499-5

Attachment B

City of Green Cove Springs
Misc. Small Projects (CUP)
M&A Project 8905-19-1

Water Conservation Plan Form for Public Supply - SJRWMD CUP Forms

Water Conservation Plan Form
Public Supply

DRAFT
6/2004

GENERAL INFORMATION

Applicant Name: City of Green Cove Springs

Project Name: CUP 5-YR Compliance

CUP Number: 2-019-499-5

Date Plan Submitted: September ____, 2011

Agent's Name: Mittauer & Associates, Inc.
(Attn: Jason Shepler, P.E.)

Section 12.2.5 of the Applicant's Handbook States:

All permit applicants for a public supply-type water use who satisfy the following water conservation requirements at the time of permit application are deemed to meet the criterion in 10.3(3).

(a) An audit of the amount of water used in the applicant's production and treatment facilities, transmission lines and distribution system using the District's Water Audit Form No. 40C-22-0590-3(see Appendix C-3) must be submitted. The audit shall include all existing production, treatment and distribution systems accessible to the applicant. The audit period must include at least 12 consecutive months within the three year period preceding the application submittal.

(b) An applicant is required to perform a meter survey and to correct the water audit to account for meter error if the initial unaccounted for water is 10% or greater based on the results of the initial water audit. The purpose of this survey is to determine a potential correction factor for metered water use by testing a representative sample of meters of various ages. The survey also helps to determine the appropriateness of a meter change-out program. As part of the survey, the applicant must randomly test 5% or 100 meters, whichever is less. The sampling must be of meters representing an even distribution of type and age or cumulative lifetime flow. A documented meter change-out program that can provide an

estimate o the overall meter accuracy may be substituted for this requirement.

(c) An applicant whose water audit as required under paragraph 12.2.5.1(a) shows greater than 10% unaccounted for water use must complete the leak detection evaluation portion of Form 40C-22-0590-3. Based upon this evaluation, an applicant may choose to implement a leak detection program immediately or develop an alternative plan of corrective action to address water use accountability and submit a new water audit to the District within two years. If the subsequent audit shows greater than 10% unaccounted for water, the applicant must implement a leak detection and repair program within one year unless the applicant demonstrates that implementation is not economically feasible. In all cases, the evaluation and the repair program may be designed by the applicant to first address the areas which are most suspect for major leaks. The evaluation and repair program may be terminated when the permittee demonstrates that its unaccounted for water loss no longer exceeds 10%.

(d) Implementation within the first year after permit issuance of a meter replacement program will be required for those applicants whose small and medium meter survey indicates that a group or type of meters in not 95% accurate. Permittees will be required to replace meters which have been in operation for 15 years or longer or have a cumulative lifetime flow exceeding the maximum lifetime operational flow specified by the manufacturer, unless a comparison of meter survey information to meter manufacturer specifications indicates a decreased accuracy of the meters. An alternative meter replacement schedule shall be approved by the District upon a showing by the applicant that the meter manufacturer specifications predict a different lifetime or gallonage capacity or based upon the results of a meter survey performed by the applicant.

(e) A customer and employee water conservation education program, which included all the elements listed below, as no's. 1 through 9 must be implemented. The frequency and extent to which each of the elements must be implemented will depend upon the size of the applicant's utility, the financial means of the applicant, the degree to which excess water use is identified as a problem, the particular types of uses which are identified as responsible for the excess water use and any other relevant factors. Implementation of these may be achieved through collaboration with other entities, including the District.

1. Televise water conservation public service announcements.

2. Provide water conservation videos to local schools and community organizations.

3. Construct, maintain and publicize water efficient landscape demonstration projects.

4. Provide water conservation exhibits in public places such as trade shows, festivals, shopping malls, utility offices and government buildings.

5. Provide/sponsor water conservation speakers to local schools and community organizations.

6. Provide water conservation articles and/or reports to local new media.

7. Display water conservation posters and distribute literature.

8. Provide landscape irrigation audits and irrigation system operating instructions to local small businesses and residents.

9. Establish a water audit customer assistance program which addresses both indoor and outdoor water use.

(f) The applicant must submit a written proposal and implement a water conservation promoting rate structure unless the applicant demonstrates that the cost of implementing such a rate structure is not justified because it will have little or no effect on reducing water use. In the event that the applicant has a water conservation promoting rate structure in effect, the applicant must submit a written assessment of whether the existing rate structure would be more effective in promoting water conservation if it were modified, and if so, describe and implement the needed changes. Upon request, the District will assist the applicant by providing available demographic data, computer models and literature. In evaluating whether a proposed rate structure promotes water conservation, the District will consider customer demographics, the potential for effectiveness, the appropriateness to the applicant's particular circumstances and other relevant factors. Those permittees required to implement a water conservation rate structure must provide written reminder notices to their customers at least twice a year of the financial incentive to conserve water in order that the rate structure does not lose its effectiveness.

(g) When an applicant operates a reclaimed water system and requests a back-up water source to meet peak demands for reclaimed water, the applicant must submit a management plan designed to minimize the need for augmentation. In developing this plan, the applicant must consider:

1. creation of additional storage,
2. use of lower quality water sources for back-up,
3. pressure reduction,
4. designation of primary and secondary customers,
5. financial incentives for voluntary use reductions,
6. reclaimed water interconnects with adjacent communities,
7. peak demand irrigation restrictions,

8. providing customers with written information supporting the need to conservatively use reclaimed water, and
9. any other measures identified by the District.

The plan must include an explanation of how the above nine items were considered by the applicant.

(h) When an audit and/or other available information indicates that there is a need for additional water conservation measures in order to reduce a project's water use to a level consistent with projects of a similar type, or when an audit and/or other information indicates that additional significant water conservation savings can be achieved by implementing additional measures other specific measures will be require by the District, to the extent feasible, as a condition of the permit. Additional water conservation measures include those listed in Appendix I.

In evaluating each proposed water conservation plan, the District will consider:

- The specific proposed use relative to other similar uses
- Available technology
- Economic feasibility

Section I – WATER AUDIT

New Applicants:
An audit must be conducted within two years after permit issuance.

New applicants are defined as new facilities and does not include existing violations or late renewals which are reclassified as "new uses".

Renewing, Existing Violations and Expired Applicants:
An audit must be conducted as part of the CUP application process.

Purpose:
To help focus water conservation efforts via determination of system efficiency and identification of sources of water and revenue loss.

Required Information in Water Audit:

- Water audit component summary
- Unaccounted for water determination
- Leak detection cost feasibility
- Corrective active plan

WATER AUDIT COMPONENT SUMMARY

The following guidelines are designed to assist the applicant in collecting sufficient data necessary to conduct the required water audit. Each of the following components must be summarized unless it was submitted as part of the Consumptive Use Permit application. These summaries will allow you to accurately complete the Unaccounted For Water Worksheet and the Leak Detection Evaluation Worksheet.

Information to Summarize

- Water production/service summary (daily and monthly figures)
- Water use records for the past 12 months (review residential and commercial meter sale on a monthly basis). Submit a summary of this information if available.
- Sources of water (wells, surface water, purchased potable water, reclaimed water)
- Location, type and size of production facility meters
- Accounting and meter reading processes that may provide for inconsistencies in commercial and residential sales records (i.e. frequency of readings and noted calibration errors).
- Records from metered services (i.e. construction, street cleaning, line flushing, etc.).

UNACCOUNTED FOR WATER WORKSHEET

Answer the following questions:		Million gallons per year (mgy)
1.	What is the total volume of water entering the distribution system?	456.16 (Average from 2006 through 2009)
2.	What is the total volume of water sold and or metered in the distribution system?	433.68 (Average from 2006 through 2009)
3.	What is the amount of unaccounted for water? *(line 1 minus line 2)*	22.47 (Average from 2006 through 2009)
4.	What is the estimated volume of water for each unmetered water use listed below?	
a.	Firefighting	
b.	Sewer flushing	
c.	Main flushing	
d.	Street cleaning	
e.	Construction use	
f.	Public use (schools, irrigation, municipal buildings)	
g.	Other (explain)	

Provide an explanation of how each unmetered water use was calculated.

Total was calculated based on comparison of metered use vs. raw water metered production.

Answer the following questions.		Million gallons per year (mgy)
5.	Total amount of unmetered water use *(add lines a – g)*	
6.	Actual unaccounted for water in system *(line 3 minus line 5)*	22.47
7.	System unaccounted for water percentage *(line 6 divided by line 1 x 100)*	4.9%

LEAK DETECTION EVALUATION WORKSHEET

NOT REQUIRED, LOSS LESS THAN 10%

To demonstrate the cost effectiveness of a leak detection and repair program, complete the following worksheet. Refer to the question numbers on the Unaccounted for Water Worksheet (UAW).

		Amount	Units
1.	Total annual unaccounted for water in system *(line 6 UAW)*		mgy
2.	Estimated amount of total due to leakage *(SJRWMD typically estimates 50% of unaccounted for water)*		mgy
3.	Estimated recoverable leakage *(typically 80% of line 2 UAW)*		mgy
4.	Purchase cost of water per year (if applicable)	$	per/ 1000 gallons
5.	Cost of chemicals for treatment per year	$	per/1000 gallons
6.	Cost of electricity for pumpage per year	$	per/1000 gallons
7.	Total production cost per year *(add lines 4 – 6 from this worksheet)*	$	per/1000 gallons
8.	Average production cost per 1,000 gallons *(line 7 divided by line 1 UAW x 1000)*	$	dollars
9.	One-year benefit from recovered leakage *(line 8 x line 3, divided by 1000)*	$	dollars
10.	Total benefits from recovered leakage over two years *(line 9 x 2)*	$	dollars
11.	Estimated cost of leak detection	$	dollars
12.	Estimated time for cost recovery		years

Provide an explanation justifying the estimate cost for leak detection.

The following are examples of system improvements that could form a comprehensive corrective action plan:

- Update utility master plan
- Update water distribution maps
- Repeat audit annually
- Computerize billing and accounting system
- Account for fie, street and sewer unmetered uses
- Annually test and calibrate all production meters
- Annually test all large meters
- Standardize meter reading cycle
- Remove meters not in use
- Establish water main replacement program
- Begin comprehensive leak detection and repair program
- Require contractors to inform utility and meter water used
- Complete system-wide metering
- Review line maintenance procedures

If it is necessary and cost effective, propose an implementation schedule for a leak detection, repair and corrective action program.

Section II –
TECHNOLOGICAL, PROCEDURAL AND/OR PROGRAMMATIC IMPROVEMENTS MANAGEMENT

Water Treatment Plant Technologies:

1. Describe water conservation measures used during your water treatment process. Include a flow chart if helpful.

All water is processed except the water stream required for Chlorine Residual Monitoring.

Water Use Monitoring:

1. Are your production wells currently equipped with individual meters?

YES ☒ NO ☐

If yes,

What type of meters are used?

- ☒ Totalizing in-line flow meter
- ☐ Pump hour meter
- ☐ Other (explain) _____

How often are your meters calibrated? Annually

If no,

What type of meter(s) will be installed to meet District monitoring requirements?

_____

2. Are all service connections including residential, commercial, industrial and other users currently equipped with individual meters?

YES ☒ NO ☐

If no,

Propose an implementation and calibration schedule for placing individual meters on all service connections.

3. Are there any master meters on your system?

YES ☒ NO ☐

If yes,
Propose an implementation schedule which will prohibit new master meters.

Master Meter Locations are currently limited to: Governor's Landing (32 Units); Magnolia Shopping Center (4 Units with 9 Meters); Hoyt House (8 Units)

New Master Meters are not allowed based on City Policy.

Propose an implementation schedule which will supply sub-meters to master metered customers.

Given the limited number of existing Master Meters and total use, it is not cost effective to remove and replumb these locations. New Master Meters are not permissible.

4. Provide the current number of service connections for residential, commercial (includes apartments, schools, hospitals etc.), industrial and irrigation uses.

Use	Current Number of Service Connections
Residential	2,778
Commercial	418
Industrial	(included in Commercial)
Irrigation	658

Includes two (2) Master Meters for Apt. Complex

5. Do you supply water to any customers who purchase more than 100,000 gallons per day on an average annual basis?

YES ☐ NO ■

If yes,

Provide the names and water use volume for customers that purchase more than 100,000 gallons per day of water.

Customer	Amount of Water Purchased (mgd)

6. Describe any other water conservation practices you have undertaken or plan to undertake to conserve water at your water treatment plant (i.e. vehicle/equipment washing with reclaimed water).

_____

_____

_____

_____

Indoor Water Conservation Programs for Customers:

1. Do you provide indoor water audits for your customers?

Residential	YES ☐	NO ■
Commercial	YES ☐	NO ■
Industrial	YES ☐	NO ■

If yes,

Describe the type of audit and procedure for conducting the audit.

_____

How many audits are conducted per year? _____

Assess the success of this program by estimating how much water has been saved.

If no,

Propose an implementation schedule for an indoor audit program or provide an explanation of why this type of program cannot be undertaken.

The City does provide water conservation leaflets with tips for Customers. In addition, the City was part of the SJRWMD on-going water conservation program.

Residential Plumbing Retrofitting Programs:

1. Do you provide water conservation plumbing retrofitting devices and/or kits to your residential customers?

YES ☐ NO ■

If yes,

Describe the devices and/or contents of the kits and the cost to you and/or the customer.

Describe the methods(s) used to distribute the devices and kits.

What percentage of customers have been impacted by this program? _____%

Assess the success of this program by estimating how much water has been saved.

If no,

Propose an implementation schedule for an indoor retrofitting program or provide an explanation of why this type of program cannot be undertaken.

Given the City's average household use (<90 gpcd) and limited budget, the need and cost-benefit of such a program is not justified.

Non-residential Retrofitting Programs:

1. Describe involvement your facility has had in retrofitting non-residential plumbing or equipment for large volume users of water (i.e. industries, institutions, commercial entities).

Not Applicable

New Construction Programs:

1. Do you have new construction incentives for water conservation?

YES ☐ NO ■

If yes,

Describe these incentive programs (for example, rebates for builders or homeowners who equip houses or other structures with ultra low volume plumbing fixtures, variable or sliding hookup fees favoring those who have

ultra low volume plumbing fixtures, favorable water pricing structure for customers equipped with water efficient plumbing.)

If no,

Propose an implementation schedule for new construction water conservation incentives or provide an explanation of why this type of program cannot be undertaken.

The City continues to pursue grant-funded programs to assist with these and other water conservation measures.

Other Indoor Conservation Programs for Customers:

Describe any other indoor conservation programs you have implemented.

Not Applicable

Outdoor Water Conservation Programs for Customers:

1. Do you provide outdoor water audits for your customers?

Residential	YES ☐	NO ■
Commercial	YES ☐	NO ■
Industrial	YES ☐	NO ■
Irrigation	YES ☐	NO ■

If yes,

Describe the type of audit and procedure for conducting the audit.

How many audits are conducted per year? _____

Assess the success of this program by estimating how much water has been saved.

If no,

Propose an implementation schedule for an indoor audit program or provide an explanation of why this type of program cannot be undertaken.

The City continues to pursue grant-funded programs to assist with these and other water conservation measures.

Water Efficient Landscaping:

1. Do you provide information on water efficient landscaping (xeriscape, Florida Friendly or Waterwise) to customers?

   YES ☒ NO ☐

2. Have you sponsored a water conservation demonstration garden or landscape plot(s)?

   YES ☐ NO ☒

3. Do you have a rebate or other incentive program to encourage the use of water conservation landscaping for new construction?

   YES ☐ NO ☒

If no to any of the above questions,

Propose an implementation schedule for providing information on water efficient landscaping or provide an explanation of why this program cannot be undertaken.

The City continues to pursue grant-funded programs to assist with these and other water conservation measures.

4. Describe any other activities you have implemented relative to water efficient landscaping (i.e. soil moisture monitoring and rainfall shut-off device distribution program).

The City maintains information related to irrigation and landscaping at City Hall, and also includes information related to this and related issues within monthly utility bills.

Note: Information on plants that require less irrigation (xeriscape, Florida friendly and Waterwise) is available on the District's web site at www.sjrwmd.com. Follow the link for Water Restrictions/Water Conservation.

Water conservation literature is available, at no cost, from the District's Office of Communications.

Other Outdoor Conservation Programs for Customers:

Describe any other outdoor conservation programs you have implemented (i.e. recirculating stormwater for aesthetic uses)

Rate Structure:

1. Attach a copy of your water and sewer rate structure.

2. Water type of water rate structure do you currently utilize?

   ☐ Flat rate
   ☐ Decreasing rate
   ■ Inclined rate
   ☐ Combination (explain) _____

   ☐ Variable for seasonal demand (explain) _____

   ☐ Other (explain _____

3. What type of sewer rate structure do you currently utilize?

   ☐ Flat rate
   ☐ Decreasing rate
   ■ Inclined rate
   ☐ Combination (explain) _____

   ☐ Variable for seasonal demand (explain) _____

   ☐ Other (explain _____

4. Does your rate structure encourage water conservation?

   YES ■ NO ☐

   If yes,
   Explain how your rate structure encourages water conservation.

   Higher use equates to larger billing amounts thus encouraging water conservation to minimize cost of water use.

   If no,
   Propose a water conservation rate structure and an implementation schedule for the rate structure or provide an explanation why this program cannot be implemented. The rate structure should include at least one of the following: increasing block rates, seasonal rates, quantity based surcharges and/or time of day pricing.

Ordinance Development:

1. Are you a publicly owned and operated utility?

YES ☒ NO ☐

If yes,
Answer the following water conservation ordinance related questions:

(a) Do you have an ordinance requiring the installation of ultra-low flow plumbing fixtures in all new construction, such that plumbing fixtures are installed to comply with the following maximum flow volumes at 80 psi?

≤ 1.6 gallon per flush (gpf) toilets
≤ 1.0 gpf urinals
≤ 2.5 gallons per minute (gpm) showerheads
≤ 2.5 gpm kitchen faucets
≤ 2.0 gpm bathroom faucets

YES ☐ NO ☒

If yes,
What is the ordinance citation? _____

If no,
Provide a schedule for adoption or provide an explanation of why it cannot be undertaken.
The City continues to pursue grant-funded programs to assist with these and other water conservation measures.

(b) Have you adopted a water conservation based rate structure?

YES ☒ NO ☐

If yes,
What is the ordinance citation? Ordinance O-02-2010

If no,
Provide a schedule for adoption or provide an explanation of why it cannot be undertaken.

(c) Have you adopted an ordinance prohibiting master meters on new service connections?

YES ☐ NO ☒

If yes,
What is the ordinance citation? _____

If no,
Provide a schedule for adoption or provide an explanation of why it cannot be undertaken.

Not allowed by City Policy

(d) In areas that are prone to freezing temperatures, have you adopted an ordinance prohibiting the use of water to freeze protect pipes and bibs?

YES ☐ NO ☐

If yes,
What is the ordinance citation? _____

If no,
Provide a schedule for adoption or provide an explanation of why it cannot be undertaken.

_____

_____

_____

_____

_____

(e) Have you adopted an ordinance prohibiting the wasteful use of water?

YES ☐ NO ☒

If yes,
What is the ordinance citation? _____

If no,
Provide a schedule for adoption or provide an explanation of why it cannot be undertaken.

_____

The City's recent action on Water & Sewer Rates have created a tiered rate structure

encouraging water conservation.

_____

_____

_____

(f) Have you adopted an ordinance requiring the installation, where practical, of a dual piping system to provide reclaimed water in new construction?

YES ☒ NO ☐

If yes,
What is the ordinance citation? O-16-2009

If no,
Provide a schedule for adoption or provide an explanation of why it cannot be undertaken.

_____

2. Where the local government operating the public water supply utility, pursuant to section 125.568 or 166.048, F.S., determines that water efficient landscaping (xeriscape, Florida Friendly, Waterwise) would be of significant benefit as a water conservation measure relative to the cost of water efficient landscape implementation, the local government operating the public water supply utility is required to adopt a water efficient landscape ordinance meeting the requirements of section 373.185(2)(a)-(f), F.S.

   In the event such a water efficient landscape ordinance is proposed for adoption, the permit applicant must submit the draft ordinance to the District for determination of compliance with section 373.185(2)(a)-(f), F.S. If the cost/benefit analysis has not been done, the applicant may utilize the District's Guide for Local Governments Water Efficient Landscaping (xeriscape) ordinance economic feasibility analysis.

   Has a water efficient (xeriscape, Florida Friendly, Waterwise) landscaping ordinance been adopted?

   YES ☐ NO ■

   If yes,
   What is the ordinance citation? _____

   If no,
   Provide a schedule for adoption or provide an explanation of why it cannot be undertaken.

Section III – LOWEST QUALITY WATER SOURCE

1. Are you currently a purveyor of reclaimed water?

YES ■ NO □

If yes,

(a) Provide the name and amount of reclaimed water delivered to each reclaimed water customer.

Customer	Amount of Reclaimed Water (mgd)
Magnolia Point	0.19 ± (Average)

(b) Provide the name of each wastewater treatment plant that supplies reclaimed water, the current amount of reclaimed water produced and the projected amount of reclaimed water produced. See Letter Response (Comment No. 4 and No. 5)

Wastewater Treatment Plant	Reclaimed Water currently produced (mgd)	Reclaimed water in 5-years (mgd)	Reclaimed water in 10-years (mgd)
Harbor Road WWTP	0.50 ±		
South WWTP	0.20 ±		

(c) Do you recycle treatment process discharge water or stormwater for on-site landscape irrigation or for any other purpose?

YES ■ NO ☐

If yes,
Describe the use.

The City currently has an in-plant reuse pump station/system at their Harbor Road WWTP.

(d) Attach a map of the reclaimed water service area showing distribution lines (existing and proposed) and the name, addresses and quantities used by each existing reuse customer. Not Applicable

If no,

(a) Provide a timeframe for completion of an analysis of the economic, environmental and technical feasibility of reusing reclaimed water, recycling water on-site, utilizing the lowest acceptable quality water for the intended purpose and providing reclaimed water or stormwater for end-use.

Consumptive Use Permit applicants are required to utilize the Guidelines for Preparation of Reuse Feasibility Studies published by the Department of Environmental Regulation in November 1991 and Guideline for Preparation of Reuse Feasibility Studies published by the Department of Environmental Protection in November 1996.

Section IV – CUSTOMER AND EMPLOYEE EDUCATION

Attach examples of water conservation information you provide to customers.

Using the appropriate letter, indicate which of the following player education and employee awareness activities are currently being implemented and which you plan to implement and when.

(C) Currently implemented (P) Proposed to be implemented

C or P	Activity	Date activity was implemented or is proposed to be implemented
C	Using bill or mail stuffers to provide water conservation tips and information to customers.	On-going - Start Date Unknown
	Using special mailings to provide water conservation tips and information to customers.	
C	Providing specific water conservation literature or other information for different customer categories.	On-going - Start Date Unknown
C	Using other means of advertising (radio, TV public service announcements, billboards, newspaper or magazine ads) to encourage water conservation among customers.	City part of SJRWMD Water Conservation Campaign
C	Providing water conservation material to schools.	On-going - Start Date Unknown
C	Conducting public tours of your facilities.	Provided as requested
P	Operating information booths, which include water conservation literature, at special events.	1st time @ Annual Memorial Day Parade
	Seeking employees' ideas for water conservation using contests, suggestion boxes or other incentives.	
	Installing signs in restrooms encouraging water conservation.	
	Publishing and distributing water conservation tips and information through company newsletters, bulletin boards or employee paychecks.	
	Appointing an employee water conservation coordinator to design and implement your internal water conservation plan.	
	Private utility providing information for applicable local water conservation ordinances.	
	Conducting other public education and employee awareness activities (explain) _____ _____	

2. Of the education and awareness programs you have implemented, which have been particularly effective?

3. Of the education and awareness programs you have implemented, which have not been effective? Why?

Section V – PLAN IMPLEMENTATION SCHEDULE SUMMARY

In this section please summarize the Water Conservation Plan that you have prepared using this form and be sure to apply an implementation schedule for each activity or action you have indicated will occur within your requested CUP duration. Water conservation activities must span the duration of the permit.

Activity	Proposed Date of Implementation

Note: A progress report is required to be submitted at the time specified in permit conditions (typically midpoint of permit duration) to address the implementation of the activities.

Upon approval of the 5-YR Compliance Report, the document will be executed.

Please keep a copy of this plan for your records.

Please sign and date this plan:

_____
Signature

_____
Date

_____
Phone Number