

# CITY OF WINTER SPRINGS WTP 1 WATER FACILITIES PLAN

September 2015



Engineers  
Planners  
Landscape Architects  
Surveyors  
Construction Management  
Design/Build

Certificate of Authorization No. 00003215

**CPH, Inc. – Orlando**  
1117 East Robinson Street  
Orlando, Florida 32801  
(407) 425-0452  
**CPH Project No. W04167**

**This Page Intentionally Left Blank**

# WTP 1 WATER FACILITIES PLAN

## TABLE OF CONTENTS

	<u>Page</u>
<b>CHAPTER 1 - EXECUTIVE SUMMARY</b>	
1.1 Background	1-1
1.2 Scope of Study	1-2
1.3 City Efforts to Date on Conservation and Alternate Water Sources	1-4
<b>CHAPTER 2 - INTRODUCTION</b>	
2.1 Purpose of this Plan	2-1
2.2 Geographic Location	2-1
2.3 Climate	2-1
2.4 Topography and Drainage	2-1
2.5 Surface Water	2-2
2.6 Soils	2-2
2.7 Ecology	2-2
2.8 Air Quality	2-2
2.9 Archaeological and Historical Sites	2-2
2.10 Flood Plain	2-3
2.11 Socio-Economic Conditions	2-3
2.12 Managerial Capacity	2-3
2.13 Eligibility for Categorical Exclusion	2-3
<b>CHAPTER 3 - WATER SUPPLY SOURCES AND QUALITY CONSIDERATIONS</b>	
3.1 General	3-1
3.2 Historical Information	3-1
3.3 Water Quality Source	3-3
3.4 Disinfection By-Products Rule, Analysis and WTP 1	3-6
3.5 Suggested Intermediate Action Items	3-8
3.6 Initial Recommendations	3-10
3.7 Historical Data	3-11
3.8 Simulated DBPFP Bench-Scale Test Results	3-16
3.9 Predicted THM Formation Potential as a Function of Conductivity	3-16
<b>CHAPTER 4 - EXISTING CONDITIONS</b>	
4.1 General	4-1
4.2 Water Plants	4-1
4.3 Distribution System	4-2
4.4 Chlorination/Disinfection	4-5
4.5 Corrosion Control	4-5
<b>CHAPTER 5 - POPULATION AND WATER FLOWS</b>	
5.1 Population and Future Land Use	5-1
5.2 Demand for Water	5-1
5.3 Wastewater Reuse Program	5-3
5.4 Service Area Growth	5-3
<b>CHAPTER 6 - DESIGN CRITERIA</b>	
6.1 Water Treatment	6-1
6.2 Water Quality Treatment Alternatives	6-2
6.3 Evaluation of the Preferred Alternative for Water Quality Improvements	6-8

<b>CHAPTER 7 - THE SELECTED PLAN</b>		
7.1	Description of proposed Facilities	7-1
7.2	Environmental Impacts of Proposed Facilities	7-1
7.3	Cost to Construct Facilities	7-2
7.4	Consistency with the Comprehensive Plan	7-2
<b>CHAPTER 8 - IMPLEMENTATION AND COMPLIANCE</b>		
8.1	Public Hearing/Dedicated Revenue Hearing	8-1
8.2	Water Quality Treatment Alternatives	8-1
8.3	Financial Planning	8-1
8.4	Implementation	8-2
8.5	Implementation Schedule Items	8-2
8.6	Compliance	8-3
<b>TABLES</b>		
3-1	Actions to Reduce DBPs	3-9
3-2	Typical Chlorine Dosage	3-14
3-3	TTHM Sampling Results	3-15
4-1	Inventory of Existing Water Storage Facilities	4-2
4-2	Inventory of Existing Wells	4-3
4-3	Inventory of Existing High Service Pumping Facilities	4-4
4-4	Existing Water Plant Design Capacities	4-5
5-1	Historical and Projected Population and Water Flow	5-2
6-1	Treatment Options	6-4
<b>FIGURES</b>		
3-1	Historical THM (2009 to March 2013)	3-12
3-2	Historical HAA (2009 to March 2013)	3-12
3-3	Historical Average Water Demands (2009 to 2011)	3-13
3-4	Annual Production Contributions per WTP	3-13
3-5	Chlorine Residuals at POEs (January 2012 to February 2013)	3-14
3-6	Well Production Relative to THM Formation	3-15
3-7	Predicted THMFP for Various Well Blends at WTP	3-16

**MAPS/FIGURES**

- 1 Winter Springs Water Service Area/Water Distribution Map
- 2 Soils Map
- 3 Project Location Map
- 4 Process Flow Diagram
5. Flood Map

**APPENDICES**

- A. FDEP Consent Order
- B. Water Quality Data
- C. Copy of Hearing Notice and Hearing Minutes
- D. Drinking Water State Revolving Fund Business Plan
- E. Present Worth Analysis – Top Two Recommended Alternatives
- F. FDEP Sanitary Survey December 2013

**This Page Intentionally Left Blank**

## CHAPTER 1

### EXECUTIVE SUMMARY

#### 1.1 Background

Winter Springs has prepared this Facility Plan to meet the criteria set forth by the Florida Department of Environmental Protection (FDEP) State Revolving Funds (SRF) Drinking Water Program. The City of Winter Springs has experienced a change in the water Quality of the well system at WTP 1. The other two water plants and the associated distribution system water quality are currently in compliance.

Even though the City has implemented corrective actions over the last two years (flushing, looping chlorine dosage control, well rotation, etc.) to decrease the formation of Disinfection By-Products (DBPs), the City has not been able to significantly reduce the DBPs in the WTP 1 service area. The change in raw water quality and the implementation of Stage 2 of the Disinfection By-products Rule (DBPR) has resulted in the City being in non-compliance. The City of Winter Springs signed a Consent Order which was executed on April 15, 2015. The Consent Order is contained in Appendix A. The Consent Order stipulated certain actions required by the City. After evaluating various treatment alternatives to decrease DBPs, the City decided to proceed with a project for the installation of ionic exchange (IEX) water treatment units. This Facility Plan describes the investigation and selection process of the preferred treatment option, Ion Exchange. This Water Facilities Plan only addresses this project. The plan's goal is to construct a water treatment system/equipment to control the formation of DBPs by removing the pre-cursors (Total Organic Carbon - TOC) from the source water of WTP 1. The scope of this plan does not include a system-wide evaluation of the City's drinking water facilities/system.

The project generally consists of improving WTP 1 by installing an anionic ion exchange (IEX) system, upgrading controls to improve the control of chemical feeds and increasing the accuracy of the flow metering system and upgrading the chlorine and corrosion control equipment. The implementation of the identified processes and improvements will assist the City's system to re-establish compliance and will benefit all existing and future customers.

## 1.2 Scope of Study

### 1.2.1

The scope of the Water Facilities Plan is described below:

- Identify the proposed project and documented public health risk component for WTP 1
- Establish design needs of the project
- Identify and evaluate various alternatives to satisfy the needs of the project
- Recommend the most cost effective, environmentally sound facilities to meet the needs of the project.
- Describe the recommended facilities and costs
- Present a schedule of implementation of the recommended facilities
- Identify adverse environmental impacts and propose mitigating measures
- Identify a source of financing and estimate the cost per household.

### 1.2.2 Winter Springs Utilities

The City of Winter Springs owns and operates three water treatment plants within its corporate limits. These facilities have been interconnected to form one system and are covered by one SJRWMD Consumptive Use Permit (CUP).

The following is a summary of the facilities by Water Plant:

#### **WTP1:**

<u>Process</u>	<u>Capacity</u>	<u>Maximum Population Served</u>
Wells (4)*	6700 gpm (4700**)	27,547**
Aeration	7300 gpm	42,941
Storage/Treatment	1,500,000 Gallons	24,500
High Service	7950 gpm (4600**)	17,692

\*Includes Well Number 4 under construction

\*\* Largest pump-out of service criteria.

**WTP2:**

<u>Process</u>	<u>Capacity</u>	<u>Maximum Population Served</u>
Wells (2)	2200 gpm	12,941
Aeration	3800 gpm	22,353
Storage/Treatment	500,000 Gallons	8,169
High Service	2500 gpm	16,730

**WTP3:**

Wells (2)	2900 gpm	17,058
Aeration	3800 gpm	45,327
Storage/Treatment	500,000 Gallons	8,169
High Service	4350 gpm	11,923

<u>Combined Service Capability</u>	<u>Capacity</u>	<u>Maximum Population Served</u>
Wells	11,800 gpm (9800**)	57,646
Aeration	14,900 gpm (11,450**)	87,647
Storage/Treatment	2,500,000 Gallons	40,839
High Service	15,400 gpm (12,050)	46,345
CUP	See Table 5-6 and Appendix A	

\*\*Largest unit - out of service criteria

### 1.2.3 City Water Supplied to Unincorporated Users

Winter Springs does not supply significant amounts of water to unincorporated areas. The City serves two commercial entities on U.S. 17-92 that are within the County. They also serve single-family units on Orange Avenue. It is a general policy of the City to only serve within its corporate limits. The minor sites served are because no other service was available.

### 1.2.4 Self-Supply

There are residents in the City of Winter Springs that are on individual wells and septic systems. We estimate that there are approximately 325 single-family homes in this category. There are no plans to extend water service lines into these areas at this time.

### **1.3 City Efforts to Date on Conservation and Alternate Water Sources**

The City has successfully reduced the per capita potable water consumption from a high 145 gpd in 1998 to a low 96 gpd in 2014. Conservation by the City residents has shown the effectiveness of their water conservation program. Another source of potable water demand reduction is due in a large part to the implementation of the residential reclaimed system, which now has 1646 residential connections utilizing a flow of approximately 1.41 MGD AADF.

Public reception is above average for reclaimed water and it is a viable source of water to the City. It reduces potable water demand and allows the City to use potable water for new development at its highest and best use. However, the City is not currently or in the near future, planning to expand their reclaimed water distribution system.

## CHAPTER 2

### INTRODUCTION, LOCATION AND ENVIRONMENTAL IMPACTS

#### 2.1 Purpose of this Plan

The purpose of this Water Facilities Plan is to analyze the options available for treatment/removal of Total Organic Carbon (TOC) to prevent the formation of Disinfection By-products (DBPs), specifically Total Trihalomethanes (TTHMs). The water quality of the groundwater serving WTP 1 has changed over time and the City has signed a Consent Order with the Florida Department of Environmental Protection. The Plan includes evaluations of the capacities, preliminary locations of additional needed facilities, and a description of techniques which may be appropriate for implementation of the system described by the Plan.

#### 2.2 Geographic Location

The City of Winter Springs is centrally located in Seminole County, south of Lake Jesup and mostly east of U.S. 17-92 and west of S.R. 417 (the Greenway). The City stretches north and south along S.R. 434 from US 17-92 to the Greenway. The northern boundary is Lake Jesup and the southern boundary is the service area of Casselberry and Seminole County Utilities. The eastern boundary is approximately the Greenway and the western boundary is U.S. 17-92. The City is served by a number of arterial highways including U.S. 17-92, and State Roads 417, 419 and 434.

#### 2.3 Climate

Central Florida is generally humid and warm with long summers and mild winters. Rainfall is generally greatest in July and August with annual rainfall between 45 and 50 inches. April and May are generally dry months with a high irrigation demand. Irrigation demand is also high during the summer due to high evapotranspiration.

#### 2.4 Topography and Drainage

The Winter Springs area is relatively flat with numerous streams such as Gee Creek, which flows through the center of the City; Howell Branch, which flows through the southern and western ends of the City; and Soldiers Creek, which flows through the northern end of the City. All streams flow to Lake Jesup. Elevations range from 10 to 50 feet NGVD. The planning area is predominantly developed with only minor fill-in areas remaining. Redevelopment is also occurring along U.S. 17-

92 and S.R. 434.

## **2.5 Surface Water**

There are no Outstanding Florida Waters in the planning area. All surface waters are designated Class III waters, suitable for recreation and for propagation of fish and wildlife.

## **2.6 Soils**

Soils have been mapped by the Natural Resources Conservation Service of the U.S. Department of Agriculture, Figure 2-2. Sand, sandy clay, muck and made land make up most of the soils in the area. The muck is concentrated along the streams and lakes. These soils represent the surface soils of about 20 feet deep with the Hawthorne formation to 100-foot depth over the Floridan Aquifer. The WTP 1 site is already developed and the soils are suitable for tanks and structures.

## **2.7 Ecology**

Wetlands border the surface water bodies that drain the City. No encroachment on existing wetlands is proposed or anticipated. The area is predominantly developed and there are no prime or unique farmlands or plant and animal communities. The WTP 1 site is fully developed. The site is triangular in shape and sits between two major power easements on two sides with Northern Way as the third side. The easements (City owned) are approximately 100 feet wide each and offer a cleared area of buffer to other properties. To the north of the site is Trotwood Park. There are no signs or indications of endangered or threatened species on the site. The project is not expected to have any adverse effects to any species or its habitat as all improvements will occur within the existing WTP 1 site.

## **2.8 Air Quality**

Air quality within the planning area is considered to be in attainment of the State and Federal Ambient Air Quality Standards.

## **2.9 Archeological and Historical Sites**

There are no known archaeological and historical sites in the planning area. There are no known archeological and historical sites at the WTP 1 site. The site has been used as a water treatment

plant site since the 1970's. The WTP 1 site has been fully developed and there are no undeveloped areas thereon.

## **2.10 Flood Plain**

Flood plains are confined to the areas immediately adjacent to the streams of Gee Creek, Soldiers Creek, Howell Branch and Lake Jesup. The WTP 1 site is not near any flood plain areas.

## **2.11 Socio-Economic Conditions**

### **2.11.1 Population**

Population data is contained in Chapter 5.

### **2.11.2 Land Use and Development**

The planning area is primarily residential with commercial and light industrial. Land use is established in the City of Winter Springs Comprehensive Plan.

## **2.12 Managerial Capacity**

The City of Winter Springs has the sole responsibility and authority to build, operate and maintain the water system. The operations of the facilities are provided by City employees.

## **2.13 Eligibility for Categorical Exclusion**

As allowed by FDEP Rule 62-552.700(3)(c) F.A.C., this project qualifies for the Florida Categorical Exclusion Notice (FCEN) as the WTP 1 upgrades are not expected to generate controversy over potential environmental impacts. The project does not result in more than a 50% increase of existing public water system capacity, and there is no acquisition of land required to complete the project. Accordingly, an Evaluation for Environmental Impact is not required.

**This Page Intentionally Left Blank**

## CHAPTER 3

### WATER SUPPLY SOURCES AND QUALITY CONSIDERATIONS

#### 3.1 General

The U.S. Geological Survey (USGS) has done considerable work in Seminole County with respect to availability of groundwater for agricultural and municipal uses. Reports have been published by the USGS containing information such as aquifer elevations, depth, thickness, water yield, and water quality generally through investigation of the numerous wells located within the various parts of Seminole County.

#### 3.2 Historical Information

##### 3.2.1 Characteristics of the Floridan Aquifer in Seminole County/Winter Springs Source Water

The Floridan Aquifer is the primary source of potable water for most of north central and northern Florida. This aquifer is a series of limestone formations up to hundreds of feet in thickness, which lie beneath the surficial sediments. The aquifer is recharged by infiltration of rainwater through permeable surface sands into the uppermost limestone formations. Discharge from the aquifer occurs naturally through artesian springs and artificially through wells which penetrate it.

Groundwater recharge is a natural occurring step of the Earth's hydrologic cycle. As water is discharged from the aquifers through pumping and seepage, more water is simultaneously replaced through percolation. Recharge is very dependent on local conditions such as soil characteristics, potentiometric surfaces and precipitation. In general, recharge to the Floridan Aquifer is restricted to areas where the elevation of the water table is greater than the elevation of the potentiometric surface of the confined aquifers.

The groundwater recharge potential of the land that constitutes the Winter Springs Service Area is characterized as poor by the United States Geological Survey (USGS). The Water Resources Atlas of Florida also identifies this area as a zone with little or no recharge potential. There are numerous springs that make this area a natural discharge area.

In Seminole County, considerable variation in aquifer yield and water quality is present due primarily to the influence of the St. Johns River, its tributaries, and springs. Areas which are known to exhibit relatively high well yield generally also exhibit superior water quality. This information is contained in "Availability of Ground Water in Seminole County and Vicinity, Florida" by C.H. Tibbals, 1977. It can be seen from the figures in that report that groundwater from the areas near Lake Monroe, Lake Jesup, and the St. Johns River exhibits relatively high levels of chlorides, bromides and hardness compared to areas further to the south and west in Seminole County. More recent updates to the Tibbals report are not available.

The USGS (Barroclough, 1962) has indicated that long ago the elevation of seawater was as high as 25 feet above the current levels. Many low areas in Seminole County were inundated by seawater during this period and in these areas the seawater infiltrated through the surface sediments into the underlying limestone formations. A distinct correlation has been observed between the 25-foot topographic contour line and the zone of better quality groundwater within the aquifer. Due to continual recharging of the aquifer by the percolation of rainfall over a long period of time the older, saltier water is believed to have been pushed deeper into the limestone beds. High rates of aquifer withdrawal, i.e., well pumping, in the uppermost limestone formations is believed to cause an upward infiltration of the poorer quality water from the deeper formations below. For this reason, design well pumpage rates must be carefully considered and close monitoring of chloride and bromide levels should be conducted by well owners for wells located in areas which are in close proximity to or within the areas of observed poor groundwater quality and well yield.

We reviewed the Floridan Aquifer potentiometric contour maps for the Winter Springs supply area. The following information was gathered:

<u>Year</u>	<u>Aquifer Elevational Range</u>	<u>Source</u>
1954	50-65	Barroclough (USGS)
1977	40-45	Tibbals (USGS)
1989	35-50	USGS
1992	35-45	USGS

The data indicates a general decrease of the potentiometric head which reveals a general depletion of water supply. It also helps explain why the well capacities have decreased from their design

parameters. As the potentiometric head drops, the well pumps have a higher head condition and, therefore, production drops.

### 3.2.2 Water Use Caution Area

Seminole County has been identified as a Water Use Caution Area (WUCA) by the St. Johns River Water Management District (SJRWMD). The designation as a WUCA is based on concerns that future groundwater withdrawals from the Upper Floridian Aquifer will reduce the discharge from nearby springs and contribute to migration of high chloride water from the Wekiva River, St. Johns River, the Econlockhatchee River and the Little Econlockhatchee River. While the SJRWMD is currently working on developing strategies to avoid and/or mitigate these anticipated negative impacts, it is clear that the City should consider these concerns in future water supply planning.

### 3.2.3 Consumptive Use Permit

Withdrawal of drinking water from the Florida Aquifer is regulated by the St. Johns River Water Management District (SJRWMD). This process is known as the Consumptive Use Permit (CUP).

## 3.3 Water Quality Source

Generally, the raw water quality meets the maximum contaminant levels (MCL's) for all currently regulated inorganic and organic contaminants and is good with the exception of high concentrations of hydrogen sulfide, sulfate and chlorides/bromides, at specific wells.

The City of Winter Springs has also experienced problems associated with the corrosiveness of the finished water with regard to taste problems, colored water problems, and failure of copper piping in the customer's home. The City, however, has taken care of the corrosion problem through the addition of corrosion control facilities. A phosphate inhibitor is added to the raw water and provides a "passive" coating on the interior of pipes, thereby reducing the corrosion effect and leaching of metallic constituents (lead and copper).

### 3.3.1 Raw Water Quality

Raw water quality data from the Winter Springs public water system wells is presented in Appendix B. The water is buffered with moderate alkalinity and hardness, with an average pH of 8.0. The

microbial quality of the raw water is good with no evidence of coliform bacteria. The raw water is typical of a Floridan groundwater in all of the groundwater wells.

Any new or altered well with a total sulfur concentration greater than 0.3 mg/l requires, under new regulations, treatment. High concentrations of this chemical constituent need to be removed from the water prior to the Point-of-Entry (POE) due to the following:

- Hydrogen sulfide produces a “rotten egg” odor, thereby creating an aesthetic problem and a deterioration of the public’s confidence in the utility’s ability to generate a safe and palatable drinking water; and
- Hydrogen sulfide, present in high concentrations, produces sulfide turbidity problems and water quality concerns.

### 3.3.2 Finished Water Quality

The finished water quality produced by the Winter Springs PWS meets all State and Federal regulations related to the production of a safe drinking water with exception of the Stage 2 DBPR within the eastern service area (WTP1 service area). The City is required by Consent Order to make modifications to the WTP 1 treatment process to meet the MCL’s in the water distribution system. The finished water parameters that present a concern at this time are Total Trihalomethanes (TTHM’s), Halo Acetic Acids (HAA’s), bromates and Total Organic Carbon (TOC). The finished water quality is presented in Appendix B.

#### 3.3.2.1 H<sub>2</sub>S/Turbidity

At the current raw water pH (8.0), equilibrium conditions dictate that the bisulfide form (HS<sup>-</sup>) is the dominant species present. Therefore, since H<sub>2</sub>S is the only species that is volatile, typical aeration processes are not efficient in removing it from the raw water stream unless the pH is adjusted to less than 6.5. To more effectively use the existing system to remove hydrogen sulfide, the raw water pH would have to be lowered to less than 6.5 and then raised to approximately 8.0 after aeration. Aeration literature indicates that aeration using the cascade tray process is inefficient in removing high concentrations of H<sub>2</sub>S because the process does not provide a sufficient air to water ratio. Thus, only a small portion of H<sub>2</sub>S is removed in the process (generally 15 % or less). The reaction between chlorine and H<sub>2</sub>S in the ground storage tanks is:



The incomplete oxidation of H<sub>2</sub>S to elemental sulfur (S<sup>0</sup>) in the ground storage tanks via its reaction with dissolved oxygen:



The sulfur turbidity problems associated with the finished water is due to the high H<sub>2</sub>S concentrations in the raw water source and the conversion of the H<sub>2</sub>S to elemental sulfur. The City currently uses chlorine to reduce the H<sub>2</sub>S problem. This can create other water quality issues described below.

#### 3.3.2.2 Total Organic Carbon (TOC)

The TOC contained in a water supply is considered a precursor for the formation of Total Trihalomethanes (TTHM) and Total Halo Acetic Acid (THAA). TOC exists in two basic forms: hydrophobic (water fearing), and hydrophilic (water loving, a.k.a. dissolved). The hydrophobic form is more easily removed. If the source water has a large percentage of dissolved organic carbon, removal will be more difficult and more costly. Removal of TOC decreases the possibility of forming disinfection byproducts.

#### 3.3.2.3 Total Trihalomethanes (TTHM's)

The City of Winter Springs has been sampling and analyzing their distribution systems quarterly for TTHM's in accordance with the current state and federal drinking water regulations. The data indicates that there has been a trend of increasing TTHM values in the Winter Springs Potable Water System (PWS). The data reveals that the problem exists primarily at the WTP1 at this time.

#### 3.3.2.4 Total Halo Acetic Acid (THAA)

The current standard is 60 mg/L THAA. THAA(s) are another disinfection byproduct and are potentially cancer causing. They should be considered concurrently at the same time as TTHM removal. Treatment processes to reduce both should be used.

#### 3.3.2.5 Lead and Copper Rule (LCR)

The City of Winter Springs was experiencing elevated residual copper concentrations in their distribution system and at customer's taps. Water quality sampling and analyses were performed

and a Corrosion Control Desktop Evaluation generated for review and approval by the Florida Department of Environmental Protection (FDEP). Corrosion control facilities were constructed and the City began injecting the phosphate inhibitor into the system. The City is currently in compliance with the requirements of the LCR.

### **3.4 Disinfection By-Products Rule, Analysis and WTP 1**

CPH prepared a technical memorandum to provide the City of Winter Springs (City) with an evaluation of disinfection by-product formation potential (DBPFP) within the potable water distribution system. The analysis covered the WTP 1 facility as this is the only facility/service area in non-compliance with Stage 2 DBPR. The following tasks were performed for this evaluation:

- Compiled historical water quality and operational data
- Evaluated trends of historical data
- Performed simulated bench-scale analysis for Disinfection By-Product Formation Potential
- Provided economically feasible recommendations for consideration

Stage 2 compliance is based on a locational running annual average (LRAA) for total trihalomethanes (TTHMs) and five haloacetic acids (HAA5). Stage 2 LRAA provides compliance equity throughout the distribution system. Stage 2 DBP compliance monitoring for the City began October 1, 2013, and required the City to meet compliance by October 1, 2014 based on meeting the following MCLs after four (4) quarters of monitoring:

- TTHM → 80 µg/L LRAA
- HAA5 → 60 µg/L LRAA

#### **3.4.1 Summary of Data**

Two (2) locations within the WTP 1 service area (1626 Wrentham and 606 Morgan) failed to meet the Stage 2 THM LRAA MCL of 80 µg/L. A water quality enhancement strategy in the distribution system was employed to meet Stage 2 LRAA compliance at these monitoring locations.

- a. Wrentham is located at the furthest end of the east side distribution system network on a dead-end. The line from Vista Willa and 434 is a combination of 12-inch PVC and ductile

iron pipes. Once in the neighborhoods, the lines typically reduce to 6-inch and 8-inch lines.

The Trail Head sample, an ISDE sample location, is approximately 1 mile upstream of Wrentham, yet the Trail Head maintains a chlorine residual and THM similar to that exiting WTP 1. Unidirectional flushing of the water main and water quality sampling along the water main from the Trail Head sample location to the Wrentham site was implemented.

- b. Morgan is located in the southern region of the east service area served by WTP 1. According to staff, the Morgan sample location is served from a 2-inch galvanized pipe and has challenges maintaining a chlorine residual. The City should consider a galvanized pipe replacement program as galvanized pipe tends to experience high rates of chlorine residual loss. Hence, a galvanized pipe replacement program may resolve challenges at this location.

Based on bench-scale tests, treatment for hydrogen sulfide ( $H_2S$ ) did not provide appreciable reduction in THM formation. Brominated THM species were predominant at WTP 1 wells as a result of elevated bromides 240 ug/L to 810 ug/L compared to < 200  $\mu$ g/L at WTP 2 and WTP 3 wells. After  $H_2S$  was removed, the chlorine dose was reduced by 50% from 15 mg/L to 7 mg/L. However, THM formation still continued to exceed the regulatory limit of 80  $\mu$ g/L within 6 hours and 48 hours for the wells tested (Note: Typical water age of the system is 84 hours). Based on the bench-scale results, aeration or ozone oxidation for  $H_2S$  treatment, which will result in lower chlorine dose, do not appear to provide significant THMFP reduction to meet Stage 2 DBPR compliance.

Brominated THM species tend to dominate the WTP 1 wells. Brominated THM species have been documented to form rapidly in the presence of TOC and bromide. Elevated TDS/conductivity corresponds to elevated bromide concentrations. Therefore, once a correlation is established between conductivity and bromide, a conductivity meter could provide real-time bromide concentrations in an effort to balance well field production and potentially reduce brominated THMs.

**Table 3-1** presents potential treatment options to remove/reduce TOC, bromide,  $H_2S$  and volatile organic compounds (VOCs) in an effort to further reduce THMs and HAAs.

Conversion to chloramines will “cease” the formation of DBPs. However the use of chloramines will also have to address CT disinfection effectiveness for virus removal/inactivation. Chloramines are not as an effective primary disinfectant compared to free chlorine and will require 100 to 200 times

more contact time \* disinfectant residual concentration (CT) at the WTP. Adding ammonia after primary disinfection with free chlorine in the GSTs may not be acceptable because of the presence of bromide in the source water. Therefore a free chlorine contact chamber ahead of the GSTs is suggested for primary disinfection.

H<sub>2</sub>S can be reduced with forced draft aeration (FDA) or ozone oxidation (O<sub>3</sub>). FDA will strip the H<sub>2</sub>S from the source water and produce a concentrated H<sub>2</sub>S gas, which may have to be addressed; whereas O<sub>3</sub> will oxidize the H<sub>2</sub>S predominantly into sulfate. Both forms of treatment will reduce chlorine dosages. However, as demonstrated in the bench-scale testing, H<sub>2</sub>S treatment did not appear to provide significant THMFP reduction, particularly with wells with elevated bromides above 200 µg/L. However, TOC and bromide are still present and O<sub>3</sub> will react with bromide to form bromate, which creates another DBP challenge.

TOC can be reduced with granular activated carbon (GAC), anionic ion-exchange (IEX) or low pressure reverse osmosis/ nanofiltration (RO/NF). However, IEX and RO/NF will remove bromide whereas GAC will not. GAC exhaustion results in a spent adsorbent that must be removed and replaced, whereas IEX is regenerated in place after exhaustion which produces a salt regenerate waste stream. RO/NF continually produces a concentrate waste stream that must be disposed of and can be a challenge for consumptive use permitted groundwater with limited withdrawal volumes.

### **3.5 Suggested Intermediate Action Items**

Based on summary of the water quality and operational of the system the following action items were suggested for the City to consider to address reduction of DBPFP. Table 3-1 below lists the action items.

Recommendations	Advantage	Disadvantage	Relative Cost
<b>SOURCE WATER</b>			
<ul style="list-style-type: none"> <li>Investigate chemical dosing relative to water quality and well rotation trends.</li> </ul>	<ul style="list-style-type: none"> <li>Identifies low cost operational changes</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	Minimal
<ul style="list-style-type: none"> <li>Install conductivity meters on wells and establish well rotation schedule to mitigate DBPFP.</li> </ul>	<ul style="list-style-type: none"> <li>Real-time data to establish operational guidelines</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	Low
<ul style="list-style-type: none"> <li>Refurbish wells to provide lower TDS while maintaining production capacity.</li> </ul>	<ul style="list-style-type: none"> <li>Provide higher water quality without major capital improvement</li> </ul>	<ul style="list-style-type: none"> <li>Hydrogeological formation behavior unpredictability</li> </ul>	Moderate
<ul style="list-style-type: none"> <li>Replace bad actor wells with new wells.</li> </ul>	<ul style="list-style-type: none"> <li>New wells</li> </ul>	<ul style="list-style-type: none"> <li>Permitting</li> <li>New well locations may prove not to be suitable</li> </ul>	High
<b>TREATMENT</b>			
<ul style="list-style-type: none"> <li>Establish water quality policy.                             <ul style="list-style-type: none"> <li>Set goals for DBPs:                                     <ul style="list-style-type: none"> <li>THM &lt; 60 µg/L</li> <li>HAA &lt; 40 µg/L</li> </ul> </li> <li>Select method for secondary disinfection:                                     <ul style="list-style-type: none"> <li>Free Cl<sub>2</sub> vs. Combined Cl<sub>2</sub></li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Helps set stage for treatment decisions</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	Minimal
<ul style="list-style-type: none"> <li>Review chlorine bid specification relative to using bromide free salt and perform lab test to confirm.</li> </ul>	<ul style="list-style-type: none"> <li>Provides higher quality chemical</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	Minimal
<ul style="list-style-type: none"> <li>Enhance disinfectant dosing configuration and mixing in GSTs. Also optimize GST water levels relative to CT compliance and fireflow.</li> </ul>	<ul style="list-style-type: none"> <li>Limits DBPFP at WTP by reducing on-site water age</li> <li>Less variable Cl<sub>2</sub> residual</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	Moderate
<ul style="list-style-type: none"> <li>Provide advanced treatment to remove TOC with anionic exchange.</li> </ul>	<ul style="list-style-type: none"> <li>Results in reduced DPBFP</li> <li>Maintains free Cl<sub>2</sub> as disinfectant</li> </ul>	<ul style="list-style-type: none"> <li>Residual disposal salt loadings to WWTF after regeneration</li> </ul>	Higher
<ul style="list-style-type: none"> <li>If, TOC removal not pursued, convert to chloramines for secondary disinfection in the distribution system.</li> </ul>	<ul style="list-style-type: none"> <li>Lower capital cost compared to TOC removal</li> </ul>	<ul style="list-style-type: none"> <li>Lowers disinfectant effectiveness needs to consider Cl<sub>2</sub> contact chamber</li> <li>Nitrification water quality challenges.</li> <li>Public perception</li> </ul>	Moderate to High
<b>DISTRIBUTION SYSTEM</b>			
<ul style="list-style-type: none"> <li>Conduct unidirectional pigging program for areas of low chlorine residual</li> </ul>	<ul style="list-style-type: none"> <li>Reduces Cl<sub>2</sub> dissipation resulting in lower Cl<sub>2</sub> dosage at WTPs</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	Low
<ul style="list-style-type: none"> <li>Begin a Galvanized Pipe replacement program</li> </ul>	<ul style="list-style-type: none"> <li>Limits Cl<sub>2</sub> dissipation resulting in lower Cl<sub>2</sub> dosage at WTPs</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	Moderate to High

### 3.6 Initial Recommendations

On May 6, 2013, CPH staff met with City staff to discuss the suggested action items to address the upcoming regulatory compliance associated with Stage 2 DBP MCLs. As a result of our meeting, the following recommendations were developed for the City to move forward with in addressing potential Stage 2 DBP compliance challenges:

1. **Establish a water quality policy.** The City's water policy goal is to select the most cost effective treatment method to achieve water quality compliance. Source water, treatment enhancements and distribution system optimization strategies will be employed to meet the water policy goals.
2. **Set a target DBP goal of THM < 60 µg/L and HAA < 40 µg/L.** Maintaining a target goal will help prioritize cost effective methods to meet DBP compliance.
3. **Maintain free chlorine as the primary and secondary disinfectant.** Even though chloramines will "cease" the formation of DBPs, chloramine disinfection was removed from consideration for the following reasons:
  - a. Use of chloramines will have to address CT disinfection effectiveness for 4-log virus inactivation.
    - i. Adding ammonia before GSTs may not be acceptable because of insufficient contact time for CT compliance. Therefore; a free chlorine contact chamber ahead of GSTs for primary disinfection will increase the capital cost of a chloramine option.
    - ii. Adding ammonia after GSTs may not be acceptable because a majority of the DBPs are being formed in the GSTs. Also, as reclaimed system expands in the future and conservation is practiced and enforced, the potable water age may increase in the GSTs resulting in increased DBPs.
  - b. Conversion to chloramines has to be performed at both WTPs and cannot be phased at a later date similar to H<sub>2</sub>S or TOC treatment.
  - c. Chloramines will not be compatible with emergency interconnects with other utilities that use free chlorine for disinfection in the distribution system and have the potential for nitrification at the extremities of the distribution system.
4. **Enhance chlorine dosage configuration and provide mixing/aeration in GSTs to further stabilize chlorine process and reduce DBPs.** Balance prechlorination and GST levels to meet CT compliance effectiveness while reducing excess water age for DBPFP and continue to provide fire flow protection storage. Perform full-scale GST mixing/aeration to demonstrate DBP reduction. Determine post-chlorination process limitations.
5. **Provide anionic ion-exchange (IEX) as an advanced treatment to remove TOC.** IEX can be phased at each WTP with WTP #1 preferably receiving the first system. Partial by-pass of the IEX system will reduce capital and O&M costs and reduce impacts of salt loadings to the WWTF reclaimed system. IEX also has the benefit of removing bromide if ozone were to be employed to treat H<sub>2</sub>S.

### 3.7 Historical Data

**Figure 3-1** presents historical THM compliance sampling results from 1<sup>st</sup> Quarter 2009 to 1<sup>st</sup> Quarter 2013, which are represented by the symbols. The Stage 2 LRAA THMs are represented by the same colored trend lines. Two (2) locations have challenges with THM water quality standards and may be an issue for LRAA compliance levels when Stage 2 DBP monitoring becomes effective October 1, 2013. The WTP THMs have increased from approximately 20 µg/L to over 60 µg/L at times at the point of entry (POE) to the distribution system.

**Figure 3-2** presents historical HAA compliance sampling results from 1<sup>st</sup> Quarter 2009 to 1<sup>st</sup> Quarter 2013, which are represented by the symbols. The Stage 2 LRAA HAAs are represented by the same colored trend lines. HAAs have decreased from approximately 40 µg/L to 20 µg/L at the LRAA compliance sites, but have seen an upward trend in 2012. Note, in 2009, the east and west water systems were combined and automatic flushing units were installed at the extremities of the system in an effort to lower DBPs.

**Figure 3-3** presents historical average daily water demands from 2009 to February 2013 on a monthly basis from each WTP.

**Figure 3-4** presents the annual production contribution from each WTP.

**Table 3 -2** presents the typical, chlorine dose at WTP 1. A typical chlorine dose of 15 mg/L results in a chlorine residual of 3 mg/L at the POE with a 12 mg/L chlorine demand predominantly attributed to H<sub>2</sub>S oxidation.

**Figure 3-5** presents the chlorine residuals from each WTP from January 2012 to February 2013.

**Figure 3-6** presents the daily well production usage for three days prior to DBP sample collection in August and September 2009.

FIGURE 3-1: Historical THM (2009 to March 2013)

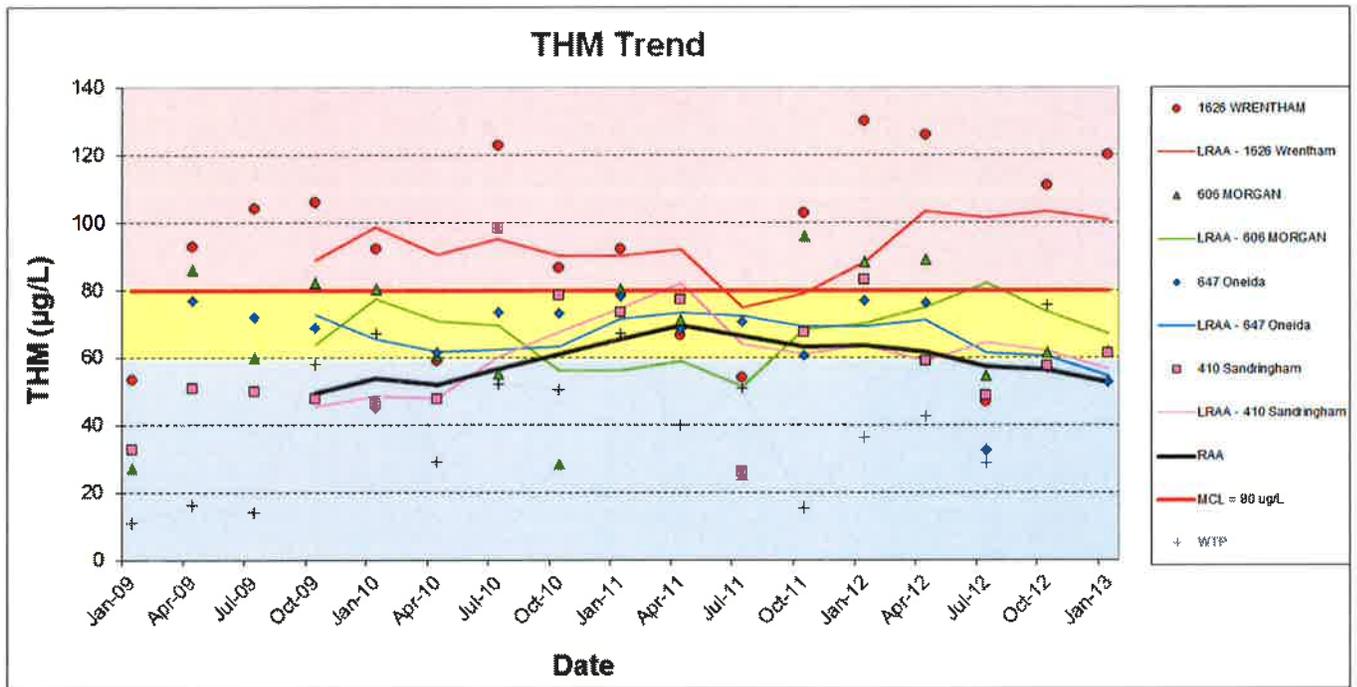
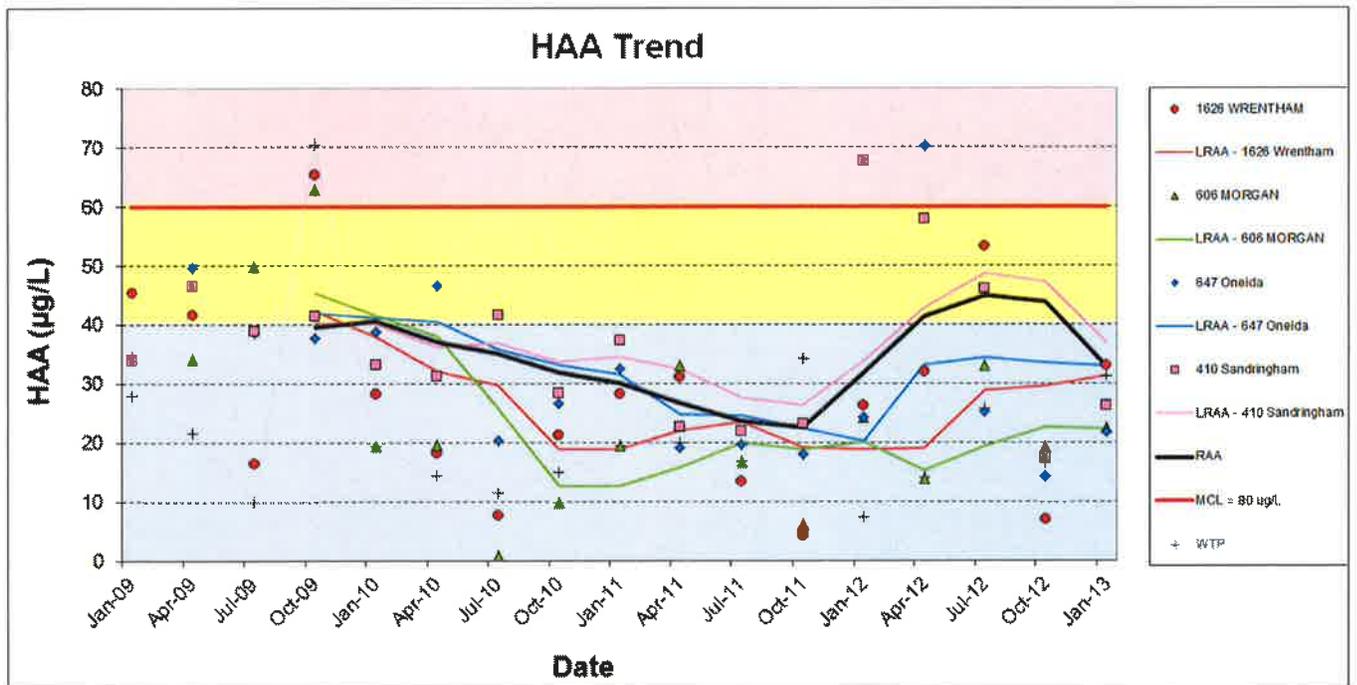
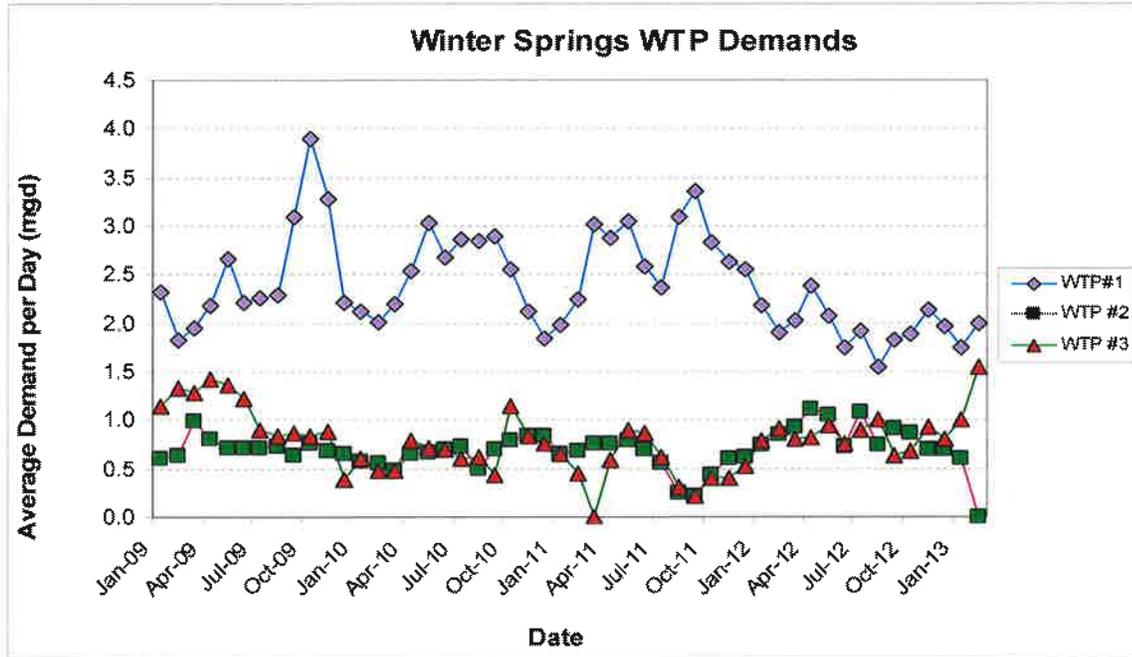


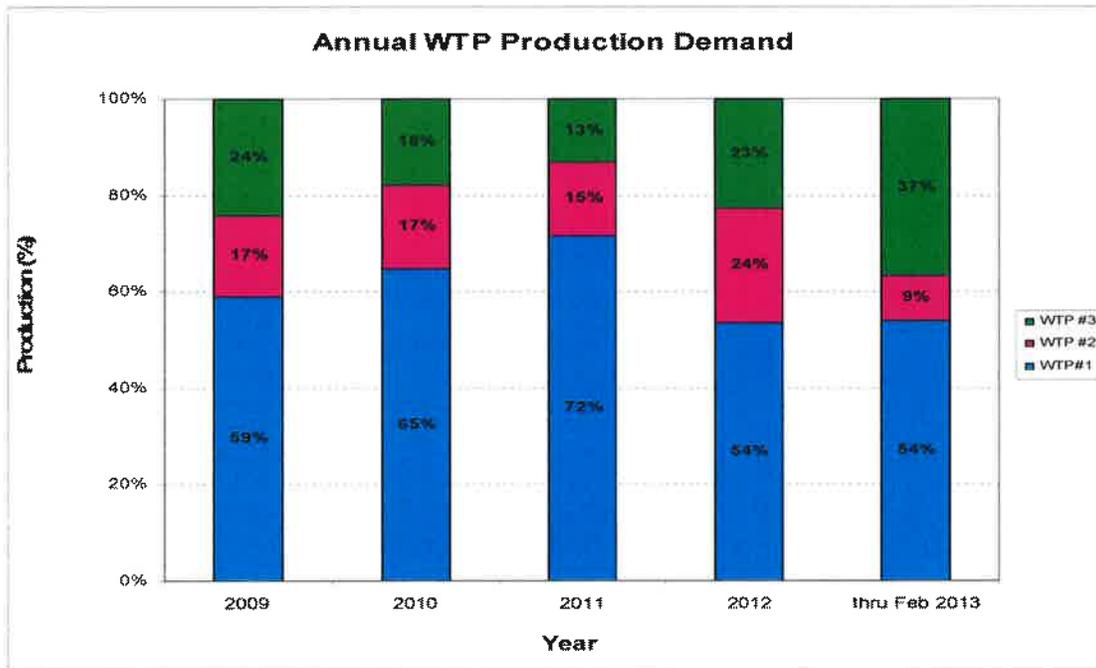
FIGURE 3-2: Historical HAA (2009 to March 2013)



**FIGURE 3-3: Historical Average Daily Water Demands (2009 to 2011)**



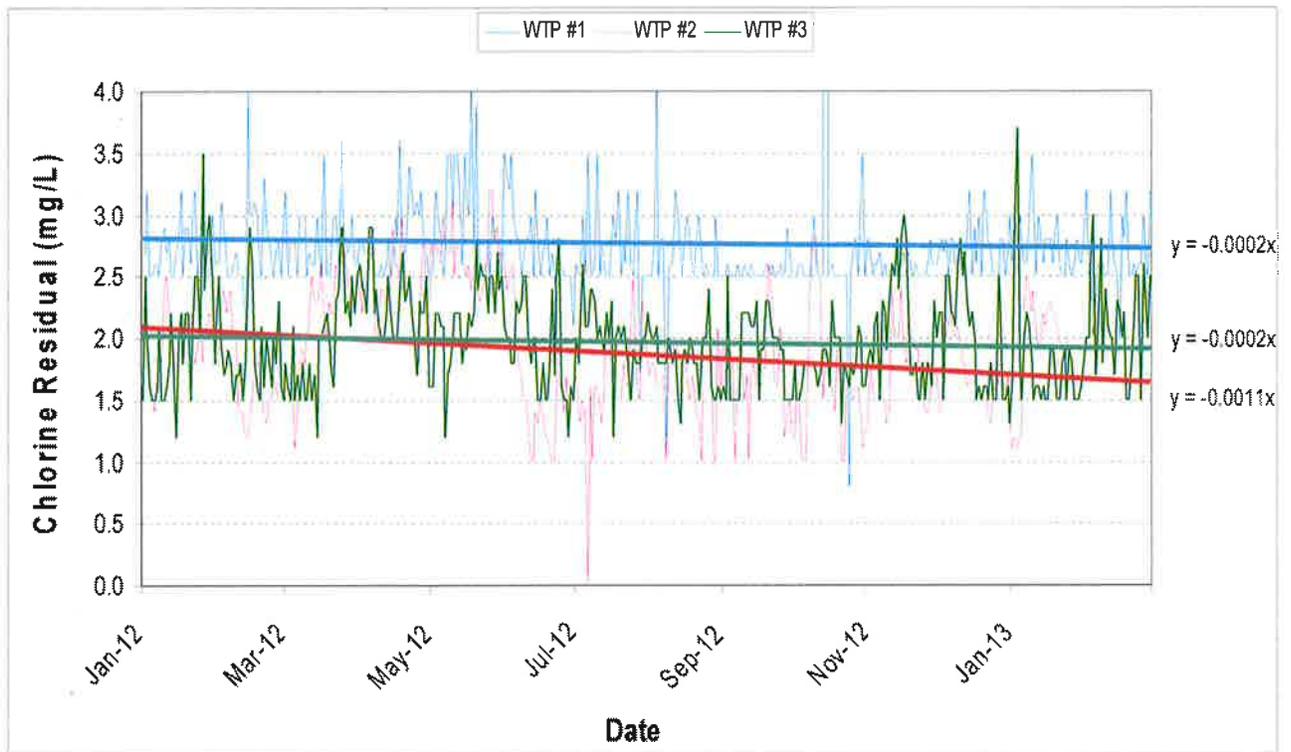
**FIGURE 3-4: Annual Production Contributions per WTP**



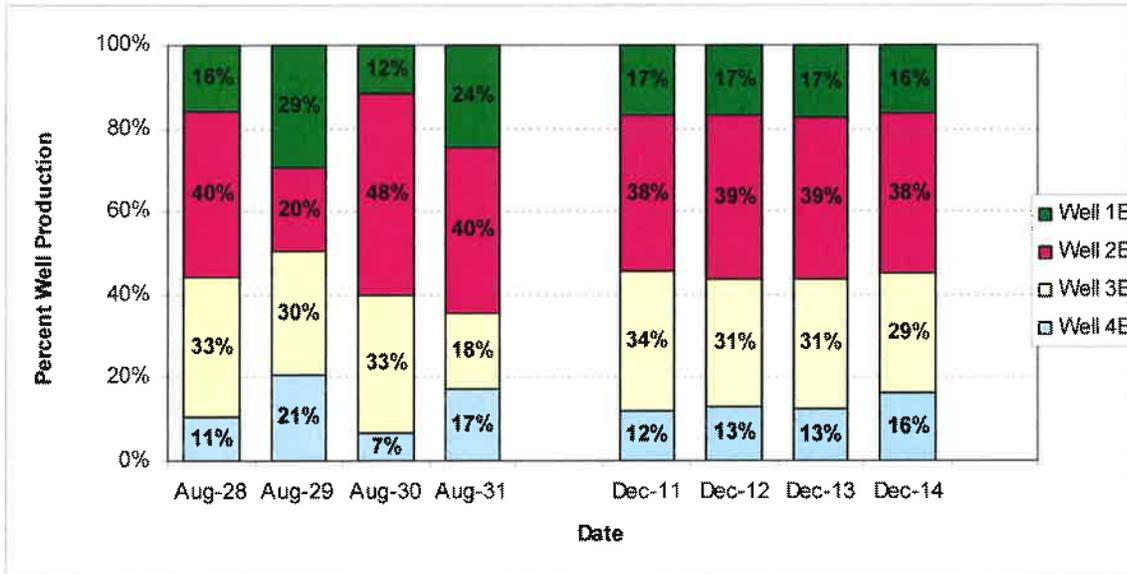
**TABLE 3-2: Typical Chlorine Dosage**

Well #	Pump Time	Average Flow		Cl <sub>2</sub> Usage	Cl <sub>2</sub> Dose	Cl <sub>2</sub> Residual	Cl <sub>2</sub> Demand
	(hrs/day)	(mgd)	(gpm)	(ppd)	(mg/L)	(mg/L)	(mg/L)
1E	8.5	0.481	943	60	15	3	12
2E	6.2	0.768	2,065	95.9	15	3	12
3E	9.2	0.866	1,569	109.5	15	3	12
4E	8.7	0.367	703	46	15	3	12

**Figure 3-5: Chlorine Residuals at POEs (January 2012 to February 2013)**



**FIGURE 3-6: Well Production Relative to THM Formation**



**Table 3-3: TTHM Sampling Results**

PARAMETER	Aug				Dec			
	<u>THMs</u> ( <u>ug/L</u> )	<u>Cl<sub>2</sub></u> <u>Residual</u> ( <u>mg/L</u> )	<u>Temp</u> ( <u>°F</u> )	<u>pH</u>	<u>THMs</u> ( <u>ug/L</u> )	<u>Cl<sub>2</sub></u> <u>Residual</u> ( <u>mg/L</u> )	<u>Temp</u> ( <u>°F</u> )	<u>pH</u>
Location								
WTP 1	51	3.0	78	7.3	15	3.1	79	6.9
l/s 8e	68	3.0	76	7.3	66	2.1	76	7.1
596 PINE BRANCH	41	0.3	83	7.5	83	0.8	80	7.1
606 MORGAN	25	0.3	81	7.5	61	0.7	79	7.0
TRAIL HEAD	63	3.0	79	7.3	49	2.4	77	7.2
1626 WRENTHAM	54	0.3	83	7.4	87	0.6	80	7.0

### 3.8 Simulated DBPFP Bench-Scale Test Results

Bench-Scale DBP testing was conducted by the University of Central Florida Environmental Systems Engineering Institute (ESEI) in June 2012. Bench-top DBP formation potential and chlorine decay was evaluated on four (4) wells. Well testing was limited to the “bad actor” wells at WTP1, as well as, one (1) well at WTP 2 and one (1) well at WTP 3.

Simulated treatment to remove H<sub>2</sub>S was evaluated. The samples were aerated to remove H<sub>2</sub>S, which resulted in a 50% lower chlorine dose from 15 mg/L to approximately 7 mg/L while achieving a chlorine residual of 3 mg/L after 4 days of chlorine contact.

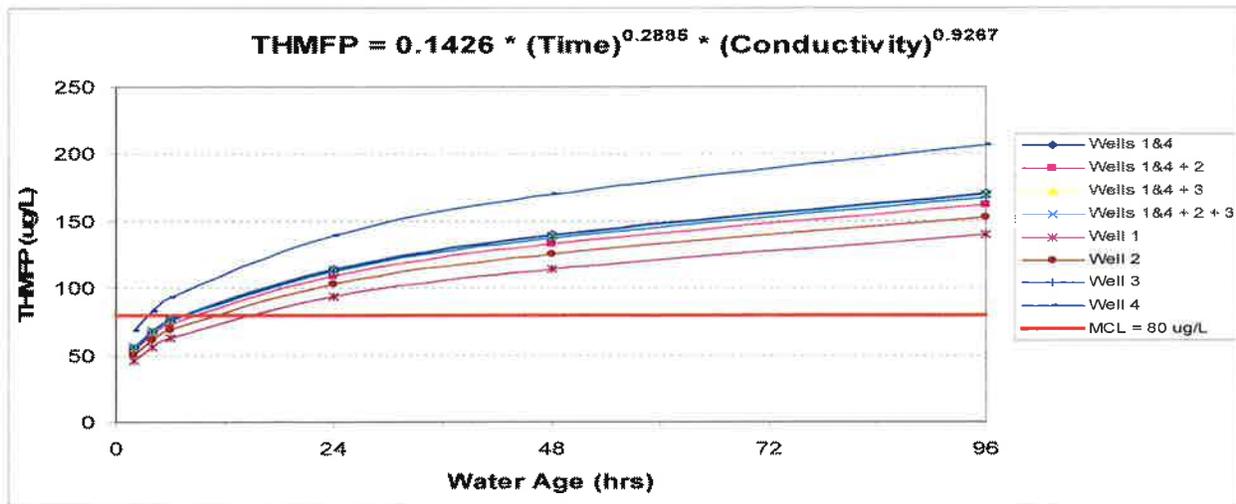
THM species were predominantly brominated in WTP 1 wells. While WTP 2 and WTP 3 wells were predominantly chloroform. Despite the reduced chlorine dose from removal of H<sub>2</sub>S, THM formation exceeded the regulatory compliance limit after 6 hours of chlorine contact time for the WTP 1 wells and after 48 hours for WTP 2 and WTP 3 wells. Hence, treatment to remove H<sub>2</sub>S and reduce chlorine dosage did not significantly enhance THM reduction.

### 3.9 Predicted THM Formation Potential as a Function of Conductivity

THM formation potential for well blends was predicted using conductivity. Using the limited bench-scale testing water quality data and the assumption that bromide correlates to conductivity a regression analysis was performed to develop a tool to predict THM formation for possible well blend combinations at WTP 1.

Figure 3-7 presents the predicted THMFP for the various wells blends based on the blended conductivities. Well blending at WTP 1 does not appear to provide much benefit for THM reduction as a result of the elevated bromide.

**FIGURE 3-7: Predicted THMFP for Various Well Blends at WTP 1**



## CHAPTER 4 EXISTING CONDITIONS

### 4.1 General

The City of Winter Springs water system consists of three water treatment plants, which serve approximately 12,000 service connections. The water plants are identified as WTP 1, WTP 2, and WTP 3. Tables 4-1 to 4-4 contain a summary of the existing capacities of the wells, storage facilities, and water plants. The water system consists of the following:

- Raw water pumping from a groundwater aquifer
- Aeration
- Chlorination (by gas and concentrated sodium hypochlorite)
- Sedimentation (storage)
- High service pumping.

The City owns, operates and maintains the water treatment facilities and distribution system within its corporate limits. The City serves only minor unincorporated areas. The three water plants are interconnected by the water distribution system and the system operates as one system. The City has only one Consumptive Use Permit (CUP).

### 4.2 Water Plants

Each plant consists of a raw water supply, ground storage, water treatment including aeration, sedimentation and chlorination, and high service pumping to the distribution system. A brief description of the capacity and the limiting process for each plant is contained below.

#### 4.2.1 WTP 1

The WTP 1 is located in the Tuskawilla residential subdivision on Northern Way. The plant has four (4) wells (5200 gpm), one 500,000 gallon ground storage tank (aerator capability 3800 gpm), one 1,000,000 gallon storage tank (aerator capability 3500 gpm), and three high service pumps (7950 gpm). There is sufficient area for further expansion of process improvement equipment and high service pumping.

**4.2.2 WTP 2**

WTP 2 is located on Sheoah Boulevard and is surrounded by development on all sides (Highlands subdivision). The plant includes two wells (2200 gpm); one on site and one offsite; one 500,000 gallon ground storage tank (3800 gpm of aerator capacity); and three high service pumps (4350 gpm).

**4.2.3 WTP 3**

WTP 3 is located on Bahama Road. The plant consists of two wells (2900 gpm), one 500,000 gallon ground storage tank (aeration 3800 gpm), and three high service pumps (3100 gpm).

**4.3 Distribution System**

The system is looped and consists of water mains up to sixteen (16) inches in diameter which are made of various materials: asbestos cement, ductile iron, polyvinyl/chloride, high density polyethylene (HDPE) and cast iron.

TABLE 4-1

INVENTORY OF EXISTING WATER STORAGE FACILITIES  
(ALL GROUND STORAGE)

<u>Location</u>	<u>Tank Capacity (gal)</u>	<u>Aerator Capacity (gpm)</u>
WTP1	500,000 1,000,000	3800 3500
WTP2	500,000	3800
WTP3	500,000	3800

TABLE 4-2  
INVENTORY OF EXISTING WELLS

<u>Location</u>	<u>Well No.</u>	<u>Well Diameter (in.)</u>	<u>Well Pump Capacity (gpm)</u>	<u>Well Depth (ft.)</u>	<u>Casing Depth (ft.)</u>	<u>Pump Motor H.P.</u>	<u>Active</u>	<u>C.U. Permit</u>
WTP1	1E	12"	1200	350'	105'	20	Yes	Yes
	2E	12"	2000	290'	119'	50	Yes	Yes
	3E	12"	2000	395'	190'	50	Yes	Yes
	4E*	16"	1500	400'	200'	50	No*	Yes
WTP2	3W	12"	1100	491'	123'	20	Yes	Yes
	6W	12"	1100	400'	220'	30	Yes	Yes
WTP3	4W	12"	1100	423'	96'	20	Yes	Yes
	5W	20"	1800	440'	200'	50	Yes	Yes

TABLE 4-3

INVENTORY OF EXISTING HIGH SERVICE PUMPING FACILITIES

Location	Pump Mfg	Model #	Design Output	Head (Ft)	H.P.	Aux Pwr	Plant Operating Head (psi & feet)
WTP1 #1	Aurora	6x18	2000	143	125	565 KW	VFD
#2	Aurora	8x10x15B	3350	143	150		62psi
#3	Aurora	8x10x21	2600	143	125		143'
WTP2 #1	Worthington	4LR13 3/8	850	143	50	*	58-66 psi 143'
#2	Worthington	6LR13	1000	143	75		
#3	Worthington	8LR14	2500	143	150		
WTP3 #1	Worthington	6LR13A	1100	143	100	300 KW Shared w/L.S. 7	56-68 psi 143'
#2	Worthington	6LR13	1000	143	75		
#3+	Worthington	6LR13	1000	143	75		
TOTAL			15,400				

\*Direct drive (LP gas) on Pump #3 and generator connection at Well #3.

**TABLE 4-4  
EXISTING WATER PLANT DESIGN CAPACITIES**

Location	Well Capacity		High Service		Ground Storage (GAL)	Aerator Capacity (GPM)	Emergency Power
	GPM	MGD	GPM	MGD			
WTP1	6700	9.65	7950	11.4	500,000	7300	565 Kw
WTP2	2200	3.17	4350	3.6	500,000	3800	N/A
WTP3	2900	4.18	3100	6.3	1,500,000	3800	300 Kw
TOTAL	11,800 (9800) <sup>(1)</sup>	17.0 (14.1)	15,400 (12,050) <sup>(1)</sup>	21.3 (16.5) <sup>(1)</sup>	2,000,000	14,900 (11,450)	

**Notes:**

1. Pumping capacity based on largest unit in the system out of service. (WTP1 – 3350 gpm)
2. WTP 2 has a direct drive engine on Pump 3 and a portable generator connection on Well #3.
3. 300 Kw generator at WTP3 is shared with L.S. 7.

**4.4 Chlorination/Disinfection**

The Winter Springs water facilities use sodium hypochlorite (a.k.a. concentrated bleach) to disinfect the raw water withdrawn from the aquifer.

**4.5 Corrosion Control**

The treatment facilities utilize an ortho-polyphosphate inhibitor and pumping system to reduce the corrosion potential of the water and meet the requirements of the Environmental Protection Agency (EPA) Lead and Copper Rule (LCR). The inhibitor is injected into each one of the raw water conveyance lines based on the flow of the well. The storage tank provides the detention time and a passive coating is formed on the inside of the distribution system piping. This system will be maintained for WTP 1.

**This Page Intentionally Left Blank**

## CHAPTER 5

### POPULATION, WATER FLOWS AND SERVICE AREA

#### 5.1 Population and Future Land Use

Population data and projections were obtained from the Bureau of Economic and Business Research (BEBR) website. In addition, we verified data with known historical information for the City of Winter Springs. The population projections are provided in Table 5-1. The total growth projected for the service area is 12,251 people through 2040. This is a growth rate of approximately 1.25 percent for the planning period.

#### 5.2 Demand for Water

The water demands are also summarized in Table 5-1. As can be seen by the data, the per capita flows have been decreasing every year. This is due to conservation and the availability of reclaimed water. Demand reduction is also a condition of the CUP. It appears that Winter Springs will be in compliance with their CUP throughout the planning period. From review of the historical data presented in Table 5-1, an average daily use of approximately 95 gallons per capita per day (GPCD) will be utilized as the basis for the total demand projections. Based on ten years of historical records, usage has declined steadily in a range from a high of 130 GPCD in 2007 to a low of 96 GPCD in 2014. It should be noted that this water consumption rate is not just the quantity of water that an average person uses daily, since it also includes commercial and industrial water usage and irrigation with potable water.

The projected average day demand for the City of Winter Springs water system through the year 2040 is provided in Table 5-1. It can be seen from the table that average daily demand for the existing service area will reach 4.49 million gallons per day by the year 2040, corresponding to an increase of approximately 28 percent. This is an annual growth rate of approximately 1.25 percent over the 25-year period from 2015 to 2040.

TABLE 5-1

HISTORICAL AND PROJECTED POPULATION AND WATER FLOW FOR THE WINTER SPRINGS SERVICE AREA

Year	Population W.S. Data	Demand ADF (MGD)	Capacity ADF (CUP)	Surplus (Deficiency)	Annual Per Capita	Annual Per Capita Running Average
2005	33,321	4.02	5.19		121	121
2006	33,971	4.33	5.38		127	124
2007	34,443	4.46	5.38		130	126
2008	34,390	4.11	5.38		120	125
2009	34,340	4.14	4.42		121	124
2010	33,282	3.97	4.52		119	123
2011	33,314	3.88	4.63		116	122
2012	33,430	3.65	4.64		109	120
2013	33,430	3.56	4.70		106	119
2014	34,066	3.27	4.58		96	116
2015	34,979	3.50	4.56		96	
2020	37,742	3.58	4.16	0.58	95	
2025	40,350	3.83	4.14	0.31	95	
2030	42,825	4.06	4.14	0.08	95	
2035	45,080	4.28	NA	NA	95	
2040	47,230	4.49	NA	NA	95	

Notes:

"Capacity ADF" is the permitted CUP Value, not plant capacity.  
 Historical Population Data (2005-2014) is based on data provided by the City.  
 CUP expires January 25, 2030.  
 Flow reductions in usage over time are due to conservation by the public and reclaimed water use.

### **5.3 Wastewater Reuse Program**

The City has implemented a wastewater reuse program which uses the effluent from two Winter Springs Water Reclamation Facilities to irrigate the Winter Springs Golf Course, Tuskawilla Golf Course, and over 1563 residential sites. The reuse system reduces the per capita water demands through the use of reclaimed water for irrigation of residential areas, commercial and industrial uses and other sub-potable purposes. The St. Johns River Water Management District (SJRWMD) is increasingly requiring public water suppliers to implement methods of wastewater reuse to reduce groundwater withdrawals from the aquifer and the existing reclaimed water system will benefit the City when re-applying for a new Consumptive Use Permit.

### **5.4 Service Area Growth**

The City of Winter Springs is highly developed and is surrounded by other highly developed areas. To the West of U.S. 17-92 is the Longwood service area; to the South is the Casselberry and Seminole County service areas; to the Southwest is the Oviedo service area; and to the North is Lake Jesup. The area available for future service area is the Northeast quadrant of the S.R. 417 and S.R. 434 intersection. Some of this area has already been incorporated into the Winter Springs City Limits and has become part of the Winter Springs service area. We have included this area up to Canal Street and North of S.R. 434/Florida Avenue to Lake Jesup. Current County zoning designations defined for the future and current development within this area are A-3, A-5 and A-10. These are low density single family zoning designations.

**This Page Intentionally Left Blank**

## CHAPTER 6

### EVALUATION OF WTP 1 ALTERNATIVES

#### 6.1 Water Treatment

##### 6.1.1 General

The alternatives for reducing DBPs required an investigation of the raw water source, several technologies, costs and operational considerations. The following tasks were performed as part of the evaluation:

- 1) Compiled historical water quality and operational data
- 2) Evaluated trends of historical data
- 3) Performed simulated bench scale analysis for DBPs formation potential
- 4) Suggested economically feasible alternatives that could meet the target regulatory limits of 60 ug/l for HAA5s and 80 ug/l for TTHMs.

Based on the DBPs analysis, WTP 1 was identified as the primary contributor due to the higher dissolved organic content and bromide content of the raw water source. WTP1 has area for expansion for new treatment units, but it is surrounded by major electrical power line easements. No land is available for purchase beyond the existing site. All work will have to be contained within the existing property boundaries.

##### 6.1.2 Cost Effective Analysis

A present worth life cycle analysis was performed on viable alternatives for the purpose of a final comparison of the alternatives. The present worth calculations incorporated the following:

- 1) Planning period – 20 years
- 2) Discount rate of 2%
- 3) Capital costs (construction, contingency, technical services)
- 4) Operation and maintenance costs (based on actual local costs where available)
- 5) Salvage values based on appropriate useful lives of various components (conveyance and treatment related structures, including piping, tanks, buildings and appurtenances – 40 years and equipment - 20 years)
- 6) Construction cost estimates based on similar projects.

## **6.2 Water Quality Treatment Alternatives**

The alternatives for water treatment include processes that individually or collectively treat the water to remove or control the water quality issues presented in previous sections of this study. The primary issues that dictate the additional treatment process considerations for WTP 1 are:

- Decreasing Disinfection By-products (DBP's), including TTHM's and HAA's
- Providing a proper level of disinfection
- Limiting Lead and Copper leaching by reducing corrosivity
- Addressing taste and odors (associated with H<sub>2</sub>S).

Various water treatment processes exist that will produce a superior water quality and meet both the State and Federal water quality criteria, as well as the water quality goal established by the City.

The water treatment processes evaluated as part of this study are the following:

- 1) No action (Option 1)
- 2) Chloramination (Option 2)
- 3) Forced Draft Aeration and Chlorination (Option 3)
- 4) Forced Draft Aeration and Chloramination (Option 4)
- 5) Ozonation and Chlorination (Option 5)
- 6) Granular Activated Carbon and Chlorination (Option 6)
- 7) Ion Exchange and Chlorination (Option 7)
- 8) Ozonation, Granular Activated Carbon and Chlorination (Option 8)
- 9) Ion Exchange, Ozonation and Chlorination (Option 9)
- 10) Forced Draft Aeration, Granular Activated Carbon and Chlorination (option 10)
- 11) Forced Draft Aeration, Ion Exchange and Chlorination (Option 11)
- 12) Reverse Osmosis/Membrane Softening, Forced Draft Aeration and Chlorination (Option 12).

This section provides an analysis of the unit operations/processes identified above which may be applicable for the City of Winter Springs to meet the regulatory criteria, establish goals and resolve some of the existing water quality concerns.

### **6.2.1 No Action**

The existing practices will continue and the chronic public health risk associated with DBPs will remain. We increased every control on the system to make sure we were dosing chlorine at the

most effective rate. This optimization was not effective at reducing DBPs. The No Action alternative is not viable as proven by the sampling program. This alternative was not selected.

### 6.2.2 Chloramination

This alternative involves adding a free chlorine contact chamber (CCC) to the existing systems and then adding ammonia after the CCC to form chloramines ( $\text{NH}_2\text{Cl}$ ) for disinfection. Chloramination would be required at all three facilities to work effectively. It is not possible to mix a distribution system with free chlorine and Chloramination. This process would not cause adverse impacts on the environment. It would require land acquisition at both WTP 2 and WTP 3. Although Chloramination is known to decrease the rate of formation of DBPs, it is possible for DBPs to continue to form in the extremities of the distribution system. The Chloramination alternative was not chosen on the basis of capital cost (conversion of three facilities), maintenance costs and treatment effectiveness.

### 6.2.3 Forced Draft Aeration and Chlorination and Forced Draft Aeration and Chloramination

Because these two alternatives are so closely related, we treat them as one herein. Forced draft aeration, is an efficient aeration process for the removal of  $\text{H}_2\text{S}$ , but not dissolved organic carbon. The treatment process involves a cylindrical tower or shell that contains a support plate and packing material. Packing material usually consists of individual pieces of stainless steel, ceramic or plastic shapes that are randomly installed within the tower. Packed towers are normally operated using a countercurrent flow pattern with water falling down through the tower and air forced upwards using blowers. This methodology provides high void volumes and surface area (gas-liquid contact). The raw water is distributed on the top of the packing material with spray nozzles or distribution headers (weirs) and the air enters into the packed tower through the bottom of the structure. The air and water are thoroughly and continuously mixed throughout the column, thereby promoting efficient removal of the volatile constituents.

Design of the packed tower is a function of the following factors:

- Type of volatile constituent to be removed;
- Air velocity passing upward through the tower;
- Downward water velocity;
- Concentration of the volatile constituent in the water to be treated;
- pH of the water to be treated;
- Temperature of the water to be treated;

- Mass loading rate of the volatile constituent; and the
- Molecular diffusion rate and kinetic coefficients.

The aeration process removal efficiency for hydrogen sulfide is improved by adding carbon dioxide (CO<sub>2</sub>) and lowering the pH of the water to be treated to between 6.3 and 6.5. Hydrogen sulfide removal, in this pH range, is between 90 and 95%. The remainder of the H<sub>2</sub>S can be oxidized in the ground storage tanks by dissolved oxygen, chlorine, or other oxidant such as potassium permanganate (KMnO<sub>4</sub>).

Off-gas treatment for the hydrogen sulfide will be required to control the odors from the packed tower aeration system. Off-gas treatment (scrubbing) is generally required to reduce the odor potential of the waste gas stream. The scrubbing system will generate two waste streams (liquid waste and solid waste) that must be dealt with. The solid waste stream produced, elemental sulfur, is typically disposed of in the local landfill. The off-gases, laden with H<sub>2</sub>S and CO<sub>2</sub>, can be treated in one of the following manners:

- Oxidized with chlorine or potassium permanganate (KmnO<sub>4</sub>) to convert the hydrogen sulfide to sulfate ions (SO<sub>4</sub><sup>-2</sup>); or
- Neutralized with caustic soda (NaOH) to raise the pH to a level that converts the H<sub>2</sub>S to the dissolved sulfide ion (S<sup>-2</sup>).
- Biofilter type unit that uses a biological process to remove H<sub>2</sub>S.

The liquid waste stream generated is generally discharged to the sanitary sewer for further treatment at the local wastewater treatment facility.

The treated raw water is then collected in a clear well at the bottom of the packed tower and is conveyed by gravity to a pumping station which pumps the water to the ground storage tanks. Primary disinfection, using chlorine, should be provided in the ground storage tanks to meet the anticipated CT requirements of the GWDR. However, due to the concerns associated with the DBPR, the City of Winter Springs evaluated the use of chloramination as an alternative disinfection method to meet the MCL's associated with the formation of TTHM's and HAA's in the distribution system.

The final step in the water treatment process would be to adjust the final pH of the water to achieve a stabilized water (pH<sub>9</sub>) using caustic soda. This would provide corrosion control, using a chemical already required for packed tower system, and may eliminate the need for phosphate inhibitor

addition. Further evaluation of the corrosion control system (pH adjustment, phosphate inhibitor addition, or a combination of the two processes) will be necessary during final design to ensure that the City of Winter Springs is meeting the LCR. Advantages and disadvantages of using a CO<sub>2</sub> air stripping system (packed tower or forced draft aeration) for removal of the high hydrogen sulfide concentrations in the raw groundwater supply are presented below:

#### Advantages of a CO<sub>2</sub> Air Stripping (Packed Tower) System

- **Will not add any by-products to the finished water:** CO<sub>2</sub> air stripping only removes sulfides and adds nothing but CO<sub>2</sub> and dissolved oxygen to the water. The CO<sub>2</sub> is used to adjust the pH and is added before the air stripping process;
- **Cost-effective at sulfur concentrations greater than 1.0 mg/L:** The use of a CO<sub>2</sub> air stripping system becomes very cost effective at H<sub>2</sub>S concentrations greater than 1.0 mg/L (as S). This is the condition that exists at the City of Winter Springs.
- **Simpler operating system:** The operating system for CO<sub>2</sub> air stripping involves the addition of CO<sub>2</sub> and the operation of a packed tower system. An off-gas treatment system is also required to prevent the discharge of malodorous gases, as previously discussed. Operation of both of these systems is very simple and does not require a significant amount of man-hours for their operation and maintenance. While this system is more complicated than the conventional aeration and chlorination process, it is less complex than a reverse osmosis/membrane softening system or producing an electrical corona with dried air or oxygen to produce ozone for an ozonation treatment system.

#### Disadvantages of a CO<sub>2</sub> Air Stripping (Packed Tower) System

- **Off-gas treatment is required:** Once the H<sub>2</sub>S is stripped from the water, FDEP requires odor control to be provided at the facility to eliminate the discharge of malodorous gases to the surrounding area.
- **Disposal of solid and liquid waste streams are required with this treatment method:** The solid waste stream (elemental sulfur) must be collected and disposed of at the local landfill. The liquid waste stream must be conveyed to the local wastewater treatment facility for treatment. The solids loading capacity of the receiving WWTP must be considered when evaluating this type of treatment system. However, this typically is not a problem for utilities with adequate solids loading capacity in their wastewater treatment facilities and should not be an issue for the City of Winter Springs.
- **Does not remove TTHM pre-cursors, i.e., TOC unless they are in a volatile form:** the raw water quality data indicates that the TOC is not in a volatile form.

A pilot test was performed at the City of Casselberry South Water Plant with a forced draft aeration unit to see if organic carbon could be removed from the raw water source along with H<sub>2</sub>S. The unit was very good at removing H<sub>2</sub>S and some Total Organic Carbon. However, it did little to remove dissolved organic carbon and was judged to be ineffective as a treatment method for the removal of both H<sub>2</sub>S and organic carbon. The alternatives of Forced Draft Aeration and Chlorination and

Forced Draft Aeration and Chloramination were not selected for the process because the alternatives are not effective at removing TOC from the raw water.

#### 6.2.4 Ozonation and/or Chlorination

This alternative involves construction of an ozone treatment system to oxidize iron and hydrogen sulfide in the raw water. Reduction of hydrogen sulfide will help reduce the chlorine demand, which could potentially decrease the formation of DBPs. This process would not cause adverse impacts on the environment.

Although this alternative has the potential of reducing the DBP formation due to the removal of hydrogen sulfide and associated lower chlorine dosage, it does not remove the organic carbon from the raw water, which is believed to be the principal component being converted to DBPs. The treatment systems would not meet the primary goals and hence this alternative was not selected or further evaluated.

#### 6.2.5 Granular Activated Carbon and Chlorination

This alternative involves construction of a granular activated carbon (GAC) treatment system to remove organic carbon and hydrogen sulfide from the raw water. Reduction of hydrogen will help reduce the chlorine demand, which could potentially decrease the formation of DBPs. Similarly, reduction of organic carbon would reduce the formation of DBPs. This process would not cause adverse impacts on the environment.

Although this alternative has the potential of reducing the DBP formation, the system would become overloaded by the hydrogen sulfide in the raw water present in the wells at WTP 1. This reduces the removal of organic carbon which is the principal DBP forming agent. GAC requires available sites for the removal to proceed correctly. Clogging of these sites requires that the carbon be replaced and/or regenerated. This is a costly maintenance item if the process needs frequent changes. Therefore with the high levels of hydrogen sulfide in the raw water source, it was determined that amortized capital costs and the operational costs would be too high to consider this process as a viable option.

#### 6.2.6 Ion Exchange and Chlorination

This alternative involves the construction of an Ion Exchange (IEX) treatment system to remove organic carbon and hydrogen sulfide from the raw water source. Removal of both of these components will help decrease the DBP formation potential. There are many types of IEX media

resins available and depending on the resin composition, they target different chemical constituents. For this project, the type of media selected is documented to target hydrogen sulfide and organic carbon. This process would not cause adverse impacts on the environment. This alternative is technically viable and cost effective.

#### 6.2.7 Ozonation, Granular Activated Carbon and Chlorination

As discussed above, Ozone and GAC treatment systems by themselves are not considered viable for the treatment needs of WTP 1. However, when both technologies are combined, then DBP formation can be effectively controlled. In this case, the proposed system would consist of an ozone generation and injection system to oxidize the hydrogen sulfide and break down large organic compounds present in the raw water. The ozone treatment would then be followed by a GAC filter to remove the organic carbon molecules. This process would not cause adverse impacts on the environment. This alternative is technically feasible and a present worth analysis was performed. This alternative is not the most cost effective alternative and therefore was not selected.

#### 6.2.8 Ion Exchange, Ozonation and Chlorination

This alternative combines IEX and Ozone. The cost for this alternative is much higher than the other alternatives and it was therefore determined to be not cost effective in comparison and not selected.

#### 6.2.9 Forced Draft Aeration, Granular Activated Carbon and Chlorination

This option combines FDA and GAC. The cost for this alternative is much higher than the other alternatives and it was therefore determined to be not cost effective in comparison and not selected.

#### 6.2.10 Forced Draft Aeration, Ion Exchange and Chlorination

This option combines FDA and IEX. It increases the removal of hydrogen sulfide, and may increase the run times on the IEX units. However, it does not increase the removal of organic carbon. It will produce a water that may be more palatable, but it does not decrease the DBPs. The cost for this alternative is much higher than the IEX treatment alone and it was therefore determined to be not cost effective in comparison and not selected. It is an enhancement that can be added at a later date to improve water quality from an aesthetic perspective.

#### 6.2.11 Reverse Osmosis/Membrane Softening, Forced Draft Aeration and Chlorination

This process was analyzed because it provides many water quality improvements. However, it is the most expensive alternative and has numerous disposal issues of the concentrate that it was

eliminated from selection.

### **6.3 Evaluation of the Preferred Alternative for Water Quality Improvements**

Screening of the potential water quality treatment alternatives to determine the preferred methodology for improving the City's potable water quality, meeting the City's water quality goals and remaining in compliance with all known current and forthcoming federal regulations is provided in **Table 6-1** of this subsection. The alternatives were rated, based on the following parameters:

- System reliability and compatibility with the existing treatment trains;
- Capital costs;
- Operation and Maintenance considerations and costs;
- Treatment methodology complexity.
- Ability of proposed treatment methodology to meet the requirements of the forthcoming state and federal regulations (GWDR, DBPR);
- Installation considerations;
- Primary and secondary impacts of the treatment process;
- Generation of waste stream;
- Ability of proposed treatment methodology to meet the water quality goals of the City of Winter Springs;
- Effectiveness in removing sulfur turbidity at the present concentrations in the City's Wells.

Two processes, ion exchange and forced draft aeration with granular activated carbon, were selected for the cost effective analysis. This analysis is contained in **Appendix E** and the selected alternative is discussed in Chapter 7.

TABLE 6-1: Treatment Options

PARAMETERS	Treatment				DBP Formation Potential		Cost Opinion for 5-mgd		FDEP Staffing Requirement	Residuals Handling	Central Florida Utilities	Comments
	TOC	Bromide	H <sub>2</sub> S	VOC	THM/HAA	Bromate	Capital	O&M				
1 CTA + Cl <sub>2</sub>	-	-	↓	↓	-	Not Formed	---	---	Category 5	No	Winter Springs	Current treatment compliance driven by brominated HAAs. Specifics
2 CTA + NH <sub>2</sub> Cl (includes Cl <sub>2</sub> contact chamber)	-	-	↓	↓	↓	Not Formed	\$1.2 Mil	\$\$	Category 5	No	None	CT disinfection effectiveness requires more disinfectant contact time. Potential for mitigation in distribution system.
3 Diffused Aerators	-	-	-	↓	↓	Not Formed	\$2.3 Mil	\$72,000/yr Power	Category 5	No	None	Potential for Chloroform. More Difficult by Brominated THMs. Does not remove HAAs.
4 FDA/Odor Control + Cl <sub>2</sub>	-	-	↓	↓	↓	Not Formed	\$2.6 to \$4.6 Mil	\$200,000/yr Power & Chem	Category 4	Yes	Orange County	Odor Control Showdown Waste Disposal
5 FDA/Odor Control + NH <sub>2</sub> Cl (includes Cl <sub>2</sub> contact chamber)	-	-	↓	↓	↓	Not Formed	\$8.8 Mil	\$\$	Category 4	Yes	Oviedo	Odor Control Showdown Waste Disposal. CT disinfection effectiveness requires more disinfectant contact time. Potential for mitigation in distribution system.
6 O <sub>3</sub> + Cl <sub>2</sub>	-	-	↓	↓	↓	↑	\$3.2 Mil	\$\$	Category 4	No	DUC/Orange County/Winter Park	Bromate formation needs to be addressed
7 GAC + Cl <sub>2</sub>	↓	-	↓	↓	↓	Not Formed	\$3.8 to \$6.9 Mil	\$400,000/yr GAC Replace	Category 3	Yes	Sanford/Polk County	GAC exhaustion leads to frequent GAC replacement
8 IX + Cl <sub>2</sub>	↓	↓	↓	↓	↓	Not Formed	\$1.6 to 2.9 Mil	\$43,000/yr Salt	Category 3	Yes	Wedgewood/Clonte/Chulucua	IX Regenerate salt loading to WWTP needs to be addressed
9 O <sub>3</sub> + GAC + Cl <sub>2</sub>	↓	-	↓	↓	↓	↑	\$7.1 to \$10.2 Mil	\$\$\$	Category 2	Yes	Seminole County - Southeast Regional	Bromate formation and GAC exhaustion need to be addressed
10 IX + O <sub>3</sub> + Cl <sub>2</sub>	↓	↓	↓	↓	↓	↓	\$4.8 to \$6.1 Mil	\$\$\$	Category 2	Yes	Seminole County - Markham Regional	IX Regenerate salt loading to WWTP needs to be addressed
11 FDA/Odor Control + GAC + Cl <sub>2</sub>	↓	-	↓	↓	↓	Not Formed	\$6.1 to \$11.2 Mil	\$\$\$	Category 2	Yes	Casselberry	Odor Control Showdown Waste Disposal. GAC exhaustion leads to frequent GAC replacement
12 FDA/Odor Control + IX + Cl <sub>2</sub>	↓	↓	↓	↓	↓	Not Formed	\$5.8 to \$7.1 Mil	\$\$\$	Category 2	Yes	None	IX Regenerate salt loading to WWTP needs to be addressed
13 RONF + FDA/Odor Control + Cl <sub>2</sub>	↓	↓	↓	↓	↓	Not Formed	\$17.1 Mil	\$\$\$\$	Category 2	Yes	Palm Coast	Concentrate disposal and CUP limitations need to be addressed

**Legend:**

- CTA Cascade Tray Aerator (100%)
- Cl<sub>2</sub> Chlorine (100%)
- NH<sub>2</sub>Cl Chloramines - All WTPs (100%)
- FDA Forced Draft Aeration (100%)
- O<sub>3</sub> Ozone - Sidestream (100%)
- GAC Granular Activated Carbon (50% to 100%)
- IX Ion-Exchange (50% to 100%)
- RONF Reverse Osmosis/Nanofiltration (50% to 100%)

**Treatment Effectiveness:**

- ↑ Detrimental Increase
- No Change
- ↓ Slightly Effective Reduction
- ↓ Effective Reduction
- ↓ Very Effective Reduction

**O&M Cost:**

- \$ Low
- \$\$ Moderate
- \$\$\$ High
- \$\$\$\$ Very High

**FDEP Staffing Requirement \***

- Category 5 Class C - Staffing by Class C Operator: 8 hrs/day for 5 days/week with Class C Lead Operator
- Category 4 Class C - Staffing by Class C Operator: 6 hrs/day for 5 days/week with Class C Lead Operator
- Category 3 Class B - Staffing by Class C Operator: 16 hrs/day for 7 days/week with Class B Lead Operator
- Category 2 Class B - Staffing by Class C Operator: 16 hrs/day for 7 days/week with Class B Lead Operator
- Category 1 Class B - Staffing by Class C Operator: 24 hrs/day for 7 days/week with Class A Lead Operator

\* Reduced Staffing can be requested for systems with functional Systems Control and Data Acquisition (SCADA)

**This Page Intentionally Left Blank**

## CHAPTER 7

### THE SELECTED PLAN

#### 7.1 Description of Proposed Facilities

The proposed improvements consist of installing an anionic ion exchange (IEX) system to remove Total Organic Carbon (TOC) and hydrogen sulfide from the raw water source at the City's WTP 1. In addition to the IEX system, the control and delivery of pre- and post-chlorination injection systems will be updated; the SCADA system will be updated and new electrical systems (including a larger generator) will be provided.

##### 7.1.1 Ion Exchange System

Raw water from the existing groundwater wells will be diverted into two (2) new IEX pressure vessels designed to remove total organic carbon and hydrogen sulfide from the raw water. A brine regeneration system will be utilized to re-generate the resins when they become saturated.

##### 7.1.2 Improved Chlorination System

Better control of the chlorination system will come from new dedicated metering pumps provide a dosage equivalent to the flow rate and the individual well. In addition, the chlorine residual analyzers will be upgraded.

##### 7.1.3 SCADA Improvements

SCADA improvements are necessary to enhance remote control and operation of the new IEX equipment and new sodium hypochlorite feed pumping systems.

##### 7.1.4 Miscellaneous Improvements

Other improvements necessary to operate the proposed Project include brine waste management equipment, electrical and instrumentation systems, and structural components (pads, containment walls, roof structures, paving, maintenance slabs, etc.).

#### 7.2 Environmental Impacts of Proposed Facilities

Proposed facilities are within the limits of an existing water treatment plant site. No environmental impacts are expected by the construction of proposed facilities. The short term impacts during construction include increased noise levels, increased airborne particulates and surface run-off during rainfall on the site. Control measures will be implemented to minimize these temporary effects. The proposed Project will not have a significant adverse effects on wild and scenic rivers or on flora, fauna, threatened or endangered plant or animal species, prime agricultural lands, wetlands, undisturbed natural areas, or the socio-economic character of the area. The proposed IEX treatment system will operate by pumping raw well water through the vessels that contain the IEX media. As the water flows, components such as organic carbon and hydrogen sulfide will adhere to the media surface in exchange for chloride release. When the media becomes saturated

with these components, a short backwash process with salt regenerates the media so it can be re-utilized in a new cycle. The backwash water used to regenerate the media is a salt brine solution, which is then discarded as plant waste to the City's wastewater collection system. This waste stream is anticipated to be approximately 17,000 gpd at 14% salt by weight concentration and is not expected to adversely affect the City's wastewater treatment facility. No other waste streams will be generated as part of this project.

### **7.3 Cost to Construct Facilities**

Construction and Operations and Maintenance costs for the project are presented in **Appendix E**. The Selected Plan is shown as Table E-1 within **Appendix E**.

### **7.4 Consistency with the Comprehensive Plan**

The recommendations resulting from this study are consistent with the City Comprehensive Plan.

## CHAPTER 8

### IMPLEMENTATION AND COMPLIANCE

#### 8.1 Public Hearing/Dedicated Revenue Hearing

A public meeting/hearing to discuss the Water Facilities Plan and the Business Plan will be held on December 14, 2015 at City Hall. Citizens will be given an opportunity to offer comments at this meeting. If accepted by the City Commission, the Water Facilities Plan would be formally adopted by the Commission during this meeting. Records of the public meeting, affidavits of publication for meeting advertisements and adopted resolutions will be submitted to FDEP for inclusion into this Water Facilities Plan, and will be contained in **Appendix C**.

#### 8.2 Regulatory Agency Review

To qualify for a grant or a loan from the SRF, various governmental agencies must be satisfied with the solution to the DBP problem at WTP 1. Copies of the WTP 1 Water Facilities Plan adopted by the City Commission will be sent to the following governmental agencies for review and comment:

- 1) Florida Department of Environmental Protection
- 2) St. Johns River Water Management District
- 3) State of Florida Clearinghouse

#### 8.3 Financial Planning

The Florida Department of Environmental Protection State Revolving Fund is expected to be the primary financing source for the project. Other funding sources for the project may include bonds or private financing. An FDEP Drinking Water SRF Business Plan has been prepared by City Staff to explain to the Public and to FDEP the financial impact on the users of the water system (**Appendix D**).

The Business Plan indicates that the city water system serves approximately 15,332 residential customers who account for approximately 83.3% of the total annual revenue. Industrial, commercial, municipal and institutional customers account for the remaining 16.7% of revenues.

Based on documentation provided by the SRF, the project may be funded by a twenty (20) year loan at an interest rate of 1.5% APR.

The repayment of the FDEP SRF loan will be made from City water revenues. The analysis provided in the Business Plan shows that the financial impact to the existing water system customers will be approximately \$2.50 per month per customer.

**8.4 Implementation**

The City of Winter Springs has the sole responsibility and authority to implement the recommended facilities. There are no inter-local agreements necessary for the City to provide drinking water services throughout the planning area.

**8.5 Implementation Schedule Items**

The following is the implementation schedule:

- September 17, 2015 Submit biddable plans and specifications to FDEP for permit approval in accordance with the Consent Order.
- December 14, 2015 Hold public Forum on Facilities Plan and Business Plan
- December 14, 2015 Commission to adopt Facilities Plan and Business Plan
- December 17, 2015 Submit package to FDEP SRF
- January 3, 2016 Advertise for Bids
- February 3, 2016 Open Bids
- As per a request FDEP Public Meeting to obligate funds
- February 22, 2016 Commission to authorize the application, agreement, establishing pledged revenues, designating authorized representative and providing assurances
- February 22, 2016 Award contract to successful Bidder
- March 1, 2016 FDEP and City to enter into Loan Agreement
- March 17, 2016 Start project construction
- March 17, 2017 Complete construction
- April 17, 2017 Certify operational performance of the project and close out project
- July 2017 Begin SRF loan payments

**8.6 Compliance**

When completed, the City of Winter Springs will have satisfied the terms of the FDEP Consent Order, OGC File No. 15-0031 and will be in compliance with the DBPR.

- 1) Treated water from the facility's selected alternative will be in compliance with FDEP

drinking water standards of Chapter 62-550 F.A.C.

- 2) Selected alternative will meet the reliability requirements of Chapter 62-555, F.A.C.
- 3) Residual disposal will meet the requirements of Chapter 62-701, F.A.C.
- 4) Environmental aspects of the proposed facilities are satisfactory.
- 5) Recommended facilities are consistent with the City's comprehensive plan.

**This Page Intentionally Left Blank**

**MAPS**  
**and**  
**FIGURES**

- Figure 1 – Water Service Area/Distribution Map
- Figure 2 – Soils Map
- Figure 3 – Location Map
- Figure 4 – Process Flow Diagram
- Figure 5 – Flood Map

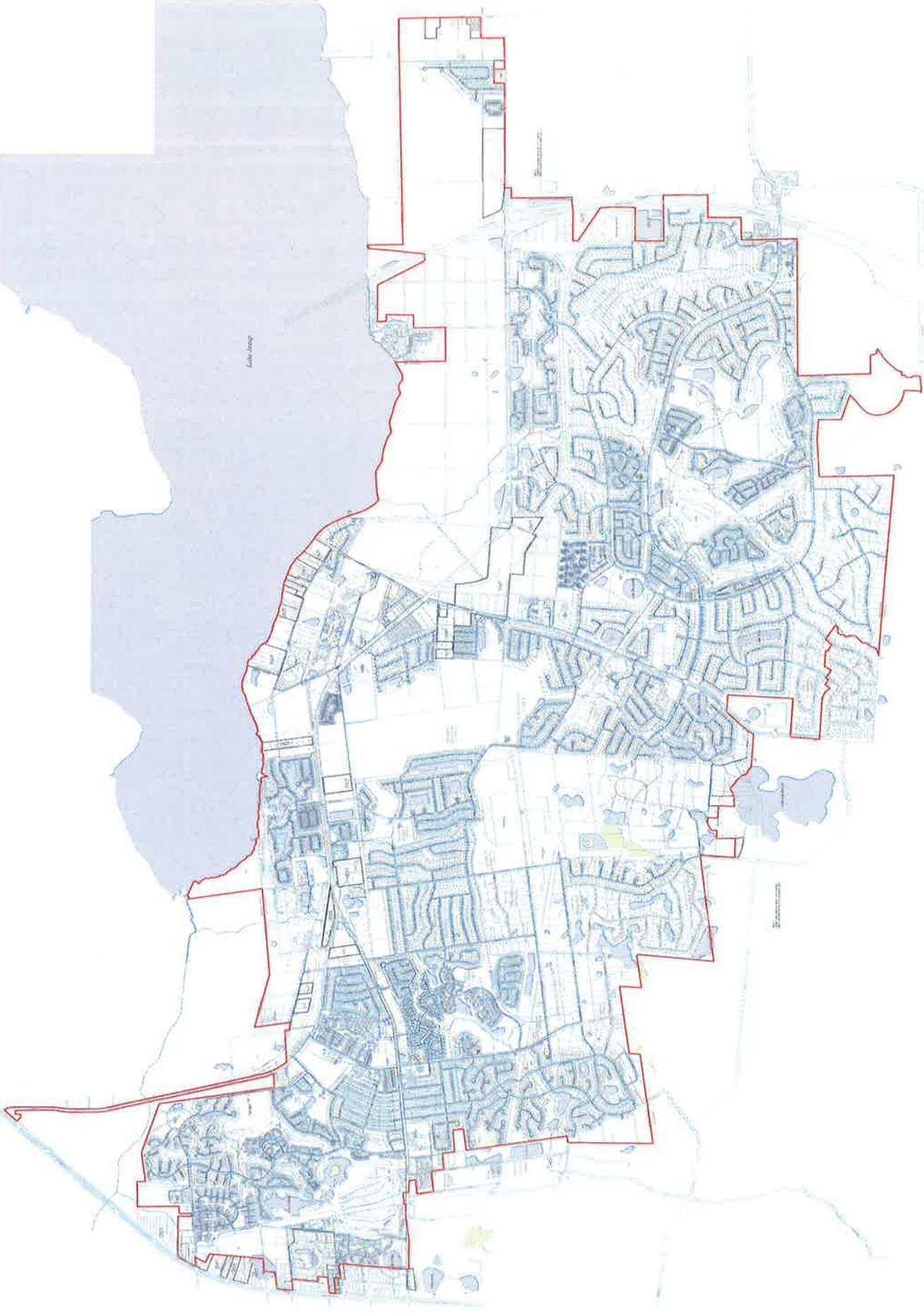


FIGURE  
1

WATER SERVICE AREA/DISTRIBUTION MAP

CITY OF WINTER SPRINGS  
WTP 1 WATER FACILITIES PLAN

Date: 8/25/2015
Job No. W04167
Scale: 1" = 4000'
File: Serv.dwg
© 2015

Plan Prepared By: <b>CPI, Inc.</b>
Licenses: Eng. C.O.A. No. 3215 Survey L.B. No. 7143 Arch. Lic. No. AA2600926 Lndscp. Lic. No. LC0000298

**cph**  
www.cphcorp.com  
1117 E. Robinson St. ~ Orlando, FL 32801 ~ Ph: 407.425.0452



Seminole County, Florida (FL117)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
20	Myakka and EauGalle fine sands	243.4	21.3%
34	Urban land	273.1	23.9%

Plan Prepared By:  
**CPH, Inc.**  
 Licenses:  
 Eng. C.O.A. No. 3215  
 Survey L.B. No. 7143  
 Arch. Lic. No. AA2600926  
 Lndscp. Lic. No. LC0000298

Date: 8/25/2015  
 Job No. W04167  
 Scale: N.T.S.  
 File: Soils.dwg  
 ©2015

**cph**  
[www.cphcorp.com](http://www.cphcorp.com)  
 1117 E. Robinson St. ~ Orlando, FL 32801 ~ Ph: 407.425.0452

**SOILS MAP**

**CITY OF WINTER SPRINGS  
 WTP 1 WATER FACILITIES PLAN**



PROJECT  
LOCATION

LAKE MARIA

ARBOR GLEN CIR.

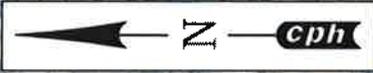
PLEASANT GROVE DR.

WINTER SPRINGS BLVD.

NORTHERN WAY

WINTER SPRINGS BLVD.

WOODLEAF DR.



**cph**  
 www.cphcorp.com  
 1117 E. Robinson St. ~ Orlando, FL 32801 ~ Ph: 407.425.0452

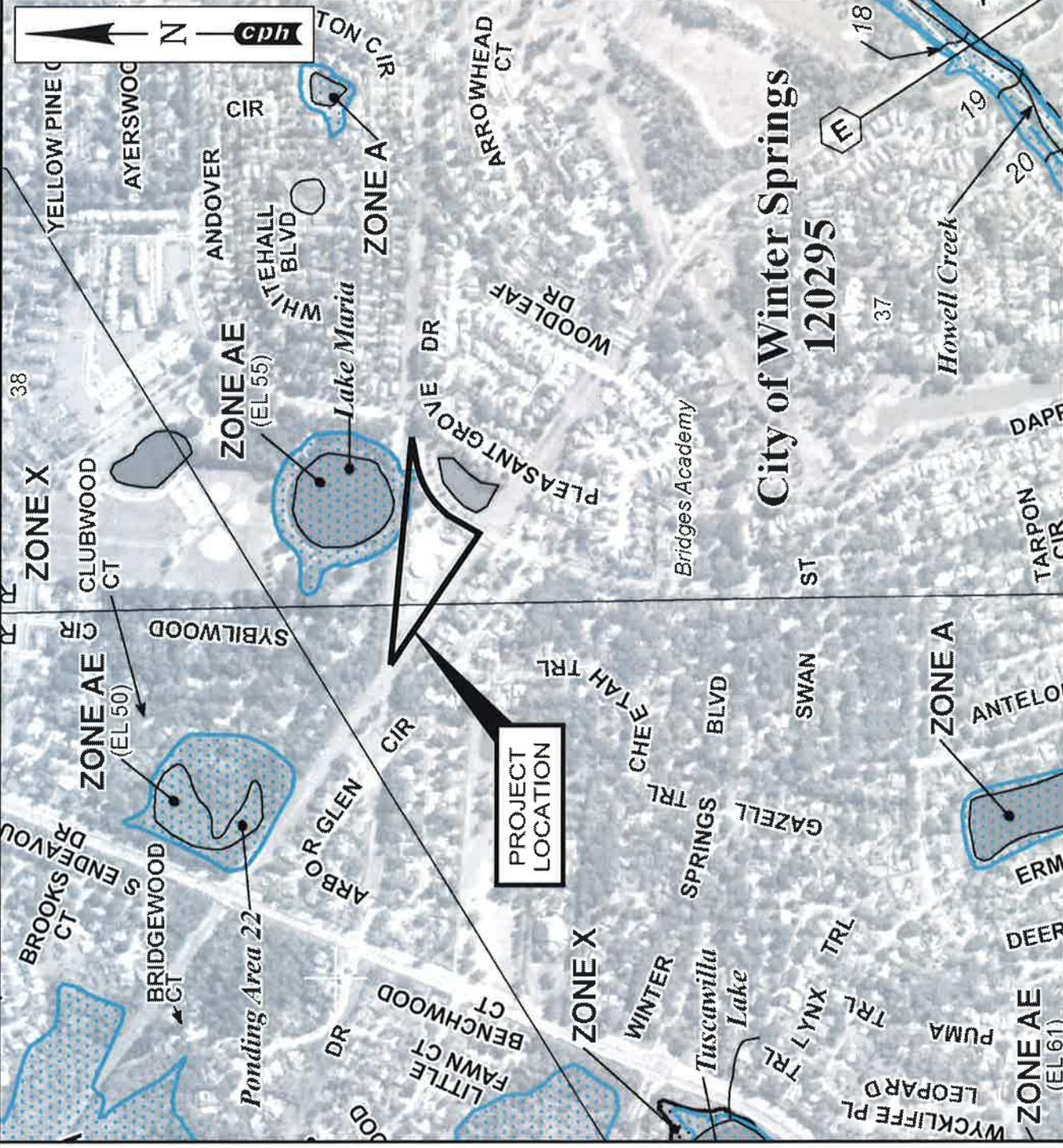
Plan Prepared By:  
**CPH, Inc.**  
 Licenses:  
 Eng. C.O.A. No. 3215  
 Survey L.B. No. 7143  
 Arch. Lic. No. AA2600526  
 Lndscp. Lic. No. LC0000298

Date: 8/25/2015  
 Job No. W04167  
 Scale: 1" = 400'  
 File: Location.dwg  
 ©2015

LOCATION MAP

CITY OF WINTER SPRINGS  
 WTP 1 WATER FACILITIES PLAN





**LEGEND**

**SPECIAL FLOOD HAZARD AREAS (SFHAS) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT**

The 1% annual chance flood (100-year flood) also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood.

**ZONE A**  
No Base Flood Elevations determined.  
Base Flood Elevation determined.

**ZONE AE**  
Flood depths of 1 to 3 feet (subject areas of ponding); Base Flood Elevations determined.

**ZONE AH**  
Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of shallow fan flooding, water depths also determined.

**ZONE AO**

**ZONE AR**  
Special Flood Hazard areas formerly included from the 1% annual chance flood event by a flood control system that was subsequently discontinued. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

**ZONE A99**  
Areas to be protected from 1% annual chance flood event by a flood production system under construction; its Base Flood Elevations determined.

**ZONE V**  
Coastal flood zone with velocity raised (wave action); no Base Flood Elevations determined.

**ZONE VE**  
Coastal flood zone with velocity raised (wave action); Base Flood Elevations determined.

**FLOODWAY AREAS IN ZONE AE**

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood height.

**OTHER FLOOD AREAS**

**ZONE X**  
Areas determined to be outside the 0.1% annual chance floodplain.

**ZONE D**  
Areas in which flood hazards are uncharacteristic but possible.

**CONCRETE BARRIAGE RESOURCES SYSTEM (CBRS) AREAS**  
CBRS areas are normally located where or adjacent to Special Flood Hazard Areas.

**OTHERWISE PROTECTED AREAS (OPAs)**

1% annual chance floodplain boundary  
0.1% annual chance floodplain boundary  
Recreative boundary  
Zone D boundary  
CBRS and CBR boundary  
Special Flood Hazard Areas Zone AE and Zone AR  
Flood Elevations, Flood depths or flood velocities  
Base Flood Elevation line and water elevation in feet  
Base Flood Elevation water surface elevation within Zone AE, Zone AR, Zone A99  
Reference to the North American Vertical Datum of 1988 (NAVD 88)  
Cross section line  
Intersect line

Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere  
1000-meter Universal Transverse Mercator grid ticks, zone 17  
3000-foot grid values: Florida State Plane coordinate system, East Zone (EPSG:31466 = 80); Universal Transverse Mercator projection  
Point marker (see explanation in notes to base section of this plan sheet)  
Spot Elevation

37°07'30" W 132°22'07" W  
87°55'00" W  
8000000.00 FT  
D75819.X  
841.5

PANEL 0170F

**FIGURE 5**

**FLOOD MAP**

**CITY OF WINTER SPRINGS**  
**WTP 1 WATER FACILITIES PLAN**

Date: 8/25/2015  
Job No. W04167  
Scale: 1" = 600'  
File: Soils.dwg  
©2015

Plan Prepared By:  
**CPh, Inc.**  
Licenses:  
Eng. C.O.A. No. 3215  
Survey L.B. No. 7143  
Arch. Lic. No. AA2600926  
Landscape Lic. No. LC0000296

**Cph**  
www.cphcorp.com  
1117 E. Robinson St. ~ Orlando, FL 32801 ~ Ph: 407.425.0452

**APPENDIX A**  
**FDEP CONSENT ORDER**



**FLORIDA DEPARTMENT OF  
ENVIRONMENTAL PROTECTION**

CENTRAL DISTRICT  
3319 MAGUIRE BOULEVARD, SUITE 232  
ORLANDO, FLORIDA 32803-3767

RICK SCOTT  
GOVERNOR

CARLOS LOPEZ-CANTERA  
LT. GOVERNOR

JONATHAN P. STEVERSON  
SECRETARY

April 15, 2015

Kipton Lockcuff, Utility Director  
City of Winter Springs  
1126 East State Road 434  
Winter Springs, FL 32708  
[klockcuff@winterspringsfl.org](mailto:klockcuff@winterspringsfl.org)

Re: Winter Springs, City of (3WPS)  
PWS ID 3590879  
Seminole County - CAP  
OGC Case No. 15-0031  
SPCD-CAP-15-3861

Dear Mr. Lockcuff:

Enclosed is the executed Consent Order to resolve the above referenced case. This copy is for your records.

Should you have any questions or comments, please contact Brad Whidden at 407-897-4315 or via e-mail at [Brad.Whidden@dep.state.fl.us](mailto:Brad.Whidden@dep.state.fl.us).

Your cooperation in this matter will be appreciated.

Sincerely,

Jeff Prather  
Director, Central District

Enclosure

cc: Waylon Locklear ([wlocklear@winterspringsfl.org](mailto:wlocklear@winterspringsfl.org))  
Lea Crandall, OGC  
Kris Tulloch, Central District

BEFORE THE STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

STATE OF FLORIDA DEPARTMENT )	IN THE OFFICE OF THE
OF ENVIRONMENTAL PROTECTION )	CENTRAL DISTRICT
)	
v. )	OGC FILE NO. 15-0031
)	
CITY OF WINTER SPRINGS )	
_____ )	

CONSENT ORDER

This Consent Order ("Order") is entered into between the State of Florida Department of Environmental Protection ("Department") and City of Winter Springs ("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 Community Public Water System, PWS No. 3590879, located at 1126 East State Road 434, Winter Springs, FL 32708, in Seminole County, Florida ("System").

4. The Department finds that Respondent is in violation of Rule 62-550.310(3), F.A.C, which establishes the maximum contaminant level ("MCL") for total trihalomethanes ("TTHMs") as 0.080 micrograms per liter ("ug/L"). The running annual average results for samples collected from the System at SM-6 1626 Wrentham on March 3, 2014, June 10, 2014, September 2, 2014, and November 24, 2014 and analyzed for TTHMs is 98.175 ug/L. The running annual average results for samples collected from the System at Stage 1 WTP 1 MRT

674 Oneida Ct on March 3, 2014, June 10, 2014, September 2, 2014, and November 24, 2014 and analyzed for TTHMs is 84.725 ug/L.

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) During the month of June 2015, Respondent shall conduct 2nd quarter 2015 disinfection byproduct monitoring. In the event that a disinfection byproduct result exceeds the MCL, within 30 days of notification of the MCL exceedance, Respondent shall retain the services of a professional engineer, registered in the State of Florida, to evaluate the System and submit an application, along with any required application fees, to the Department for a permit to construct any modifications needed to address the MCL violation(s).

b) In the event the monitoring in paragraph (5)(a), above, reflects results below the MCL, Respondent shall continue the operational changes, monitoring quarterly, and issuing public notice in accordance with paragraphs (5)(g) below, until the levels described in paragraph (5)(f), below, are met. If an MCL exceedance occurs during this sampling, the Respondent will be required to submit a permit application in accordance with paragraph (5)(a), above.

c) If the Department requires additional information, modifications, or specifications to process the permit application described in subparagraph (5)(a), above, the Department will issue a written request for additional information ("RAI") to Respondent. Respondent shall submit the requested information in writing to the Department within 30 days of receipt of the request. Respondent shall provide all information requested in any additional RAIs issued by the Department within 15 days of receipt of each request. In addition, within 60 days of the Department's receipt of the application described in

subparagraph (5)(a), above, Respondent shall provide all information necessary to complete the application.

d) Within 24 months of the effective date of this Order, Respondent shall complete all corrective actions necessary to resolve the MCL exceedances described above. If the Department issues a permit pursuant to subparagraphs (5)(a), above, within 24 months of the effective date of this Order Respondent shall submit a Certification of Completion, prepared and sealed by a professional engineer registered in the State of Florida. Respondent shall receive written Department clearance prior to placing the permitted system modifications into service. If a permit is not required to implement the corrective actions required by this paragraph, and none is issued by the Department pursuant to this Order, within 24 months of the effective date of this Order, Respondent shall submit to the Department a written statement attesting to the completion of all required actions.

e) If the approved modifications are determined by the Department to be inadequate to resolve the MCL violation(s), the Department will notify the Respondent in writing. Within 30 days of receipt of such written notification from the Department, Respondent shall submit an alternate proposal to address the MCL violation(s). Respondent shall provide all information requested in any RAIs issued by the Department within 15 days of receipt of each request. Within 60 days of the date the Department receives the proposal required by this subparagraph, Respondent shall provide all information necessary to complete the application for modification.

f) Respondent shall continue to sample quarterly for TTHMs and HAA5s in accordance with Rule 62-550.822, F.A.C. Respondent shall submit all sampling results to the Department within 10 days following the month in which the samples were taken or within 10 days following Respondent's receipt of the results, whichever is sooner.

g) Respondent shall continue to issue public notices regarding the MCL violation(s) described above every 90 days, as required by Rule 62-560.410(1), F.A.C., until the Department determines that the System is in compliance with all MCLs. Respondent shall

submit certification of delivery of public notices, using DEP Form 62-555.900(22), F.A.C. to the Department within 10 days of issuing each public notice.

h) Respondent shall submit written quarterly updates on the status of the permitted modifications. Updates shall be submitted to the Department within 10 days following the end of each calendar quarter until the modifications are complete and cleared for service.

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 required by this Order to the Department. The written estimate shall identify the information the Respondent relied upon to provide the estimate.

7. Respondent agrees to pay the Department stipulated penalties in the amount of \$250 per day for each and every day Respondent fails to timely comply with any of the requirements of paragraph 5 of this Order. 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 8, below. Nothing in this paragraph shall prevent the Department from filing suit to specifically enforce any terms of this Order.

8. Respondent shall make all payments required by this Order by cashier's check, money order or on-line payment. Cashier's check or money order shall be made payable to the "Department of Environmental Protection" and shall include both the OGC number assigned to this Order and the notation "Ecosystem Management and Restoration Trust Fund." Online payments can be made by going to the DEP Business Portal at: <http://www.fldepportal.com/go/pay/>. It will take a number of days after this order becomes final and effective filed with the Clerk of the Department before ability to make online payment is available.

9. Except as otherwise provided, all submittals and payments required by this Order shall be sent to Brad Whidden, Environmental Specialist III, Compliance Assurance

Program, Department of Environmental Protection, Central District Office, 3319 Maguire Boulevard, Suite 232, Orlando, FL 32803.

10. 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.

11. 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.

12. 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.

13. 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.

14. 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.

15. 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.

16. 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.

17. 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.

18. 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.

19. 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.

20. 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.

21. 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 Office of General Counsel, 3900 Commonwealth Boulevard, MS# 35, Tallahassee, Florida 32399-3000 within 21 days of receipt of this notice. A copy of the petition must also be mailed at the time of filing to the District Office at Central District Office, 3319 Maguire Boulevard, Suite 232, Orlando, FL 32803. 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.

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

FOR THE RESPONDENT:

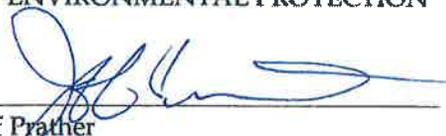


Kipton Lockcuff, P.E.  
Utility Director

4/9/15  
Date

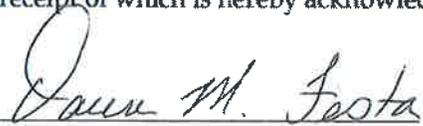
DONE AND ORDERED this 15<sup>th</sup> day of APRIL, 2015 in ORANGE, Florida.

STATE OF FLORIDA DEPARTMENT  
OF ENVIRONMENTAL PROTECTION



Jeff Prather  
District Director  
Central District

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



Clerk

4/15/15

Date

Copies furnished to:

Lea Crandall, Agency Clerk  
Mail Station 35

**APPENDIX B**  
**WATER QUALITY DATA**



Advanced  
Environmental Laboratories, Inc.

Advanced Environmental Laboratories, Inc  
528 S. North Bl, Ste 1016 Altamonte Springs, FL 32701  
Payments: P.O. Box 551580 Jacksonville, FL 32255-1580  
Phone: (407)937-1594  
Fax: (407)937-1597

April 23, 2015

Waylon Locklear  
City of Winter Springs  
1126 East SR 434  
Winter Springs, FL 32708

RE: Workorder: A1502301 WINTER SPRINGS

Dear Waylon Locklear:

Enclosed are the analytical results for sample(s) received by the laboratory on Wednesday, April 08, 2015. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report. The analytical results for the samples contained in this report were submitted for analysis as outlined by the Chain of Custody and results pertain only to these samples.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

*Brandon O'Hara*

Brandon O'Hara  
BOHara@AELLab.com

Enclosures: Sublab report and case narrative

Report ID: 363081 - 5344810

Page 1 of 14

#### CERTIFICATE OF ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Advanced Environmental Laboratories, Inc.





**SAMPLE SUMMARY**

Workorder: A1502301 WINTER SPRINGS

Lab ID	Sample ID	Matrix	Date Collected	Date Received
A1502301001	WELL 1E	Drinking Water	4/8/2015 11:03	4/8/2015 15:23
A1502301002	WELL 2E	Drinking Water	4/8/2015 12:17	4/8/2015 15:23
A1502301003	WELL 3E	Drinking Water	4/8/2015 11:38	4/8/2015 15:23
A1502301004	WELL 4E	Drinking Water	4/8/2015 11:58	4/8/2015 15:23
A1502301005	POE	Drinking Water	4/8/2015 12:30	4/8/2015 15:23

**CERTIFICATE OF ANALYSIS**

This report shall not be reproduced, except in full,  
without the written consent of Advanced Environmental Laboratories, Inc.





**ANALYTICAL RESULTS**

Workorder: A1502301 WINTER SPRINGS

Lab ID: **A1502301001** Date Received: 04/08/15 15:23 Matrix: Drinking Water  
Sample ID: **WELL 1E** Date Collected: 04/08/15 11:03

Sample Description: Location:

Parameters	Results	Qual	Units	DF	Adjusted PQL	Adjusted MDL	Analyzed	Lab
<b>METALS</b>								
Analysis Desc: E200.7 Analysis,Drinking Water (w/Prep)		Analytical Method: EPA 200.7						
Calcium	44		mg/L	1	0.20	0.10	4/23/2015 12:46	M
Iron	0.020	U	mg/L	1	0.20	0.020	4/23/2015 12:46	M
Magnesium	10		mg/L	1	0.20	0.046	4/23/2015 12:46	M
Sodium	20		mg/L	1	0.20	0.010	4/23/2015 12:46	M
<b>METALS, DISSOLVED</b>								
Analysis Desc: E200.7 Analysis,Dissolved		Preparation Method: EPA 200.7 Analytical Method: EPA 200.7						
Iron	0.051	I	mg/L	1	0.20	0.020	4/23/2015 13:46	M
<b>WET CHEMISTRY</b>								
Analysis Desc: IC,E300.0,Water		Analytical Method: EPA 300.0						
Chloride	38		mg/L	1	7.5	0.78	4/8/2015 21:46	A
Orthophosphate	0.23	J3	mg/L	1		0.094	4/8/2015 21:46	A
Sulfate	11		mg/L	1	5.0	0.52	4/8/2015 21:46	A
Analysis Desc: Ammonia,E350.1,Water		Analytical Method: EPA 350.1						
Ammonia (N)	0.27		mg/L	1	0.10	0.02	4/9/2015 13:27	T
Analysis Desc: Alkalinity,SM2320B,Water		Analytical Method: SM 2320B						
Alkalinity, Total	130		mg/L	1	20	5.0	4/15/2015 10:12	T
Analysis Desc: Tot Dissolved Solids,SM2540C		Analytical Method: SM 2540 C						
Total Dissolved Solids	240		mg/L	1	10	10	4/9/2015 08:45	A
Analysis Desc: Sulfide,SM4500S-D,Aqueous		Analytical Method: SM 4500-S D						
Sulfide	1.9		mg/L	2	0.10	0.012	4/15/2015 11:08	T

**CERTIFICATE OF ANALYSIS**

This report shall not be reproduced, except in full, without the written consent of Advanced Environmental Laboratories, Inc.





**ANALYTICAL RESULTS**

Workorder: A1502301 WINTER SPRINGS

Lab ID: **A1502301002** Date Received: 04/08/15 15:23 Matrix: Drinking Water  
Sample ID: **WELL 2E** Date Collected: 04/08/15 12:17

Sample Description: Location:

Parameters	Results	Qual	Units	DF	Adjusted PQL	Adjusted MDL	Analyzed	Lab
<b>METALS</b>								
Analysis Desc: E200.7 Analysis,Drinking Water (w/Prep)		Analytical Method: EPA 200.7						
Calcium	46		mg/L	1	0.20	0.10	4/23/2015 12:50	M
Iron	0.042	I	mg/L	1	0.20	0.020	4/23/2015 12:50	M
Magnesium	11		mg/L	1	0.20	0.046	4/23/2015 12:50	M
Sodium	28		mg/L	1	0.20	0.010	4/23/2015 12:50	M
<b>METALS, DISSOLVED</b>								
Analysis Desc: E200.7 Analysis, Dissolved		Preparation Method: EPA 200.7 Analytical Method: EPA 200.7						
Iron	0.033	I	mg/L	1	0.20	0.020	4/23/2015 13:53	M
<b>WET CHEMISTRY</b>								
Analysis Desc: IC,E300.0,Water		Analytical Method: EPA 300.0						
Chloride	54		mg/L	1	7.5	0.78	4/8/2015 22:10	A
Orthophosphate	0.27	J3	mg/L	1		0.094	4/8/2015 22:10	A
Sulfate	14		mg/L	1	5.0	0.52	4/8/2015 22:10	A
Analysis Desc: Ammonia,E350.1,Water		Analytical Method: EPA 350.1						
Ammonia (N)	0.25		mg/L	1	0.10	0.02	4/9/2015 13:27	T
Analysis Desc: Alkalinity,SM2320B,Water		Analytical Method: SM 2320B						
Alkalinity, Total	130		mg/L	1	20	5.0	4/15/2015 10:17	T
Analysis Desc: Tot Dissolved Solids,SM2540C		Analytical Method: SM 2540 C						
Total Dissolved Solids	280		mg/L	1	10	10	4/9/2015 08:45	A
Analysis Desc: Sulfide,SM4500S-D,Aqueous		Analytical Method: SM 4500-S D						
Sulfide	2.6		mg/L	5	0.25	0.031	4/15/2015 11:08	T

**CERTIFICATE OF ANALYSIS**

This report shall not be reproduced, except in full, without the written consent of Advanced Environmental Laboratories, Inc.





**ANALYTICAL RESULTS**

Workorder: A1502301 WINTER SPRINGS

Lab ID: **A1502301003** Date Received: 04/08/15 15:23 Matrix: Drinking Water  
Sample ID: **WELL 3E** Date Collected: 04/08/15 11:38

Sample Description: Location:

Parameters	Results	Qual	Units	DF	Adjusted PQL	Adjusted MDL	Analyzed	Lab
<b>METALS</b>								
Analysis Desc: E200.7 Analysis,Drinking Water (w/Prep)		Analytical Method: EPA 200.7						
Calcium	45		mg/L	1	0.20	0.10	4/23/2015 12:54	M
Iron	0.020	U	mg/L	1	0.20	0.020	4/23/2015 12:54	M
Magnesium	11		mg/L	1	0.20	0.046	4/23/2015 12:54	M
Sodium	29		mg/L	1	0.20	0.010	4/23/2015 12:54	M
<b>METALS, DISSOLVED</b>								
Analysis Desc: E200.7 Analysis,Dissolved		Preparation Method: EPA 200.7 Analytical Method: EPA 200.7						
Iron	0.020	U	mg/L	1	0.20	0.020	4/23/2015 13:57	M
<b>WET CHEMISTRY</b>								
Analysis Desc: IC,E300.0,Water		Analytical Method: EPA 300.0						
Chloride	56		mg/L	1	7.5	0.78	4/9/2015 18:41	A
Orthophosphate	0.52		mg/L	1		0.094	4/9/2015 18:41	A
Sulfate	14		mg/L	1	5.0	0.52	4/9/2015 18:41	A
Analysis Desc: Ammonia,E350.1,Water		Analytical Method: EPA 350.1						
Ammonia (N)	0.29		mg/L	1	0.10	0.02	4/9/2015 13:27	T
Analysis Desc: Alkalinity,SM2320B,Water		Analytical Method: SM 2320B						
Alkalinity, Total	130		mg/L	1	20	5.0	4/15/2015 10:21	T
Analysis Desc: Tot Dissolved Solids,SM2540C		Analytical Method: SM 2540 C						
Total Dissolved Solids	250		mg/L	1	10	10	4/9/2015 08:45	A
Analysis Desc: Sulfide,SM4500S-D,Aqueous		Analytical Method: SM 4500-S D						
Sulfide	2.7		mg/L	5	0.25	0.031	4/15/2015 11:08	T

**CERTIFICATE OF ANALYSIS**

This report shall not be reproduced, except in full, without the written consent of Advanced Environmental Laboratories, Inc.





**ANALYTICAL RESULTS**

Workorder: A1502301 WINTER SPRINGS

Lab ID: **A1502301004** Date Received: 04/08/15 15:23 Matrix: Drinking Water  
Sample ID: **WELL 4E** Date Collected: 04/08/15 11:58

Sample Description: Location:

Parameters	Results	Qual	Units	DF	Adjusted PQL	Adjusted MDL	Analyzed	Lab
<b>METALS</b>								
Analysis Desc: E200.7 Analysis,Drinking Water (w/Prep)		Analytical Method: EPA 200.7						
Calcium	43		mg/L	1	0.20	0.10	4/23/2015 12:58	M
Iron	0.21		mg/L	1	0.20	0.020	4/23/2015 12:58	M
Magnesium	11		mg/L	1	0.20	0.046	4/23/2015 12:58	M
Sodium	29		mg/L	1	0.20	0.010	4/23/2015 12:58	M
<b>METALS, DISSOLVED</b>								
Analysis Desc: E200.7 Analysis,Dissoived		Preparation Method: EPA 200.7 Analytical Method: EPA 200.7						
Iron	0.13	I	mg/L	1	0.20	0.020	4/23/2015 14:01	M
<b>WET CHEMISTRY</b>								
Analysis Desc: IC,E300.0,Water		Analytical Method: EPA 300.0						
Chloride	52		mg/L	1	7.5	0.78	4/9/2015 19:05	A
Orthophosphate	0.57		mg/L	1		0.094	4/9/2015 19:05	A
Sulfate	13		mg/L	1	5.0	0.52	4/9/2015 19:05	A
Analysis Desc: Ammonia,E350.1,Water		Analytical Method: EPA 350.1						
Ammonia (N)	0.24		mg/L	1	0.10	0.02	4/9/2015 13:27	T
Analysis Desc: Alkalinity,SM2320B,Water		Analytical Method: SM 2320B						
Alkalinity, Total	120		mg/L	1	20	5.0	4/15/2015 10:26	T
Analysis Desc: Tot Dissolved Solids,SM2540C		Analytical Method: SM 2540 C						
Total Dissolved Solids	270		mg/L	1	10	10	4/9/2015 08:45	A
Analysis Desc: Sulfide,SM4500S-D,Aqueous		Analytical Method: SM 4500-S D						
Sulfide	2.8		mg/L	5	0.25	0.031	4/15/2015 11:08	T

**CERTIFICATE OF ANALYSIS**

This report shall not be reproduced, except in full, without the written consent of Advanced Environmental Laboratories, Inc.





**ANALYTICAL RESULTS**

Workorder: A1502301 WINTER SPRINGS

Lab ID: **A1502301005** Date Received: 04/08/15 15:23 Matrix: Drinking Water  
Sample ID: **POE** Date Collected: 04/08/15 12:30

Sample Description:

Location:

Parameters	Results	Qual	Units	DF	Adjusted PQL	Adjusted MDL	Analyzed	Lab
<b>METALS</b>								
Analysis Desc: E200.7 Analysis,Drinking Water (w/Prep)			Analytical Method: EPA 200.7					
Calcium	44		mg/L	1	0.20	0.10	4/23/2015 13:01	M
Iron	0.020	U	mg/L	1	0.20	0.020	4/23/2015 13:01	M
Magnesium	10		mg/L	1	0.20	0.046	4/23/2015 13:01	M
Sodium	31		mg/L	1	0.20	0.010	4/23/2015 13:01	M
<b>METALS, DISSOLVED</b>								
Analysis Desc: E200.7 Analysis,Dissolved			Preparation Method: EPA 200.7					
			Analytical Method: EPA 200.7					
Iron	0.020	U	mg/L	1	0.20	0.020	4/23/2015 14:04	M
<b>WET CHEMISTRY</b>								
Analysis Desc: IC,E300.0,Water			Analytical Method: EPA 300.0					
Chloride	54		mg/L	1	7.5	0.78	4/9/2015 19:30	A
Orthophosphate	0.21		mg/L	1		0.094	4/9/2015 19:30	A
Sulfate	12		mg/L	1	5.0	0.52	4/9/2015 19:30	A
Analysis Desc: Ammonia,E350.1,Water			Analytical Method: EPA 350.1					
Ammonia (N)	0.02	U	mg/L	1	0.10	0.02	4/9/2015 13:27	T
Analysis Desc: Alkalinity,SM2320B,Water			Analytical Method: SM 2320B					
Alkalinity, Total	130		mg/L	1	20	5.0	4/15/2015 10:30	T
Analysis Desc: Tot Dissolved Solids,SM2540C			Analytical Method: SM 2540 C					
Total Dissolved Solids	260		mg/L	1	10	10	4/9/2015 08:45	A
Analysis Desc: Sulfide,SM4500S-D,Aqueous			Analytical Method: SM 4500-S D					
Sulfide	0.074		mg/L	1	0.050	0.0062	4/15/2015 11:08	T

**CERTIFICATE OF ANALYSIS**

This report shall not be reproduced, except in full, without the written consent of Advanced Environmental Laboratories, Inc.





## ANALYTICAL RESULTS QUALIFIERS

Workorder: A1502301 WINTER SPRINGS

---

### PARAMETER QUALIFIERS

- U The compound was analyzed for but not detected.
- I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J3 Lab QC Failure

### LAB QUALIFIERS

- A DOH Certification #E53076(AEL-A)(FL NELAC Certification)
- M DOH Certification #E82535(AEL-M)(FL NELAC Certification)
- T DOH Certification #E84589(AEL-T)(FL NELAC Certification)

### CERTIFICATE OF ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Advanced Environmental Laboratories, Inc.





**QUALITY CONTROL DATA**

Workorder: A1502301 WINTER SPRINGS

QC Batch: WCAI/2608 Analysis Method: EPA 350.1  
QC Batch Method: EPA 350.1 Prepared:  
Associated Lab Samples: A1502301001, A1502301002, A1502301003, A1502301004, A1502301005

METHOD BLANK: 1721791

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
WET CHEMISTRY				
Ammonia (N)	mg/L	0.02	0.02	U

QC Batch: WCAa/1258 Analysis Method: SM 2540 C  
QC Batch Method: SM 2540 C Prepared:  
Associated Lab Samples: A1502301001, A1502301002, A1502301003, A1502301004, A1502301005

METHOD BLANK: 1724662

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
WET CHEMISTRY				
Total Dissolved Solids	mg/L	10	10	U

QC Batch: WCAI/2674 Analysis Method: SM 2320B  
QC Batch Method: SM 2320B Prepared:  
Associated Lab Samples: A1502301001, A1502301002, A1502301003, A1502301004, A1502301005

METHOD BLANK: 1724790

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
WET CHEMISTRY				
Alkalinity, Total	mg/L	5.0	5.0	U

QC Batch: WCAI/2699 Analysis Method: SM 4500-S D  
QC Batch Method: SM 4500-S D Prepared:  
Associated Lab Samples: A1502301001, A1502301002, A1502301003, A1502301004, A1502301005

METHOD BLANK: 1726147

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
WET CHEMISTRY				

**CERTIFICATE OF ANALYSIS**

This report shall not be reproduced, except in full,  
without the written consent of Advanced Environmental Laboratories, Inc.





**QUALITY CONTROL DATA**

Workorder: A1502301 WINTER SPRINGS

METHOD BLANK: 1726147

Parameter	Units	Blank Result	Reporting Limit Qualifiers
Sulfide	mg/L	0.0062	0.0062 U

QC Batch: ICPm/1109 Analysis Method: EPA 200.7  
QC Batch Method: EPA 200.7 Prepared:  
Associated Lab Samples: A1502301001, A1502301002, A1502301003, A1502301004, A1502301005

METHOD BLANK: 1727009

Parameter	Units	Blank Result	Reporting Limit Qualifiers
<b>METALS</b>			
Calcium	mg/L	0.10	0.10 U
Iron	mg/L	0.020	0.020 U
Magnesium	mg/L	0.046	0.046 U
Sodium	mg/L	0.10	0.10 U

QC Batch: WCAa/1281 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Prepared:  
Associated Lab Samples: A1502301003, A1502301004, A1502301005

METHOD BLANK: 1730081

Parameter	Units	Blank Result	Reporting Limit Qualifiers
<b>WET CHEMISTRY</b>			
Chloride	mg/L	0.78	0.78 U
Orthophosphate	mg/L	0.094	0.094 U
Sulfate	mg/L	0.52	0.52 U

QC Batch: WCAa/1283 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Prepared:  
Associated Lab Samples: A1502301001, A1502301002

METHOD BLANK: 1730158

Parameter	Units	Blank Result	Reporting Limit Qualifiers
<b>WET CHEMISTRY</b>			
Chloride	mg/L	0.78	0.78 U

Report ID: 363081 - 5344810

Page 10 of 14

**CERTIFICATE OF ANALYSIS**

This report shall not be reproduced, except in full, without the written consent of Advanced Environmental Laboratories, Inc.





**QUALITY CONTROL DATA**

Workorder: A1502301 WINTER SPRINGS

METHOD BLANK: 1730158

Parameter	Units	Blank Result	Reporting Limit Qualifiers
Orthophosphate	mg/L	0.094	0.094 U
Sulfate	mg/L	0.52	0.52 U

QC Batch: DGMm/1116 Analysis Method: EPA 200.7  
QC Batch Method: EPA 200.7 Prepared: 04/22/2015 10:00  
Associated Lab Samples: A1502301001, A1502301002, A1502301003, A1502301004, A1502301005

METHOD BLANK: 1732931

Parameter	Units	Blank Result	Reporting Limit Qualifiers
Iron	mg/L	0.020	0.020 U

**QUALITY CONTROL DATA QUALIFIERS**

Workorder: A1502301 WINTER SPRINGS

**QUALITY CONTROL PARAMETER QUALIFIERS**

- U The compound was analyzed for but not detected.
- I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J3 Lab QC Failure

**CERTIFICATE OF ANALYSIS**

This report shall not be reproduced, except in full,  
without the written consent of Advanced Environmental Laboratories, Inc.





**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Workorder: A1502301 WINTER SPRINGS

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
A1502301001	WELL 1E			EPA 350.1	WCAI/2608
A1502301002	WELL 2E			EPA 350.1	WCAI/2608
A1502301003	WELL 3E			EPA 350.1	WCAI/2608
A1502301004	WELL 4E			EPA 350.1	WCAI/2608
A1502301005	POE			EPA 350.1	WCAI/2608
A1502301001	WELL 1E			SM 2540 C	WCAa/1258
A1502301002	WELL 2E			SM 2540 C	WCAa/1258
A1502301003	WELL 3E			SM 2540 C	WCAa/1258
A1502301004	WELL 4E			SM 2540 C	WCAa/1258
A1502301005	POE			SM 2540 C	WCAa/1258
A1502301001	WELL 1E			SM 2320B	WCAI/2674
A1502301002	WELL 2E			SM 2320B	WCAI/2674
A1502301003	WELL 3E			SM 2320B	WCAI/2674
A1502301004	WELL 4E			SM 2320B	WCAI/2674
A1502301005	POE			SM 2320B	WCAI/2674
A1502301001	WELL 1E			SM 4500-S D	WCAI/2699
A1502301002	WELL 2E			SM 4500-S D	WCAI/2699
A1502301003	WELL 3E			SM 4500-S D	WCAI/2699
A1502301004	WELL 4E			SM 4500-S D	WCAI/2699
A1502301005	POE			SM 4500-S D	WCAI/2699
A1502301001	WELL 1E			EPA 200.7	ICPm/1109
A1502301002	WELL 2E			EPA 200.7	ICPm/1109
A1502301003	WELL 3E			EPA 200.7	ICPm/1109
A1502301004	WELL 4E			EPA 200.7	ICPm/1109
A1502301005	POE			EPA 200.7	ICPm/1109
A1502301003	WELL 3E			EPA 300.0	WCAa/1281
A1502301004	WELL 4E			EPA 300.0	WCAa/1281
A1502301005	POE			EPA 300.0	WCAa/1281

**CERTIFICATE OF ANALYSIS**

This report shall not be reproduced, except in full,  
without the written consent of Advanced Environmental Laboratories, Inc.





**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Workorder: A1502301 WINTER SPRINGS

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
A1502301001	WELL 1E			EPA 300.0	WCAa/1283
A1502301002	WELL 2E			EPA 300.0	WCAa/1283
A1502301001	WELL 1E	EPA 200.7	DGMm/1116	EPA 200.7	ICPm/1117
A1502301002	WELL 2E	EPA 200.7	DGMm/1116	EPA 200.7	ICPm/1117
A1502301003	WELL 3E	EPA 200.7	DGMm/1116	EPA 200.7	ICPm/1117
A1502301004	WELL 4E	EPA 200.7	DGMm/1116	EPA 200.7	ICPm/1117
A1502301005	POE	EPA 200.7	DGMm/1116	EPA 200.7	ICPm/1117

**CERTIFICATE OF ANALYSIS**

This report shall not be reproduced, except in full,  
without the written consent of Advanced Environmental Laboratories, Inc.







**SUMMIT**  
ENVIRONMENTAL TECHNOLOGIES, INC  
Analytical Laboratories

Summit Environmental Technologies, Inc.  
3310 Win St.  
Cuyahoga Falls, Ohio 44223  
TEL: (330) 253-8211 FAX: (330) 253-4489  
Website: <http://www.settek.com>

April 22, 2015

Brandon O Hara  
Advanced Environmental Laboratories, Inc  
528 S North Lake Blvd Suite 1016  
Altamonte Springs, FL 32701  
TEL: 407-937-1594  
FAX:

RE: A1502301

Dear Brandon O Hara:

Order No.: 15041021

Summit Environmental Technologies, Inc. received 5 sample(s) on 4/10/2015 for the analyses presented in the following report.

There were no problems with the analytical events associated with this report unless noted in the Case Narrative.

Quality control data is within laboratory defined or method specified acceptance limits except where noted.

If you have any questions regarding these tests results, please feel free to call the laboratory.

Sincerely,

Dr. Mo Osman  
Project Manager  
3310 Win St.  
Cuyahoga Falls, Ohio 44223

A21A 0724.01, Alabama 41600, Arizona AZ0788, Arkansas 88-0735, California 07256CA, Colorado, Connecticut PH-0105, Delaware, Florida NELAC E87688, Georgia E87688 and 943, Idaho OH00923, Illinois 200061 and Reg.5, Indiana C-OH-13, Kansas E-10347, Kentucky (Underground Storage Tank) 3, Kentucky 90146, Louisiana 04061 and LA12004, Maine 2012015, Maryland 339, Massachusetts M-OPH923, Minnesota 409711, Montana CERT0099, New Hampshire 2996, New Jersey OH006, New York 11777, North Carolina 39705 and 631, Ohio Drinking Water 4170, Ohio VAP C1.0052, Oklahoma 9940, Oregon OH200001, Pennsylvania 68-01335, Rhode Island LA000317, South Carolina 92016001, Tennessee TN04018, Texas T104764466-11-5, Region 8 8TMS-L, USDA/APHIS P330-11-00244, Utah OH009232011-1, Vermont VT-87688, Virginia 00440 and 1581, Washington C891, West Virginia 248 and 9957C and E87688, Wisconsin 399013010



**SUMMIT**  
ENVIRONMENTAL TECHNOLOGIES, INC  
Analytical Laboratories

Summit Environmental Technologies, Inc.  
3310 Win St.  
Cuyahoga Falls, Ohio 44223  
TEL: (330) 253-8211 FAX: (330) 253-4489  
Website: <http://www.setek.com>

## Workorder Sample Summary

WO#: 15041021  
22-Apr-15

---

**CLIENT:** Advanced Environmental Laboratories, Inc  
**Project:** A1502301

---

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
15041021-001	A1502301001		4/8/2015 11:03:00 AM	4/10/2015 10:20:00 AM	Drinking Water
15041021-002	A1502301002		4/8/2015 12:17:00 PM	4/10/2015 10:20:00 AM	Drinking Water
15041021-003	A1502301003		4/8/2015 11:38:00 AM	4/10/2015 10:20:00 AM	Drinking Water
15041021-004	A1502301004		4/8/2015 11:58:00 AM	4/10/2015 10:20:00 AM	Drinking Water
15041021-005	A1502301005		4/8/2015 12:30:00 PM	4/10/2015 10:20:00 AM	Drinking Water



Summit Environmental Technologies, Inc.  
3310 Win St.  
Cuyahoga Falls, Ohio 44223  
TEL: (330) 253-8211 FAX: (330) 253-4489  
Website: <http://www.settek.com>

## Case Narrative

WO#: 15041021  
Date: 4/22/2015

---

**CLIENT:** Advanced Environmental Laboratories, Inc  
**Project:** A1502301

---

This report in its entirety consists of the documents listed below. All documents contain the Summit Environmental Technologies, Inc., Work Order Number assigned to this report.

Paginated Report including Cover Letter, Case Narrative, Analytical Results, Applicable Quality Control Summary Reports, and copies of the Chain of Custody Documents are supplied with this sample set.

Concentrations reported with a J-Flag in the Qualifier Field are values below the Limit of Quantitation (LOQ) but greater than the established Method Detection Limit (MDL).

Method numbers, unless specified as SM (Standard Methods) or ASTM, are EPA methods.

Estimated uncertainty values are available upon request.

Analysis performed by DBM, VRM, or SG were performed at Summit Labs 2704 Eatonton Highway Haddock, GA 31033

All results for Solid Samples are reported on an "as received" or "wet weight" basis unless indicated as "dry weight" using the "-dry" designation on the reporting units.

Summit Environmental Technologies, Inc., holds the accreditations/certifications listed at the bottom of the cover letter that may or may not pertain to this report.

The information contained in this analytical report is the sole property of Summit Environmental Technologies, Inc. and that of the customer. It cannot be reproduced in any form without the consent of Summit Environmental Technologies, Inc. or the customer for which this report was issued. The results contained in this report are only representative of the samples received. Conditions can vary at different times and at different sampling conditions. Summit Environmental Technologies, Inc. is not responsible for use or interpretation of the data included herein.

This report is believed to meet all of the requirements of NELAC or the accrediting / certifying agency. Any comments or problems with the analytical events associated with this report are noted below.



**SUMMIT**  
ENVIRONMENTAL TECHNOLOGIES, INC.  
*Analytical Laboratories*

Summit Environmental Technologies, Inc.  
3310 W/in St.  
Cuyahoga Falls, Ohio 44223  
TEL: (330) 253-8211 FAX: (330) 253-4489  
Website: <http://www.sestek.com>

WO#: 15041021

Date Reported: 4/22/2015

Company: Advanced Environmental Laboratories, Inc  
Address: 528 S North Lake Blvd Suite 1016  
Altamonte Springs FL 32701

Received: 4/10/2015

Project#: A1502301

Client ID#	Lab ID#	Collected	Analyte	Result Units	Qual	Matrix	Method	DF	LOD	LOQ	Run	Analyst
A1502301001	001	4/8/2015	Bromide	0.0986 mg/L		Drinking Water	EPA 300.0	1	0.0500	0.0500	4/17/2015	SG
A1502301002	002	4/8/2015	Bromide	0.144 mg/L		Drinking Water	EPA 300.0	1	0.0500	0.0500	4/17/2015	SG
A1502301003	003	4/8/2015	Bromide	0.159 mg/L		Drinking Water	EPA 300.0	1	0.0500	0.0500	4/17/2015	SG
A1502301004	004	4/8/2015	Bromide	0.166 mg/L		Drinking Water	EPA 300.0	1	0.0500	0.0500	4/17/2015	SG
A1502301005	005	4/8/2015	Bromide	0.235 mg/L		Drinking Water	EPA 300.0	1	0.0500	0.0500	4/17/2015	SG



**SUMMIT**  
ENVIRONMENTAL TECHNOLOGIES, INC.  
Analytical Laboratories

Summit Environmental Technologies, Inc.  
3310 Win St.  
Cuyahoga Falls, Ohio 44223  
TEL: (330) 253-8211 FAX: (330) 253-4489  
Website: <http://www.settek.com>

**Accreditation Program  
Analytes Report**

WO#: 15041021  
22-Apr-15

**Client:** Advanced Environmental Laboratories, I  
**Project:** A1502301

Program Name	Sample ID	ClientSampleID	Matrix	Test Name	Analyte	Status	
Florida DOH	15041021-001A	A1502301001	Drinking Water	DW Anions Analysis by IC (300.0)	Phosphorus, Total Orthophosphate (As PO4)	A	
					Nitrogen, Nitrate	A	
					Nitrogen, Nitrite	A	
					Sulfate	A	
					Chloride	A	
	15041021-002A	A1502301002				Fluoride	A
						Bromide	A
						Nitrogen, Nitrite	A
						Phosphorus, Total Orthophosphate (As PO4)	A
						Nitrogen, Nitrate	A
	15041021-003A	A1502301003				Chloride	A
						Sulfate	A
						Bromide	A
						Fluoride	A
						Phosphorus, Total Orthophosphate (As PO4)	A
	15041021-004A	A1502301004				Sulfate	A
						Bromide	A
						Phosphorus, Total Orthophosphate (As PO4)	A
						Nitrogen, Nitrate	A
						Nitrogen, Nitrite	A
15041021-005A	A1502301005				Chloride	A	
					Nitrogen, Nitrite	A	
					Fluoride	A	
					Nitrogen, Nitrate	A	
					Sulfate	A	



**SUMMIT**  
 ENVIRONMENTAL TECHNOLOGIES, INC.  
 Analytical Laboratories

Summit Environmental Technologies, Inc.  
 3310 Win St.  
 Cuyahoga Falls, Ohio 44223  
 TEL: (330) 253-8211 FAX: (330) 253-4489  
 Website: <http://www.settek.com>

**Accreditation Program  
 Analytes Report**

WO#: 15041021  
 22-Apr-15

**Client:** Advanced Environmental Laboratories, I  
**Project:** A1502301

Program Name	Sample ID	ClientSampleID	Matrix	Test Name	Analyte	Status
Florida DOH	15041021-005A	A1502301005	Drinking Water	DW Anions Analysis by IC (300.0)	Phosphorus, Total Orthophosphate (As PO4)	A
					Bromide	A
					Fluoride	A
					Nitrogen, Nitrate	A
					Sulfate	A
					Chloride	A



**SUMMIT**  
ENVIRONMENTAL TECHNOLOGIES, INC.  
Analytical Laboratories

Summit Environmental Technologies, Inc.  
3310 Win St.  
Cuyahoga Falls, Ohio 44223  
TEL: (330) 253-8211 FAX: (330) 253-4489  
Website: <http://www.settek.com>

# QC SUMMARY REPORT

WO#: 15041021  
22-Apr-15

**Client:** Advanced Environmental Laboratories, Inc  
**Project:** A1502301

**TestCode:** Anions\_DW(300.0)

Sample ID	MB-R35753	SampType: MBLK	TestCode: Anions_DW(	Units: mg/L	Prep Date:	RunNo: 35753						
Client ID:	PBW	Batch ID: R35753	TestNo: E300.0		Analysis Date: 4/17/2015	SeqNo: 509609						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide		ND	0.100	0	0	0						

Sample ID	LCS-R35753	SampType: LCS	TestCode: Anions_DW(	Units: mg/L	Prep Date:	RunNo: 35753						
Client ID:	LCSW	Batch ID: R35753	TestNo: E300.0		Analysis Date: 4/17/2015	SeqNo: 509610						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide		18.7	0.100	20.00	0	93.5	90	110				

Sample ID	LCSD-R35753	SampType: LCSD	TestCode: Anions_DW(	Units: mg/L	Prep Date:	RunNo: 35753						
Client ID:	LCSS02	Batch ID: R35753	TestNo: E300.0		Analysis Date: 4/17/2015	SeqNo: 509611						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide		18.7	0.100	20.00	0	93.3	90	110	18.70	0.181	30	

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- MC Values is below Minimum Compound Limit.
- P Second column confirmation exceeds
- RL Reporting Detection Limit
- B Analyte detected in the associated Method Blank
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- PL Permit Limit
- S Spike Recovery outside accepted recovery limits
- E Value above quantitation range
- M Manual Integration used to determine area respo
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- U Samples with CalcVal < MDL

# Chain of Custody

Document 15299 - HBN 11004      Workorder      WINTER SPRINGS      Results Requested By 4/20/2015

Report To		Subcontract To		Requested Analysis		
Brandon Ohara Advanced Environmental Laboratories, Inc 528 S. North Bl, Ste 1016 Altamonte Springs, FL 32701 Payments: P.O. Box 551580 Jacksonville, FL 32255-1580 Phone (407)937-1594		SUMMIT-Cuyahoga Falls-OH Summit Environmental Technologies, Inc. 3310 Win Street Cuyahoga Falls, OH 44223 Phone Fax		15041021-001 RAR 100-005 LAB USE ONLY		
Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers	Comments	
1	4/8/2015 11:03	A1502301001	Drinking Water	1	X	
2	4/8/2015 12:17	A1502301002	Drinking Water	1	X	
3	4/8/2015 11:38	A1502301003	Drinking Water	1	X	
4	4/8/2015 11:59	A1502301004	Drinking Water	1	X	
5	4/8/2015 12:30	A1502301005	Drinking Water	1	X	
<b>Report</b> <input type="checkbox"/> Standard (Results only) <input type="checkbox"/> Standard with Batch QC <input type="checkbox"/> CLP <input type="checkbox"/> Other						
<b>Electronic Data Deliverables</b> <input type="checkbox"/> SEDD Stage 2A <input type="checkbox"/> SEDD Stage 2B <input type="checkbox"/> SEDD Stage 3 <input type="checkbox"/> Other						
Preservative 4C = 4 degrees C		Transfers 1 2 3 4 5	Released By J.W. Feld	Date/Time 4-8-15 18:33	Received By [Signature]	Date/Time 4-20-15 10:00A

**Summit Environmental Technologies, Inc.  
Cooler Receipt Form**

Client: AEL Initials of person inspecting cooler and samples: EC  
 Order Number: 15641021  
 Date Received: 4-10-15 Time Received: 10:20AM Date cooler(s) opened and samples inspected: \_\_\_\_\_

Number of Coolers/Boxes: 1 N/A  
 Shipper: FED EX LPS DHL Airborne US Postal Walk-in Pickup Other: \_\_\_\_\_

Packaging: Peanuts Bubble Wrap Paper Foam None Other: \_\_\_\_\_

Tape on cooler box: Y N N/A  
 Custody Seals intact: Y N N/A  
 C-O-C in plastic: Y N N/A  
 Ice  Blue ice \_\_\_\_\_ present / absent / melted N/A  
 Sample Temperature IR Gun #16020459 CF \_\_\_\_\_ °C 1.1 °C N/A

Radiological Testing Instrument serial #35127 Y N N/A  
 (see page 2 for scan results)  
**\*\*Use 1 sheet per sample for Radiological Testing. If sample is HOT, the Radiological Safety Officer must be notified immediately.**

C-O-C filled out properly: Y N N/A  
 Samples in separate bags: Y N N/A  
 Sample containers intact\*: Y N N/A  
 \*If no, list broken sample(s): \_\_\_\_\_

Sample label(s) complete (ID, date, etc.): Y N N/A  
 Label(s) agree with C-O-C: Y N N/A  
 Correct containers used: Y N N/A  
 Sufficient sample received: Y N N/A  
 Bubbles absent from 40 mL vials\*\*: Y N N/A

\*\* Samples with bubbles <6mm are acceptable. Indicate bubble size if >6mm. \_\_\_\_\_  
 Was client contacted about samples: Y N  
 Will client send new samples: Y N

Client contact: \_\_\_\_\_  
 Date/Time: \_\_\_\_\_  
 Logged in by: \_\_\_\_\_  
 Comments: \_\_\_\_\_





**Advanced  
Environmental Laboratories, Inc.**

6601 Southpoint Parkway  
Jacksonville, Florida 32216  
(904) 363-9350  
FAX (904) 363-9354

QC Batch: WCAa-1283

Method: EPA 300.0

Prep Method: No prep

**I. RECEIPT**

No Exceptions were encountered.

**II. HOLDING TIMES**

Preparation: All holding times were met.

Analysis: All holding times were met.

**III. PREPARATION**

Sample preparation proceeded normally.

**VI. ANALYSIS**

A. Calibration: All acceptance criteria were met.

B. Blanks: All acceptance criteria were met.

C. Duplicates: All acceptance criteria were met.

D. Spikes: When preparing the matrix spike and duplicate the Cl, SO<sub>4</sub> blend was used twice. There was no matrix spike or duplicate for F, NO<sub>2</sub>, NO<sub>3</sub>, or OP for Batch 1283. The recoveries for these analytes in the opening and closing laboratory control samples were in the acceptable 90-110% range. All samples have been qualified to indicate the missing QC for this batch.

E. Serial Dilution: All acceptance criteria were met.

F. Samples: Sample analyses proceeded normally.

G. Other:

I certify that this data package is in compliance with the terms and conditions agreed to by Advanced Environmental Laboratories, Inc. and by the client, both technically and for completeness, except for the conditions detailed above. The Technical Director or his designee, as verified by the following signature, has authorized release of the data contained in this hard copy data package and in the computer-readable data submitted on diskette.

**APPENDIX C**

**Copy of Public Hearing Notice**

**And**

**Hearing Minutes**

**APPENDIX D**

**Drinking Water State Revolving Fund**

**Business Plan**

# DRINKING WATER STATE REVOLVING FUND BUSINESS PLAN

Sponsor Name: City of Winter Springs System Population: 33,282  
 DWSRF Project #: DW59061 PWS ID#: 3590879  
 Contact Person and Title: Kipton Lockcuff, Public Works/Utility Director Telephone: 407-327-5989  
 Mailing Address: 1126 E. SR 434 City: Winter Springs State: FL Zip: 32708  
 Contact for Finance Plan (if different): Shawn Boyle Telephone: 407-327-5960  
 Mailing Address: Same City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
 e-mail: sboyle@winterspringsfl.org Fax: \_\_\_\_\_  
 Source Type:         Ground Water                                 Purchase Water  
                           Surface Water     Surface/Ground Combined

The Drinking Water State Revolving Fund Program (DWSRF), authorized by the 1996 amendments to the Safe Drinking Water Act, provides financial assistance to public water systems (PWS). To obtain this assistance, project sponsors must demonstrate Capacity Development or demonstrate how the assistance will ensure these requirements are met. The term Capacity Development takes into consideration three vital areas of a public water system: Technical, Managerial, and Financial capabilities.

## FINANCIAL

A financial capability demonstration (and certification) is required well before the evaluation of the actual loan or grant application. This demonstration is necessary to ensure that the system has the financial capability to repay the loan, if applicable, and to adequately operate and maintain the system. Financial capability also includes funding future capital improvements that may be required. Please see Rule 62-552.700(4) in Chapter 62-552, F.A.C. for further details.

It is expected that the revenues to be dedicated to repaying a loan will be generated either from water and sewer utility operations or from water utility operations alone. If the source of revenues will not be from such enterprises, this set of worksheets alone will not satisfy the Department's needs. (Please contact the Department for further guidance if dedicated revenues will be generated externally to such utilities.)

The following worksheets have been developed to identify the minimum information needed. The completed worksheets should be used in disclosing DWSRF project financing to the public during the required dedicated revenue hearing. The worksheets can serve to identify the impacts of the SRF project on residential users and how the project fits into the project sponsor's overall capital improvement program for the water and sewer utility (or water utility, as appropriate). Supplemental capital financing documentation may be submitted with these worksheets and may be presented at the required dedicated revenue hearing.

The revenues being dedicated to repayment of the DWSRF loan are:	<u>Water and Sewer</u>
What is the frequency of water system billing?	<u>Monthly</u>
How often are system rates reviewed for adequacy?	<u>Annually</u>
When was the last time rates were reviewed?	<u>July 2015</u>
What resources and guidance does the water system use for setting water user rates, fees or charges?	<u>CPI, Consultants and other Utilities</u>
What is your water system bond rating?	<u>AA+</u>
Is a rate increase necessary as a result of this project?	<u>Yes</u>
What is the Median Household Income (MHI) for the entire system?	<u>\$65,035</u>

Which, if any, of the following activities must be undertaken to implement the DWSRF project?

Acquire privately held land?	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>
Acquire land held by another public water system entity?	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>
Enter into inter-local or inter-project sponsoring agency's agreements?	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>
Does the system have an annual budget with a separate reserve account for equipment replacement and/or capital improvement?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
Does the system have a capital improvement plan? How many years does it cover? <u>5</u>	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
Does the system have a governing board of directors?	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>
Does the water system employ the services of a professional engineer?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>

Are there procedures for billing and collection?  
 Does the system have audited financial statements?  
 Are there standard purchasing procedures that provide controls over expenditures?  
 What year will construction be completed and repayments begin (for the first project)?  
 What is the estimated cost of your SRF project?

Yes  No   
 Yes  No   
 Yes  No   
 2017  
 ≈\$6,000,000

Please attach a copy of the user charge ordinance.

**Table 1**  
**WATER RATE REVENUE SUMMARY**

		LAST YR.	YEAR 1 (Current Year)	YEAR 2	YEAR 3	SRF Project
1.	Number of Residential Customers	14,720	14,852	15,092	15,332	15332
2.	Number of New Residential Service Connections	189	132	240	240	240
3.	Annual Residential Water Sales (Gallons)	1,318,575,187	1,406,015,037	1,434,815,037	1,463,615,037	1,463,615,037
4.	Avg Daily Residential Usage (Gal/day) (Line 3 divided by line 1 divided by 365)	245	259	260	262	262
5.	Annual Residential Water Sales (\$)	3,083,705	3,200,000	3,100,000	3,177,810	3,177,810
6.	Average Annual Residential Bill (line 5 divided by line 1)	209.50	215.46	205.41	207.27	207.27
7.	Annual Residential Bill Amount Uncollected	41,296	42,000	42,000	42,000	42,000
8.	Total Residential Rates Collected (Line 5 minus line 7)	3,042,409	3,158,000	3,058,000	3,135,810	3,135,810
9.	Impact and Connection Fees per Residential Service	630	630	630	630	630
10.	Total Residential Impact and Connection Fees (Line 2 times line 9)	119,070	83,160	151,200	151,200	151,200
11.	Number of Commercial Customers	463	478	492	507	507
12.	Number of New Commercial Service Connections	5	6	5	5	5
13.	Annual Commercial Water Sales (Gallons)	227,323,266	230,269,140	232,724,035	235,178,930	235,178,930
14.	Annual Commercial Water Sales (\$)	497,254	540,814	584,374	627,374	627,374
15.	Annual Commercial Bill Amount Uncollected	2,305	0	0	0	0
16.	Total Commercial/Industrial Bills Collected (Line 14 minus line 15)	494,949	540,814	584,374	627,374	627,134
17.	Impact and Connection Fees for Commercial Service	3,769	3,945	3,945	3,945	3,945
18.	Total Commercial Impact and Connection Fees (Line 12 times line 17)	18,845	23,671	19,726	19,726	19,726
19.	Bulk Water Sales					
20.	Total Projected Water Revenue (Line 8+10+16+18+19)	3,675,273	3,805,645	3,813,300	3,934,110	3,934,110

\* Large meters should be checked annually for accuracy.  
 SOURCE: City of Winter Springs financial database/billing records.

## Instructions for Completing Table 1

Identify the source of the above information and explain methods used to develop the projections (*Attachment # \_\_\_\_\_*). Include an explanation of any revenue and expense growth or other adjustments; for example, any rate increases, service growth, inflation adjustments, expense adjustments reflecting the cost of operating additional facilities, or other considerations. In completing this table assume through year 3 that no SRF project is constructed. In the "SRF Project" column enter the numbers that reflect the first year in which the SRF loan will begin repayments. When completing the numbers in this column assume that the SRF project will be financed using 100% loan funding.

- Line 1      Include the actual number of customers for last year and year 1 (current year). The numbers in years 2 and 3 should reflect an estimated number of residential customers, adjusted for growth. In the SRF column include the expected number of customers based on constructing your SRF project.
- Line 2      This line is a subset of line 1. It should reflect the number of new customers for that year.
- Line 3      This line is your total volume (gallons) of water used by your residential customers. Use actual gallons sold for Last Year and do an estimate for the current year based on total to-date. To determine Year 2 and 3 water sales, first calculate the average daily residential usage in gallons per day on line 4. The estimated water sales for Year 2 and 3 can now be determined by multiplying line 4 by line 1.
- Line 4      This is the average daily residential usage (gallons per day) by a single residential customer. To get this number divide line 3 by line 1. Use Last Year and Current Year to project usage for Year 2 and 3. Usage should be fairly constant.
- Line 5      This is your total residential water sales in dollars. Year 2 and 3 water sales should reflect any increases in rates (i.e. due to inflation). In the SRF column list what the sales would need to be if the SRF project was a 100% loan (to meet all expenses).
- Line 6      To obtain the average annual residential bill, divide line 5 by line 1.
- Line 7      This is the amount of the uncollected residential bills outstanding for the year.
- Line 8      Line 5 minus line 7.
- Line 9      This line is the impact and connection fee for new residential service.
- Line 10     Multiply line 2 by line 9.
- Line 11     Include the actual number of customers for last year and year 1 (current year). The numbers in years 2 and 3 should reflect an estimated number of commercial customers, adjusted for growth. In the SRF column include the expected number of customers based on constructing your SRF project.

- Line 12 This line is a subset of line 11. It should reflect the number of new customers that will be charged an impact or connection fee.
- Line 13 This line is your total volume (gallons) of water used by your commercial accounts.
- Line 14 This is your total commercial water sales in dollars. Year 2 and 3 water sales should reflect any increases in rates (i.e. due to inflation). In the SRF column list what the sales would need to be if the SRF project was a 100% loan (to meet all expenses).
- Line 15 This is the amount of the uncollected residential bills outstanding for the year.
- Line 16 Total revenue collected for commercial accounts (line 14 minus line 15).
- Line 17 This line is the impact and connection fee for new commercial/industrial accounts.
- Line 18 Multiply line 12 by line 17.
- Line 19 Total revenue for bulk water sales to consecutive systems.
- Line 20 Total of line 8+10+16+18+19.

**TABLE 2**

**INCOME, EXPENSES, AND CASH FLOW STATEMENT (Sewer & Water)**

Income, Expense, and Cash Flow Statement		Last Yr. 2014	Year 1 2015	Year 2 2016	Year 3 217	SRF Project
<b>OPERATING REVENUES</b>						
1	Water Rates	\$8,893,649	\$8,900,000	\$8,900,000	\$9,121,350	\$9,121,350
2	Fire Protection					
3	Fees and Services	352,482	347,000	341,600	343,308	343,308
4	Interest Income	19,920	20,000	22,300	22,412	22,412
5a	Other – Transfer From other Funds		4,000			
5b	Other –					
<b>6</b>	<b>Total (Lines 1 - 5)</b>	<b>\$9,266,051</b>	<b>\$9,271,000</b>	<b>\$9,263,900</b>	<b>\$9,487,070</b>	<b>\$9,487,070</b>
<b>NON-OPERATING REVENUES</b>						
7	Interest Income					
8	Interfund Transfer	21,696	23,833	39,429	39,429	39,429
9	Proceeds from the Sale of Assets					
10	Leases and Extraction Fees					
11	Construction Grants					
12	Proceeds from Borrowing					
13	Equity Contribution					
14	Other -					
<b>15</b>	<b>Total (Lines 7 - 14)</b>	<b>\$21,696</b>	<b>\$23,833</b>	<b>\$39,429</b>	<b>\$39,429</b>	<b>\$39,429</b>
<b>OPERATING EXPENSES</b>						
<b>OPERATION AND MAINTENANCE</b>						
16	Salaries (Operators)	\$1,775,225	\$1,503,110	\$1,497,888	\$1,527,845	\$1,527,845
17	Benefits	716,182	708,612	706,244	741,169	741,169
18	Utilities	630,608	1,074,100	1,148,500	1,171,470	1,171,470
19	Chemicals & Treatment	175,982	528,000	473,560	483,031	483,031
20	Monitoring					
21	Materials, Supplies & Parts	519,499	67,000	60,335	61,541	61,541
22	Transportation		90,500	70,435	71,843	71,843
23	Purchased Water Costs					
24	Outside Services –	48,902	192,120	156,200	159,324	159,234
25	Other –	95,465	436,700	435,560	444,271	444,271
<b>26</b>	<b>Total (Lines 16 – 25)</b>	<b>\$3,961,863</b>	<b>\$4,600,142</b>	<b>\$4,548,722</b>	<b>\$4,660,497</b>	<b>\$4,660,497</b>

ADMINISTRATIVE						
27	Salaries and Benefits	376,356	458,667	444,227	443,265	443,265
28	Building Overhead					
29	Office Supplies & Postage	104,239	73,182	80,849	81,200	81,200
30	Insurance					
31	Customer Billing & Collection					
32	Accounting and Legal	20,500	20,000	22,000	22,000	22,000
33	A/E & Professional Services	166,723	173,000	205,000	205,000	205,000
34	Other -	22,538	37,113	24,792	40,940	40,940
35	<b>TOTAL (Lines 27 - 34)</b>	<b>690,356</b>	<b>761,962</b>	<b>776,868</b>	<b>792,405</b>	<b>792,405</b>
36	<b>Net Operating Income (Line 6 minus 26 minus 35)</b>	<b>\$4,613,832</b>	<b>\$3,908,896</b>	<b>\$3,938,870</b>	<b>\$4,034,171</b>	<b>\$4,034,171</b>
NON-OPERATING EXPENSES						
37	Debt-Repayment – Principal and Interest	1,509,375	1,828,457	1,815,532	1,821,050	1,821,050
38	Capital Improvements Acquisition of Plant Equipment	1,160,493	1,005,142	1,090,100	612,100	612,100
39	Interfund Transfers					
40	To General Fund	799,199	799,996	785,090	800,792	800,792
41	To Replacement Fund					
42	To Emergency Fund					
43	Depreciation Expenses (If money is set aside)					
44	Other -					
45	<b>TOTAL (Lines 37 + 44)</b>	<b>\$3,469,067</b>	<b>\$3,633,595</b>	<b>\$3,690,722</b>	<b>\$3,233,942</b>	<b>\$3,233,942</b>
46	<b>Net Non-Operating Income (Line 15 minus Line 45)</b>	<b>(\$3,447,371)</b>	<b>(\$3,609,792)</b>	<b>(\$3,651,293)</b>	<b>(\$3,194,513)</b>	<b>(\$3,194,513)</b>
47	<b>Net Income Before Taxes (Lines 36 + 46)</b>	<b>\$1,166,461</b>	<b>\$299,134</b>	<b>\$287,577</b>	<b>\$839,658</b>	<b>\$839,658</b>
<b>TAXES (N/A for publicly owned systems)</b>						
48	Income Taxes					
49	Other Taxes					
50	<b>TOTAL (Lines 48 + 49)</b>					
51	<b>Net Income After Taxes (Line 47 minus 50)</b>	<b>\$1,146,461</b>	<b>\$299,134</b>	<b>\$287,577</b>	<b>\$839,658</b>	<b>\$839,658</b>

SOURCE: City of Winter Springs financial database/billing records.

## Instructions for Completing Table 2

**Identify the source of the above information and explain methods used to develop the projections (Attachment # \_\_\_\_\_). Include an explanation of any revenue and expense growth or other adjustments; for example, any rate increases, service growth, inflation adjustments, expense adjustments reflecting the cost of operating additional facilities, or other considerations.**

**REVENUES-** Revenues include all sources of income to the system. They are separated on this form as: "Operating", lines 1-6 and "Non-Operating", lines 7-15. When using the subcategory "other" under any item, please write a descriptive term.

**EXPENSES-** Expenses include all those activities or purchases which incur cost for the system. Expenses can be estimated in various ways. One method bases the projections on historical expense. This can be accomplished by using historical costs and escalating them from known and projected changes. An example of a known change would be an increase in labor costs for the budget period due to known or anticipated salary increases. An example of a projected increase or escalation in costs would be a 5% annual inflation rate. Materials and Supplies expense, for instance, would be expected to increase with the projected inflation rate. Expenses are separated on this form in the same fashion as Revenues with further subtopics to more clearly define expenses. When using the subcategory "other" under any item please write a descriptive term and cross out the word "other". Expenses are separated on this form as "Operating", lines 16-26, "Administrative", lines 27-35, "Non-Operating", lines 37-45, and "Taxes" lines 48-50.

- Lines 1      This line includes all money received for supplying water service. Information should come from completed Attachment 1.
- Line 2      If a separate fee is charged for fire protection include on this line.
- Line 3      Include all miscellaneous fees and charges generated by providing water service other than for the actual water service (for example, connection fees, bad check fees, reconnect fees, meter testing fees, etc.).
- Line 4      Interest earned from cash on hand or on fees financed by the utility.
- Line 5      If used, please describe.

**Non-operating revenues are funds generated outside the water system and used by the water system to cover expenses.**

- Lines 7-15    Items should be clear, modify topics if needed.
- Lines 16-17   Salaries and Benefits (Operators), include all compensation to employees of your system when the work is related to the system's O&M. This account should not include compensation of officers, directors, or general and administrative staff. Volunteer labor cannot be applied.
- Line 18      Utilities, includes the cost of all electric power, gas, telephone, water (at least account for what is being used at the plant), and any other system-related expenses incurred in producing and delivering water.

- Line 19      Chemicals and treatment is intended to cover the cost of all chemicals used in the treatment of your water.
- Line 20      Monitoring, includes all water monitoring costs incurred by the system. This should include both in-house monitoring and analysis costs as well as outside laboratory costs.
- Line 21      Materials, supplies, and parts means all materials and supplies used in the O&M of the water system and in providing and delivering the water to the customer. Include any repairs or parts needed in producing and delivering water. This would include grease, oil, and minor repairs to equipment. This should not include materials for administrative purposes such as postage, copying or copy machine supplies, billing forms, or letterhead.
- Line 22      Transportation is intended to include all expenses related to trucks, automobiles, construction equipment, and other vehicle expense used in producing and delivering water to the customer.
- Line 23      Include the cost of purchasing water. Use only if a consecutive system.

**Administration expenses are considered overhead but not those directly related to O&M of the daily production and delivery of water to the customer. This category includes billing and administrative costs incurred by the system. For example, all meter reading costs, secretarial costs, postage, publications, reference materials, uncollectible debts insurance accounting services, and all other overhead items belong in this subsection.**

- Lines 27      Salaries and Benefits include all compensation to employees of your system in which the work is related to the administration of the system, such as officers, directors, secretarial, and meter reading salaries and benefits. This account should not include compensation of operators. If an employee performs both operation and meter reading a percentage of their salary should appear under the appropriate topic. For example, if an operator reads meters 25% of the time,  $\frac{3}{4}$  of their salary should be shown on line 16 and  $\frac{1}{4}$  of their salary on line 27.
- Line 28      Overhead associated with the building itself such as, mortgage payment, insurance, taxes, maintenance, etc.
- Line 29      Office supplies and postage includes all materials and supplies in administration of the water system. This includes office supplies, postage, copier charges, and paper.
- Line 30      Insurance (Vehicles, Liability, Workers' Compensation) includes all insurance costs associated with the coverage for the vehicles, general liability, workers' compensation insurance, and other insurance costs related to the operation and administration of the system.
- Line 31      Customer billing and collection should include all expenses specific to this function such as, special billing forms or software.
- Lines 32      Accounting and legal expenses includes all salaries and wages with legal and accounting functions for the system even if they are outside services.

Line 33 A/E and professional services means all engineering and other professional services expenses associated with water system planning and design requirements.

Line 34 Other means expenses such as employee training and water certification requirements (classes, registration fees, travel, etc.), public relations campaigns and public notifications, etc. Also include any recurring expenses that did not fit into any of the above line items.

**Non-operating expenses are ones that are necessary and paid by the water system, but are not part of daily O&M or Administration of the system. Debt Repayment and Capital Improvements are typical items that may appear on this type of analysis.**

Lines 37-42 Expenses that are involved in operating or administering the water system that were not considered in the totals appearing on lines 26 and 35 should be shown in these items, modify if necessary.

Line 38 Capital improvements include facility and non-facility costs related to: 1) Meeting growth requirements or improving your system's infrastructure to provide better service and reliability to existing customers, 2) replacing or renovating existing facilities, or 3) to ensure compliance with drinking water regulations.

Line 39-42 Identify any transfer of funds used to offsets other non-water system related capital expenditures. These lines represent some possible categories, modify if needed.

Line 43 Depreciation expense only applies to systems which are currently depreciating investments made in the past (recovery of previously invested funds). Include amounts on this line only if money is actually set aside.

Line 44 Include any recurring non-operating expenses that did not fit into any of the above line items.

**Taxes can be incurred in a variety of ways such as a state utility tax, business and occupation tax, property tax or federal income tax. Each of these taxes can be accounted for separately within the operating budget, modify if necessary.**

Lines 48-49 Include any incurred taxes.

**Table 3**  
**SCHEDULE OF PRIOR, PARITY, AND PROJECTED LIENS**

List annual debt service beginning two years before the anticipated loan agreement date and continue for 30 years. Include all existing and projected liens on the system. Use additional pages as necessary.

Identify Each Obligation		Coverage
#1	SunTrust	10%
#2	BB & T	10%
#3	BB & T	10%
#4	SRLF	15%
#5	US Bank	10%
#6	US Bank	10%

**Annual Debt Service (Principal Plus Interest)**

Fiscal Year	#1	#2	#3	#4	#5	#6
2011						
2012						
2013						
2014						
2015	\$ 1,082,403	\$ 102,833	\$415,151	\$110,945	\$ 103,125	
2016	\$ 1,081,512	\$ 93,560	\$424,603	\$112,727	\$ 103,125	
2017	\$ 1,088,116	\$ 99,149	\$417,961	\$112,699	\$ 103,125	
2018	\$ 1,084,397	\$ 99,135	\$420,238	\$112,671	\$ 103,125	
2019	\$ 1,083,368	\$ 98,851	\$416,504	\$112,642	\$ 103,125	
2020	\$ 1,079,862	\$ 98,299	\$421,585	\$112,613	\$ 103,125	
2021	\$ -	\$ 102,345	\$420,573	\$112,582	\$ 103,125	\$ 942,502
2022		\$ -	\$418,580	\$112,551	\$ 103,125	\$ 1,749,860
2023				\$ 112,519	\$ 103,125	\$ 1,906,706
2024				\$ 112,485	\$ 103,125	\$ 1,904,981
2025				\$ 112,451	\$ 103,125	\$ 1,903,313
2026				\$ 112,416	\$ 103,125	\$ 1,901,719
2027				\$ 112,380	\$ 103,125	\$ 1,898,231
2028				\$ 112,343	\$ 103,125	\$ 1,896,900
2029				\$ 112,305	\$ 103,125	\$ 1,895,644
2030				\$ 112,266	\$ 103,125	\$ 340,144
2031				\$ 112,226	\$ 1,875,000	\$ -
2032				\$ 112,185		
2033				\$ 56,076		

**SCHEDULE OF PRIOR, PARITY, OR PROJECTED REVENUES AND DEBT  
COVERAGE FOR RATE-BASED SYSTEM PLEDGED REVENUE**

(Provide information beginning with the two fiscal years preceding the anticipated date of the first SRF loan repayment.)

	<u>FY14</u>	<u>FY15</u>	<u>FY16</u>	<u>FY17</u>	<u>FY18</u>
(a) Net Operating Revenues. (Table 2 line 36)	4,613,832	3,908,896	3,938,870	4,034,171	4,613,832
(b) Debt Service (including required coverage) pledged to all prior, parity, or projected projects (last column of Table 3).	1,660,313	2,001,058	2,002,235	2,008,312	2,006,679
(c) Net Revenue (= a - b)	2,953,519	1,937,812	2,611,597	1,930,558	2,607,153

(d) Attach audited annual financial report(s), or pages thereof, and any other documentation necessary to support the above information. Include any notes or comments from the audit reports regarding compliance with covenants of debt obligations having a prior or parity lien on the revenues pledged for repayment of the SRF loan. (Attachment # 1)

(e) Attach worksheets reconciling this page with the appropriate financial statements (for example, backing out depreciation and interest payments from operating expenses). (Attachment #       ) **NA**

(f) If the net revenues were not sufficient to satisfy the debt service and coverage requirement, please explain what corrective action was taken. (Attachment #       ) **NA**

(k) Identify the source of the above information and explain methods used to develop the projections (Attachment # 2). Include an explanation of any revenue and expense growth or other adjustments; for example, any rate increases, service growth, inflation adjustments, expense adjustments reflecting the cost of operating additional facilities, or other considerations.

**LIST OF ATTACHMENTS** (use additional sheets if necessary)

Attachment	Number
City of Winter Springs Comprehensive Annual Financial Report FY13/14	1
Table 1 and 2 Assumptions	2
User Rates and Charges – Ordinance 2009-13	3
User Rates Recap – Residential and Commercial	4

**TECHNICAL:** Accurate answers to the following questions will help identify the technical strengths as well as areas that may need improving within your system. If a question or section does not apply to your system, please write N/A for not applicable. For questions that ask you to rate your system from 1 to 5, answer 1 for worst case scenario and answer 5 for the best case scenario.

- System has current and accurate data showing average and peak gpd used Yes X No
- System's capacity exceeds peak demand by more than 20% (Percentage - 40%) Yes X No
- System can meet peak demand without pumping at peak capacity for extended periods. Yes X No
- System has an emergency plan in place to meet system demand during a shortage (natural disaster or largest pump/well out, etc.) Yes X No
- System has accurate records indicating types and percentage of customers use: Residential 85% Commercial 15% Industrial NA% Dedicated Irrigation Meter NA% Yes X No
- System has comprehensive water loss program that compares amount of water produced (plant meter) with total delivered through metered and unmetered service connections (system's unaccounted for water is 3.8%) Yes X No

**Purchase Water Systems**      NA

System has a written agreement with the supplier that:

- ensures adequate supply of water during shortage conditions, Yes  No
- does not require the purchase of a minimum amount of water (water is supplied through a meter), Yes  No
- assures supplying water system will remain in compliance with the appropriate State or federal regulations, and Yes  No
- assures purchasing system will be notified of any water quality issues. Yes  No

**Surface Water Systems and Systems Using Ground Water Under the Influence of Surface Water**      NA

- System has redundancy for all critical treatment components 1 2 3 4 5
- System monitors raw, settled, and individual filtered water turbidity 1 2 3 4 5
- System consistently (95% of the time) has a filtered water turbidity of \_\_\_\_\_%, which is within the current standard of .3 NTU 1 2 3 4 5
- System has the capability to add coagulant before the filter and disinfect at various points in the treatment process 1 2 3 4 5
- System is evaluating (or has evaluated) changes necessary to meet the Enhanced Surface Water Treatment Rule 1 2 3 4 5  
Some needed changes are: \_\_\_\_\_
- System is evaluating (or has evaluated) changes needed to meet requirements in the Disinfection By Products Rule 1 2 3 4 5  
Some planned modifications are: \_\_\_\_\_

**Ground Water System**      NA

- A minimum of two sources of groundwater are provided Yes  No
- Source water protection area provides a minimum 500 foot radius around each drinking water well Yes  No
- Groundwater source capacity equals or exceeds the design maximum day demand and equals or exceeds the design average day demand with the largest producing well out of service Yes  No
- System monitors raw water quality to determine appropriate treatment 1 2 3 4 5

- System's well(s) have; air/vacuum relief valve, check valve, blow-off, by-pass, meter, working sanitary seal, construction/maintenance records and are properly vented 1 2 3 **4** 5
- System routinely monitors drawdown 1 2 3 **4** 5

### Disinfection

- System has adequate contact time of 77 minutes following disinfection and before the first user in the distribution system Yes  No
- Disinfection equipment is regularly inspected and maintained Yes  No
- A chlorine residual is maintained throughout the distribution system 1 2 3 4 **5**

### Distribution System

- System has accurate information, including age, for pipe materials that currently make up the distribution system 1 2 3 **4** 5
- Water mains providing fire protection are a minimum of 6-inches in diameter Yes  No
- System is free of severe "water hammer" problems 1 2 3 4 **5**
- System tracks ranges of operating pressure, especially during peak demand 1 2 3 4 **5**
- System maintains a minimum operating pressure of 20 psi Yes  No
- Normal operating pressure is kept between 40 and 100 psi 1 2 3 4 **5**
- System has a routine leak detection program that uses (type of equipment) NA, repairs identified leaks quickly, and keeps water loss in the distribution system below 5%. Average number of leak repairs per year is 6. 1 2 **3** 4 5
- System has a cross connection control program in place that addresses: evaluation of each service connection, installation of specified backflow preventer, training, record keeping, annual testing, and education 1 2 3 4 **5**
- System is working to eliminate dead ends in the mains 1 2 3 4 **5**
- System has a flushing program that operates continuously-365 times a year 1 2 3 4 **5**
- System has a map showing the bacteriological, lead and copper, and TTHM (if applicable) sampling points 1 2 3 4 **5**
- System has accurate "as-built" maps of the distribution system posted that show: location of sources (or intakes), size of mains, dead end mains, valves, curb stops on service lines, and proximity of mains to other utilities (gas, electric, etc.) 1 2 3 4 **5**
- System has a routine valve exercise program 1 2 3 4 **5**
- All customers are metered and all meters are routinely calibrated 1 2 3 4 **5**
- Customer complaints are relatively infrequent 1 2 3 4 **5**  
List number of complaints in the past year: 250.

### Pumping

- System has a pump maintenance program that includes annual inspection, scheduling of repair, and routine maintenance that is conducted by a qualified contractor 1 2 3 4 **5**
- System has standby or emergency power equipment that is routinely tested under load and can provide 100% of the average daily demand for 3 days 1 2 3 4 **5**

### Storage

- System is able to meet peak demand without the high service pumps running at peak capacity for extended period 1 2 3 4 **5**
- System has adequate reserve capacity for fire protection. Total storage capacity of the system is 2.5 million gals 1 2 3 4 **5**
- System's four (4) storage tanks receive routine inspection (every 3-5 years) to determine and schedule any needed maintenance 1 2 3 4 **5**

- All storage tanks are equipped with an altitude valve to prevent overflowing and are sized appropriately to ensure adequate turnover and no loss of water quality
- Storage tanks are covered and the surrounding areas are fenced
- Storage tanks have a drain valve and an entry hatch to allow access for cleaning and painting of the interior of the tank

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

**MANAGERIAL:** Answering the next set of question will help the system clearly define responsible parties, staffing needs, operational needs, policies, and internal standard that guide system performance. For questions that ask you to rate your system from 1 to 5, answer 1 for worst case scenario and answer 5 for the best case scenario.

- System has a current organizational chart and accompanying position descriptions that clearly define responsibilities of staff members 1 2 3 4 **5**
- The plant is currently a category V, Class C plant operating 6 hours per day for five days per week and one visit on each weekend.

List names, class, and license numbers for all operators fulfilling staffing requirements:

Waylon Locklear; Class C; License Number C18386

Scott Coffman; Class B; License Number B8018

- System is satisfied with service provided by contract operator(s) **NA** 1 2 3 4 5
- The operator's authority and responsibilities are clearly defined 1 2 3 4 **5**

**Policies and Plans:** Please indicate with a check mark the items for which the water system has written policies or plans.

- |   |  |   |
|---|--|---|
| <input checked="" type="checkbox"/> standard specifications       | <input checked="" type="checkbox"/> connection policies      | <input checked="" type="checkbox"/> main extension policies       |
| <input checked="" type="checkbox"/> bacteriological sampling plan | <input checked="" type="checkbox"/> emergency operation plan | <input checked="" type="checkbox"/> Lead & Copper sample plan     |
| <input checked="" type="checkbox"/> cross connection control plan | <input checked="" type="checkbox"/> record management plan   | <input checked="" type="checkbox"/> TTHM                          |
| <input checked="" type="checkbox"/> general rules                 | <input checked="" type="checkbox"/> disconnection policy     | <input checked="" type="checkbox"/> public education & outreach   |
| <input checked="" type="checkbox"/> disaster response plan        | <input checked="" type="checkbox"/> personnel policy         | <input checked="" type="checkbox"/> Safety/Risk Management Policy |

- Based on the answers above the system has: clear organizational structure, defined staffing requirements, and appropriate rules/policies 1 2 3 4 **5**

**Operations and Maintenance:** The items that follow are elements that may be contained in a thorough Operations and Maintenance (O&M) manual. A complete O&M manual is useful as a quick reference for anything from trouble shooting to emergency procedures. Please indicate with a check mark those items contained in the system's O&M manual.

**Introduction and Overview**

- |   |   |  |
|---|---|--|
| <input checked="" type="checkbox"/> System name   | <input checked="" type="checkbox"/> System ID#        | <input checked="" type="checkbox"/> location     |
| <input checked="" type="checkbox"/> design flow capacity  | <input checked="" type="checkbox"/> type of treatment | <input checked="" type="checkbox"/> water source |
| <input type="checkbox"/> available training   | <input type="checkbox"/> publications available       |  |
| <input checked="" type="checkbox"/> Statement of the purpose of the manual and relay to the operator how to best obtain pertinent information |   |  |
| <input checked="" type="checkbox"/> organizational chart (note which activities require qualified and licensed/certified personnel)           |   |  |

**General System Description**

- a flow schematic (source to distribution)
- pumping capabilities (source, chemicals, and high service)
- storage (raw, finished water, and chemicals)
- system map showing location of all wells, intake structures, pumping stations, storage tanks, and the defined service area

**System Operation and Control**

- identification of major system components including a description of the normal operation of each component
- possible alternative operation modes and circumstances under which they would be used
- schematic diagrams of each treatment process

- preventative maintenance program (include inspections performed when the facility is off-line)
- common operating problems with methods of bypassing while being repaired
- importance of and how to use laboratory tests for process control
- routine system operation for each major system component this should include startup and shutdown procedures, safety procedures, and meter reading
- evaluation of overall system performance

### Laboratory Testing

- identification of samples and tests needed for compliance as well as for process control.
- sampling locations, time, and methods
- how to interpret laboratory results and the use of these results to improve the process
- what should be in laboratory supply and chemicals inventory
- list of laboratory references;
- instructions for filling out worksheets for a sample (include completed example)
- for tests to be performed by outside laboratories, the name of the laboratory, contact person, telephone number, and method of requesting sample pick-up or schedule for sample pick-up

### Records and Reports Section

- a general explanation of the purpose and importance of accurate records and reports
- a log of complaints and responses
- daily logs, maintenance records, laboratory records, monthly reports, monitoring reports, sanitary surveys, annual reports, operating cost reports, and accident reports.
- historical records (permits, standards, pumping capacity, consumption, and drawdown)
- list of equipment warranties and provisions
- specific area for filing records
- procedures for reporting to appropriate agencies (specify how long records should be kept)

### Maintenance

- general information including purpose and value of scheduled and preventative maintenance
- preventative maintenance schedule and sample worksheets with instructions
- specifications for fuels, lubricants, filters, etc. for equipment
- troubleshooting charts or guides which reference pages in manufacturers' O&M manual or system's O&M manual as appropriate
- a record of data plate information on each piece of equipment maintained, this should include manufacturers' maintenance schedule for routine adjustments
- a work order system for maintenance of equipment with sample forms to accurately track O&M costs for each piece of equipment
- brief operation instructions for each piece of equipment with reference to the manufacturers' technical specifications for major system components
- a mechanism for storage and check out of specialized equipment used infrequently
- list of outside contract maintenance tasks
- contact person and phone numbers for equipment manufacturers, major suppliers, and all utilities serving the system
- list of special tools used and how to replace
- stocks of spare parts, supplies, chemicals and other items vital to system operation
- a system of requisitions and/or work orders used to distribute parts, supplies, chemicals, etc. for reorder purposes

### Emergency Response Program

- pre-response activity such as; personnel assignments, emergency equipment inventory, filling a storage tank before a storm hits, copies of all emergency numbers. Laminated copy of phone numbers to keep readily accessible should include water system personnel responsible for making decisions in specific situations; including name, job title, home and work phone number (pager/cell phone number if available), police, fire departments, and for chemical spills or exposure CHEMTECH 800-424-9300.

- safety procedures for all personnel involved in the response
- a contingency plan to ensure proper treatment of water even in adverse conditions which may include agreements with nearby water systems for equipment or personnel
- procedures for putting standby and emergency sources into active service
- procedures for notifying customers, the local health jurisdiction, and EPA of water quality problems
- systematic procedure for returning to normal operation

**Appendix**

The appendix can contain documents and other information that cannot be easily incorporated into the body of the manual. Large documents such as copies of plans and specifications may be stored separately from the main manual. The following list has examples of items that might be included in appendices. Please check all that apply to your O&M Manual.

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> Detailed design criteria     | <input type="checkbox"/> User Charge System                        | <input type="checkbox"/> Approved shop drawings            |
| <input checked="" type="checkbox"/> Schematics        | <input checked="" type="checkbox"/> Piping color codes             | <input type="checkbox"/> Valve indices or schedule         |
| <input checked="" type="checkbox"/> As-built drawings | <input checked="" type="checkbox"/> Drinking water rules/Ordinance | <input checked="" type="checkbox"/> Manufacturers' manuals |

- Based on the answers above please rate the system's current O&M Manual. 1 2 **3** 4 5

The last set of questions is designed to help you evaluate the systems' source(s). Please read the item then circle the number from 1 (needs improving) to 5 (top notch) that you feel best describes your systems' current status relative to that item or check boxes as appropriate.

- System has an active Source Water Assessment Program 1 2 3 4 **5**

**For Ground Water Systems:**

- System has accurate historical information (like well driller's log and construction records) for each well 1 2 3 4 **5**
- Well(s) have the "zone of contribution" identified on a map 1 2 **3** 4 5
- No storage of potential contaminants in close proximity of well(s) 1 2 3 4 **5**
- Well(s) are housed and fenced and have an appropriate concrete pad 1 2 3 4 **5**
- Well casing(s) extend at least 12" above floor or ground 1 2 3 4 **5**
  - Name of aquifer is known:  Yes  No
  - Aquifer is: Floridan  Confined  Unconfined

**For Surface Water Systems: NA**

- Commercial, industrial, or agricultural operations up stream are identified 1 2 3 4 5
- System has provided a contact to these facilities in case of an accidental release 1 2 3 4 5
- System performs up stream monitoring 1 2 3 4 5
- System has a raw water reservoir of \_\_\_\_\_ gallons that acts as a buffer 1 2 3 4 5

**Overall:**

- System has adequate knowledge and program activity to protect and ensure an-adequate supply of drinking water 10 years into the future 1 2 3 4 **5**

**CERTIFICATION:** I, the undersigned authorized representative of the applicant, hereby certify that all information contained in this form and attachments is true, correct, and complete to the best of my knowledge and belief. I also certify that I have been duly authorized to file the business plan and to provide these assurances.

Signature Of Authorized Representative



Name (Please Print) Kipton Lockcuff

Title Public Works/Utility Director

Address 1126 East SR 434

City Winter Springs

State

FL

Zip

32708

Phone 407-327-5989

Fax

407-302-1051

Attachment 1

City of Winter Springs

Comprehensive Financial Annual Report FY 2013/14



# The City of Winter Springs, Florida Comprehensive Annual Financial Report For the Fiscal Year Ended September 30, 2014





Government Finance Officers Association

**Certificate of  
Achievement  
for Excellence  
in Financial  
Reporting**

Presented to

**City of Winter Springs  
Florida**

For its Comprehensive Annual  
Financial Report  
for the Fiscal Year Ended

**September 30, 2013**

Executive Director/CEO

**CITY OF WINTER SPRINGS, FLORIDA**  
**LIST OF PRINCIPAL OFFICIALS**  
September 30, 2014

**ELECTED OFFICIALS**

MAYOR	Charles Lacey
COMMISSIONER	Joanne M. Krebs
COMMISSIONER	Cade Resnick
COMMISSIONER	Pam Carroll
DEPUTY MAYOR / COMMISSIONER	Rick Brown
COMMISSIONER	Jean Hovey

**CITY MANAGER**

Kevin L. Smith

**CITY CLERK**

Andrea Lorenzo-Luaces

**LEGAL COUNSEL**

Anthony Garganese  
Brown, Garganese, Weiss  
& D'Agresta, P.A.

**DEPARTMENT  
DIRECTORS**

COMMUNITY DEVELOPMENT	Randy Stevenson
FINANCE/ADMIN SERVICES	Shawn Boyle
INFORMATION SERVICES	Joanne Dalka
PARKS AND RECREATION	Chris Caldwell
POLICE CHIEF	Kevin Brunelle
UTILITY/PUBLIC WORKS	Kipton Lockcuff

## INDEPENDENT AUDITOR'S REPORT

Honorable Mayor and City Commissioners  
City of Winter Springs, Florida

### Report on the Financial Statements

We have audited the accompanying financial statements of the governmental activities, the business-type activities, each major fund, and the aggregate remaining fund information of the *City of Winter Springs, Florida*, as of and for the year ended September 30, 2014, and the related notes to the financial statements, which collectively comprise the City's basic financial statements as listed in the table of contents.

### Management's Responsibility for the Financial Statements

*City of Winter Springs'* management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

### Auditor's Responsibility

Our responsibility is to express opinions on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

### Opinions

In our opinion, the financial statements referred to above present fairly, in all material respects, the respective financial position of the governmental activities, the business-type activities, each major fund, and the aggregate remaining fund information of City of Winter Springs, as of September 30, 2014, and the respective changes in financial position and, where applicable, cash flows thereof and the respective budgetary comparison for the general fund, road improvements special revenue fund, and solid waste/recycling special revenue fund for the year then ended in accordance with accounting principles generally accepted in the United States of America.

MCDIRMIT DAVIS & COMPANY, LLC

934 N. MAGNOLIA AVENUE, SUITE 100 ORLANDO, FLORIDA 32803  
TELEPHONE: 407-843-5406 FAX: 407-649-9339 EMAIL: INFO@MCDIRMITDAVIS.COM

## **Other Matters**

### *Required Supplementary Information*

Accounting principles generally accepted in the United States of America require that the Management's Discussion and Analysis, budgetary comparison information, pension and other postemployment benefits disclosures on page 3 through 17, 82 through 83, and 77 through 81 be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

### *Other Information*

Our audit was conducted for the purpose of forming opinions on the financial statements that collectively comprise *City of Winter Springs'* basic financial statements. The introductory section, combining and individual fund financial statements and schedules and statistical section are presented for purposes of additional analysis and are not a required part of the financial statements.

The combining and individual nonmajor fund financial statements and schedules and statistical section are the responsibility of management and were derived from and related directly to the underlying accounting and other records used to prepare the basic financial statements. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the information is fairly stated, in all material respects, in relation to the basic financial statements as a whole.

### **Other Reporting Required by Government Auditing Standards**

In accordance with *Government Auditing Standards*, we have also issued a report dated March 16, 2015 on our consideration of *City of Winter Springs'* internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering *City of Winter Springs'* internal control over financial reporting and compliance.

*McDiernit Davis & Company, LLC*

Orlando, Florida  
March 16, 2015

## MANAGEMENT'S DISCUSSION AND ANALYSIS

### Government-wide Financial Analysis (Continued)

**City of Winter Springs  
Statement of Net Position  
As of September 30**

	Governmental Activities		Business-type Activities		Total Primary Government	
	2014	2013	2014	2013	2014	2013
<b>Assets:</b>						
Current and other assets	\$ 26,892,907	\$ 27,917,604	\$ 13,657,526	\$ 11,768,260	\$ 40,550,433	\$ 39,685,864
Restricted assets	333,927	415,024	721,689	732,561	1,055,616	1,147,585
Capital assets	58,048,490	58,531,317	37,860,862	38,334,482	95,909,352	96,865,799
Total assets	85,275,324	86,863,945	52,240,077	50,835,303	137,515,401	137,699,248
<b>Deferred Outflows of Resources</b>						
Deferred charge on refunding	\$ 92,576	\$ 135,945	\$ 568,817	\$ 653,734	\$ 661,393	\$ 789,679
<b>Liabilities:</b>						
Current liabilities	820,640	1,091,424	427,023	488,119	1,247,663	1,579,543
Long term liabilities	17,848,695	18,963,583	21,728,124	22,626,639	39,576,819	41,590,222
Other liabilities	333,414	415,024	757,647	705,366	1,091,061	1,120,390
Total liabilities	19,002,749	20,470,031	22,912,794	23,820,124	41,915,543	44,290,155
<b>Net Position:</b>						
Net investment in capital assets	45,826,335	44,710,711	21,541,230	20,728,675	67,367,565	65,439,386
Restricted	8,801,942	8,963,434	482,337	467,655	9,284,279	9,431,089
Unrestricted	11,736,874	12,855,714	7,872,533	6,472,583	19,609,407	19,328,297
Total net position	\$ 66,365,151	\$ 66,529,859	\$ 29,896,100	\$ 27,668,913	\$ 96,261,251	\$ 94,198,772

**Statement of Changes in Net Position.** The following table reflects the *Statement of Changes in Net Position* for the current and prior year. For more detailed information see the *Statement of Activities* on page 19.

Note that the government's total net position increased by \$2,062,479 or 2% in fiscal year 2014. The previous fiscal year, 2013, net position increased by \$2,984,935.

Governmental activities decreased net position by \$164,708 in fiscal year 2014 compared to an increase of \$834,193 in 2013. The 2013 increase in net position is primarily due to realization of 2013 impact fee revenues without a commensurate realization of capital projects.

## MANAGEMENT'S DISCUSSION AND ANALYSIS

### Financial Analysis of the Government's Funds

As noted earlier, the City of Winter Springs uses fund accounting to ensure and demonstrate compliance with finance-related legal requirements.

**Governmental Funds.** The focus of the City of Winter Springs' *governmental funds* is to provide information on near-term inflows, outflows, and balances of *spendable* resources. Such information is useful in assessing the City of Winter Springs' financing requirements. In particular, *unassigned fund balance* may serve as a useful measure of a government's net resources available for spending at the end of the fiscal year.

As of September 30, 2014, the City of Winter Springs' governmental funds reported combined ending fund balances of \$20,164,660, a decrease of \$716,895 over the prior year. Approximately 37% or \$7,474,967 of this total amount constitutes unassigned fund balance, which is available for spending at the government's discretion. The remainder of fund balance is restricted, committed or assigned to indicate that it is not available for new spending because it has already been committed for such purposes as debt service, capital projects, inventories and prepaid costs.

The general fund is the chief operating fund of the City of Winter Springs. At the end of the current fiscal year, unassigned fund balance of the General Fund was \$7,646,887, while total fund balance was \$8,495,663. As a measure of the General Fund's liquidity, it may be useful to compare both unassigned fund balance and total fund balance to total fund expenditures. Unassigned and total fund balance represents 50 and 56% respectively, of total General Fund expenditures. The increase in fund balance of \$7,908 was less than the budgeted decrease as a result of favorable variances in non-payroll related operations accounts, transfers, and favorable revenue variances in electric taxes and franchise fees.

The Road Improvements Fund balance decreased \$542,602 due to capital projects expenditures exceeding current year revenues.

The 2003 Debt Service fund balance decreased \$536,580 due to expenditures related to the current refunding of the outstanding bonds and issuance of a new note payable.

**Proprietary Funds.** The City of Winter Springs' proprietary funds provide the same type of information found in the government-wide financial statements but in more detail.

Unrestricted net position of the Water and Sewer Utility Fund at the end of the year amounted to \$6,757,528 and total net position increased \$1,751,587 to \$21,016,975. This increase is primarily due to an increased demand, reduced indirect overhead expenses and contributed capital.

The Development Services Fund net position increased \$65,248 to \$209,510 at the end of the fiscal year. New construction permits have sustained improved levels resulting in net income.

The Stormwater Utility Fund net position increased \$410,352 to \$8,669,615 at the end of the fiscal year. Increased net position is a result of increase in user revenues and greater operating efficiencies resulting in decreased operating expenses.

## MANAGEMENT'S DISCUSSION AND ANALYSIS

### Economic Factors and Next Year's Budgets and Rates

Winter Springs is primarily a residential community serving more than 34,000 residents and is just 15 miles north of the City of Orlando, one of Florida's largest metropolitan statistical areas. Winter Springs was also recognized by Money Magazine in 2011 as one of our country's "Best Places to Live."

Where many municipal and county governments have raised property taxes, through conservative fiscal policies and aggressive management of the budget, the City Manager and City Commission have been able to maintain the property tax rate for the upcoming fiscal year while improving services.

Community Development is focused on a strong, strategic economic development plan to attract commercial growth within the city. Particular attention is directed to the area known as Seminole Way. With its close proximity to the University of Central Florida and Research Park, Winter Springs offers excellent opportunities for the development of high technology industries. Situated on the eastern edge of the City, Seminole Way is a strategic economic development initiative focused on attracting high value jobs and businesses to Seminole County. The State Road 417 (Central Florida GreeneWay) corridor defines the boundaries of the Seminole Way district, spanning the length of Seminole County and connecting to both Orange County's "Innovation Way" and the "Medical City" located at Lake Nona. The City has targeted this GreeneWay Interchange District (GID) for technology industry development complemented by commercial and retail establishments. It is expected to become a premier employment center with professional and high-tech office buildings, conference facilities, and hotel rooms. The City's ability to expand and diversify its tax base will be a major factor in providing additional financial resources to fund an increasing demand for services.

The city is experiencing new growth and rising property values in both the residential and commercial construction market with projects such as:

- The RiZe – 244 luxury apartments
- Pollack Shores – 300 apartments with mixed use/commercial buildings
- Jesup's Landing – 171 townhomes in the Town Center
- Winding Hollow Office Complex
  - West Side – 5 buildings constructed and occupied, 2 future buildings
  - East Side – 2 buildings under construction

### **Long Term Financial Planning**

The total taxable assessed property value in Winter Springs increased 6.6% from for fiscal year 2014 to 2015, \$1,639,667,121 to \$1,748,258,752. In fiscal year 2015-2016 property assessed values are anticipated to increase approximately 4.5-5.0%. The real estate market has rebounded and the City will continue to benefit from several geographic and competitive advantages. The primary factors are:

- Significant undeveloped land, both residential and commercial
- Comparatively low tax rates
- Current commercial and residential development presently under construction and in planning

The national and state economies play a key role in assessing the City's financial future. While economic changes at the state and national level often lead to reduction in tax receipts the City has remained vigilant, flexible and proactive with corresponding changes in expenditures.

CITY OF WINTER SPRINGS, FLORIDA

**STATEMENT OF NET POSITION  
PROPRIETARY FUNDS**

September 30, 2014

	Business-type Activities - Enterprise Funds			
	Water and Sewer Utility Fund	Development Services Fund	Stormwater Utility Fund	Total
<b>Assets</b>				
Current assets:				
Cash and cash equivalents	\$ 807,031	\$ 19,372	\$ 72,618	\$ 899,021
Investments	10,623,230	255,054	956,083	11,834,367
Receivables, net	893,298	-	-	893,298
Inventories	23,545	-	-	23,545
Prepaid expenses	6,000	1,295	-	7,295
Total current assets	<u>12,353,104</u>	<u>275,721</u>	<u>1,028,701</u>	<u>13,657,526</u>
Noncurrent assets:				
Restricted investments	721,689	-	-	721,689
Capital Assets:				
Land, buildings and equipment	60,600,864	160,092	12,334,261	73,095,237
Construction in Progress	127,557	-	68,197	195,754
Less Accumulated depreciation	(30,631,679)	(110,267)	(4,688,183)	(35,430,129)
Total capital assets (net of accumulated depreciation)	<u>30,096,742</u>	<u>49,825</u>	<u>7,714,295</u>	<u>37,860,862</u>
Total noncurrent assets	<u>30,818,431</u>	<u>49,825</u>	<u>7,714,295</u>	<u>38,582,551</u>
Total assets	<u>43,171,535</u>	<u>325,546</u>	<u>8,742,996</u>	<u>52,240,077</u>
<b>Deferred Outflows of Resources</b>				
Deferred charge on refunding	568,817	-	-	568,817
Total deferred outflows of resources	<u>568,817</u>	<u>-</u>	<u>-</u>	<u>568,817</u>
<b>Liabilities</b>				
Current Liabilities:				
Accounts payable	99,926	71,833	20,085	191,844
Accrued liabilities	46,412	7,176	12,520	66,108
Compensated absences - current	27,989	2,071	4,355	34,415
Customer deposits payable	692,116	-	-	692,116
Due to other governments	-	14,413	-	14,413
Notes payable - current	1,403,645	-	-	1,403,645
Accrued interest payable	220,189	-	-	220,189
Total current liabilities	<u>2,490,277</u>	<u>95,493</u>	<u>36,960</u>	<u>2,622,730</u>
Noncurrent Liabilities:				
Notes payable	9,832,482	-	-	9,832,482
Revenue bonds payable	5,652,322	-	-	5,652,322
Accreted interest payable	4,556,926	-	-	4,556,926
Compensated absences	111,958	8,283	17,418	137,659
Other noncurrent liabilities	79,412	12,260	19,003	110,675
Total noncurrent liabilities	<u>20,233,100</u>	<u>20,543</u>	<u>36,421</u>	<u>20,290,064</u>
Total liabilities	<u>22,723,377</u>	<u>116,036</u>	<u>73,381</u>	<u>22,912,794</u>
<b>NET POSITION</b>				
Net investment in capital assets	13,777,110	49,825	7,714,295	21,541,230
Restricted for debt service	4,814	-	-	4,814
Restricted for renewal and replacement	477,523	-	-	477,523
Unrestricted	6,757,528	159,685	955,320	7,872,533
Total net position	<u>\$ 21,016,975</u>	<u>\$ 209,510</u>	<u>\$ 8,669,615</u>	<u>\$ 29,896,100</u>

The accompanying Notes to Financial Statements are an integral part of these statements.

CITY OF WINTER SPRINGS, FLORIDA

**STATEMENT OF REVENUES, EXPENSES AND CHANGES IN NET POSITION  
PROPRIETARY FUNDS**

For The Year Ended September 30, 2014

	Business-type Activities - Enterprise Funds			Total
	Water and Sewer Utility Fund	Development Services Fund	Stormwater Utility Fund	
<b>Operating Revenues:</b>				
User charges	\$ 9,239,558	\$ 821,278	\$ 1,078,961	\$ 11,139,797
Other revenue	-	-	18,297	18,297
Total operating revenues	9,239,558	821,278	1,097,258	11,158,094
<b>Operating Expenses:</b>				
Salaries and benefits	2,035,078	279,744	565,268	2,880,090
Materials and supplies	884,805	7,620	202,723	1,095,148
Depreciation and amortization	1,932,103	15,394	343,984	2,291,481
Other operating expenses	1,078,787	106,537	37,696	1,223,020
Total Operating Expenses	5,930,773	409,295	1,149,671	7,489,739
Operating income (loss)	3,308,785	411,983	(52,413)	3,668,355
<b>Nonoperating Revenue (Expenses):</b>				
Investment income	22,560	105	2,221	24,886
Interest expense	(538,885)	-	-	(538,885)
Accreted interest expense	(475,105)	-	-	(475,105)
Proceeds from auction and insurance	6,564	60	27	6,651
Total nonoperating revenue (expenses)	(984,866)	165	2,248	(982,453)
Income (loss) before contributions and transfers	2,323,919	412,148	(50,165)	2,685,902
<b>Capital Contributions:</b>				
Connection fees	266,653	-	-	266,653
Capital contribution	628,874	-	634,317	1,263,191
Transfers In	21,696	-	-	21,696
Transfers Out	(1,489,555)	(346,900)	(173,800)	(2,010,255)
Change in net position	1,751,587	65,248	410,352	2,227,187
Total Net Position - beginning	19,265,388	144,262	8,259,263	27,668,913
Total Net Position - ending	\$ 21,016,975	\$ 209,510	\$ 8,669,615	\$ 29,896,100

The accompanying Notes to Financial Statements are an integral part of these statements.

CITY OF WINTER SPRINGS, FLORIDA

**STATEMENT OF CASH FLOWS  
PROPRIETARY FUNDS**

For The Year Ended September 30, 2014

	Business-type Activities - Enterprise Funds			Total
	Water and Sewer Utility Fund	Development Services Fund	Stormwater Utility Fund	
<b>Cash Flows from Operating Activities:</b>				
Receipts from customers	\$ 9,150,215	\$ 821,278	\$ 1,097,258	\$ 11,068,751
Payments to suppliers	(1,969,493)	(85,824)	(249,185)	(2,304,302)
Payments to employees	(2,059,338)	(267,226)	(554,207)	(2,880,771)
Net cash provided by operating activities	5,121,384	468,428	293,866	5,883,678
<b>Cash Flows from Noncapital Financing Activities:</b>				
Transfers in	21,696	-	-	21,696
Transfers out	(1,489,555)	(346,900)	(173,800)	(2,010,255)
Increase (decrease) in due to other funds	(82,459)	-	16,861	(65,598)
Net cash provided (used) by noncapital financing activities	(1,550,318)	(346,900)	(156,939)	(2,054,157)
<b>Cash Flows from Capital and Related Financing Activities:</b>				
Proceeds from insurance	6,564	60	27	6,651
Acquisition of capital assets	(612,366)	(4,884)	(14,335)	(631,585)
Principal paid on revenue bonds & leases	(1,372,146)	-	-	(1,372,146)
Interest paid on revenue bonds	(469,468)	-	-	(469,468)
Grant revenue	76,915	-	-	76,915
Connection fees	266,653	-	-	266,653
Net cash provided (used) by capital and related financing activities	(2,103,848)	(4,824)	(14,308)	(2,122,980)
<b>Cash Flows from Investing Activities:</b>				
Purchase of investments	(1,668,442)	(105,165)	(96,536)	(1,870,143)
Investment income	22,560	105	2,221	24,886
Net cash provided (used) by investing activities	(1,645,882)	(105,060)	(94,315)	(1,845,257)
<b>Net Increase (Decrease) in Cash and Cash Equivalents</b>	(178,664)	11,644	28,304	(138,716)
<b>Cash and Cash Equivalents - beginning</b>	985,695	7,728	44,314	1,037,737
<b>Cash and Cash Equivalents - end</b>	\$ 807,031	\$ 19,372	\$ 72,618	\$ 899,021

The accompanying Notes to Financial Statements are an integral part of these statements.

	Business-type Activities - Enterprise Funds			Total
	Water and Sewer Utility Fund	Development Services Fund	Stormwater Utility Fund	
<b>Reconciliation of Operating Income(Loss) to Net Cash Provided by Operating Activities</b>				
Operating income(loss)	\$ 3,308,785	\$ 411,983	\$ (52,413)	\$ 3,668,355
<b>Adjustments Not Affecting Cash:</b>				
Depreciation and amortization	1,932,103	15,394	343,984	2,291,481
<b>Change in Assets and Liabilities:</b>				
Decrease in accounts receivable	(76,093)	-	-	(76,093)
Decrease in inventories	(4,081)	-	-	(4,081)
Increase in prepaid costs	100	(1,295)	-	(1,195)
Increase (decrease) in accounts payable	(1,920)	50,284	(8,766)	39,598
Increase in due to other governments	-	(20,456)	-	(20,456)
Increase (decrease) in accrued liabilities	(3,744)	3,315	2,276	1,847
Increase in customer deposits	(13,250)	-	-	(13,250)
Increase (decrease) in accrued compensated absences	(34,928)	7,556	5,079	(22,293)
Increase in OPEB obligation	14,412	1,647	3,706	19,765
Total adjustments	(119,504)	41,051	2,295	(76,158)
<b>Net Cash Provided By Operating Activities</b>	<b>\$ 5,121,384</b>	<b>\$ 468,428</b>	<b>\$ 293,866</b>	<b>\$ 5,883,678</b>
<b>Noncash Capital and Financing Activities:</b>				
Contributed capital assets	\$ 548,125	\$ -	\$ 634,317	\$ 1,182,442
Net transfers of capital assets	\$ 3,834	\$ -	\$ -	\$ 3,834

CITY OF WINTER SPRINGS, FLORIDA

**CHANGES IN NET POSITION**

Last Ten Fiscal Years  
(accrual basis of accounting)  
(amounts expressed in thousands)

	Fiscal Year									
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
<b>Expenses</b>										
Governmental activities:										
General government	\$ 5,786	\$ 7,732	\$ 8,452	\$ 6,857	\$ 5,801	\$ 5,720	\$ 5,381	\$ 5,069	\$ 4,903	\$ 5,498
Public safety	9,138	10,016	10,726	11,299	7,196	7,356	7,671	7,102	7,415	7,476
Physical environment	5,561	2,038	2,390	5,694	6,281	5,654	5,610	5,589	5,658	5,874
Culture and recreation	2,265	2,393	2,739	2,511	2,554	2,323	2,161	2,043	2,078	2,170
Interest and other fiscal charges on long-term debt	763	709	683	965	959	944	907	833	773	782
Total governmental activities expenses	23,513	22,888	24,990	27,328	22,791	21,997	21,730	20,636	20,927	21,800
Business-type activities:										
Water and Sewer	6,000	6,239	6,522	7,151	7,143	7,447	7,186	6,512	7,040	6,945
Development Services	627	679	860	687	436	349	333	342	369	409
Stormwater	974	831	983	1,040	1,625	916	979	976	1,155	1,150
Total business-type activities expenses	\$ 7,601	\$ 7,749	\$ 8,365	\$ 8,878	\$ 9,204	\$ 8,712	\$ 8,498	\$ 7,830	\$ 8,564	\$ 8,504
<b>Program Revenues</b>										
Governmental activities:										
Charges for services:										
General government	\$ 1,995	\$ 472	\$ 376	\$ 2,008	\$ 2,006	\$ 2,378	\$ 2,075	\$ 2,021	\$ 1,838	\$ 2,058
Public safety	720	1,207	1,054	930	589	608	369	424	461	458
Physical environment	589	3,485	3,435	4,529	3,139	3,191	3,139	3,168	3,347	3,590
Culture and recreation	823	949	765	281	285	301	260	391	430	363
Operating grants and contributions	2,177	168	115	208	41	485	89	221	-	23
Capital grants and contributions	1,962	2,459	6,484	2,828	2,442	2,935	1,985	1,056	2,043	1,382
Total governmental activities program revenues	8,256	8,740	12,229	10,584	8,512	9,898	7,917	7,281	8,119	7,874
Business-type activities:										
Charges for services:										
Water and Sewer	7,256	7,937	7,569	7,252	7,339	8,015	8,837	9,363	8,540	9,240
Development Services	1,008	2,482	923	573	269	331	339	1,100	1,099	821
Stormwater	754	1,149	1,070	1,074	1,063	1,051	1,068	1,117	995	1,097
Operating grants and contributions	348	69	-	-	483	-	46	-	-	-
Capital grants and contributions	975	1,329	1,176	224	14	2,885	709	2,226	2,062	1,526
Total business-type activities program revenues	10,341	12,866	10,758	9,123	9,168	12,282	10,999	13,806	12,696	12,884
Total government program revenues	\$ 18,597	\$ 21,606	\$ 22,987	\$ 19,707	\$ 17,680	\$ 22,180	\$ 18,916	\$ 21,087	\$ 20,815	\$ 20,558

Fiscal Year

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Net (expense)/revenue										
Governmental activities	\$ (15,257)	\$ (14,148)	\$ (12,761)	\$ (16,742)	\$ (14,279)	\$ (12,099)	\$ (13,813)	\$ (13,355)	\$ (12,708)	\$ (13,926)
Business-type activities	2,740	5,117	2,393	245	(36)	3,570	2,501	5,976	4,132	4,180
Total government net expense	\$ (12,517)	\$ (9,031)	\$ (10,368)	\$ (16,497)	\$ (14,315)	\$ (8,529)	\$ (11,312)	\$ (7,379)	\$ (8,576)	\$ (9,746)

**General Revenues and Other Changes in Net Position**

Governmental activities:										
Taxes										
Property taxes	\$ 6,198	\$ 7,383	\$ 8,266	\$ 7,130	\$ 5,013	\$ 4,538	\$ 4,209	\$ 3,901	\$ 3,853	\$ 4,015
Utility taxes	4,984	5,751	5,841	3,976	4,106	4,536	4,169	3,963	3,923	4,035
Business tax receipts	-	-	-	140	70	204	119	106	109	105
Intergovernmental revenues - unrestricted	3,681	3,971	3,752	3,445	2,960	2,897	3,015	3,044	3,100	3,269
Investment income and miscellaneous	687	1,708	1,619	675	614	731	532	573	454	336
Gain (Loss) on disposal of capital assets	-	-	-	-	-	-	-	-	34	17
Transfers	3,967	3,352	2,813	2,189	1,691	1,796	1,862	2,047	2,070	1,985
Total governmental activities	19,517	22,165	22,281	17,555	14,454	14,702	13,906	13,634	13,543	13,762
Business-type activities:										
Investment income and miscellaneous	272	500	625	198	42	103	189	67	88	32
Loss on disposal of capital assets	-	-	-	-	-	-	-	-	-	-
Transfers	(3,967)	(3,352)	(2,813)	(2,189)	(1,691)	(1,796)	(1,862)	(2,047)	(2,070)	(1,985)
Total business-type activities	(3,695)	(2,852)	(2,188)	(1,991)	(1,649)	(1,693)	(1,673)	(1,980)	(1,982)	(1,953)
Total government	\$ 15,822	\$ 19,313	\$ 20,103	\$ 15,564	\$ 12,805	\$ 13,009	\$ 12,233	\$ 11,654	\$ 11,561	\$ 11,809

**Change in Net Position**

Governmental activities	\$ 4,260	\$ 8,017	\$ 9,530	\$ 813	\$ 175	\$ 2,603	\$ 93	\$ 279	\$ 835	\$ (164)
Business-type activities	(955)	2,255	205	(1,746)	(1,685)	1,877	828	3,996	2,150	2,227
Total government	\$ 3,305	\$ 10,282	\$ 9,735	\$ (933)	\$ (1,510)	\$ 4,480	\$ 921	\$ 4,275	\$ 2,985	\$ 2,063

CITY OF WINTER SPRINGS, FLORIDA

**RATIO OF OUTSTANDING DEBT BY TYPE**

Last Ten Fiscal Years

(dollars in thousands, except per capita)

Fiscal Year Ended September 30,	Governmental Activities						Business-Type Activities				Total Primary Government	Percentage of Personal Income <sup>1</sup>	Per Capita <sup>1</sup>	
	Revenue Bonds	Refunding Revenue Bonds <sup>2</sup>	Limited General Obligation Bonds	Special Assessment Revenue Bonds	Refunding Notes	Limited General Obligation Notes	Capital Leases	Water and Sewer Revenue Bonds	Water and Sewer Refunding Revenue Bonds <sup>2</sup>	State Revolving Loan				Capital Leases
2005	744	15,094	3,205	2,135	-	-	104	-	24,594	-	-	45,668	-	\$1,376
2006	479	14,504	3,140	2,427	-	-	100	-	23,724	-	-	44,374	4.53%	\$1,282
2007	439	13,884	3,070	2,354	-	-	333	-	22,829	-	-	42,909	4.42%	\$1,230
2008	1,125	13,234	3,000	2,276	-	-	228	-	21,884	-	-	41,747	4.06%	\$1,205
2009	1,011	12,554	2,925	2,165	-	-	117	-	20,904	-	-	39,678	3.77%	\$1,155
2010	-	11,834	2,850	2,091	-	-	-	-	19,989	-	-	38,884	3.58%	\$1,074
2011	-	9,814	2,779	2,005	1,377	-	-	-	13,968	-	-	34,501	2.97%	\$1,037
2012	-	8,929	-	-	3,280	2,739	-	-	12,152	-	-	32,749	2.77%	\$875
2013	-	8,229	-	-	3,054	2,639	-	-	10,897	-	-	33,341	3.62%	\$994
2014	-	3,499	-	-	6,282	2,534	-	-	9,801	1,855	-	29,220	2.68%	\$893

Note: Details regarding the city's outstanding debt can be found in the notes to the Financial Statements: Note 6: Long-Term Debt.

<sup>1</sup> Information is not available.

<sup>2</sup> See Demographic and Economic Statistics for personal income and population data. These ratios are calculated using personal income and population.

<sup>3</sup> Amounts do not include accrued interest payable for 1999 Improvement Refunding Revenue Bonds and 2000 Water and Sewer Refunding Revenue Bonds.

CITY OF WINTER SPRINGS, FLORIDA

PLEDGED-REVENUE COVERAGE - CONTINUED

Last Ten Fiscal Years

Fiscal Year Ended Sept 30,	Gross Revenues <sup>1</sup>	Operating Expenses <sup>2</sup>	Net Revenue Available for Debt Service	Debt Service Requirements			Coverage
				Principal	Interest	Total	
2005	7,487,904	4,862,108	2,635,796	835,000	1,906,910	1,841,910	1.43
2006	8,257,218	4,888,390	3,368,828	870,000	980,427	1,850,427	1.82
2007	8,084,483	5,163,896	2,920,587	885,000	944,302	1,839,302	1.59
2008	7,415,100	5,365,172	2,049,928	945,000	909,661	1,854,661	1.11
2009	7,376,924	5,298,633	2,076,291	980,000	871,309	1,851,309	1.12
2010	8,104,632	5,868,044	2,236,588	1,035,000	868,614	1,904,614	1.17
2011	8,896,172	5,769,194	3,126,978	945,000 <sup>4</sup>	749,320	1,694,320	1.85
2012	9,833,455	5,331,369	4,502,086	913,470	487,292	1,400,762	3.21
2013	9,014,167	5,420,125	3,594,042	1,265,278	448,890	1,704,168	2.11
2014	9,534,771	5,488,225	4,046,546	1,296,376	469,422	1,705,798	2.37

Note

- <sup>1</sup> Gross revenue is computed per bond resolution requirements, and is equivalent to revenue recognized under generally accepted accounting principles (GAAP). Revenues include investment income and other income.
- <sup>2</sup> "Direct operating expense" is computed per bond resolution requirements, and is equal to expenses recognized under GAAP (less interest, depreciation, and amortization expense) less on disposal of fixed assets, and non-recurring transfers out.
- <sup>3</sup> Data has been restated
- <sup>4</sup> Excludes principal paid on refunding
- <sup>5</sup> 2001 TLBD debt was refunded, revenue no longer pledged for outstanding debt

CITY OF WINTER SPRINGS  
Fiscal Year 2015-2016 Budget

WATER & SEWER DEBT SERVICE REQUIREMENTS

Year Ending	Fund #410 Water & Sewer Capital Series 2000 US Bank	Fund #410 Water & Sewer Serial Series 2000 US Bank	Fund #410 Water & Sewer Refunding Series 2011C BB&T	Fund #410 Water & Sewer Refunding Series 2011A SunTrust	Fund #410 Water & Sewer Refunding Series 2011B BB&T	Fund #410 State Revolving Loan <sup>4</sup>	TOTAL WATER & SEWER <sup>2</sup>
	Principal	Interest	Principal	Interest	Principal	Interest	Principal
2016	\$387,498	\$1,352,363	\$361,990	\$62,813	\$932,910	\$148,602	\$1,446,699
2017	\$522,637	\$1,394,069	\$365,059	\$62,902	\$970,734	\$117,382	\$368,827
2018	\$490,931	\$1,414,060	\$377,374	\$42,884	\$999,324	\$85,073	\$323,637
2019	\$460,860	\$1,442,363	\$383,650	\$32,654	\$1,031,602	\$51,766	\$278,712
2020	\$432,638	\$1,469,081	\$399,560	\$22,025	\$1,062,438	\$22,712	\$228,600
2021	\$360,787	\$1,534,655	\$409,439	\$11,134	\$1,062,438	\$17,424	\$178,923
2022	\$340,144	\$1,575,000	\$418,560				\$168,165
2023							\$1,484,596
2024							\$1,513,943
2025							\$606,407
2026							\$579,093
2027							\$1,541,499
2028							\$1,567,519
2029							\$525,787
2030							\$1,591,474
2031							\$501,666
2032							\$481,104
2033							\$2,112,072
							\$461,949
							\$2,111,073
							\$644,128
							\$1,981,894
							\$5,342
							\$198,868
							\$2,319
							\$56,077
							\$0
							\$388,659
							\$1,558,480
							\$338,338
							\$430,247
							\$2,715,852
							\$224,192
							\$4,987,008
							\$583,001
							\$1,574,923
							\$15,175,120
							\$56,077
							\$30,678,652

- 1 These debt instruments are Commercial Bank Notes secured by revenues generated from the City's Water and Sewer operations.
- 2 In fiscal year 2011, current refunding opportunities arose due to a favorable interest rate environment allowing Water and Sewer Bonds to be replaced with traditional Commercial Notes.  
Series 2011A - Series 2002 Revenue Bonds, with maturities between 2012 and 2020 (\$8,484,906) were refunded and replaced with a 9-year simple interest SunTrust Bank Commercial Note. This action reduced the scheduled payments over the next 9 years by \$527,371 (present value).  
Series 2011B - Series 2000 Water and Sewer Revenue Bonds were partially refunded; those with maturities between 2011 and 2020 (\$870,617) were replaced with a 9-year simple interest Bank Note (BB&T) reducing the average interest rate by 287 basis points yielding a cost reduction of \$134,363 (present value).  
Series 2011C - Series 2001 Water and Sewer Revenue Bonds (2020 (\$3,700,000) were replaced with an 11-year simple interest Bank Note (BB&T) reducing the average interest rate by 217 basis points yielding a cost reduction of \$432,703 (present value).
- 3 A look at the total debt service bond requirements for this utility reflects a relatively level annual requirement. The debt service requirements are based on the accrual method which means the interest expense is matched to the period in which it is incurred not necessarily when paid. This fund has projected fund equity in excess of the target fund equity of 25% of operating expenses. Rate increases, necessary to meet debt coverage requirements, were instituted by the Commission as follows: October 2009-7%, October 2010-7%, October 2011-7%, thereafter, a CPI rate escalator.
- 4 This is a State Revolving Loan granted by the State of Florida and funded by the Federal EPA, with a 20-year amortization and a 2.77% fixed rate of interest over the entire life of the loan. This financing was used for the construction and expansion of the reclaimed water system.

## Attachment 2

Assumptions used for Tables 1 and 2 of the Business Plan.

Rate of Growth Assumption: 1.5 %

Growth of customers does not exceed the number of units currently permitted and under construction within the service area.

Attachment 3

User Rates and Charges – Ordinance 2009-13

**ORDINANCE NO. 2009-13**

**AN ORDINANCE OF THE CITY COMMISSION OF THE CITY OF WINTER SPRINGS, FLORIDA, AMENDING CHAPTER 19, UTILITIES, OF THE CODE OF ORDINANCES REGARDING WATER, WASTEWATER, AND RECLAIMED WATER RATES, FEES AND CHARGES; PROVIDING FOR THE REPEAL OF PRIOR INCONSISTENT ORDINANCES AND RESOLUTIONS; INCORPORATION INTO THE CODE; SEVERABILITY; AND AN EFFECTIVE DATE.**

**WHEREAS**, the City is granted the authority, under § 2(b), Art. VIII of the State Constitution, to exercise any power for municipal purposes, except when expressly prohibited by law; and

**WHEREAS**, the City Commission of the City of Winter Springs has determined it to be in the best interest of the safety, health and welfare of the citizens of the City of Winter Springs to provide for the adoption of rates, fees and charges relating to water, wastewater and reclaimed water; and

**WHEREAS**, at the request of the City, Public Resources Management Group, Inc. ("Consultant") has conducted a review of the existing water, wastewater and reclaimed water rates to determine the appropriateness of such rates to meet the anticipated expenditure requirements of each respective utility division; and

**WHEREAS**, the Consultant's findings are set forth in the Water and Wastewater Rate and Charge Study ("Rate Study") dated July 2009; and

**WHEREAS**, on August 10, 2009, the City Commission reviewed the Consultant's Rate Study and directed that the Consultant's recommendations contained therein be implemented; and

**WHEREAS**, the City Commission desires to adopt the revisions to the City's water, wastewater and reclaimed water rates, fees and charges as set forth in this Ordinance and consistent with the Consultant's recommendations as set forth in the Rate Study; and

**WHEREAS**, prior to adoption of this Ordinance, the City provided notice of this Ordinance to its water, wastewater, and reclaimed water customers through the City's utility billing process in accordance with section 180.136, Florida Statutes; and

**WHEREAS**, the City Commission hereby finds the rates, charges, and fees to be paid to the City for the use of the City's water, wastewater, and reclaimed utilities to be just and equitable and

therefore, said rates, charges, and fees are hereby deemed in compliance with section 180.13, Florida Statutes; and

**WHEREAS**, the City Commission of the City of Winter Springs, Florida, hereby finds this ordinance to be in the best interests of the public health, safety, and welfare of the citizens of Winter Springs.

**NOW, THEREFORE, THE CITY COMMISSION OF THE CITY OF WINTER SPRINGS HEREBY ORDAINS, AS FOLLOWS:**

**Section 1. Recitals.** The foregoing recitals are hereby fully incorporated herein by reference as legislative findings of the City Commission of Winter Springs.

**Section 2. Code Amendment.** The City of Winter Springs Code Chapter 19, Utilities, is hereby amended as follows (underlined type indicates additions and ~~strikeout~~ type indicates deletions, while asterisks (\*\*\*) indicate a deletion from the Ordinance of text existing in Chapter 19. It is intended that the text in Chapter 19 denoted by the asterisks and set forth in this Ordinance shall remain unchanged from the language existing prior to adoption of this ordinance):

## CHAPTER 19. UTILITIES

\*\*\*

### ARTICLE II. WASTEWATER SYSTEM

\*\*\*

#### DIVISION 4. RATES, FEES AND CHARGES

\*\*\*

##### **Section 19-102. User charge schedule, general.**

The following rates and charges shall apply to all systems unless otherwise specifically stated:

(1) *Monthly water service rates.* The monthly water rate shall include the sum of the base facility charge based on the size of the meter plus a volume charge per one thousand (1,000) gallons or a fraction thereof of metered water consumption as set forth below.

a. *Individually metered residential service.*

TABLE INSET:

	<i>Bills Rendered on or after <u>October 1,</u> 2009</i>	<i>Bills Rendered on or after <u>October 1,</u> 2010</i>	<i>Bills Rendered on or after <u>October 1,</u> 2011</i>
	<i>July 1, 2002</i>	<i>July 1, 2003</i>	<i>July 1, 2004</i>
<i>Monthly Charge</i>			
<b>Base Facility Charge</b>			
<u>5/8 inch x 3/4 inch</u> All meter sizes	\$ <u>4.74</u> <del>3.85</del>	\$ <u>5.07</u> <del>4.11</del>	\$ <u>5.43</u> <del>4.39</del>
<u>1-inch</u>	\$ <u>11.88</u>	\$ <u>12.71</u>	\$ <u>13.60</u>
<u>1-1/2 inch</u>	\$ <u>23.70</u>	\$ <u>25.35</u>	\$ <u>27.13</u>
<u>2-inch</u>	\$ <u>37.91</u>	\$ <u>40.56</u>	\$ <u>43.40</u>
<u>3-inch</u>	\$ <u>75.82</u>	\$ <u>81.12</u>	\$ <u>86.80</u>
<u>4-inch</u>	\$ <u>118.45</u>	\$ <u>126.75</u>	\$ <u>135.62</u>
<u>6-inch</u>	\$ <u>236.91</u>	\$ <u>253.49</u>	\$ <u>271.24</u>
<u>8-inch</u>	\$ <u>379.30</u>	\$ <u>405.85</u>	\$ <u>434.26</u>

*Charge per thousand (1,000) gallons*

Volume Charge--Domestic Service (gallons)

0--10,000	\$ <u>1.11</u> <del>0.97</del>	\$ <u>1.19</u> <del>1.04</del>	\$ <u>1.27</u> <del>1.11</del>
10,001--15,000	\$ <u>1.61</u> <del>1.34</del>	\$ <u>1.72</u> <del>1.43</del>	\$ <u>1.84</u> <del>1.53</del>
15,001--20,000	\$ <u>2.11</u> <del>1.60</del>	\$ <u>2.26</u> <del>1.71</del>	\$ <u>2.42</u> <del>1.82</del>
20,001--25,000	\$ <u>2.61</u> <del>1.87</del>	\$ <u>2.79</u> <del>2.00</del>	\$ <u>2.99</u> <del>2.13</del>
25,001--30,000	\$ <u>3.44</u> <del>2.14</del>	\$ <u>3.68</u> <del>2.28</del>	\$ <u>3.94</u> <del>2.44</del>
Over 30,000	\$ <u>4.75</u> <del>2.67</del>	\$ <u>5.08</u> <del>2.85</del>	\$ <u>5.44</u> <del>3.04</del>

Volume Charge--Irrigation Service (gallons)\*

0--5,000	\$ <u>1.61</u> <del>1.34</del>	\$ <u>1.72</u> <del>1.43</del>	\$ <u>1.84</u> <del>1.53</del>
5,001--10,000	\$ <u>2.11</u> <del>1.60</del>	\$ <u>2.26</u> <del>1.71</del>	\$ <u>2.42</u> <del>1.82</del>
10,001--15,000	\$ <u>2.61</u> <del>1.87</del>	\$ <u>2.79</u> <del>2.00</del>	\$ <u>2.99</u> <del>2.13</del>
15,001--20,000	\$ <u>3.44</u> <del>2.14</del>	\$ <u>3.68</u> <del>2.28</del>	\$ <u>3.94</u> <del>2.44</del>
Over 20,000	\$ <u>4.75</u> <del>2.67</del>	\$ <u>5.08</u> <del>2.85</del>	\$ <u>5.44</u> <del>3.04</del>

\*Reflects water use for residential irrigation service which is metered in addition to domestic service from a single service connection to water system. For those customers which receive dual metered service from a single service connection, the base facility charge will only be applied to domestic service (one (1) charge per service connection).

b. *Master metered residential and nonresidential service.*

TABLE INSET:

		<i>Bills Rendered on Bills Rendered on Bills Rendered on</i> <i>or after October or after October or after October</i> <i>1, 2009 July 1, 1, 2010 July 1, 1, 2011 July 1,</i> <i>2002 2003 2004</i>		
		<i>Monthly Charge</i>		
<i>ERC Factor</i>				
<i>Base Facility Charge (meter size)</i>				
5/8 × 3/4 and 3/4 inch	1.0	\$ <u>4.74</u> <del>3.85</del>	\$ <u>5.07</u> <del>4.11</del>	\$ <u>5.43</u> <del>4.39</del>
1 inch	2.5	\$ <u>11.88</u> <del>9.65</del>	\$ <u>12.71</u> <del>10.30</del>	\$ <u>13.60</u> <del>11.00</del>

1 1/2 inch	5.0	<u>\$ 23.70</u> <del>19.25</del>	<u>\$25.35</u> <del>20.55</del>	<u>\$ 27.13</u> <del>21.94</del>
2 inch	8.0	<u>\$ 37.91</u> <del>30.80</del>	<u>\$ 40.56</u> <del>32.88</del>	<u>\$43.40</u> <del>35.10</del>
3 inch	16.0	<u>\$ 75.82</u> <del>61.60</del>	<u>\$81.12</u> <del>65.76</del>	<u>\$ 86.80</u> <del>70.20</del>
4 inch	25.0	<u>\$ 118.45</u> <del>96.25</del>	<u>\$126.75</u> <del>102.75</del>	<u>\$ 135.62</u> <del>109.68</del>
6 inch	50.0	<u>\$ 236.91</u> <del>192.50</del>	<u>253.49</u> <del>205.49</del>	<u>\$ 271.24</u> <del>219.36</del>
8 inch	80.0	<u>\$ 379.30</u> <del>308.00</del>	<u>\$ 405.85</u> <del>328.80</del>	<u>\$ 434.26</u> <del>351.20</del>

Volume Charge--  
Domestic Service per  
1,000 gallons

<u>\$ 1.68</u> <del>1.37</del>	<u>\$ 1.80</u> <del>1.46</del>	<u>\$ 1.93</u> <del>1.56</del>
--------------------------------	--------------------------------	--------------------------------

Volume Charge--  
Irrigation Service per ERC  
(gallons) \*

0--5,000	<u>\$ 1.61</u> <del>1.34</del>	<u>\$ 1.72</u> <del>1.43</del>	<u>\$ 1.84</u> <del>1.53</del>
5,001-- 10,000	<u>\$ 2.11</u> <del>1.60</del>	<u>\$ 2.26</u> <del>1.71</del>	<u>\$ 2.42</u> <del>1.82</del>
10,001-- 15,000	<u>\$ 2.61</u> <del>1.87</del>	<u>\$ 2.79</u> <del>2.00</del>	<u>\$ 2.99</u> <del>2.13</del>
15,001-- 20,000	<u>\$ 3.44</u> <del>2.14</del>	<u>\$ 3.68</u> <del>2.28</del>	<u>\$ 3.94</u> <del>2.44</del>
Over 20,000	<u>\$ 4.75</u> <del>2.67</del>	<u>\$ 5.08</u> <del>2.85</del>	<u>\$ 5.44</u> <del>3.04</del>

\*For those customers which receive both individually metered domestic and irrigation service from a single service connection, the base facility charge will only be applied to domestic service (one charge per service connection).

c. *General irrigation meter service.\**

TABLE INSET:

		<i>Bills Rendered on or after <u>October 1, 2009</u>    Bills Rendered on or after <u>October 1, 2010</u>    Bills Rendered on or after <u>October 1, 2011</u></i>		
		<i>July 1, 2002</i>	<i>July 1, 2003</i>	<i>July 1, 2004</i>
		<i>Monthly Charge</i>		
		<i>ERC Factor</i>		
<i>Base Facility Charge (meter size)</i>				
5/8× 3/4 and 3/4 inch	1.0	\$ <u>4.74</u> <del>3.85</del>	\$ <u>5.07</u> <del>4.11</del>	\$ <u>5.43</u> <del>4.39</del>
1 inch	2.5	\$ <u>11.88</u> <del>9.65</del>	\$ <u>12.71</u> <del>10.30</del>	\$ <u>13.60</u> <del>11.00</del>
1 1/2 inch	5.0	\$ <u>23.70</u> <del>19.25</del>	\$ <u>25.35</u> <del>20.55</del>	\$ <u>27.13</u> <del>21.94</del>
2 inch	8.0	\$ <u>37.91</u> <del>30.80</del>	\$ <u>40.56</u> <del>32.88</del>	\$ <u>43.40</u> <del>35.10</del>
3 inch	16.0	\$ <u>75.82</u> <del>61.60</del>	\$ <u>81.12</u> <del>65.76</del>	\$ <u>86.80</u> <del>70.20</del>
4 inch	25.0	\$ <u>118.45</u> <del>96.25</del>	\$ <u>126.75</u> <del>102.75</del>	\$ <u>135.62</u> <del>109.68</del>
6 inch	50.0	\$ <u>236.91</u> <del>192.50</del>	\$ <u>253.49</u> <del>205.49</del>	\$ <u>271.24</u> <del>219.36</del>

8 inch	80.0	<u>\$ 379.30</u> <del>308.00</del>	<u>\$ 405.85</u> <del>328.80</del>	<u>\$ 434.26</u> <del>351.20</del>
--------	------	------------------------------------	------------------------------------	------------------------------------

*Charge per thousand (1,000) gallons*

Volume Charge per ERC >

<u>0-5,000</u> <del>10,000</del>	<u>\$ 1.61</u> <del>0.97</del>	<u>\$ 1.72</u> <del>1.04</del>	<u>\$ 1.84</u> <del>1.11</del>
<u>5,001-10,000</u> <del>10,001-15,000</del>	<u>\$ 2.11</u> <del>1.34</del>	<u>\$ 2.26</u> <del>1.43</del>	<u>\$ 2.42</u> <del>1.53</del>
<u>10,001-15,000</u> <del>15,001-20,000</del>	<u>\$ 2.61</u> <del>1.60</del>	<u>\$ 2.79</u> <del>1.71</del>	<u>\$ 2.99</u> <del>1.82</del>
<u>15,001-20,000</u> <del>20,001-25,000</del>	<u>\$ 3.44</u> <del>1.87</del>	<u>\$ 3.68</u> <del>2.00</del>	<u>\$ 3.94</u> <del>2.13</del>
<u>Over 20,000</u> <del>25,001-30,000</del>	<u>\$ 4.75</u> <del>2.14</del>	<u>\$ 5.08</u> <del>2.28</del>	<u>\$ 5.44</u> <del>2.44</del>
<u>Over 30,000</u>	<u>2.67</u>	<u>2.85</u>	<u>3.04</u>

\*Reflects water use for nonresidential irrigation service which is metered from a separate and distinct service connection to the water system.

The base facility charge is the minimum monthly charge applied in each account and will not be assessed if the service is discontinued.

d. A twenty-five (25) percent surcharge on the monthly water service rates shall be assessed to customers located outside the City limits pursuant to Section 180.191, Florida Statutes.

(2) *Water meter charges.* The water meter charge shall be based on the size of the meter as follows:

TABLE INSET:

Meter Size (in inches)	Meter Installation Only	Installation/Tap-In
5/8 × 3/4	\$ <u>160.00</u> <del>120.00</del>	\$ 350.00
5/8 × 3/4 remote read	\$ <u>220.00</u> <del>190.00</del>	\$ <u>490.00</u> <del>350.00</del>
5/8 × 3/4 double check	\$ <u>330.00</u> <del>230.00</del>	\$ 380.00
1 remote read	\$ <u>310.00</u> <del>260.00</del>	\$ <u>460.00</u> <del>390.00</del>
5/8 × 3/4 double check remote read	\$ <u>350.00</u> <del>280.00</del>	\$ <u>510.00</u> <del>420.00</del>
1 meter plus backflow prevention device	\$ <u>490.00</u> <del>450.00</del>	\$ <u>670.00</u> <del>600.00</del>
1 1/2 remote read	\$ <u>570.00</u> <del>480.00</del>	\$ <u>770.00</u> <del>660.00</del>
1 1/2 meter plus backflow prevention device	\$ <u>890.00</u> <del>700.00</del>	\$ <u>1,110.00</u> <del>900.00</del>

2 remote read	<u>\$810.00</u> <del>640.00</del>	<u>\$ 1,030.00</u> <del>840.00</del>
2 meter with separate double check valve	<u>\$ 1,120.00</u> <del>900.00</del>	<u>\$ 1,350.00</u> <del>1,100.00</del>

For all meters larger than two (2) inches, the meter charge shall be based upon the actual cost of: i) the meter plus materials; ii) labor and equipment/machinery/vehicle requirements associated with the installation; iii) an allowance for administration; and iv) other items directly related to the installation, all as determined by the city.

(3) *Monthly sewer service rates.* The monthly sewer rate shall include the sum of the base facility charge based on the size of the meter plus a volume charge per one thousand (1,000) gallons or a fraction thereof of metered water consumption as set forth below.

a. *All customer classes.*

TABLE INSET:

<i>Meter size (in inches)</i>	<i>Bills Rendered on</i>	<i>Bills Rendered on</i>	<i>Bills Rendered on</i>
	<i>or after <u>October 1, 2009</u> July 1, 2002</i>	<i>or after <u>October 1, 2010</u> July 1, 2003</i>	<i>or after <u>October 1, 2011</u> July 1, 2004</i>
	<i>Base Facility Charge</i>		
5/8 × 3/4 and 3/4	<u>\$ 9.30</u> <del>7.10</del>	<u>\$ 9.95</u> <del>7.50</del>	<u>\$ 10.65</u> <del>8.09</del>
1	<u>\$ 23.26</u> <del>17.75</del>	<u>\$ 24.89</u> <del>18.95</del>	<u>\$ 26.64</u> <del>20.23</del>
1 1/2	<u>\$ 46.52</u> <del>35.50</del>	<u>\$ 49.77</u> <del>37.90</del>	<u>\$ 53.26</u> <del>40.45</del>
2	<u>\$ 74.44</u> <del>56.80</del>	<u>\$ 79.65</u> <del>60.63</del>	<u>\$ 85.23</u> <del>64.73</del>
3	<u>\$ 148.87</u> <del>113.60</del>	<u>\$ 159.29</u> <del>121.27</del>	<u>\$ 170.44</u> <del>129.45</del>
4	<u>\$ 232.61</u> <del>177.50</del>	<u>\$ 248.89</u> <del>189.48</del>	<u>\$ 266.32</u> <del>202.27</del>
6	<u>\$ 465.22</u> <del>355.00</del>	<u>\$ 497.79</u> <del>378.96</del>	<u>\$ 532.63</u> <del>404.54</del>



<u>Water availability fee, per gallon</u>	<u>\$ 1.48</u>	<u>\$ 1.59</u>	<u>\$1.70</u>
<u>Sewer availability fee, per gallon</u>	<u>\$7.33</u>	<u>\$7.70</u>	<u>\$ 8.07</u>

~~Water availability fee, per gallon . . . \$1.48~~

~~Sewer availability fee, per gallon . . . \$7.33~~

\* \* \*

(5) *Miscellaneous charges:*

- a. Reinstatement fee for turning on service after disconnections for nonpayment of bill . . . \$ 40.00 ~~30.00~~
- b. Fee or charge for actual damages (whichever is greater) for contamination or alteration of a water meter, line or connection . . . \$95.00 per occurrence ~~75.00~~
- c. Inspection fee for each connection requested . . . \$ 40.00 ~~30.00~~
- d. Fee for all checks returned by bank, includes checks returned for insufficient funds or closed account . . . \$ 20.00 or 5% of the face amount of the check, whichever is greater, not to exceed \$40.00
- e. Application fee . . . \$20.00 ~~15.00~~
- f. Reinstallation charges for meter removed because of nonpayment or inability to lock off . . . \$50.00 ~~35.00~~
- g. Pretreatment charge, as established by the city commission by resolution.
- h. Capacity reservation charge, \$0.35 per sewer gallon per year.
- i. Television inspection of new sewer mains and laterals installed by contractors for acceptance by city:
  1. Inspection fee using the city's T.V. camera and crew, per hour . . . \$125.00 ~~100.00~~
  2. Inspector only (contractor supplies camera and crew), per hour . . .

\$50.00 ~~30.00~~

i. Meter bench test . . . \$25.00

k. Reinstatement before cut-off fee . . . \$20.00

(6) Price indexing. Beginning annually on October 1, 2012 and continuing annually thereafter every October 1, the base facility, volume and service availability charges for water, sewer and reclaimed water shall be adjusted using the CPI for the previous 12-month period.

\* \* \*

### ARTICLE III. RECLAIMED WATER SYSTEM

\* \* \*

#### Section 19-138. Rates and Charges.

(a) A rate shall be charged to the customers on the reclaimed water system in accordance with the following schedule:

\* \* \*

(3) For customers receiving metered service, the monthly charge shall be the sum of the base charge of ~~three dollars and fifty-five cents (\$3.55)~~; plus a consumptive charge as follows: of twenty-five cents (\$0.25) per one thousand (1,000) gallons for usage up to twenty thousand gallons (20,000) per month and fifty cents (\$0.50) per one thousand (1,000) gallons for all metered reclaimed water usage over twenty thousand gallons (20,000) per month.

Bills rendered on or after  
October 1, 2009

#### Reclaimed Irrigation Base Facility Charge

Per ERC

\$ 4.10

#### Commodity Charge (per 1,000 gallons)

<u>0 - 5,000 gallons</u>	<u>\$ 0.75</u>
<u>5,001 - 10,000 gallons</u>	<u>\$ 0.94</u>
<u>10,001 - 15,000 gallons</u>	<u>\$ 1.30</u>
<u>15,001 - 20,000 gallons</u>	<u>\$ 1.45</u>
<u>Above 20,000 gallons</u>	<u>\$ 2.13</u>

\* \* \*

(5) For wholesale reclaimed water service, the monthly charge shall be fifty-two cents (\$ 0.52) per thousand gallons.

\* \* \*

**Section 3. Repeal of Prior Inconsistent Ordinances and Resolutions.** All prior inconsistent ordinances and resolutions adopted by the City Commission, or parts of prior ordinances and resolutions in conflict herewith, are hereby repealed to the extent of the conflict.

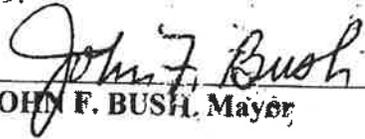
**Section 4. Incorporation Into Code.** This Ordinance shall be incorporated into the Winter Springs City Code and any section or paragraph, number or letter, and any heading may be changed or modified as necessary to effectuate the foregoing. Grammatical, typographical, and like errors may be corrected and additions, alterations, and omissions, not affecting the construction or meaning of this Ordinance and the City Code may be freely made.

**Section 5. Severability.** If any section, subsection, sentence, clause, phrase, word or provision of this ordinance is for any reason held invalid or unconstitutional by any court of competent jurisdiction, whether for substantive, procedural, or any other reason, such portion shall be deemed a separate, distinct and independent provision, and such holding shall not affect the validity of the remaining portions of this ordinance.

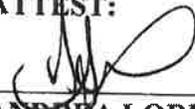
**Section 6. Effective Date.** This Ordinance shall become effective immediately upon adoption by the City Commission of the City of Winter Springs, Florida, and pursuant to the City Charter.

[SIGNATURE PAGE FOLLOWS]

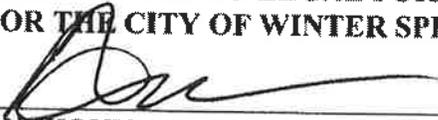
**ADOPTED** by the City Commission of the City of Winter Springs, Florida, in a regular meeting assembled on the 28th day of September, 2009.

  
\_\_\_\_\_  
**JOHN F. BUSH, Mayor**

**ATTEST:**

  
\_\_\_\_\_  
**ANDREA LORENZO-LUACES**  
City Clerk

**APPROVED AS TO LEGAL FORM AND SUFFICIENCY  
FOR THE CITY OF WINTER SPRINGS ONLY.**

  
\_\_\_\_\_  
**ANTHONY A. GARGANESE**  
City Attorney

First Reading: August 24, 2009  
Second Reading: September 28, 2009  
Effective Date: September 28, 2009

Attachment 4

User Rates Recap – Residential and Commercial

October 1, 2014



## CITY OF WINTER SPRINGS, FLORIDA

1126 EAST STATE ROAD 434  
 WINTER SPRINGS, FLORIDA 32708-2799  
 Telephone (407) 327-1800

### RESIDENTIAL WATER AND SEWER RATES RECAP

Customer Service Call Center: 407-327-5996 / Fax :407-327-4753

Customer Service Lobby Hours: Monday 7:00 AM to 6:00 PM / Tuesday through Friday - 8:00 AM to 5:00 PM

Water	Base Facility Charge (Based on 1/2" meter, other sizes refer to city ordinance)	\$5.72
	Consumption Charges Based on 1000 Gallons	
	0 to 10,000 Gallons	\$1.33
	10,001 to 15,000 Gallons	\$1.93
	15,001 to 20,000 Gallons	\$2.56
	20,001 to 25,000 Gallons	\$3.15
	25,001 to 30,000 Gallons 30,001 Gallons and over	\$4.15 \$5.74
Water Charges are subject to 10% Utility Tax		
Sewer	Base Facility Charge (Based on 3/4" meter, other sizes refer to city ordinance)	\$11.23
	Consumption Charges Based on 1000 Gallons	
	0 to 10,000 Gallons	\$4.39
	Sewer is only charged on the first 10,000 Gallons	
Garbage	Per Month	\$18.10
	Additional Cart Rate Per Month	\$10.55
Storm Water	Per Month and Per Equivalent Residential Unit (ERU)	\$5.50
Reclaimed Water	Metered Base Facility Charge Per Month	\$4.32
	Consumption Charges Based on 1000 Gallons	
	0 to 5,000 Gallons	\$ .79
	5,001 to 10,000 Gallons	\$ .98
	10,001 to 15,000 Gallons	\$1.36
	15,001 to 20,000 Gallons 20,001 Gallons and over	\$1.53 \$2.24
Reclaimed Water Charges are subject to 10% Utility Tax		
Irrigation	Consumption Charges Based on 1000 Gallons	
	0 to 5,000 Gallons	\$1.93
	5,001 to 10,000 Gallons	\$2.56
	10,001 to 15,000 Gallons	\$3.15
	15,001 to 20,000 Gallons	\$4.15
	20,001 Gallons and over	\$5.76
Irrigation Charges are subject to 10% Utility Tax		
Service Availability	Water Availability Fee, per gallon	\$1.80
	Sewer Availability Fee, per gallon	\$8.52

Application Fee Requirement: \$20.00 (Non-Refundable) – Waived with bank-draft sign up  
 Application Fee may be reinstated if bank-draft is not active for (12) twelve consecutive months.

Residential Deposit Requirement: \$100.00 (\$30.00 Water / \$70.00 Sewer)

THIS IS A SUMMATION OF RATES IN CASE OF DISCREPANCY THE RATE ORDINANCE WILL PREVAIL  
 AS OF BILLING OCTOBER 1, 2014. RATES LISTED ARE FOR MONTHLY CHARGES.



**CITY OF WINTER SPRINGS, FLORIDA**

1126 EAST STATE ROAD 434  
 WINTER SPRINGS, FLORIDA 32708-2799  
 Telephone (407) 327-1800

**COMMERCIAL WATER AND SEWER RATES RECAP  
 AS OF BILLING OCTOBER 1, 2014**

Customer Service Call Center: 407-327-5996/ Fax: 407-327-4753

Customer Service Lobby Hours: Monday – 7:00 AM to 6:00 PM / Tuesday through Friday - 8:00 AM to 5:00 PM

Water	Base Facility Charge (Based on 3/4" meter, other sizes refer to city ordinance)	\$5.72
	Consumption Charges Based on 1000 Gallons Water Charges are subject to 10% Utility Tax	\$2.02
Sewer	Base Facility Charge	\$11.23
	Consumption Charges Based on 1000 Gallons	\$4.39
Storm Water	The fee for non-residential property is the rate \$5.50 for one (1) Equivalent Residential Unit (ERU) multiplied by the numerical factor. The numerical factor is obtained by dividing the total impervious area in square feet by the square footage for one (1) ERU as set forth in the rate resolution.	
Reclaimed Water	Base Facility Charge	\$4.32
	Consumption Charges Based on 1000 Gallons	
	0 to 5,000 Gallons	\$ .79
	5,001 to 10,000 Gallons	\$ .98
	10,001 to 15,000 Gallons	\$1.36
	15,001 to 20,000 Gallons	\$1.53
	20,001 Gallons and over	\$2.24
	Reclaimed Water Charges are subject to 10% Utility Tax	
Irrigation	Consumption Charges Based on 1000 Gallons	
	0 to 5,000 Gallons	\$1.93
	5,001 to 10,000 Gallons	\$2.56
	10,001 to 15,000 Gallons	\$3.15
	15,001 to 20,000 Gallons	\$4.15
	20,001 Gallons and over	\$5.74
	Reflects water use for non-residential irrigation service which is metered from a separate and distinct service connection to the water system. Irrigation Charges are subject to 10% Utility Tax	
Service Availability Fee	Water Availability Fee, per gallon	\$1.80
	Sewer Availability Fee, per gallon	\$8.52

Application Fee Requirement: \$20.00 (Non- Refundable) – Waived with bank-draft sign up  
 Application Fee may be reinstated if bank-draft is not active for (12) consecutive months.  
 Commercial Deposit Requirement: \$225.00

THIS IS A SUMMATION OF RATES IN CASE OF DISCREPANCY THE RATE ORDINANCE WILL PREVAIL  
 ALL RATES LISTED ARE FOR MONTHLY CHARGES

## **APPENDIX E**

### **Present Worth Analysis**

### **Top Two Recommended Alternatives**

**TABLE E-1  
OPTION 7 – ION EXCHANGE AND CHLORINATION**

**A. Construction Cost**

General Requirements (bonds/insurance/mobilization, etc.)	\$ 496,000
Ion Exchange System (with media)	\$ 1,870,750
Brine Waste System (during construction and permanent)	\$ 97,670
Chemical Feed	\$ 21,450
Metal Roof Structure	\$ 210,880
Site Development	\$ 17,730
Demolition	\$ 9,500
Electrical, Controls and Instrumentation	\$ 1,228,580
Generator	\$ 900,000
Miscellaneous Yard Piping, Valves, Fittings, Vaults, Meters, etc.	\$ 603,440
	Sub Total \$ 5,456,000
	10% Contingency \$ 545,600
	Construction Services \$ 375,000
	Total Construction \$ 6,376,600

**B. Annual O&M Cost (major items only)**

IX Media Replacement (1 replacement in 10 years)	\$ 40,000
Salt for Regeneration	\$ 43,000
Pumps, Mixers, Electrical, etc.	\$ 30,000
	Sub Total \$ 113,000

**C. 20-yr Salvage Value**

IX System and Pumping System (less media) <sup>(1)</sup>	\$ 727,205
Brine Systems <sup>(2)</sup>	\$ -
Remaining Construction Items (mechanical & civil) <sup>(3)</sup>	\$ 695,335
	Sub Total \$ 1,422,539

**D. Present Worth (Assumes 20-yr Planning Period)<sup>(4)</sup>**

= A + B x 16.3514 – C x 0.6864 =	\$ 7,247,877
----------------------------------	--------------

Notes:

- (1) Assumes 30 year life
- (2) Assumes 20 year life
- (3) Assumes 20 to 40 year life depending on item
- (4) 2.0% interest rate per year with annual payments

**TABLE E-2**  
**OPTION 10 – FORCED DRAFT AERATION GRANULAR ACTIVATED CARBON**  
**AND CHLORINATION**

**A. Construction Cost**

General Requirements (bonds/insurance/mobilization, etc.)	\$ 427,000
Granular Activated Carbon Vessels and System	\$ 4,700,000
Activated Carbon Media	\$ 300,000
Forced Draft Aeration	\$ 1,300,000
Metal Roof Structure	\$ 346,040
Site Development	\$ 17,730
Demolition	\$ 9,500
Electrical, Controls and Instrumentation	\$ 769,820
Miscellaneous Yard Piping, Valves, Fittings, Vaults, Meters, etc.	\$ 603,440
Chemical System Improvements (chlorine, corrosion, fluoride)	\$ 238,120
Sub Total	\$ 8,711,650
10% Contingency	\$ 871,165
Construction Services	\$ 650,098
Total Construction	\$ 10,232,913

**B. Annual O&M Cost (major items only)**

Activated Carbon Media Replacement (2 replacements/year)	\$ 500,000
Pumps, Mixers, Electrical, etc.	\$ 40,000
Sub Total	\$ 540,000

**C. 20-yr Salvage Value**

GAC System (less media) <sup>(1)</sup>	\$ 1,551,000
Ozone Generator and Injection System <sup>(2)</sup>	-
Remaining Construction Items (mechanical & civil) <sup>(3)</sup>	\$ 696,575
Sub Total	\$ 2,247,575

**D. Present Worth (Assumes 20-yr Planning Period)<sup>(4)</sup>**

= A + B x 16.3514 – C x 0.6864 =	<b>\$ 17,519,933</b>
----------------------------------	----------------------

## Notes:

- (1) Assumes 30 year life
- (2) Assumes 20 year life
- (3) Assumes 20 to 40 year life depending on item
- (4) 2.0% interest rate per year with annual payments

**APPENDIX F**  
**FDEP Sanitary Survey**  
**December 2013**



**FLORIDA DEPARTMENT OF  
ENVIRONMENTAL PROTECTION**

CENTRAL DISTRICT  
3319 MAGUIRE BOULEVARD, SUITE 232  
ORLANDO, FLORIDA 32803

RICK SCOTT  
GOVERNOR

HERSCHEL T. VINYARD JR.  
SECRETARY

January 17, 2014

Mr. Kipton Lockcuff, Utility/Public Works Director  
City of Winter Springs  
1126 East State Road 434  
Winter Springs, FL 32708  
klockcuff@winterspringsfl.org

Re: Winter Springs, City of  
PW 3590879  
Seminole County  
OCD-CAP-14-0243

Dear Mr. Lockcuff:

Department personnel conducted a sanitary survey of the above-referenced facility on December 4, 2013. Based on the information provided during and following the inspection, the facility was determined to be in compliance with the Department's rules and regulations. A copy of the inspection report is attached for your records, and any non-compliance items which may have been identified at the time of the inspection have been corrected.

The Department appreciates your efforts to maintain this facility in compliance with state and federal rules. Should you have any questions or comments, please contact Chris Rossing at 407-897-4172 or via e-mail at [Chris.Rossing@dep.state.fl.us](mailto:Chris.Rossing@dep.state.fl.us).

Sincerely,

A handwritten signature in cursive script that reads "Wanda Parker Garvin".

Wanda Parker-Garvin, Manager  
Central District  
Florida Department of Environmental Protection

Enclosures: Inspection Report (with attachments)

cc: Steve Baggs, Lead Operator, [sbaggs@winterspringsfl.org](mailto:sbaggs@winterspringsfl.org)  
Scott Coffman, Operator, [gcoffman@winterspringsfl.org](mailto:gcoffman@winterspringsfl.org)



**GROUND WATER SOURCE**

Well Number (Florida Unique Well ID #)	3 (AAC3128)	6 (AAC3129)		
Year Drilled	1972	1997		
Depth Drilled	491'	400'		
Drilling Method	Cable tool	Cable tool		
Type of Grout	Neat cement	Neat cement		
Static Water Level	1'	13'		
Pumping Water Level	12'	23'		
Design Well Yield	1,100	1,200		
Test Yield	Unknown	Unknown		
Actual Yield (if different than rated capacity)	1,600	1,200		
Strainer	Open hole	Open hole		
Length (outside casing)	123'	89'		
Diameter (outside casing)	12"	24"		
Material (outside casing)	Black steel	Black steel		
Well Contamination History	None	None		
Is inundation of well possible?	No	No		
6' X 6' X 4" Concrete Pad	Yes	Yes		
SET BACKS	Septic Tank	>100'	>100'	
	Reuse Water	>100'	>100'	
	WW Plumbing	>100'	>100'	
	Other Sanitary Hazard	None observed	None observed	
PUMP	Type	Vertical turbine	Vertical turbine	
	Manufacturer Name	Vertiline	Goulds	
	Model Number	28C9015G	DWT	
	Rated Capacity (gpm)	1,100	1,200	
	Motor Horsepower	20	30	
Well casing 12" above grade?	Yes	Yes		
Well Casing Sanitary Seal	OK	OK		
Raw Water Sampling Tap	Yes	Yes		
Above Ground Check Valve	Yes	Yes		
Security	Yes	Yes		
Well Vent Protection	Yes	Yes		

COMMENTS \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**CHLORINATION (Disinfection)**

Type:  Gas  Hypo  
 Make (2) Grundfos Capacity 2x8.5 gpd  
 Chlorine Feed Rate 90%  
 Avg. Amount of Cl<sub>2</sub> gas used N/A  
 Chlorine Residuals: Plant N/A Remote 0.58  
 Remote tap location Seville on the Green Apts.  
 DPD Test Kit:  On-site  With operator  
 None  Not Used Daily  
 Injection Points Raw line prior to aerator.  
 Booster Pump Info N/A  
 Comments \_\_\_\_\_

**STORAGE FACILITIES**

(G) Ground (C) Clearwell (E) Elevated  
 (B) Bladder (H) Hydropneumatic / flow-through

Tank Type/Number	H	G
Capacity (gal)	15,000	500,000
Material	Steel	Concrete
Gravity Drain	Yes	Yes
By-Pass Piping	Yes	Yes
Protected Openings	No	Yes
Sight Glass or Level Indicator	Yes	Yes
PRV/ARV	PRV	N/A
Pressure Gauge	Yes	N/A
On/Off Pressure	58/68	14/17'
Access Secured	Yes	Yes
Access Manhole	Yes	Yes
Tank Sample Tap Location	On tank	Discharge piping
Date of Inspection	3/08*	2/13
Date of Cleaning	3/08*	2/13

Comments Pressure maintained throughout treatment via variable frequency drives (VFDs).

\*Utility will be submitting a permit application to remove hydropneumatic tank from service.

**HIGH SERVICE PUMPS**

Pump Number	1	2	3
Type	Centrifugal		
Make	Worthington		
Model	4LR14	GLR13	8LR14
Capacity (gpm)	1,200	900	2,500
Motor HP	50	75	150
Date Installed	1974	1986	1974

Comments \_\_\_\_\_

**IRON SEQUESTRATION**

Chemical Used: Aqua Mag 9400  
 Injection Point: Raw line prior to aerator  
 Comments Injected by a 0.4 gph (2) LMI pumps set at 50% and 60%.

Chlorine Gas Use Requirements	YES	NO	Comments
Dual System	<input type="checkbox"/>	<input type="checkbox"/>	
Auto-switchover	<input type="checkbox"/>	<input type="checkbox"/>	
Alarms:			
Loss of Cl <sub>2</sub> capability	<input type="checkbox"/>	<input type="checkbox"/>	
Loss of Cl <sub>2</sub> residual	<input type="checkbox"/>	<input type="checkbox"/>	
Cl <sub>2</sub> leak detection	<input type="checkbox"/>	<input type="checkbox"/>	
Scale	<input type="checkbox"/>	<input type="checkbox"/>	
Chained Cylinders	<input type="checkbox"/>	<input type="checkbox"/>	
Reserve Supply	<input type="checkbox"/>	<input type="checkbox"/>	
Adequate Air-pak	<input type="checkbox"/>	<input type="checkbox"/>	
Sign of Leaks	<input type="checkbox"/>	<input type="checkbox"/>	
Fresh Ammonia	<input type="checkbox"/>	<input type="checkbox"/>	
Ventilation	<input type="checkbox"/>	<input type="checkbox"/>	
Room Lighting	<input type="checkbox"/>	<input type="checkbox"/>	
Warning Signs	<input type="checkbox"/>	<input type="checkbox"/>	
Repair Kits	<input type="checkbox"/>	<input type="checkbox"/>	
Fitted Wrench	<input type="checkbox"/>	<input type="checkbox"/>	
Housing/Protection	<input type="checkbox"/>	<input type="checkbox"/>	

**AERATION (Gases, Fe, & Mn Removal)**

Type Cascade tray Capacity 3,800 gpm  
 Aerator Condition Good  
 Visible Algae Growth None  
 Protective Screen Condition Good  
 Frequency of Cleaning As needed  
 Date Last Inspected/Cleaned Monthly/as needed  
 Comments \_\_\_\_\_

State of Florida  
Department of Environmental Protection  
Central District

# SANITARY SURVEY REPORT

Plant Name CITY OF WINTER SPRINGS - BAHAMA County Seminole PWS ID # 3590879-02  
Plant Location Bahama Road, Winter Springs, FL 32708 Phone 407/327-2669  
Owner Name City of Winter Springs Phone 407/327-2669  
Owner Address 110 North Flamingo Avenue, Winter Springs, FL 32708  
Contact Person Don Cheney Title Utilities Superintendent Phone 407/327-2669  
This Survey Date 12/4/13 Last Survey Date 11/24/10 Last Compliance Inspection Date 10/30/08

PWS TYPE: Community

PLANT CATEGORY & CLASS: 5C

MAX-DAY DESIGN CAPACITY: 2.7 MGD

PWS STATUS: Approved

### TREATMENT PROCESSES IN USE

Hypochlorination, aeration, iron sequestration

### SERVICE AREA CHARACTERISTICS

Municipality

Food Service:  Yes  No  N/A

Number of Service Connections 12,089

Population Served 35,996 Basis Census

### OPERATION & MAINTENANCE LOG: Yes

Location Plant

Comments \_\_\_\_\_

### CERTIFIED OPERATOR: Yes

Operator(s) & Certification Class-Number:

Steve Baggs A-5646, Scott Coffman C-8018

Hrs/day: *Required* \_\_\_\_\_ *Visit\** \_\_\_\_\_ *Actual* \_\_\_\_\_ *Visit\** \_\_\_\_\_

Days/wk: *Required* 5+1 *Actual* 7

Non-consecutive Days?  Yes  No  N/A

Comments \*Visits must add up to a cumulative total of at least 0.6 hr/week.

### MONTHLY OPERATION REPORTS (MORs)

MORs submitted regularly?  Yes  No  N/A

Data missing from MORs?  No  Yes  N/A

Average Day (from MORs) 1.096 MGD

Maximum Day (from MORs) 1,776,000 gpd 2/13

Comments \_\_\_\_\_

Flow Measuring Device Flow Meter

Meter Size & Type 12" GE Panametrics

Date Last Calibrated 12/29/11

### RAW WATER SOURCE

GROUND; Number of Wells 2

PURCHASED from PWS ID # \_\_\_\_\_

Emergency Water Source \_\_\_\_\_

Emergency Water Capacity \_\_\_\_\_

### STANDBY POWER SOURCE: Yes

Source Cummins diesel generator

Capacity of Standby (kW) 380

Switchover:  Automatic  Manual

Hrs Operated Under Load 4 hrs/mo.

What equipment does it operate?

Well Pumps All

High Service Pumps All

Treatment Equipment All

Satisfy avg. daily demand?  Yes  No  Unknown

Audio-visual alarm?  Yes  No

Comments \_\_\_\_\_

### PLANS AND MAPS

Coliform Sampling Plan  Yes  No  N/A

D/DBP Monitoring Plan  Yes  No  N/A

Lead and Copper Plan  Yes  No  N/A

Distribution System Map  Yes  No  N/A

Emergency Response Plan  Yes  No  N/A

Comments \_\_\_\_\_

### PREVENTIVE MAINTENANCE/O&M

Operation & Maintenance Manual  Yes  No

Preventive Maintenance Program  Yes  No

Flushing Program  Yes  No  N/A

Records  Yes  No  N/A

Isolation Valve Exercise  Yes  No  N/A

Records  Yes  No  N/A

Comments \_\_\_\_\_

### CROSS CONNECTION CONTROL

# BFPAs 107 comm./2,893 res. # Tested \*

WWTP RPZ Yes Date Tested Unknown

Written Plan Yes Date 2007

Comments All commercial backflows are tested annually. ~45 residential backflows are tested monthly.

**GROUND WATER SOURCE**

Well Number (Florida Unique Well ID #)	4 (AAC3130)	5 (AAC3131)		
Year Drilled	1972	1987		
Depth Drilled	423'	440'		
Drilling Method	Cable tool	Cable tool		
Type of Grout	Neat cement	Neat cement		
Static Water Level	4'	9'		
Pumping Water Level	7'	11'		
Design Well Yield	1,100	2,500		
Test Yield	Unknown	Unknown		
Actual Yield (if different than rated capacity)	1,600	2,500		
Strainer	Open hole	Open hole		
Length (outside casing)	97'	200'		
Diameter (outside casing)	12"	20"		
Material (outside casing)	Black steel	Black steel		
Well Contamination History	None	None		
Is inundation of well possible?	No	No		
6' X 6' X 4" Concrete Pad	Yes	Cracked		
SET BACKS	Septic Tank	>100'	>100'	
	Reuse Water	>100'	>100'	
	WW Plumbing	>100'	>100'	
	Other Sanitary Hazard	Road ~30'	None observed	
PUMP	Type	Vertical turbine	Vertical turbine	
	Manufacturer Name	Vertiline	Layne	
	Model Number	28C9015G	SRA108059	
	Rated Capacity (gpm)	1,100	2,400	
	Motor Horsepower	20	50	
Well casing 12" above grade?	Yes	Yes		
Well Casing Sanitary Seal	OK	OK		
Raw Water Sampling Tap	Yes	Yes		
Above Ground Check Valve	Yes	Yes		
Security	Yes	Yes		
Well Vent Protection	Yes	Yes		

**COMMENTS** The ARV on well #4 is not screened.

---



---

**CHLORINATION (Disinfection)**

Type:  Gas  Hypo  
 Make (2) Grundfos Capacity 2x8.5 gpd  
 Chlorine Feed Rate 100%  
 Avg. Amount of Cl<sub>2</sub> gas used N/A  
 Chlorine Residuals: Plant N/A Remote 1.80  
 Remote tap location 756 Edgemon Avenue  
 DPD Test Kit:  On-site  With operator  
 None  Not Used Daily  
 Injection Points Raw line prior to aerator.  
 Booster Pump Info N/A  
 Comments \_\_\_\_\_

**STORAGE FACILITIES**

(G) Ground (C) Clearwell (E) Elevated  
 (B) Bladder (H) Hydropneumatic / flow-through

Tank Type/Number	H	G
Capacity (gal)	10,000	500,000
Material	Steel	Concrete
Gravity Drain	Yes	Yes
By-Pass Piping	Yes	Yes
Protected Openings	Yes	Yes
Sight Glass or Level Indicator	Yes	Yes
PRV/ARV	PRV	N/A
Pressure Gauge	Yes	N/A
On/Off Pressure	60/67	14'/17'
Access Secured	Yes	Yes
Access Manhole	Yes	Yes
Tank Sample Tap Location	On tank	Discharge piping
Date of Inspection	3/08*	3/11
Date of Cleaning	3/08*	3/11

Comments The PRV on the hydropneumatic tank is not screened.

\*Utility will be submitting a permit application to remove hydropneumatic tank from service.

**HIGH SERVICE PUMPS**

Pump Number	1	2	3
Type	Centrifugal		
Make	Worthington		Ingersoll
Model	6LR13	6LR13	6LR13
Capacity (gpm)	950	950	2,500
Motor HP	75	75	100
Date Installed	1974	1986	1974

Comments \_\_\_\_\_

**IRON SEQUESTRATION**

Chemical Used: Aqua Mag 9400  
 Injection Point: Raw line prior to aerator  
 Comments Injected by a 0.4 gph LMI pump set at 60%, and a 0.6 gph Iwaki at 80%.

Chlorine Gas Use Requirements	YES	NO	Comments
	<input type="checkbox"/>	<input type="checkbox"/>	
Dual System	<input type="checkbox"/>	<input type="checkbox"/>	
Auto-switchover	<input type="checkbox"/>	<input type="checkbox"/>	
Alarms:			
Loss of Cl <sub>2</sub> capability	<input type="checkbox"/>	<input type="checkbox"/>	
Loss of Cl <sub>2</sub> residual	<input type="checkbox"/>	<input type="checkbox"/>	
Cl <sub>2</sub> leak detection	<input type="checkbox"/>	<input type="checkbox"/>	
Scale	<input type="checkbox"/>	<input type="checkbox"/>	
Chained Cylinders	<input type="checkbox"/>	<input type="checkbox"/>	
Reserve Supply	<input type="checkbox"/>	<input type="checkbox"/>	
Adequate Air-pak	<input type="checkbox"/>	<input type="checkbox"/>	
Sign of Leaks	<input type="checkbox"/>	<input type="checkbox"/>	
Fresh Ammonia	<input type="checkbox"/>	<input type="checkbox"/>	
Ventilation	<input type="checkbox"/>	<input type="checkbox"/>	
Room Lighting	<input type="checkbox"/>	<input type="checkbox"/>	
Warning Signs	<input type="checkbox"/>	<input type="checkbox"/>	
Repair Kits	<input type="checkbox"/>	<input type="checkbox"/>	
Fitted Wrench	<input type="checkbox"/>	<input type="checkbox"/>	
Housing/Protection	<input type="checkbox"/>	<input type="checkbox"/>	

**AERATION (Gases, Fe, & Mn Removal)**

Type Cascade tray Capacity 3,800 gpm  
 Aerator Condition Good  
 Visible Algae Growth None  
 Protective Screen Condition Good  
 Frequency of Cleaning As needed  
 Date Last Inspected/Cleaned Monthly/as needed  
 Comments \_\_\_\_\_

State of Florida  
Department of Environmental Protection  
Central District

### SANITARY SURVEY REPORT

Plant Name CITY OF WINTER SPRINGS - TUSKAWILLA County Seminole PWS ID # 3590879-03  
Plant Location Bahama & Sheoah Road, Winter Springs, FL 32708 Phone 407/327-2669  
Owner Name City of Winter Springs Phone 407/327-2669  
Owner Address 110 North Flamingo Avenue, Winter Springs, FL 32708  
Contact Person Don Cheney Title Utilities Superintendent Phone 407/327-2669  
This Survey Date 12/4/13 Last Survey Date 11/24/10 Last Compliance Inspection Date 10/30/08

PWS TYPE: Community

PLANT CATEGORY & CLASS: 5C

MAX-DAY DESIGN CAPACITY: 2.736 MGD

PWS STATUS: Approved

#### TREATMENT PROCESSES IN USE

Gas chlorination, aeration, corrosion inhibitor

#### SERVICE AREA CHARACTERISTICS

Municipality

Food Service:  Yes  No  N/A

Number of Service Connections 12,089

Population Served 35,996 Basis Census

#### OPERATION & MAINTENANCE LOG: Yes

Location Plant

Comments \_\_\_\_\_

#### CERTIFIED OPERATOR: Yes

Operator(s) & Certification Class-Number:

Steve Baggs A-5646, Scott Coffman C-8018

Hrs/day: *Required*        \*Visit        *Actual*        \*Visit       

Days/wk: *Required* 5+1 *Actual* 7

Non-consecutive Days?  Yes  No  N/A

Comments \*Visits must add up to a cumulative total of at least 0.6 hr/week.

#### MONTHLY OPERATION REPORTS (MORs)

MORs submitted regularly?  Yes  No  N/A

Data missing from MORs?  No  Yes  N/A

Average Day (from MORs) 1.936 MGD

Maximum Day (from MORs) 3,540,000 gpd 12/12

Comments \_\_\_\_\_

Flow Measuring Device Flow Meter

Meter Size & Type 12" GE Panametrics

Date Last Calibrated 12/29/11

#### RAW WATER SOURCE

GROUND; Number of Wells 4

PURCHASED from PWS ID # \_\_\_\_\_

Emergency Water Source \_\_\_\_\_

Emergency Water Capacity \_\_\_\_\_

#### STANDBY POWER SOURCE: Yes

Source Caterpillar diesel generator

Capacity of Standby (kW) 565

Switchover:  Automatic  Manual

Hrs Operated Under Load 4 hrs/wk.

What equipment does it operate?

Well Pumps 1 and 3

High Service Pumps All

Treatment Equipment All

Satisfy avg. daily demand?  Yes  No  Unknown

Audio-visual alarm?  Yes  No

Comments \_\_\_\_\_

#### PLANS AND MAPS

Coliform Sampling Plan  Yes  No  N/A

D/DBP Monitoring Plan  Yes  No  N/A

Lead and Copper Plan  Yes  No  N/A

Distribution System Map  Yes  No  N/A

Emergency Response Plan  Yes  No  N/A

Comments \_\_\_\_\_

#### PREVENTIVE MAINTENANCE/O&M

Operation & Maintenance Manual  Yes  No

Preventive Maintenance Program  Yes  No

Flushing Program  Yes  No  N/A

Records  Yes  No  N/A

Isolation Valve Exercise  Yes  No  N/A

Records  Yes  No  N/A

Comments \_\_\_\_\_

#### CROSS CONNECTION CONTROL

# BFPAs 107 comm./2,893 res. # Tested \*

WWTP RPZ Yes Date Tested Unknown

Written Plan Yes Date 2007

Comments All commercial backflows are tested annually. ~45 residential backflows are tested monthly.

**GROUND WATER SOURCE**

Well Number (Florida Unique Well ID #)	1 (AAC3125)	2 (AAC3126)	3 (AAC3127)	4 (AAC0528)	
Year Drilled	1972	1978	1989	2005	
Depth Drilled	290'	290'	290'	350'	
Drilling Method	Cable tool	Cable tool	Cable tool	Combination	
Type of Grout	Neat cement	Neat cement	Neat cement	Neat cement	
Static Water Level	16'	15'	15'	15'	
Pumping Water Level	14'	18'	14'	18'	
Design Well Yield	1,200	2,000	2,000	1,200	
Test Yield	1,200	2,000	2,260	1,486	
Actual Yield (if different than rated capacity)	1,200	2,000	2,000	1,200	
Strainer	Unknown	Unknown	Unknown	Unknown	
Length (outside casing)	117'	119'	190'	130'	
Diameter (outside casing)	8"	12"	12"	16"	
Material (outside casing)	Black steel	Black steel	Black steel	Black steel	
Well Contamination History	None	None	None	None	
Is inundation of well possible?	No	No	No	No	
6' X 6' X 4" Concrete Pad	Yes	Yes	Cracked	Yes	
SET BACKS	Septic Tank	>100'	>100'	>100'	
	Reuse Water	>100'	~20' reuse line	>100'	
	WW Plumbing	>100'	>100'	>100'	
	Other Sanitary Hazard	None observed	None observed	None observed	Road ~30'
PUMP	Type	Vertical turbine	Vertical turbine	Vertical turbine	Vertical turbine
	Manufacturer Name	Goulds	Goulds	Goulds	Goulds
	Model Number	63365-6	Unknown	12DHHO-2	12RJHC
	Rated Capacity (gpm)	1,200	2,000	2,000	1,200
	Motor Horsepower	30	50	50	25
Well casing 12" above grade?	Yes	Yes	Yes	Yes	
Well Casing Sanitary Seal	OK	OK	OK	OK	
Raw Water Sampling Tap	Yes	Yes	Yes	Yes	
Above Ground Check Valve	Yes	Yes	Yes	Yes	
Security	Yes	Yes	Yes	Yes	
Well Vent Protection	Yes	Yes	Yes	Yes	

**COMMENTS** \_\_\_\_\_

\_\_\_\_\_

**CHLORINATION (Disinfection)**

Type:  Gas  Hypo  
 Make Walker-Tiernan Capacity 200 ppd  
 Chlorine Feed Rate 150-450 ppd  
 Avg. Amount of Cl<sub>2</sub> gas used N/A  
 Chlorine Residuals: Plant N/A Remote 0.21  
 Remote tap location Lift station 10E  
 DPD Test Kit:  On-site  With operator  
 None  Not Used Daily  
 Injection Points Into G1 / post G2  
 Booster Pump Info N/A  
 Comments \_\_\_\_\_

Chlorine Gas Use Requirements	YES	NO	Comments
Dual System	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Auto-switchover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Alarms:			
Loss of Cl <sub>2</sub> capability	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Loss of Cl <sub>2</sub> residual	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Cl <sub>2</sub> leak detection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Scale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Chained Cylinders	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A
Reserve Supply	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Adequate Air-pak	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Sign of Leaks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Fresh Ammonia	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Ventilation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Room Lighting	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Warning Signs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Repair Kits	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Fitted Wrench	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Housing/Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

**AERATION (Gases, Fe, & Mn Removal)**

Type Cascade tray Capacity See comments  
 Aerator Condition Good  
 Visible Algae Growth None  
 Protective Screen Condition Good  
 Frequency of Cleaning As needed  
 Date Last Inspected/Cleaned Monthly/as needed  
 Comments G1 - 3,800 gpm, G2 - 3,500 gpm

**STORAGE FACILITIES**

(G) Ground (C) Clearwell (E) Elevated  
 (B) Bladder (H) Hydropneumatic / flow-through

Tank Type/Number	G1	G2
Capacity (gal)	0.5	1.0
Material	Concrete	Concrete
Gravity Drain	Yes	Yes
By-Pass Piping	Yes	Yes
Protected Openings	Yes	Yes
Sight Glass or Level Indicator	Yes	Yes
PRV/ARV	N/A	N/A
Pressure Gauge	N/A	N/A
On/Off Pressure	14'/17'	14'/17'
Access Secured	Yes	Yes
Access Manhole	Yes	Yes
Tank Sample Tap Location	Discharge piping	Discharge piping
Date of Inspection	4/12	9/07
Date of Cleaning	4/12	9/07

Comments G2 is scheduled to be cleaned/inspected March 2014.

**HIGH SERVICE PUMPS**

Pump Number	1	2	3
Type	Centrifugal		
Make	Aurora		
Model	411BF	411BF	411BF
Capacity (gpm)	2,400	3,350	2,600
Motor HP	150	150	125
Date Installed	1972	1993	1988

Comments \_\_\_\_\_

**IRON SEQUESTRATION**

Chemical Used: Aqua Mag 9400  
 Injection Point: Raw line prior to aerator  
 Comments (4) 0.6 gph Iwaki pumps set at 70%.

**DEFICIENCIES:**

**Sheoah Plant:**

**Failure to protect aerators and vents. The PRV on the hydropneumatic tank is not screened.**

Aerators and vents shall be protected from contamination by birds, insects, and windborne debris by covering with 24-mesh screen. [*Recommended Standards for Water Works*, 1997 Edition, Great Lakes – Upper Mississippi River Board of State Public Health and Environmental Managers incorporated by reference in Rule 62-555.330, F.A.C.]

*On 12/5/13, Kipton Lockcuff, Utility/Public Works Director for the City of Winter Springs, was notified via email of the deficiency found during the inspection. In an email dated 12/11/13, Kipton Lockcuff indicated that this deficiency was corrected on 12/6/13.*

**Bahama Plant:**

**Failure to maintain system components in good operating condition. Significant cracks in well #5 well pad.**

Suppliers of water shall keep all necessary public water system components in operation and shall maintain such components in good operating condition so the components function as intended. [Rule 62-555.350(2), F.A.C.]

*On 12/5/13, Kipton Lockcuff, Utility/Public Works Director for the City of Winter Springs, was notified via email of the deficiency found during the inspection. In an email dated 12/11/13, Kipton Lockcuff indicated that this deficiency was corrected on 12/9/13.*

**Failure to protect aerators and vents. The ARV on well #4 is not screened.**

Aerators and vents shall be protected from contamination by birds, insects, and windborne debris by covering with 24-mesh screen. [*Recommended Standards for Water Works*, 1997 Edition, Great Lakes – Upper Mississippi River Board of State Public Health and Environmental Managers incorporated by reference in Rule 62-555.330, F.A.C.]

*On 12/5/13, Kipton Lockcuff, Utility/Public Works Director for the City of Winter Springs, was notified via email of the deficiency found during the inspection. In an email dated 12/11/13, Kipton Lockcuff indicated that this deficiency was corrected on 12/6/13.*

**Failure to protect aerators and vents. The PRV on the hydropneumatic tank is not screened.**

Aerators and vents shall be protected from contamination by birds, insects, and windborne debris by covering with 24-mesh screen. [*Recommended Standards for Water Works*, 1997 Edition, Great Lakes – Upper Mississippi River Board of State Public Health and Environmental Managers incorporated by reference in Rule 62-555.330, F.A.C.]

*On 12/5/13, Kipton Lockcuff, Utility/Public Works Director for the City of Winter Springs, was notified via email of the deficiency found during the inspection. In an email dated 12/11/13, Kipton Lockcuff indicated that this deficiency was corrected on 12/6/13.*

**DEFICIENCIES (continued):**

**Tuskawilla Plant:**

**Failure to maintain system components in good operating condition. Significant cracks in well #3 well pad.**

Suppliers of water shall keep all necessary public water system components in operation and shall maintain such components in good operating condition so the components function as intended. [Rule 62-555.350(2), F.A.C.]

*On 12/5/13, Kipton Lockcuff, Utility/Public Works Director for the City of Winter Springs, was notified via email of the deficiency found during the inspection. In an email dated 12/11/13, Kipton Lockcuff indicated that this deficiency was corrected on 12/9/13.*

**COMMENTS:**

- For monitoring schedules and information about the Drinking Water Program, please visit the Central District's Drinking Water website at <http://www.dep.state.fl.us/central/Home/DrinkingWater/default.htm>.

**REMINDERS:**

- Suppliers of water shall submit written notification to the Department before beginning work or alterations to the public water system. Each notification shall be submitted to the appropriate Department of Environmental Protection District Office or Approved County Health Department and shall include the following: a description of the scope, purpose, and location of the work or alterations; and assurance that the work or alterations will comply with applicable requirements listed in Rule 62-555.330, F.A.C. Suppliers of water may begin such work or alterations 14 days after providing notification to the Department unless they are advised by the Department that the notification is incomplete or that a construction permit is required.
- Suppliers of water shall telephone the SWP at 1-800-320-0519 immediately (i.e., within two hours) after discovery of any actual or suspected sabotage or security breach, or any suspicious incident, involving a public water system. [Rule 62-555.350(10)(a), F.A.C.]
- Suppliers of water shall telephone, and speak directly to a person at, the appropriate DEP District Office as soon as possible, but never later than noon of the next business day, in the event of any of the following emergency or abnormal operating conditions:
  - The occurrence of any abnormal color, odor, or taste in a public water system's raw or finished water;
  - The failure of a public water system to comply with applicable disinfection requirements; or
  - The breakdown of any water treatment or pumping facilities, or the break of any water main, in a public water system if the breakdown or break is expected to adversely affect finished-water quality, interrupt water service to 150 or more service connections or 350 or more people, interrupt water service to any one service connection for more than eight hours, or necessitate the issuance of a precautionary "boil water" notice in accordance with the Department of Health's "Guidelines for the Issuance of Precautionary Boil Water Notices" as adopted in Rule 62-555.335, F.A.C. [Rule 62-555.350(10)(b), F.A.C.]
- Suppliers of water shall notify affected water customers in writing or via telephone, newspaper, radio, or television; and telephone, and speak directly to a person at, the appropriate DEP District Office by no later than the previous business day before taking PWS components out of operation for planned maintenance or repair

PWS ID # 3590879  
Date 12/4/13

work if the work is expected to adversely affect finished-water quality, interrupt water service to 150 or more service connections or 350 or more people, interrupt water service to any one service connection for more than eight hours, or necessitate the issuance of a precautionary "boil water" notice in accordance with the Department of Health's "Guidelines for the Issuance of Precautionary Boil Water Notices" as adopted in Rule 62-555.335, F.A.C. [Rule 62-555.350(10)(d), F.A.C.]

Inspector 

Title Env. Specialist II Date 1/17/14

Supervisor 

Title Environmental Manager Date 1/17/14