applicable)	☑	Y	Maintenance logs could not be obtained	
	Type service/maintenance performed:			

Questions	Reviewed and Checked? (" ✔ " if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)
6. Storage Facilities - Water Treatment Plant (Blue Heron)				
a) Are the overflow and vents properly screened?	☑	Y	Expanded metal was used to screen the vents leaving approximately 1/2" gap through which insects could enter the storage tank	
b) Is the facility secured to prevent unauthorized access?	☑	Y		
c) Does the access opening have proper gasket material and sealed tightly?	☑	Y		
d) Could the physical condition of the tank be a source of contamination?	☑	N	Tank was recently inspected, a copy of the inspection report is attached with no mention of contamination	
e) Is the vent turned down and maintaining an approved air gap at the termination point?	☑	N	Vents are located at the top of the storage tank, screened and vented to atmosphere	
f) Does the drain/overflow line terminate at a minimum of 12-inch air gap?	☑	Y		
g) If present, is the pressure tank maintaining an appropriate minimum pressure?	☑	Y		
h) Has the proper operation and maintenance of the facility been performed?	☑	N	No maintenance records could be obtained	
i) Was there any observed physical deterioration of the tank?	☑	N		
j) Were there any observed leaks?	☑	N		
k) Is there evidence of intentional contamination at the storage tank?	☑	N		
l) Has there been any facility maintenance (i.e. painting/coating)? If yes, when and describe?	☑	N		
m) Is facility maintenance occurring per appropriate schedule?	☑	N	No maintenance records could be obtained	
n) Does the tank "float" on the distribution system or are there separate inlet and outlet lines?	☑	N	Separate lines do exist, the ground storage tank is not elevated	
o) What is the measured chlorine residual (total & free) of the water exiting the storage tank today?			Free: N/A Total: 1.7 mg/L (9-6-16)	
p) Are there any unsealed openings in the storage facility such as access doors, vents or joints?	☑	Y	Vent screen mesh size inadequate for insects	
q) Any other comments regarding the condition of the storage facilities?	☑	N		

Questions	Reviewed and Checked? (" ✔ " if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)
6. Storage Facilities - North Singer Island				
a) Are the overflow and vents properly screened?	☑	Y	Expanded metal was used to screen the vents leaving approximately 1/2" gap through which insects could enter the storage tank	
b) Is the facility secured to prevent unauthorized access?	☑	Y		
c) Does the access opening have proper gasket material and sealed tightly?	☑	Y		
d) Could the physical condition of the tank be a source of contamination?	☑	N	Tank was recently inspected, a copy of the inspection report is attached with no mention of contamination	
e) Is the vent turned down and maintaining an approved air gap at the termination point?	☑	N	Vents are located at the top of the storage tank, screened and vented to atmosphere	
f) Does the drain/overflow line terminate at a minimum of 12-inch air gap?	☑	Y		
g) If present, is the pressure tank maintaining an appropriate minimum pressure?	☑	Y		
h) Has the proper operation and maintenance of the facility been performed?	☑	Y	The facility was recently rehabilitated in 2009	
i) Was there any observed physical deterioration of the tank?	☑	N		
j) Were there any observed leaks?	☑	N		
k) Is there evidence of intentional contamination at the storage tank?	☑	N		
l) Has there been any facility maintenance (i.e. painting/coating)? If yes, when and describe?	☑	Y	The facility was recently rehabilitated in 2009	
m) Is facility maintenance occurring per appropriate schedule?	☑	Y		
n) Does the tank "float" on the distribution system or are there separate inlet and outlet lines?	☑	Y	Separate lines do exist, the ground storage tank is not elevated but the hydro-pneumatic does "float" on the system	
o) What is the measured chlorine residual (total & free) of the water exiting the storage tank today?			Free: N/A Total: 1.7 mg/L (9-6-16)	
p) Are there any unsealed openings in the storage facility such as access doors, vents or joints?	☑	N	Vent screen mesh size inadequate for insects	
q) Any other comments regarding the condition of the storage facilities?	☑	Y	Recently rehabilitated in 2009 - overall very good condition.	

Questions	Reviewed and Checked? (" ✔ " if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)
6. Storage Facilities - Avenue C				
a) Are the overflow and vents properly screened?	☑	Y	Expanded metal was used to screen the vents leaving approximately 1/2" gap through which insects could enter the storage tank	
b) Is the facility secured to prevent unauthorized access?	☑	Y		
c) Does the access opening have proper gasket material and sealed tightly?	☑	Y		
d) Could the physical condition of the tank be a source of contamination?	☑	N	Tank was recently inspected, a copy of the inspection report is attached with no mention of contamination	
e) Is the vent turned down and maintaining an approved air gap at the termination point?	☑	N	Vents are located at the top of the storage tank, screened and vented to atmosphere	
f) Does the drain/overflow line terminate at a minimum of 12-inch air gap?	☑	Y		
g) If present, is the pressure tank maintaining an appropriate minimum pressure?	☑	Y		
h) Has the proper operation and maintenance of the facility been performed?	☑	Y	No, there is a high service pump out of service and seal leaks. Further, the gas chlorine system is lacking required equipment	
i) Was there any observed physical deterioration of the tank?	☑	N		
j) Were there any observed leaks?	☑	N		
k) Is there evidence of intentional contamination at the storage tank?	☑	N		
l) Has there been any facility maintenance (i.e. painting/coating)? If yes, when and describe?	☑	Y	No maintenance records could be obtained	
m) Is facility maintenance occurring per appreciate schedule?	☑	Y	No maintenance records could be obtained	
n) Does the tank "float" on the distribution system or are there separate inlet and outlet lines?	☑	Y	Separate lines do exist, the ground storage tank is not elevated but the hydro-pneumatic does "float" on the system	
o) What is the measured chlorine residual (total & free) of the water exiting the storage tank today?			Free: N/A Total: 2.3 mg/L (8-22-16)	
p) Are there any unsealed openings in the storage facility such as access doors, vents or joints?	☑	N	Vent screen mesh size inadequate for insects	
q) Any other comments regarding the condition of the storage facilities?	☑	Y	For a detailed list of deficiencies see in the report,	

Questions	Reviewed and Checked? (" ✔ " if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)
6. Storage Facilities - Avenue U				
a) Are the overflow and vents properly screened?	☑	Y	Expanded metal was used to screen the vents leaving approximately 1/2" gap through which insects could enter the storage tank	
b) Is the facility secured to prevent unauthorized access?	☑	Y		
c) Does the access opening have proper gasket material and sealed tightly?	☑	Y		
d) Could the physical condition of the tank be a source of contamination?	☑	N	Tank was recently inspected, a copy of the inspection report is attached with no mention of contamination	
e) Is the vent turned down and maintaining an approved air gap at the termination point?	☑	N	Vents are located at the top of the storage tank, screened and vented to atmosphere	
f) Does the drain/overflow line terminate at a minimum of 12-inch air gap?	☑	Y	There is a large washout from past tank overflows	
g) If present, is the pressure tank maintaining an appropriate minimum pressure?	☑	Y		
h) Has the proper operation and maintenance of the facility been performed?	☑	Y	No maintenance records could be obtained	
i) Was there any observed physical deterioration of the tank?	☑	N		
j) Were there any observed leaks?	☑	N		
k) Is there evidence of intentional contamination at the storage tank?	☑	N		
l) Has there been any facility maintenance (i.e. painting/coating)? If yes, when and describe?	☑	Y	No maintenance records could be obtained	
m) Is facility maintenance occurring per appropriate schedule?	☑	Y	No maintenance records could be obtained	
n) Does the tank "float" on the distribution system or are there separate inlet and outlet lines?	☑	Y	Separate lines do exist, the ground storage tank is not elevated but the hydro-pneumatic does "float" on the system	
o) What is the measured chlorine residual (total & free) of the water exiting the storage tank today?			Free: N/A Total: 1.5 mg/L (8-22-16)	
p) Are there any unsealed openings in the storage facility such as access doors, vents or joints?	☑	N	Vent screen mesh size inadequate for insects	
q) Any other comments regarding the condition of the storage facilities?	☑	Y	For a detailed list of deficiencies see in the report.	

Questions	Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)
7. Treatment Process				
a) Treatment devices operational and well maintained?	☑	N	See attached report	
b) Is there any recent installation or repair of treatment equipment?	☑	Y	Aerators recently rehabilitated. See attached report	
c) Were there any recent changes in the treatment process? If yes, when and what changes were made?	☑	N	Operator training specific to chloramines	
d) Were there any interruptions of treatment(lapses in chemical feed, turbidity excursions, disinfection)? If yes, which part, when and for how long?	☑	Y	See attached report	
e) Did a review of the filter turbidity profiles reveal any anomalies?	☑	N	Profiles were not reviewed; many turbidimeters were inoperable	
f) What is the free chlorine residual measured immediately downstream from the point of application?	☑	NA	Multiple application points exist for chlorine and ammonia; Operations staff have recently started to test for total chlorine, monochloramine and free ammonia at the following locations; outflow at unit 1, 2 and 3	
g) Was there adequate disinfectant maintained?	☑	Y	Chlorine and ammonia ratios were not adequately maintained; resulting in intermittent breakpoint chlorination causing loss of residual or under some circumstances significant overfeeds of ammonia resulting in large amount of free ammonia available leaving the facility	
	☑	Y	Total chlorine concentration leaving the facilities met the minimum residuals as required under FAC however, those residuals were inadequate in concentration to maintain levels in the distribution system	
h) Were the flow rates above the rated capacity?	☑	N	However unit rated capacities require further investigation to determine if exceedances occurred	
I) Were there any anomalies on the settled water turbidities?	☑	Y	Settled water turbidities are not monitored at the facility; many turbidimeters are in operable	
j) Additional comments on the treatment process?	☑	Y	See attached report	

Questions	Reviewed and Checked? ("a" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)
8. Source-Well #862 Out of Service				
a) Is there a sanitary seal in tact?	☑	Y		
b) Is the vent screened?	☑	Y		
c) Are there any unprotected cross connections at the wellhead? If yes, please describe?	☑	Y	Nearby fire hydrant hard piped to well blow-off for distribution system flushing. Potential for distribution system contamination with raw water	
d) Were there any observed leaks?	☑	N	Well not running but evidence of leakage at flanges and taps	
e) Is there evidence of intentional contamination at the storage tank?	☑	N/A		
f) How is the well being used? (Circle if applicable)	☑		Primary	
g) How far does the casing extend above grade?	☑		18 inches	
h) Is the well cap secure?	☑	Y	Cap is secure but highly corroded	
i) Is there evidence of standing water at or near the wellhead?	☑	N		
j) Is the wellhead secure to prevent unauthorized access?	☑	Y		
k) Have there been any sewer spills, source water spills or other disturbances in near proximity to the wellhead? If yes, please describe and give distance.	☑	N		
l) Any additional comments regarding the well system? (Are there aspects or conditions existing of the well construction and/or operation that would bear on observed positives?)	Adjacent fire hydrant is hard piped into well piping to provide a constant flushing point in the distribution system. Extensive corrosion on well casing possible holes may need replacement. Vegetation overgrowth.			
8. Source-Well #921 In Service				
a) Is there a sanitary seal in tact?	☑	Y		
b) Is the vent screened?	☑	Y		
c) Are there any unprotected cross connections at the wellhead? If yes, please describe?	☑	N		
d) Were there any observed leaks?	☑	N		
e) Is there evidence of intentional contamination at the storage tank?	☑	N/A		
f) How is the well being used? (Circle if applicable)	☑		Primary	
g) How far does the casing extend above grade?	☑		18 inches	
h) Is the well cap secure?	☑	Y		
i) Is there evidence of standing water at or near the wellhead?	☑	N		
j) Is the wellhead secure to prevent unauthorized access?	☑	Y		
k) Have there been any sewer spills, source water spills or other disturbances in near proximity to the wellhead? If yes, please describe and give distance.	☑	N		
l) Any additional comments regarding the well system? (Are there aspects or conditions existing of the well construction and/or operation that would bear on observed positives?)	Extensive corrosion on well head			

Questions	Reviewed and Checked? ("a" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)
8. Source-Well #861 In Service				
a) Is there a sanitary seal in tact?	☑	Y		
b) Is the vent screened?	☑	Y		
c) Are there any unprotected cross connections at the wellhead? If yes, please describe?	☑	N		
d) Were there any observed leaks?	☑	N	No active leaks but evidence of past leakage	
e) Is there evidence of intentional contamination at the storage tank?	☑	N/A		
f) How is the well being used? (Circle if applicable)	☑		Primary	
g) How far does the casing extend above grade?	☑		18 inches	
h) Is the well cap secure?	☑	Y	Cap is secure but highly corroded	
i) Is there evidence of standing water at or near the wellhead?	☑	N		
j) Is the wellhead secure to prevent unauthorized access?	☑	Y		
k) Have there been any sewer spills, source water spills or other disturbances in near proximity to the wellhead? If yes, please describe and give distance.	☑	N		
l) Any additional comments regarding the well system? (Are there aspects or conditions existing of the well construction and/or operation that would bear on observed positives?)	Extensive corrosion throughout all piping. Vegetation overgrowth			
8. Source-Well #922 In Service				
a) Is there a sanitary seal in tact?	☑	Y		
b) Is the vent screened?	☑	Y		
c) Are there any unprotected cross connections at the wellhead? If yes, please describe?	☑	N		
d) Were there any observed leaks?	☑	Y	Active leak at blow-off valve	
e) Is there evidence of intentional contamination at the storage tank?	☑	N/A		
f) How is the well being used? (Circle if applicable)	☑		Primary	
g) How far does the casing extend above grade?	☑		18 inches	
h) Is the well cap secure?	☑	Y	Well head and cap are too corroded to determine if there are any holes	
i) Is there evidence of standing water at or near the wellhead?	☑	Y	Water pools across the entire slab	
j) Is the wellhead secure to prevent unauthorized access?	☑	Y		
k) Have there been any sewer spills, source water spills or other disturbances in near proximity to the wellhead? If yes, please describe and give distance.	☑	N		
l) Any additional comments regarding the well system? (Are there aspects or conditions existing of the well construction and/or operation that would bear on observed positives?)	Extensive corrosion throughout all piping. Vegetation overgrowth. Duct tape securing electrical conduit			

Questions	Reviewed and Checked? ("a" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)
8. Source-Well #852 Out of Service				
a) Is there a sanitary seal in tact?	☑	N	Electrical conduit penetrations sealed with duct tape	
b) Is the vent screened?	☑	Y		
c) Are there any unprotected cross connections at the wellhead? If yes, please describe?	☑	N		
d) Were there any observed leaks?	☑	N	No active leaks but evidence of past leakage	
e) Is there evidence of intentional contamination at the storage tank?	☑	N/A		
f) How is the well being used? (Circle if applicable)	☑		Primary	
g) How far does the casing extend above grade?	☑		16 inches	
h) Is the well cap secure?	☑	Y		
i) Is there evidence of standing water at or near the wellhead?	☑	N		
j) Is the wellhead secure to prevent unauthorized access?	☑	Y	Minor screen repairs needed. Replace barbed wire	
k) Have there been any sewer spills, source water spills or other disturbances in near proximity to the wellhead? If yes, please describe and give distance.	☑	N		
l) Any additional comments regarding the well system? (Are there aspects or conditions existing of the well construction and/or operation that would bear on observed positives?)	Well is Out of Service. The meter is located on the well head riser tee which does not provide accurate metering. Duct tape around flanges and electrical boxes. Corrosion throughout. Vegetation overgrowth			
8. Source-Well #851 Out of Service				
a) Is there a sanitary seal in tact?	☑	N	Well head penetration seals not secure	
b) Is the vent screened?	☑	Y		
c) Are there any unprotected cross connections at the wellhead? If yes, please describe?	☑	N		
d) Were there any observed leaks?	☑	Y		
e) Is there evidence of intentional contamination at the storage tank?	☑	N/A		
f) How is the well being used? (Circle if applicable)	☑		Primary	
g) How far does the casing extend above grade?	☑		18 inches	
h) Is the well cap secure?	☑	Y		
i) Is there evidence of standing water at or near the wellhead?	☑	N		
j) Is the wellhead secure to prevent unauthorized access?	☑	N	Fence damaged from vehicle collision	
k) Have there been any sewer spills, source water spills or other disturbances in near proximity to the wellhead? If yes, please describe and give distance.	☑	N		
l) Any additional comments regarding the well system? (Are there aspects or conditions existing of the well construction and/or operation that would bear on observed positives?)	Well is Out of Service. Electrical conduit not sealed at wellhead. Vegetative overgrowth.			

Questions	Reviewed and Checked? ("a" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)
8. Source-Well #871 In Service				
a) Is there a sanitary seal in tact?	☑	N	Well head appears to be cracked further investigation needed	
b) Is the vent screened?	☑	?	Could not gain access to well site (FPL lock)	
c) Are there any unprotected cross connections at the wellhead? If yes, please describe?	☑	N		
d) Were there any observed leaks?	☑	N	Evidence of past leaks	
e) Is there evidence of intentional contamination at the storage tank?	☑	N/A		
f) How is the well being used? (Circle if applicable)	☑		Primary	
g) How far does the casing extend above grade?	☑		18 inches	
h) Is the well cap secure?	☑	Y		
i) Is there evidence of standing water at or near the wellhead?	☑	N		
j) Is the wellhead secure to prevent unauthorized access?	☑	Y		
k) Have there been any sewer spills, source water spills or other disturbances in near proximity to the wellhead? If yes, please describe and give distance.	☑	N		
l) Any additional comments regarding the well system? (Are there aspects or conditions existing of the well construction and/or operation that would bear on observed positives?)	Well located at the old water treatment plant site. Could not gain access due to FPL lock. Vegetation overgrowth			
8. Source-Well #961 Out of Service				
a) Is there a sanitary seal in tact?	☑	Y		
b) Is the vent screened?	☑	Y		
c) Are there any unprotected cross connections at the wellhead? If yes, please describe?	☑	N		
d) Were there any observed leaks?	☑	N	Well is out of service but leaks evident at standpipe and check valve	
e) Is there evidence of intentional contamination at the storage tank?	☑	N/A		
f) How is the well being used? (Circle if applicable)	☑		Primary	
g) How far does the casing extend above grade?	☑		18 inches	
h) Is the well cap secure?	☑	Y	Cap is secure but highly corroded	
i) Is there evidence of standing water at or near the wellhead?	☑	N		
j) Is the wellhead secure to prevent unauthorized access?	☑	Y		
k) Have there been any sewer spills, source water spills or other disturbances in near proximity to the wellhead? If yes, please describe and give distance.	☑	N		
l) Any additional comments regarding the well system? (Are there aspects or conditions existing of the well construction and/or operation that would bear on observed positives?)	Well is Out of Service.			

Questions	Reviewed and Checked? ("a" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)
8. Source-Well #802 Out of Service				
a) Is there a sanitary seal in tact?	☑	Y		
b) Is the vent screened?	☑	Y		
c) Are there any unprotected cross connections at the wellhead? If yes, please describe?	☑	N		
d) Were there any observed leaks?	☑	N		
e) Is there evidence of intentional contamination at the storage tank?	☑	N/A		
f) How is the well being used? (Circle if applicable)	☑		Primary	
g) How far does the casing extend above grade?	☑		18 inches	
h) Is the well cap secure?	☑	Y	Well and piping had been pulled at the time of inspection	
i) Is there evidence of standing water at or near the wellhead?	☑	N		
j) Is the wellhead secure to prevent unauthorized access?	☑	Y	Barbed wire needs replacing	
k) Have there been any sewer spills, source water spills or other disturbances in near proximity to the wellhead? If yes, please describe and give distance.	☑	N		
l) Any additional comments regarding the well system? (Are there aspects or conditions existing of the well construction and/or operation that would bear on observed positives?)	vent screen facing up. Heavy equipment and vehicles are stored in close proximately; potential for fuel contamination. No meter; more than likely located on wellhead stand pipe which was removed at the tie of inspection. Extensive corrosion inside well casing. Well not secured while pump removed for repair.			
8. Source-Well #803 Out of Service				
a) Is there a sanitary seal in tact?	☑	Y		
b) Is the vent screened?	☑	Y		
c) Are there any unprotected cross connections at the wellhead? If yes, please describe?	☑	N		
d) Were there any observed leaks?	☑	N		
e) Is there evidence of intentional contamination at the storage tank?	☑	N/A		
f) How is the well being used? (Circle if applicable)	☑		Primary	
g) How far does the casing extend above grade?	☑		18 inches	
h) Is the well cap secure?	☑	Y	Cap is secure but highly corroded	
i) Is there evidence of standing water at or near the wellhead?	☑	N		
j) Is the wellhead secure to prevent unauthorized access?	☑	Y	Barbed wire needs replacing	
k) Have there been any sewer spills, source water spills or other disturbances in near proximity to the wellhead? If yes, please describe and give distance.	☑	N		
l) Any additional comments regarding the well system? (Are there aspects or conditions existing of the well construction and/or operation that would bear on observed positives?)	Well is out of service. Vegetation overgrowth. Debris build up.			

Questions	Reviewed and Checked? ("a" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)
8. Source-Well #801 Out of Service				
a) Is there a sanitary seal in tact?	☑	N	well head penetration not in tact.	
b) Is the vent screened?	☑	N		
c) Are there any unprotected cross connections at the wellhead? If yes, please describe?	☑	N		
d) Were there any observed leaks?	☑	N	Out of Service but evidence of past leaks	
e) Is there evidence of intentional contamination at the storage tank?	☑	N/A		
f) How is the well being used? (Circle if applicable)	☑		Primary	
g) How far does the casing extend above grade?	☑		12 inches	
h) Is the well cap secure?	☑	N		
i) Is there evidence of standing water at or near the wellhead?	☑	N		
j) Is the wellhead secure to prevent unauthorized access?	☑	N	Trees adjacent to fence should be trimmed. Barbed wire needs replacement	
k) Have there been any sewer spills, source water spills or other disturbances in near proximity to the wellhead? If yes, please describe and give distance.	☑	Y	Evidence of past fuel and oil leaks from right angle drive	
l) Any additional comments regarding the well system? (Are there aspects or conditions existing of the well construction and/or operation that would bear on observed positives?)	Right angle drive out of service. On site underground fuel tank needs inspection and proper abandonment			
8. Source-Well #2004 In Service				
a) Is there a sanitary seal in tact?	☑	Y		
b) Is the vent screened?	☑	N	Vent is capped.	
c) Are there any unprotected cross connections at the wellhead? If yes, please describe?	☑	N		
d) Were there any observed leaks?	☑	N		
e) Is there evidence of intentional contamination at the storage tank?	☑	N		
f) How is the well being used? (Circle if applicable)	☑		Primary	
g) How far does the casing extend above grade?	☑	Y N	10 inches	
h) Is the well cap secure?	☑	Y		
i) Is there evidence of standing water at or near the wellhead?	☑	N		
j) Is the wellhead secure to prevent unauthorized access?	☑	Y		
k) Have there been any sewer spills, source water spills or other disturbances in near proximity to the wellhead? If yes, please describe and give distance.	☑	N		
l) Any additional comments regarding the well system? (Are there aspects or conditions existing of the well construction and/or operation that would bear on observed positives?)	Well is located adjacent to canal. Air in well piping. ARV may need replacement.			

Questions	Reviewed and Checked? ("a" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)
8. Source-Well #21 In Service				
a) Is there a sanitary seal in tact?	☑	Y		
b) Is the vent screened?	☑	N	Vent is capped.	
c) Are there any unprotected cross connections at the wellhead? If yes, please describe?	☑	N		
d) Were there any observed leaks?	☑	N	No active leaks but evidence of past leakage	
e) Is there evidence of intentional contamination at the storage tank?	☑	N/A		
f) How is the well being used? (Circle if applicable)	☑		Primary	
g) How far does the casing extend above grade?	☑	Y N	18 inches	
h) Is the well cap secure?	☑	Y		
i) Is there evidence of standing water at or near the wellhead?	☑	N		
j) Is the wellhead secure to prevent unauthorized access?	☑	Y	Adjacent trees close to fence	
k) Have there been any sewer spills, source water spills or other disturbances in near proximity to the wellhead? If yes, please describe and give distance.	☑	N		
l) Any additional comments regarding the well system? (Are there aspects or conditions existing of the well construction and/or operation that would bear on observed positives?)	Quick disconnect located on well blow off, potential for hose connection and cross connection.			
8. Source-Well 9A In Service				
a) Is there a sanitary seal in tact?	☑	Y		
b) Is the vent screened?	☑	Y		
c) Are there any unprotected cross connections at the wellhead? If yes, please describe?	☑	N		
d) Were there any observed leaks?	☑	N		
e) Is there evidence of intentional contamination at the storage tank?	☑	N		
f) How is the well being used? (Circle if applicable)	☑		Primary	
g) How far does the casing extend above grade?	☑		16 inches	
h) Is the well cap secure?	☑	Y		
i) Is there evidence of standing water at or near the wellhead?	☑	N		
j) Is the wellhead secure to prevent unauthorized access?	☑	Y	Barbed wire needs replacing	
k) Have there been any sewer spills, source water spills or other disturbances in near proximity to the wellhead? If yes, please describe and give distance.	☑	N	Large lift station across street on bypass	
l) Any additional comments regarding the well system? (Are there aspects or conditions existing of the well construction and/or operation that would bear on observed positives?)	Minor corrosion at well head			

Questions	Reviewed and Checked? ("a" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)
8. Source-Well 10A In Service				
a) Is there a sanitary seal in tact?	☑	Y		
b) Is the vent screened?	☑	N	No vent on well	
c) Are there any unprotected cross connections at the wellhead? If yes, please describe?	☑	N		
d) Were there any observed leaks?	☑	N		
e) Is there evidence of intentional contamination at the storage tank?	☑	N/A		
f) How is the well being used? (Circle if applicable)	☑		Primary	
g) How far does the casing extend above grade?	☑		18 inches	
h) Is the well cap secure?	☑	Y	Corrosion on well head	
i) Is there evidence of standing water at or near the wellhead?	☑	Y	Standing water on concrete pad due to leaking ARV	
j) Is the wellhead secure to prevent unauthorized access?	☑	Y		
k) Have there been any sewer spills, source water spills or other disturbances in near proximity to the wellhead? If yes, please describe and give distance.	☑	N		
l) Any additional comments regarding the well system? (Are there aspects or conditions existing of the well construction and/or operation that would bear on observed positives?)	Vegetation overgrowth. Air in the pipeline. Debris/trash in well site fencing. Barbed wire repair needed			
8. Source-Well 12A In Service				
a) Is there a sanitary seal in tact?	☑	Y		
b) Is the vent screened?	☑	Y		
c) Are there any unprotected cross connections at the wellhead? If yes, please describe?	☑	N		
d) Were there any observed leaks?	☑	N		
e) Is there evidence of intentional contamination at the storage tank?	☑	N/A		
f) How is the well being used? (Circle if applicable)	☑		Primary	
g) How far does the casing extend above grade?	☑		18 inches	
h) Is the well cap secure?	☑	Y		
i) Is there evidence of standing water at or near the wellhead?	☑	N		
j) Is the wellhead secure to prevent unauthorized access?	☑	Y		
k) Have there been any sewer spills, source water spills or other disturbances in near proximity to the wellhead? If yes, please describe and give distance.	☑	N		
l) Any additional comments regarding the well system? (Are there aspects or conditions existing of the well construction and/or operation that would bear on observed positives?)	Meter is located on standpipe tee, will not provide accurate reads. Cap on meter broken off. Well located adjacent to stormwater canal. SCADA antenna covered by tree limbs.			

Questions	Reviewed and Checked? ("a" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)
8. Source-Well 1 In Service				
a) Is there a sanitary seal in tact?	☑	Y		
b) Is the vent screened?	☑	N		
c) Are there any unprotected cross connections at the wellhead? If yes, please describe?	☑	Y	Vent extends above grade. Unvented & not secured	
d) Were there any observed leaks?	☑	Y	Active leak at meter	
e) Is there evidence of intentional contamination at the storage tank?	☑	N/A		
f) How is the well being used? (Circle if applicable)	☑		Primary	
g) How far does the casing extend above grade?	☑		Casing is about 4 feet below ground in vault	
h) Is the well cap secure?	☑	Y		
i) Is there evidence of standing water at or near the wellhead?	☑	Y		
j) Is the wellhead secure to prevent unauthorized access?	☑	Y	The well head is secure but the vent provides open access.	
k) Have there been any sewer spills, source water spills or other disturbances in near proximity to the wellhead? If yes, please describe and give distance.	☑	N		
l) Any additional comments regarding the well system? (Are there aspects or conditions existing of the well construction and/or operation that would bear on observed positives?)	Well located below ground in vault. The vent extends through the vault to above ground, pointing upwards with no vent. Standing water in vault.			
8. Source-Well 7 Out of Service				
a) Is there a sanitary seal in tact?	☑	Y		
b) Is the vent screened?	☑	N	No vent on well	
c) Are there any unprotected cross connections at the wellhead? If yes, please describe?	☑	Y	Blow off valve	
d) Were there any observed leaks?	☑	N		
e) Is there evidence of intentional contamination at the storage tank?	☑	N/A		
f) How is the well being used? (Circle if applicable)	☑		Primary	
g) How far does the casing extend above grade?	☑		6 inches	
h) Is the well cap secure?	☑	Y		
i) Is there evidence of standing water at or near the wellhead?	☑	N		
j) Is the wellhead secure to prevent unauthorized access?	☑	N		
k) Have there been any sewer spills, source water spills or other disturbances in near proximity to the wellhead? If yes, please describe and give distance.	☑	N		
l) Any additional comments regarding the well system? (Are there aspects or conditions existing of the well construction and/or operation that would bear on observed positives?)	Well has been out of service for about 10 years. Well located in utility storage yard. Extensive debris and fueled equipment stored on well site. Meter is located on well head standpipe, inaccurate reads.			

Questions	Reviewed and Checked? ("a" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)
8. Source-Well 14 In Service				
a) Is there a sanitary seal in tact?	☑	Y		
b) Is the vent screened?	☑	Y		
c) Are there any unprotected cross connections at the wellhead? If yes, please describe?	☑	N		
d) Were there any observed leaks?	☑	N		
e) Is there evidence of intentional contamination at the storage tank?	☑	N/A		
f) How is the well being used? (Circle if applicable)	☑		Primary	
g) How far does the casing extend above grade?	☑		20 inches	
h) Is the well cap secure?	☑	Y		
i) Is there evidence of standing water at or near the wellhead?	☑	N		
j) Is the wellhead secure to prevent unauthorized access?	☑	Y		
k) Have there been any sewer spills, source water spills or other disturbances in near proximity to the wellhead? If yes, please describe and give distance.	☑	N		
l) Any additional comments regarding the well system? (Are there aspects or conditions existing of the well construction and/or operation that would bear on observed positives?)	Minor corrosion on well head and piping			
8. Source-Well 15 In Service				
a) Is there a sanitary seal in tact?	☑	Y		
b) Is the vent screened?	☑	Y		
c) Are there any unprotected cross connections at the wellhead? If yes, please describe?	☑	N		
d) Were there any observed leaks?	☑	N		
e) Is there evidence of intentional contamination at the storage tank?	☑	N/A		
f) How is the well being used? (Circle if applicable)	☑		Primary	
g) How far does the casing extend above grade?	☑		20 inches	
h) Is the well cap secure?	☑	Y		
i) Is there evidence of standing water at or near the wellhead?	☑	N		
j) Is the wellhead secure to prevent unauthorized access?	☑	Y		
k) Have there been any sewer spills, source water spills or other disturbances in near proximity to the wellhead? If yes, please describe and give distance.	☑	N		
l) Any additional comments regarding the well system? (Are there aspects or conditions existing of the well construction and/or operation that would bear on observed positives?)	Barbed wire need replacing. Extensive corrosion on well head and vent. Electrical conduit penetrating well head is loose.			

Questions	Reviewed and Checked? ("a" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)
8. Source-Well 18 In Service				
a) Is there a sanitary seal in tact?	☑	Y		
b) Is the vent screened?	☑	Y		
c) Are there any unprotected cross connections at the wellhead? If yes, please describe?	☑	N		
d) Were there any observed leaks?	☑	N		
e) Is there evidence of intentional contamination at the storage tank?	☑	N/A		
f) How is the well being used? (Circle if applicable)	☑		Primary	
g) How far does the casing extend above grade?	☑		18 inches	
h) Is the well cap secure?	☑	Y		
i) Is there evidence of standing water at or near the wellhead?	☑	N		
j) Is the wellhead secure to prevent unauthorized access?	☑	Y	Barbed wire missing	
k) Have there been any sewer spills, source water spills or other disturbances in near proximity to the wellhead? If yes, please describe and give distance.	☑	N		
l) Any additional comments regarding the well system? (Are there aspects or conditions existing of the well construction and/or operation that would bear on observed positives?)	Minor corrosion on well head			
8. Source-Well 16 In Service				
a) Is there a sanitary seal in tact?	☑	Y		
b) Is the vent screened?	☑		No vent on well	
c) Are there any unprotected cross connections at the wellhead? If yes, please describe?	☑	N		
d) Were there any observed leaks?	☑	N		
e) Is there evidence of intentional contamination at the storage tank?	☑	N/A		
f) How is the well being used? (Circle if applicable)	☑		Primary	
g) How far does the casing extend above grade?	☑		18 inches	
h) Is the well cap secure?	☑	Y		
i) Is there evidence of standing water at or near the wellhead?	☑	N		
j) Is the wellhead secure to prevent unauthorized access?	☑	Y		
k) Have there been any sewer spills, source water spills or other disturbances in near proximity to the wellhead? If yes, please describe and give distance.	☑	N		
l) Any additional comments regarding the well system? (Are there aspects or conditions existing of the well construction and/or operation that would bear on observed positives?)	Evidence of past leakage at ARV. Corrosion on cap and piping			

Questions	Reviewed and Checked? ("a" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)
8. Source-Well 13 In Service				
a) Is there a sanitary seal in tact?	☑	Y		
b) Is the vent screened?	☑	Y		
c) Are there any unprotected cross connections at the wellhead? If yes, please describe?	☑	N		
d) Were there any observed leaks?	☑	N		
e) Is there evidence of intentional contamination at the storage tank?	☑	N/A		
f) How is the well being used? (Circle if applicable)	☑		Primary	
g) How far does the casing extend above grade?	☑		18 inches	
h) Is the well cap secure?	☑	Y		
i) Is there evidence of standing water at or near the wellhead?	☑	Y	Lime Sludge on pad	
j) Is the wellhead secure to prevent unauthorized access?	☑	N	WTP fence breached and well fence not secure	
k) Have there been any sewer spills, source water spills or other disturbances in near proximity to the wellhead? If yes, please describe and give distance.	☑	Y	Lime sludge on pad	
l) Any additional comments regarding the well system? (Are there aspects or conditions existing of the well construction and/or operation that would bear on observed positives?)	Well is located in WTP residuals storage yard. Extensive dried lime sludge on pad evidence of runoff. Extensive vegetation and overgrowth. Well fence needs repair/replace. Meter not registering while well running. Dumpster located about 30 feet from well. Flange hardware missing. Algae growth on ARV and pipe			
8. Source-Well 4 In Service				
a) Is there a sanitary seal in tact?	☑	N	Well casing corroded through with many holes. Well open to atmosphere	
b) Is the vent screened?	☑	N	No vent on well	
c) Are there any unprotected cross connections at the wellhead? If yes, please describe?	☑	Y	Well casing corroded through with many holes. Well open to atmosphere	
d) Were there any observed leaks?	☑	N		
e) Is there evidence of intentional contamination at the storage tank?	☑	N/A		
f) How is the well being used? (Circle if applicable)	☑		Primary	
g) How far does the casing extend above grade?	☑		6 inches	
h) Is the well cap secure?	☑	Y	Cap secure, but well casing corroded through	
i) Is there evidence of standing water at or near the wellhead?	☑	Y	Silt buildup around well casing	
j) Is the wellhead secure to prevent unauthorized access?	☑	N	No fence and WTP fence unsecure	
k) Have there been any sewer spills, source water spills or other disturbances in near proximity to the wellhead? If yes, please describe and give distance.	☑	N		
l) Any additional comments regarding the well system? (Are there aspects or conditions existing of the well construction and/or operation that would bear on observed positives?)	Well is located on WTP site in close proximity to generators and other fueled equipment. Well casing contains numerous holes at ground level, open to atmosphere and runoff.			

Questions	Reviewed and Checked? ("a" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)
8. Source-Well 5 In Service				
a) Is there a sanitary seal in tact?	☑	Y		
b) Is the vent screened?	☑	Y		
c) Are there any unprotected cross connections at the wellhead? If yes, please describe?	☑	N		
d) Were there any observed leaks?	☑	N		
e) Is there evidence of intentional contamination at the storage tank?	☑	N/A		
f) How is the well being used? (Circle if applicable)	☑		Primary	
g) How far does the casing extend above grade?	☑		18 inches	
h) Is the well cap secure?	☑	Y		
i) Is there evidence of standing water at or near the wellhead?	☑	N		
j) Is the wellhead secure to prevent unauthorized access?	☑	N	Fence not locked and WTP fence not secure	
k) Have there been any sewer spills, source water spills or other disturbances in near proximity to the wellhead? If yes, please describe and give distance.	☑		Well located next to fueled equipment storage	
		N		
l) Any additional comments regarding the well system? (Are there aspects or conditions existing of the well construction and/or operation that would bear on observed positives?)	Debris on well site. Conduit penetrations are loose and open.			
8. Source-Well 6 In Service				
a) Is there a sanitary seal in tact?	☑	Y		
b) Is the vent screened?	☑	Y		
c) Are there any unprotected cross connections at the wellhead? If yes, please describe?	☑	N		
d) Were there any observed leaks?	☑	N		
e) Is there evidence of intentional contamination at the storage tank?	☑	N/A		
f) How is the well being used? (Circle if applicable)	☑		Primary	
g) How far does the casing extend above grade?	☑		18 inches	
h) Is the well cap secure?	☑	Y		
i) Is there evidence of standing water at or near the wellhead?	☑	Y	Lime sludge on pad	
j) Is the wellhead secure to prevent unauthorized access?	☑	N	Fence not locked and WTP fence not secure	
k) Have there been any sewer spills, source water spills or other disturbances in near proximity to the wellhead? If yes, please describe and give distance.	☑		Well located next to fueled equipment storage	
		N		
l) Any additional comments regarding the well system? (Are there aspects or conditions existing of the well construction and/or operation that would bear on observed positives?)	Well site overgrown with vegetation. Minor corrosion. Conduit penetrations not secure.			

Questions	Reviewed and Checked? ("a" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)
8. Source-Well 17 In Service				
a) Is there a sanitary seal in tact?	☑	N/A		
b) Is the vent screened?	☑	N/A		
c) Are there any unprotected cross connections at the wellhead? If yes, please describe?	☑	N/A		
d) Were there any observed leaks?	☑	N/A		
e) Is there evidence of intentional contamination at the storage tank?	☑	N/A		
f) How is the well being used? (Circle if applicable)	☑		Primary	
g) How far does the casing extend above grade?	☑	N/A		
h) Is the well cap secure?	☑	N/A		
i) Is there evidence of standing water at or near the wellhead?	☑	N/A		
j) Is the wellhead secure to prevent unauthorized access?	☑	N/A		
k) Have there been any sewer spills, source water spills or other disturbances in near proximity to the wellhead? If yes, please describe and give distance.	☑	N/A		
l) Any additional comments regarding the well system? (Are there aspects or conditions existing of the well construction and/or operation that would bear on observed positives?)	US Water not provided access to Well 17 during the time of well inspections. USW told by staff that the well was in service and pumping daily.			
8. Source-Well 805 Out of Service				
a) Is there a sanitary seal in tact?	☑	N/A		
b) Is the vent screened?	☑	N/A		
c) Are there any unprotected cross connections at the wellhead? If yes, please describe?	☑	N/A		
d) Were there any observed leaks?	☑	N/A		
e) Is there evidence of intentional contamination at the storage tank?	☑	N/A		
f) How is the well being used? (Circle if applicable)	☑		Primary	
g) How far does the casing extend above grade?	☑	N/A		
h) Is the well cap secure?	☑	N/A		
i) Is there evidence of standing water at or near the wellhead?	☑	N/A		
j) Is the wellhead secure to prevent unauthorized access?	☑	N/A		
k) Have there been any sewer spills, source water spills or other disturbances in near proximity to the wellhead? If yes, please describe and give distance.	☑	N/A		
l) Any additional comments regarding the well system? (Are there aspects or conditions existing of the well construction and/or operation that would bear on observed positives?)	US Water not provided access to Well 805 during the time of well inspections. USW told by staff that the well is out of service. Well located on FPL property			

Questions	Reviewed and Checked? (" ✔ " if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)
9. Disinfection				
a) problems with chlorinator	☑	Y	Lack of flow proportionate control as well as the system has significant corrosion on injectors and hardware; Several broken solution metering systems; Inadequate differential pressure supply to generate required vacuum; see report for additional details	
b) loss of chlorine residual	☑	Y	Refer to section 7.2	
c) loss of disinfection product or feed	☑	Y	The chlorine scales and automatic switchover are inoperable likely resulting in intermittent loss of disinfection. See Report Section 7.0 for additional details and deficiencies.	
d) Does system use alternate disinfection process? If yes, list.	☑	N	N/A	
e) Age of disinfectant? Is product exposed to direct sunlight or weather? (If solution used)	☑	N	N/A	
f) Any changes to disinfection system operation?	☑	Y	Based on USWSC operator training the operations staff have adjusted chlorine and ammonia dosages resulting in an increased total chlorine residual throughout the system	
g) Any additional comments on the disinfection system?		Y	See attached report	

Questions	Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)
10. Source-Surface Water Supply				
a) Have there been any sewer spills, source water spills or other disturbances? If yes, please describe and give distance.	☐	NA	N/A	
b) Have there been algal blooms?	☐	NA	N/A	
c) Has source water turnover occurred?	☐	NA	N/A	
d) Any additional surface water supply comments?				

Questions	Reviewed and Checked? ("✔" if completed or "N/A")	Issue(s) Found (Y or N)	Issue Description	Corrective Action Taken (include date)
11. Environmental Events				
a) Has there been heavy rainfall? If so when and how much?	☐	N	Normal rainfall	
b) Has there been any flooding?	☐	N		
c) Have there been changes in the available source water such as significant drop in water table, well levels, reservoir capacity, etc.?	☐	N		
d) Have there been any interruptions in electrical power? If yes describe and give duration?	☐	N		
e) Have there been any extremes in heat or cold?	☐	N		

Appendix B

Consent Order

BEFORE THE STATE OF FLORIDA
FLORIDA DEPARTMENT OF HEALTH
PALM BEACH COUNTY

FLORIDA DEPARTMENT OF HEALTH PALM BEACH COUNTY	)	
v.	)	FILE NO. WP-020-16
RIVIERA BEACH UTLITY SPECIAL DISTRICT	)	

CONSENT ORDER

This Consent Order (Order) is entered into between the Florida Department of Health Palm Beach County (Department) and Riviera Beach Utility Special District (Respondent) to reach settlement of certain matters at issue between the Department and Respondent.

The Department finds and Respondent admits the following:

1. The Department is the administrative agency of the State of Florida having the power and duty to protect Florida's water resources and to administer and enforce the provisions of the Florida Safe Drinking Water Act, Sections 403.850, et seq., Florida Statutes (F.S.), and the rules promulgated and authorized in Title 62, Florida Administrative Code (F.A.C.). The Department has jurisdiction over the matters addressed in this Order.

2. Respondent is a person within the meaning of Section 403.852(5), F.S.

3. Respondent is the owner and operator of a public water system, PWS No. 4501229, located at 600 W. Blue Heron Boulevard, Riviera Beach, FL 33404 in Palm Beach County, Florida (System).

4. The Department finds that the following violations occurred:

   a) Respondent failed to comply with the Department's Final Order WP-067-15 (Attachment 1) that was filed with the Department on January 20, 2016.

   b) Rule 62-555.350(c), F.A.C.: The system failed to maintain a minimum combined chlorine residual of 0.6 mg/L within the distribution system during the January and February 2016 reporting period.

c) Rule 62-550.310(5)(a)2., F.A.C.: The system exceeded the maximum contaminant level (MCL) (5% of samples) for total coliform within the distribution system during the January, February and March 2016 compliance period.

d) 40 CFR Subpart S, 141.402(a)(2): The system failed to comply with the triggered monitoring requirements during the January and February 2016 compliance period.

Having reached a resolution of the matter Respondent and the Department mutually agree and it is

ORDERED:

5. Respondent shall comply with the following corrective actions within the stated time periods:

a) **Minimum Disinfectant Residual:** The Respondent shall maintain a minimum disinfectant residual level of either 0.2 mg/L (Free Chlorine) during free chlorine disinfection or 0.6 mg/L (Combined Chlorine) during normal operation throughout the distribution system.

b) **Repeat Monitoring**: The Respondent shall collect, within 24 hours of receipt of notification of a total coliform-positive sample, repeat samples in accordance with 62-550.518(7), F.A.C.

c) **Triggered Monitoring:** The Respondent shall collect, within 24 hours of notification of a total coliform-positive sample, at least one ground water source sample from each ground water source in use at the time of the total coliform-positive sample.

a. The Respondent shall notify the Department within 4 hours (via phone or electronic mail) of receipt of notification of a total coliform-positive sample.

b. The Respondent shall notify the Department within 24 hours (via phone or electronic mail) of receipt of notification of a total coliform-positive sample that the triggered monitoring samples have been collected.

d) **Disinfectant Residual Monitoring, Recordkeeping and Reporting:**

a. Upon the effective date of this Order:

i. Daily - The Respondent shall monitor and record the disinfectant residual level at each sampling point identified in Attachment 2 of this Order.

ii. Daily, As Needed – The Respondent shall flush the distribution system in the immediate area of any sampling point with a disinfectant residual level less than that required in paragraph 5.a). The Respondent shall flush the distribution system until the disinfectant level is at least 1.5 times the minimum level.

iii. Daily – The Respondent shall record each flushing event and post-flushing disinfectant residual using Attachment 2.

iv. Weekly – The Respondent shall submit the completed Attachment 2 to the Department within 3 business days of the end of the weekly monitoring period (Saturday – Friday).

b. Reduced Monitoring – The Respondent may request that the Department re-evaluate the daily sampling requirement for any sampling point in Attachment 2 following a minimum of 4 weeks of monitoring that demonstrates that the sampling point can maintain an effective disinfectant residual of at least 1.2 times the minimum level without the need to flush the system in the immediate area of the sampling point.

i. All requests shall be in writing and the Department shall either approve or deny the Respondent's request within 10 working days of receipt.

ii. When approved the Department shall provide a revised Attachment 2 striking through the sampling point.

c. Flushing Plan Development - The Respondent may develop a written Flushing Plan based on the data collected or continue with the daily monitoring schedule. If a Flushing Plan is developed it shall include at a minimum the following:

i. A map showing the locations of each sample point and flushing point;

ii. Each Sampling Point (Description and Location);

iii. Flushing points for each sampling point (Descriptions and Locations);

iv. Flushing Criteria Trigger (Based on a disinfectant residual); and

v. Response Action Levels (minimum disinfectant residual for all sample points) and timeframes.

d. Flushing Plan Approval - The Respondent may submit the Flushing Plan to the Department for approval following a minimum of 12 weeks of daily monitoring with credit for daily monitoring presently in practice.

i. The Respondent shall submit a written copy of the Flushing Plan to the Department along with a two hundred and fifty ($250) dollar review fee.

ii. The Department shall review the Flushing Plan in accordance with the requirements of Chapter 120, F.S. and the daily monitoring data provided in the weekly reports.

iii. The Respondent shall respond to any request for additional information, corrections or modifications within 30 days of receipt of any such request.

iv. If a response is not received within 30 days the request shall been deemed disapprove.

v. The Respondent will be notified of the disapproval via electronic mail and no further action taken by the Department.

vi. The Respondent may resubmit for approval 30 days after any disapproval along with a re-review fee of one hundred and twenty-five ($125) dollars.

e. Normal Monitoring – The Respondent may request relief from the daily monitoring following a successful demonstration period of the Flushing Plan.

i. The demonstration period shall be no less than 120 days following approval of the Flushing Plan.

ii. The request shall be in writing to the Department.

iii. The Department shall review the request in accordance with the requirements of Chapter 120, F.S. and the daily monitoring data provided in the weekly reports.

iv. The Respondent shall respond to any request for additional information, corrections or modifications within 30 days of receipt of any such request.

v. If the Respondent fails to respond within 30 days the request for normal monitoring shall been deemed disapproved.

vi. The Respondent shall be notified of the disapproval via electronic mail with no further action taken by the Department.

e) **Public Water System Assessment:** The Respondent shall have a comprehensive assessment of the Public Water System completed. The assessment shall meet the following minimum requirements and schedule:

a. Assessment Requirements:

i. The assessment shall be conducted by a third party team selected by the Respondent and approved by the Department.

ii. The assessment team shall, as a minimum, include a Professional Engineer(s) licensed in the State of Florida experienced with Water Treatment Plant and Distribution System Design, Operation and Maintenance; a Licensed Drinking Water Treatment Plant Operator (Class A); and a Licensed Distribution System Operator. The members of the team shall be experienced with Water Treatment Plant and Distribution System Design, Operation, and Maintenance.

iii. The assessment shall be conducted in general conformance with a Level 2 Assessment under the Revised Total Coliform Rule. The Respondent is allowed to use the Florida Department of Environmental Protection's draft Form DEP Form 62-555.900(15) to document the assessment.

iv. The assessment shall provide a list of all critical equipment, a description of the equipment and an assigned a rating between 0 and 3 to reflect the operational condition. The ratings shall reflect the following:

1. 0 – Assigned to critical equipment that is nonoperational at the time of assessment.
2. 1 – Assigned to critical equipment that is in poor operational condition; in need of immediate maintenance, repair or replacement, lacks redundancy, or has an expired certification.
3. 2 – Assigned to critical equipment that is in fair condition but lacks sufficient redundancy or requires minor maintenance.
4. 3 – Assigned to critical equipment that is in good operational condition.
5. The Assessment Team will also identify any plant facilities and equipment needed to optimize disinfection. The list and

estimated cost of such equipment may be included in the assessment report along with those items associated with paragraph 5.(e)iv.

b. Schedule

i. The Respondent shall select an assessment team and forward the names and qualifications to the Department within 45 days of the effective date of this Order.

ii. The Respondent shall submit the assessment report and critical equipment list to the Department within 60 days of the Department's approval of the assessment team. The report shall address the Respondent's management team abilities and needs; a 5 year schedule and cost assessment to correct all deficiencies, repair or replace critical equipment rated 0 or 1; and any additional equipment needs including but limited to disinfectant residual booster stations within the distribution system.

c. Public Water System Improvements

i. The Respondent shall initiate actions to correct all deficiencies in accordance with the following schedule:

1. Within 90 days of submittal of the assessment report, and annually thereafter, the Respondent shall seek budget approval for the repair or replacement of all critical equipment with a rating of 0 or 1 and any additional equipment needs based on the assessments report's 5 year schedule.

2. In accordance with the 5 year schedule of the assessment report, the Respondent shall complete repairs or replacements of all critical equipment.

3. In accordance with the 5 year schedule of the assessment report, the Respondent shall complete any and all upgrades to the water treatment plant and distribution system.
4. The Respondent shall also evaluate staffing needs, operational procedures, policies, and the ability of the plant operators to control plant operation, chemical feed, and any other parameters that affect the ability of the plant to optimize disinfection.

6. Within 30 days of the effective date of this Order, Respondent shall submit a written estimate of the total cost of the corrective actions related to paragraphs 5.d) and 5.e) a. of this Order to the Department. The written estimate shall identify the information the Respondent relied upon to provide the estimate.

7. Within 30 days of the effective date of this Order, Respondent shall pay the Department $44,368.75 in settlement of the regulatory matters addressed in this Order. This amount includes $43,618.75 for civil penalties and $750.00 for costs and expenses incurred by the Department during the investigation of this matter and the preparation and tracking of this Order. The civil penalty in this case includes 9 violations that each warrant a penalty of $2,000.00 or more.

8. Respondent shall make all payments required by this Order by cashier's check or money order. Cashier's check or money order shall be made payable to the "Florida Department of Health" and shall include the file number assigned to this Order and the notation "Program 58-Civil Penalty."

9. In lieu of making cash payment of $43,618.75 in civil penalties as set forth in paragraph 7 above, Respondent may elect to off-set this amount by implementing an in-kind penalty project, which must be approved by the Department. An in-kind project must be either an environmental enhancement, environmental restoration or a capital/facility improvement project. The Department may also consider the donation of an environmentally sensitive land as an in-kind project. The value of the in-kind penalty project shall be based on a minimum of

one and a half times eighty percent of the base civil penalty, which in this case is the equivalent of at least $52,342.50. The value of the civil penalty shall be reduced by eighty percent for in-kind services which leaves a remainder in the amount of $13,085.63 and must be submitted to the Department within 30 days of the effective date of the Consent Order. If Respondent chooses to implement an in-kind project, Respondent shall notify the Department of its election by certified mail within 15 days of the effective date of this Order. Notwithstanding the election to implement an in-kind project, payment of the remaining $750.00 in costs must be paid within 30 days of the effective date of the Order.

10. If Respondent elects to implement an in-kind project as provided in paragraph 9, then Respondent shall comply with all of the requirements and time frames in Attachment 3 entitled In-Kind Projects.

11. Respondent agrees to pay the Department the following stipulated penalties:

a) In the amount of $1,000.00 per day if any sample point(s) are less than the minimum residual disinfectant level as per paragraph 5.a).

b) In the amount of $2,000.00 per day for any sample point(s) 50% or less than the minimum residual disinfectant level as per paragraph 5.a).

c) In the amount of $100.00 for each repeat sample not collected as per paragraph 5.b).

d) In the amount of $500.00 for each ground water source sample not collected within 24 hours of notification as per paragraph 5.c).

e) In the amount of $10.00 for each 4 hour period or fraction thereof for failure to notify the Department as per para graph 5.c) a.

f) In the amount of $50.00 for each 24 hour period or fraction thereof for failure to notify the Department as per paragraph 5.c) b.

g) In the amount of $1,000.00 per day for failure to monitor and record 100% of the sampling points, plus $50.00 per site as per paragraph 5.d) a.i.

h) In the amount of $2,000.00 per day for failure to flush within 24 hours, plus $50.00 per site as per paragraph, 5.d) a.ii.

i) In the amount of $50.00 per site for failing to record the disinfectant residual level as per paragraph 5.d) a.iii.

j) In the amount of $100.00 per report (Attachment 2) received after 3 business days as per paragraph 5.d) a.iv.

k) In the amount of $250.00 per report (Attachment 2) received after 7 business days.

l) In the amount of $500.00 per report (Attachment 2) not received or received after 14 days.

m) In the amount of $500.00 per week or fraction thereof after 45 days the Respondent fails to submit to the Department the assessment team names and qualifications as per paragraph 5.e) b.i.

n) In the amount of $100.00 per day after 60 days the Respondent fails to submit to the Department the assessment report and the equipment list as per paragraph 5.e) b.ii.

o) In the amount of $50.00 per day after the 5 year schedule that the Respondent fails to complete any and all upgrades to the water treatment plant and distribution system as per paragraph 5.e) c.i.3.

p) The Department may demand stipulated penalties at any time after violations occur. Respondent shall pay stipulated penalties owed within 30 days of the Department's issuance of written demand for payment, and shall do so as further described in paragraph 9 , below. Nothing in this paragraph shall prevent the Department from filing suit to specifically enforce any terms of this Order. Any stipulated penalties assessed under this paragraph shall be in addition to the civil penalties agreed to in paragraph 7 of this Order.

12. A separate stipulated penalty shall be assessed for each violation of this Order under paragraph 11 above. Within 30 days of written demand from the Department, Respondent shall make payment of the appropriate stipulated penalties to the Department by check or money order. The instrument shall be made payable to the "Florida Department of

Health Palm Beach County" and shall include thereon the File No. WP-020-16 assigned to this Consent Order and the notation "Program 58 – Stipulated Penalty". The Department may make demands for payment at any time after violations occur. Nothing in this paragraph shall prevent the Department from filing suit to specifically enforce any of the terms of this Consent Order. Any penalties assessed under this paragraph shall be in addition to the settlement sum agreed to in paragraph 7 of this Order. If the Department is required to file a lawsuit to recover stipulated penalties under this paragraph, the Department will not be foreclosed from seeking civil penalties for violations of this Order in an amount greater than the stipulated penalties due under this paragraph.

The Respondent may request review of any decision related to penalties assessed under paragraph 8 of this Order to the Department's Director of Environmental Public Health. In the event the Respondent disagrees with the decision of the Division Director, the Respondent may, within thirty (30) calendar days, submit an appeal to the Environmental Appeals Board in accordance with Section 17, Chapter B (Environmental Control Rule II), Article 15 – Health Regulations, of the Palm Beach County Unified Land Development Code.

13. Except as otherwise provided, all submittals and payments required by this Order shall be sent to the Florida Department of Health Palm Beach County, 800 Clematis Street, P.O. Box 29, Fourth Floor, West Palm Beach, Florida 33402.

14. Respondent shall allow all authorized representatives of the Department access to the Facility and the Property at reasonable times for the purpose of determining compliance with the terms of this Order and the rules and statutes administered by the Department.

15. In the event of a sale or conveyance of the Facility or of the Property upon which the Facility is located, if all of the requirements of this Order have not been fully satisfied, Respondent shall, at least 30 days prior to the sale or conveyance of the Facility or Property, (a) notify the Department of such sale or conveyance, (b) provide the name and address of the purchaser, operator, or person(s) in control of the Facility, and (c) provide a copy of this Order with all attachments to the purchaser, operator, or person(s) in control of the Facility. The sale

or conveyance of the Facility or the Property does not relieve Respondent of the obligations imposed in this Order.

16. If any event, including administrative or judicial challenges by third parties unrelated to Respondent, occurs which causes delay or the reasonable likelihood of delay in complying with the requirements of this Order, Respondent shall have the burden of proving the delay was or will be caused by circumstances beyond the reasonable control of Respondent and could not have been or cannot be overcome by Respondent's due diligence. Neither economic circumstances nor the failure of a contractor, subcontractor, materialman, or other agent (collectively referred to as "contractor") to whom responsibility for performance is delegated to meet contractually imposed deadlines shall be considered circumstances beyond the control of Respondent (unless the cause of the contractor's late performance was also beyond the contractor's control). Upon occurrence of an event causing delay, or upon becoming aware of a potential for delay, Respondent shall notify the Department by the next working day and shall, within seven calendar days notify the Department in writing of (a) the anticipated length and cause of the delay, (b) the measures taken or to be taken to prevent or minimize the delay, and (c) the timetable by which Respondent intends to implement these measures. If the parties can agree that the delay or anticipated delay has been or will be caused by circumstances beyond the reasonable control of Respondent, the time for performance hereunder shall be extended. The agreement to extend compliance must identify the provision or provisions extended, the new compliance date or dates, and the additional measures Respondent must take to avoid or minimize the delay, if any. Failure of Respondent to comply with the notice requirements of this paragraph in a timely manner constitutes a waiver of Respondent's right to request an extension of time for compliance for those circumstances.

17. The Department, for and in consideration of the complete and timely performance by Respondent of all the obligations agreed to in this Order, hereby conditionally waives its right to seek judicial imposition of damages or civil penalties for the violations described above up to the date of the filing of this Order. This waiver is conditioned upon Respondent's complete compliance with all of the terms of this Order.

18. This Order is a settlement of the Department's civil and administrative authority arising under Florida law to resolve the matters addressed herein. This Order is not a settlement of any criminal liabilities which may arise under Florida law, nor is it a settlement of any violation which may be prosecuted criminally or civilly under federal law. Entry of this Order does not relieve Respondent of the need to comply with applicable federal, state, or local laws, rules, or ordinances.

19. The Department hereby expressly reserves the right to initiate appropriate legal action to address any violations of statutes or rules administered by the Department that are not specifically resolved by this Order.

20. Respondent is fully aware that a violation of the terms of this Order may subject Respondent to judicial imposition of damages, civil penalties up to $5,000.00 per day per violation, and criminal penalties.

21. Respondent acknowledges and waives its right to an administrative hearing pursuant to sections 120.569 and 120.57, F.S., on the terms of this Order. Respondent also acknowledges and waives its right to appeal the terms of this Order pursuant to section 120.68, F.S.

22. Electronic signatures or other versions of the parties' signatures, such as .pdf or facsimile, shall be valid and have the same force and effect as originals. No modifications of the terms of this Order will be effective until reduced to writing, executed by both Respondent and the Department, and filed with the clerk of the Department.

23. The terms and conditions set forth in this Order may be enforced in a court of competent jurisdiction pursuant to sections 120.69 and 403.121, F.S. Failure to comply with the terms of this Order constitutes a violation of section 403.161(1)(b), F.S.

24. This Consent Order is a final order of the Department pursuant to section 120.52(7), F.S., and it is final and effective on the date filed with the Clerk of the Department unless a Petition for Administrative Hearing is filed in accordance with Chapter 120, F.S. Upon the timely filing of a petition, this Consent Order will not be effective until further order of the Department.

25. Respondent shall publish the following notice in a newspaper of daily circulation in the city of Riviera Beach, Florida. The notice shall be published one time only within 7 days of the effective date of the Order. Respondent shall provide a certified copy of the published notice to the Department within 10 days of publication.

FLORIDA DEPARTMENT OF HEALTH PALM BEACH COUNTY

NOTICE OF CONSENT ORDER

The Florida Department of Health Palm Beach County (Department) gives notice of agency action of entering into a Consent Order with RIVIERA BEACH UTILITY SPECIAL DISTRICT pursuant to section 120.57(4), Florida Statutes. The Consent Order addresses the violations and corrective actions associated with operation and maintenance of the water treatment plant and the distribution system at 600 W. Blue Heron Drive, Riviera Beach, FL 33404. The Consent Order is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at the Florida Department of Health Palm Beach County, 800 Clematis Street, West Palm Beach, FL 33402.

Persons who are not parties to this Consent Order, but whose substantial interests are affected by it, have a right to petition for an administrative hearing under sections 120.569 and 120.57, Florida Statutes. Because the administrative hearing process is designed to formulate final agency action, the filing of a petition concerning this Consent Order means that the Department's final action may be different from the position it has taken in the Consent Order.

The petition for administrative hearing must contain all of the following information:

a) The OGC Number assigned to this Consent Order;

b) The name, address, and telephone number of each petitioner; the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding;

c) An explanation of how the petitioner's substantial interests will be affected by the Consent Order;

d) A statement of when and how the petitioner received notice of the Consent Order;

e) Either a statement of all material facts disputed by the petitioner or a statement that the petitioner does not dispute any material facts;

f) A statement of the specific facts the petitioner contends warrant reversal or modification of the Consent Order;

g) A statement of the rules or statutes the petitioner contends require reversal or modification of the Consent Order; and

h) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the Department to take with respect to the Consent Order.

The petition must be filed (received) at the Department's Legal Office, 800 Clematis Street, Fifth Floor, West Palm Beach, Florida 33402 within 21 days of receipt of this notice. Failure to file a petition within the 21-day period constitutes a person's waiver of the right to request an administrative hearing and to participate as a party to this proceeding under sections 120.569 and 120.57, Florida Statutes. Before the deadline for filing a petition, a person whose substantial interests are affected by this Consent Order may choose to pursue mediation as an alternative remedy under section 120.573, Florida Statutes. Choosing mediation will not adversely affect such person's right to request an administrative hearing if mediation does not result in a settlement. Additional information about mediation is provided in section 120.573, Florida Statutes and Rule 62-110.106(12), Florida Administrative Code[23].

26. Rules referenced in this Order are available at http://www.dep.state.fl.us/legal/Rules/rulelist.htm

FOR THE RESPONDENT:

Name: Danny D. Jones

June 3, 2016
Date

ACTING CITY MANAGER
Title

DONE AND ORDERED this 9th day of June, 2016, in Palm Beach County, Florida.

FLORIDA DEPARTMENT OF HEALTH
PALM BEACH COUNTY

Alina M. Alonso, MD, Director
Florida Department of Health Palm Beach County

Filed, on this date, pursuant to section 120.52, F.S., with the designated Department Clerk, receipt of which is hereby acknowledged.

Clerk

6/9/16
Date

Copies furnished to:
FDEP SW District Office: Michele Owens via email – Michele.Owens@dep.state.fl.us
FDOHPBC File: WP-020-16

BEFORE THE STATE OF FLORIDA
FLORIDA DEPARTMENT OF HEALTH
PALM BEACH COUNTY

FLORIDA DEPARTMENT OF HEALTH
PALM BEACH COUNTY,
Petitioner,

vs.

File No. WP-067-15

RIVIERA BEACH UTILITY
SPECIAL DISTRICT,

Respondent.
_____/

FINAL ORDER

BY THE DEPARTMENT:

On December 8, 2015 the Florida Department of Health Palm Beach County (Department) issued a Notice of Violation, Orders for Corrective Action, and Administrative Penalty Assessment (Notice) to Respondent, pursuant to the authority of Section 403.121(2), Florida Statutes. A copy of the Notice is attached and incorporated herein as Exhibit A. Respondent received the Notice on December 9, 2015. A copy of the hand delivery of official documents is attached and incorporated herein as Exhibit B.

The Notice informed Respondent that unless a request for hearing was filed with the Department within 20 days of receipt, the Orders for Corrective Action contained therein would become final. No responsive pleading or request for hearing has been made by Respondent. Therefore, pursuant to Section 403.121(2)(c), Florida Statutes, the Findings of Fact and Conclusions of Law contained in the Notice are deemed admitted and have become binding and final. The Orders for Corrective Action have likewise become final and effective, pursuant to Section 403.121(2)(c), Florida Statutes.

Specifically, the Orders for Corrective Action (see Exhibit A) contain the following directions to the Respondent:

1. Respondent shall forthwith comply with all Department rules regarding the drinking water program. Respondent shall correct and redress all violations in the time periods required below and shall comply with all applicable rules in Chapters 62-550 and 62-555 F.A.C.

2. Within 30 days of the effective date of this Order, Respondent shall pay $10,000.00 to the Department for the administrative penalties imposed above. Payment shall be made by cashier's check or money order payable to the "Florida Department of Health Palm Beach County" and shall include thereon the File No. WP-067-15 assigned to the Notice of Violation and the notation "Program 58-Civil Penalty". The payment shall be sent to the Florida Department of Health Palm Beach County, 800 Clematis Street, Post Office Box 29, Fourth Floor, West Palm Beach, FL 33402.

Having considered the Notice of Violation, Orders for Corrective Action, and Administrative Penalty Assessment and Respondent's failure to timely file a responsive pleading to request a hearing, it is, therefore,

ORDERED by the Florida Department of Health Palm Beach County that the foregoing Orders for Corrective Action are hereby approved and adopted in toto as the Final Order of the Department in the above-styled matter.

Respondent shall comply with the Orders for Corrective Action within the time frames specified above, all of which commence on the effective date of this Final Order. The effective date of this Final Order is the date on which it is filed with the designated Department clerk (see below).

Any party to this Final Order has the right to seek judicial review of the Final Order pursuant to Section 120.68, Florida Statutes, by filing a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Department's Legal Office, 800 Clematis Street, Fifth Floor, West Palm Beach, Florida 33402. The Notice of Appeal must be filed within 30 days of the effective date of this Final Order.

DATED this 20th day of January, 2016.

FLORIDA DEPARTMENT OF HEALTH
PALM BEACH COUNTY

Timothy G. Mayer, R.S. MPH Director
Division of Environmental Public Health

Filed, on this date, pursuant to Section120.52, F.S., with the designated Department Clerk, receipt of which is hereby acknowledged.

Clerk

1/20/16
Date

Copies furnished to:
Jennifer Smith, FDEP Southeast District
FDOHPBC File No.: WP-067-15

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Attachment 2														
2	Week 1														
3	Site Number	Site Name	Site Address	Disinectant Residual							Flushed Y/N		Post Flush Disinfecant Residual		
4				M	T	W	T	F	S	S					
5		1	Suncoast High School	600 W. 28th Street, RB											
6		2	Resident	2235 Ave E, RB											
7		3	Resident	118 W. 10th St. RB											
8		4	Resident	35 W. 11th St, RB											
9		5	Riviera Beach Marina	200 E. 13th St, RB											
10		6	Yacht Haven Apartments	2425 Lake Dr, Singer Island											
11		7	Resident	300 Edwards Ln, Palm Beach Shores											
12		8	Days Inn Ocean Front Resort	2700 N. Ocean, RB											
13		9	Amrit	3100 N. Ocean Dr, Singer Island											
14		10	Ocean Mist	107 Inlet Way, Palm Beach Shores											
15		11	Singer Island Fire Station	5020 N. Ocean Dr, RB											
16		12	Dunes Tower Condo	5480 N. Ocean Dr, Singer Island											
17		13	Resident	1051 Pine Point, RB											
18		14	Resident	1110 Grand Bagama Ln, RB											
19		15	Phil Foster Park	900 E. Blue Heron Blvd, RB											
20		16	McIlvaine, Ricci & Rentz Dentistry	274 E. Blue Heron Blvd. RB											
21		17	Military Trail Fire Station	7501 E. Blue Heron Blvd, RB											
22		18	Centerpoint Plaza	4152 Center Point, RB											
23		19	Resident	2000 Bonisle Circle. RB											
24		20	Dyer Park	7301 Haverhill Rd, RB											
25															
26		21	Riviera Beach City Hall	300 W. Blue Heron Blvd, RB											
27		22	West Riviera Elementary	1057 W. 6th St, RB											
28		23	Lincoln Elementary	1160 W. 10th, RB											
29		24	Kennedy Middle	1901 Ave S, RB											
30		25	Resident	1229 W 25th St, RB											
31		26	Washington Elementary	1709 W. 30th St, RB											
32		27	Two Fat Guys Deli	7535 Enterprise Dr, RB											
33		28	Rapids Water Park	6566 N. Military Trail, RB											
34		29	Resident	2548 Maniki Dr, RB											
35		30	Arnold Oro-Wheat Bakery	2300 Old Dixie Hwy, RB											
36		31	Resident	1357 Silver Beach Rd, RB											
37		32	US Coast Guard Station	3300 Lakeshore Dr (Ave A), RB											
38		33	Resident	224 E. 28th. RB											
39		34	Resident	233 E. 23rd St, RB											
40		35	Miami Subs Plus	1851 Broadway, RB											
41		36	Newcombe Hall	180 E. 13th St, RB											
42		37	Mary Mcleod Bethune Elementary	1501 Ave U, RB											
43		38	Resident	4860 Caribbean Blvd. Gramacy Park											
44		39	Resident	5766 Parke Ave Rd, Gramacy Park											
45		40	Resident	5783 S. Bermuda Cir, Gramacy Park											

06/01/2016

Attachment 3
In-Kind Projects

I. Introduction

a. Within 60 days of the effective date of this Consent Order, Respondent shall submit, by certified mail, a detailed in-kind project proposal to the Department for evaluation. The proposal shall include a summary of benefits, proposed schedule for implementation and documentation of the estimated costs which are expected to be incurred to complete the project. These costs shall not include those incurred in developing the proposal or obtaining approval from the Department for the in-kind project.

b. If the Department requests additional information or clarification due to a partially incomplete in-kind project proposal or requests modifications due to deficiencies with Department guidelines, Respondent shall submit, by certified mail, all requested additional information, clarification, and modifications within 15 days of receipts of written notice.

c. If upon review of the in-kind project proposal, the Department determines that the project cannot be accepted due to a substantially incomplete proposal or due to substantial deficiencies with minimum Department guidelines; Respondent shall be notified, in writing, of the reason(s) which prevent the acceptance of the proposal. Respondent shall correct and redress all of the matters at issue and submit, by certified mail, a new proposal within 30 days of receipt of written notice. In the event that the revised proposal is not approved by the Department, Respondent shall make cash payment of the civil penalties as set forth in paragraph 5 above, within 30 days of Department notice.

d. Within 120 days of the effective date of this Consent Order, Respondent shall obtain approval for an in-kind project from the Department. If an in-kind project proposal is not approved by the Department within 120 days of the effective date of this Consent Order, then Respondent shall make cash payment of the civil penalties as set forth in paragraph 5 above, within 30 days of Department notice.

e. Within 180 days of obtaining Department approval for the in-kind proposal or in accordance with the approved schedule submitted pursuant to paragraph 2(a) above, Respondent shall complete the entire in-kind project.

f. During the implementation of the in-kind project, Respondent shall place appropriate sign(s) at the project site indicating that Respondent's involvement with the project is the result of a Department enforcement action. Respondent may remove the sign(s) after the project has been completed. However, after the project has been completed Respondent shall not post any sign(s) at the site indicating that the reason for the project was anything other than a Department enforcement action.

g. In the event, Respondent fails to timely submit any requested information to the Department, fails to complete implementation of the in-kind project or otherwise fails to comply with any provision of this paragraph, the in-kind penalty project option shall be forfeited and the entire amount of civil penalties shall be due from the Respondent to the Department within 30 days of Department notice. If the in-kind penalty project is terminated and Respondent timely remits the $43,618.75 penalty, no additional penalties shall be assessed under paragraph 5 for failure to complete the requirement of this paragraph.

h. Within 15 days of completing the in-kind project, Respondent shall notify the Department, by certified mail, of the project completion and request a verification letter from the Department. Respondent shall submit supporting information verifying that the project was completed in accordance with the approved proposal and documentation showing the actual costs incurred to complete the project. These costs shall not include those incurred in developing the proposal or obtaining approval from the Department for the project.

i. If upon review of the notification of completion, the Department determines that the project cannot be accepted due to a substantially incomplete notification of completion or due to substantial deviations from the approved in-kind project; Respondent shall be notified, in writing, of the reason(s) which prevent the acceptance of the project. Respondent shall correct and redress all of the matters at issue and submit, by certified mail, a new notification of completion within 15 days of receipt of the Department's notice. If upon review of the new submittal, the Department determines that the in-kind project is still incomplete or not in accordance with the approved proposal, the in-kind penalty project option shall be forfeited and the entire amount of civil penalty shall be due from the Respondent to the Department within 30 days of Department notice. If the in-kind penalty project is terminated and Respondent timely remits the $43,618.75, no additional penalties shall be assessed under paragraph 5 for failure to complete the requirements of this paragraph.