REUSE WATER SYSTEM PROGRAM MANUAL

SEPTEMBER 2016

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INTRODUCTION

The purpose of this manual is to describe the City of Pompano Beach (City) Reuse Water System Program, or ***OASIS*** (***O****ur* ***A****lternative* ***S****upply* ***I****rrigation* ***S****ystem*). The City first began using reuse water for irrigation in 1989, becoming a reuse pioneer in Broward County. Reuse water, or wastewater effluent that is further treated for alternative water use, is a viable method of conserving our precious drinking water and reducing the chance for saltwater intrusion. The City has no wastewater facility and obtains wastewater effluent from the North Broward County Regional Wastewater facility. Broward County effluent is diverted from the Atlantic Ocean outfall and further treated to improve its quality via filtration and disinfection. This water, after careful monitoring to ensure that it meets permit requirements and strict water quality criteria, is used on golf courses, parks, medians and residential properties. Every gallon of reuse water used for irrigation, results in a comparable savings of potable water.

The reuse facility is located on Federal Highway on the south west corner of NE 18th Street. The site consists of two filter structures, a chlorine contact basin, two reuse water storage tanks and associated pumps, air compressors and auxiliary equipment. With a capacity of 7.5 MGD and an expansion capacity of up to 12.5 MGD, the plant is well able to meet the increasing demand for reuse water.

AUTHORITY

The City is proud to be able to provide an alternative water supply, such as reuse, to save our potable water and to help protect the environment. However, a reuse program requires strict safeguards to protect the integrity of the potable water system and to protect the health of our Pompano Beach residents and visitors. These safeguards include an active and effective backflow prevention and cross-connection control program on the potable water system, as well as reuse system inspections. State regulations cited in 62-555.360 of the Florida Administrative Code require that all reuse providers have a backflow prevention and cross-connection control program in place for the potable water system.

The American Water Works Association (AWWA) Manual M14, *Recommended Practice for Backflow Prevention and Cross-Connection Control*, defines a cross-connection as “an actual or potential connection between any part of a potable water system and any other environment that contains other substances that, under any circumstances, would allow such substances to enter the potable water system. Other substances include gases, liquids or solids such as chemicals, water products, steam, water from other sources (potable or non-potable), and any matter that may change the color or taste of water or add odor to water.”

As directed by FAC 62-555.360, the City has adopted and developed procedures for backflow prevention and a cross-connection control program. The basic elements of this program are found in City Ordinances Chapter 50 (See Appendix A), Water, and City Ordinance Chapter 54 (See Appendix B), Reuse Water and Cross-Connection Control. As the purveyor of the potable water, the City of Pompano Beach Utilities Department is the sole arbitrator as to the level of protection needed to protect the water system beyond federal, state and local requirements. Possible enforcement action includes turning off water service in the event that backflow prevention requirements are not met. Whenever this manual references sections of the City of Pompano Beach Code of Ordinances, Florida Administrative Code, AWWA Manual M14, or any other authoritative document and said referenced document is updated, unless a specific exemption is contained herein, this manual shall be considered updated to reflect those changes.

CROSS-CONNECTION CONTROL/BACKFLOW PREVENTIONPROGRAM

The City has an active Cross-Connection/Backflow Prevention program. This program includes documentation and record keeping procedures, material and installation standards, backflow testing and maintenance policies, inspections, and public education/public interaction goals.

Basic program requirements for reuse include the following:

- ✓ The program elements are documented and tracked through a web based system and database.

- ✓ Single family residential reuse customers are required to have city owned dual check device installed on the potable system as well as a second protective measure (i.e. customer agreement or automated meter reading) before hooking up to the reuse system. A customer owned double check valve assembly meeting the requirements below is also acceptable.

- ✓ All other reuse customers must obtain a permit from the Building Inspections Division to install a double check valve assembly, or greater protection depending on the site conditions, on the potable water system before hooking up to the reuse system (See Appendix C – Customer Instructions/Procedures for Establishing a Reuse Water Connection).

- ✓ Double check valve assemblies must be plumbing code approved. The device must also be nationally approved, testable and in full conformance with the current standards established by the AWWA, the Foundation for Cross-Connection Control and Hydraulic Research of the University of Southern California (FCC HR USC), or the American Society of Sanitary Engineering (ASSE), as well as local building codes.

- ✓ Certification of the double check valve assembly must be performed by a certified backflow technician. The technician must provide the City's Building Inspections Division with the testing results of the double check valve installation or replacement on a Backflow Prevention Assembly Test Report (See Appendix D). Certification is required prior to connecting to the reuse system and on an annual basis.

- ✓ The City Building Inspections Division inspects all double check valve assemblies and reuse systems before authorizing connection to the reuse system.

- ✓ All testing results will be entered into Backflow Solutions Inc. (BSI) by the tester. Diagnostic checks and a manual quality control check of the results will be conducted.

- ✓ As a courtesy, the City, or its designee, sends annual reminders to all backflow preventer assembly owners advising them of their double check valve assembly inspection anniversary date. The online program system tracks these dates and prints out the reminder letters. Non-receipt of the reminder does not relieve the customer of the duty of testing the assembly.

- ✓ The City owns the single family residential reuse dual check devices and replaces these according to state standards (currently every ten years).

- ✓ Routine on-site inspections are conducted every ten years and upon hookup of a new customer (See Appendix E – Reuse Inspection Form

- ✓ The City provides important information for customers regarding the reuse program, the backflow prevention and cross-connection control program, rates and fees, and additional information resources upon application for a reuse account and on a periodic basis. The City also presents OASIS information via its cable channel, and through local workshops and presentations. Reuse information, including a list of frequently asked questions, is also found on the City website at http://pompanobeachfl.gov/

APPENDIX A

The current version of Appendix A, Ordinance Chapter 50 – Water is available at http://www.amlegal.com/codes/client/pompano-beach_fl/

APPENDIX B

The current version of Appendix B, Ordinance Chapter 54 – Reuse Water and Cross Connection Control is available at http://www.amlegal.com/codes/client/pompano-beach_fl/

APPENDIX C

City of Pompano Beach
Department of Development Services
Building Inspections Division

100 W. Atlantic Blvd Pompano Beach, FL 33060
Phone: 954.786.4670 **Fax:** 954.786.4677

Customer Instructions For Reuse Hook Up

Connection to the City of Pompano Beach reuse water system will require the following:

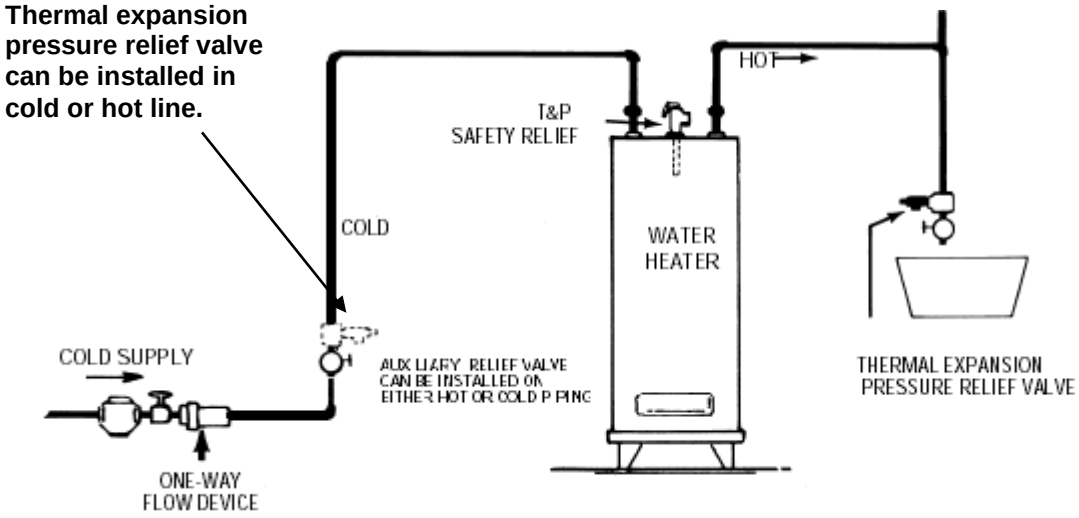
1.) The customer must pull a Plumbing Permit for installation of a Double Check Backflow Assembly or Reduced pressure zone assembly at the existing domestic water meter and installation of the new **PURPLE PIPE** water supply from the new reuse meter to the irrigation system piping.

2.) The customer must install a means of controlling thermal expansion in the water supply system, either at the water heater or at the water supply into the house. (See Detail A and B) The use of an expansion tank or a special pressure relief valve is acceptable.

3.) The customer must schedule inspections of all work prior to covering. Inspections must be scheduled prior to 3:30 PM and 24 hours in advance. All work must be uncovered and under working pressure for inspection. All backflow assemblies must be certified by a Certified Backflow Technician prior to final inspection.

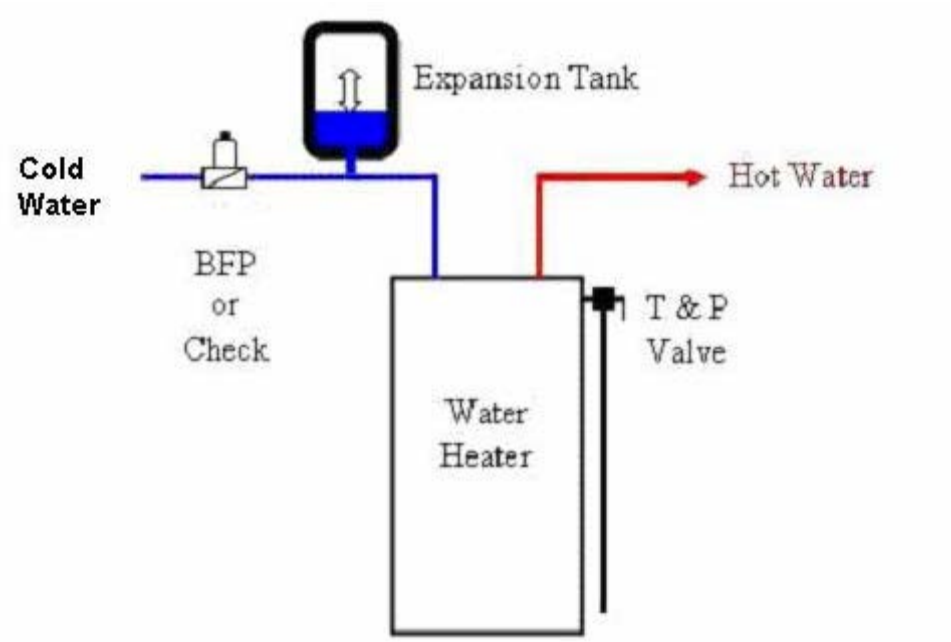
Customer Instructions for Reuse Hook Up

Detail A



The installation of a backflow prevention assembly creates a closed plumbing system. It is necessary to install a means of controlling thermal expansion in the water supply system. One method of achieving this is the installation of a pressure relief valve, as shown in Detail A, which can be set to relieve excess pressure in the system. This pressure relief valve can be installed on either the hot or cold water line but it is important to note that it should be installed in a location that will prevent damage in the event that the relief valve discharges water to relieve the excess pressure in the water supply system. Please note that this is not the same valve as the Temperature and Pressure (T & P) relief valve which is usually installed on the top of the water heater as shown above. The T & P valve is not permitted to be used as a means of controlling thermal expansion.

Detail B

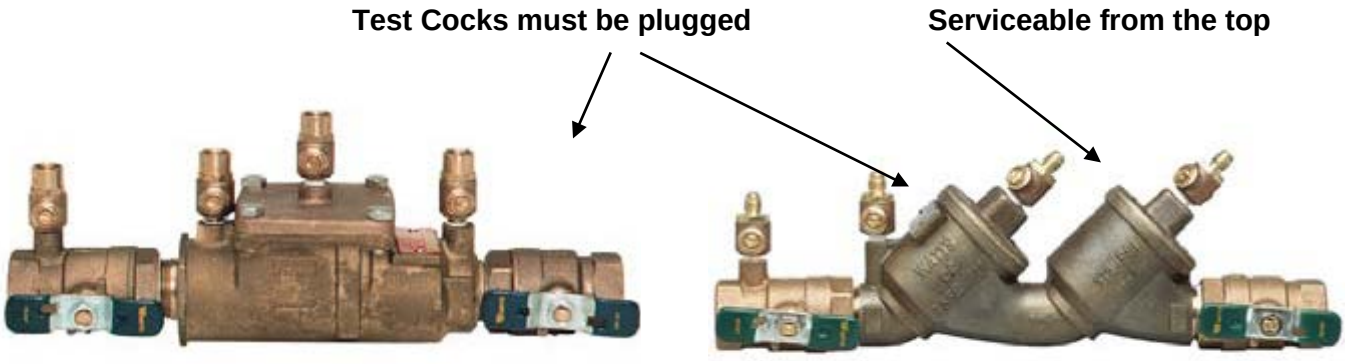


Another method of controlling thermal expansion is by the use of a thermal expansion tank. This tank must be installed on the water supply as show in Detail B. Thermal expansion tanks must be properly sized and installed as per the manufactures installation instructions.

Customer Instructions for Reuse Hook Up

Due to the high risk of a cross connection between the reuse water supply and the potable water supply, Florida Department of Environmental Protection Florida Administrative Code requires the installation of a backflow prevention assembly near the public water supply meter.

If a double check valve assembly is used it is permitted to be installed below grade in a separate valve box which is provided by the customer. Because of the possibility of flooding in the valve box the double check backflow assembly test cocks must be plugged. The backflow assembly valve must also be serviceable and testable from the top.



This new double check valve assembly must be installed at least one foot away from the water meter but as close as practical to the meter. The backflow prevention assembly must be certified by a Certified Backflow Technician after it is installed and prior to the Plumbing Inspection.

A PLUMBING PERMIT IS REQUIRED PRIOR TO INSTALLING THE NEW BACKFLOW ASSEMBLY OR THE NEW REUSE WATER CONNECTION TO THE IRRIGATION SYSTEM.

Florida Statue 489 requires that the Plumbing Permit must be pulled and the work must be performed by a licensed Plumbing Contractor. The licensed plumbing contractor must submit a completed Permit Application to the Building Department. Permit applications are available at the Building Department or online at http://pompanobeachfl.gov/.

An exemption in FS 489 permits a homeowner to pull a permit as an Owner Builder. The property must be occupied by the homeowner, the property must not be a for sale or rent and the property owner is not permitted to hire unlicensed contractors to perform the work. An Owner Builder Affidavit attesting to these conditions must be submitted along with a Plumbing Permit application.

A Plumbing inspection must be scheduled after the new backflow is installed and prior to covering any work. Inspections must be scheduled 24 hours in advanced. Inspections scheduled after 3:30 PM will be performed two working days later. Inspections can be scheduled using the internet at http://pompanobeachfl.gov/ or by calling the Building Department at 954.786.4198. You MUST have your permit number and PIN number when scheduling an inspection. The PIN number can be found on your yellow papers that you received when you picked up your permit.

The existing irrigation connection to the potable water supply must be capped and inspected by the Plumbing Inspector.

All new piping from the reuse meter to the irrigation system must be **PURPLE** in color and must be left open for inspection. The **PURPLE** piping must be under working pressure when an inspection is performed.

APPENDIX D

Utility Field Operations
Backflow Prevention Program
Wastewater Pumping
Wastewater Transmission
Stormwater
Water Distribution

Backflow Prevention Assembly Test Report

Test Due	Test Result Passed ☐ Failed ☐
/ /	Test Date _____
	Permit # _____

Mailing Address

Service Address

Correct?
Location: ☐ _____
Hazard: ☐ _____

Correct?
Meter #: ☐ _____
Serial #: ☐ _____
Mfg ☐ _____
Model: ☐ _____
Type: ☐ _____
Size: ☐ _____

Reduced Pressure Principle Assembly
Double Check Valve Assembly

Dual Check Replaced: Yes ☐ No ☐

RP ☐ DC ☐
RPDA ☐ DCDA ☐
PVB ☐ Air Gap ☐
SVB ☐ AVB ☐

	Check Valve #1	Check Valve #2	Relief Valve	PVB/SVB
Initial Test	Leaked ☐ Closed Tight ☐ Held at_____PSID	Leaked ☐ Closed Tight ☐ Held at_____PSID	Did not Open ☐ Opened at_____PSID	AIR INLET Did not Open ☐ Opened at_____PSID
Repairs Details	Cleaned ☐ Replaced ☐	Cleaned ☐ Replaced ☐	Cleaned ☐ Replaced ☐	CHECK VALVE Leaked ☐ Held at_____PSID Cleaned ☐ Replaced ☐
Final Test	Closed Tight ☐ Held at_____PSID	Closed Tight ☐ Held at_____PSID	Opened at_____PSID	AIR INLET Opened at_____PSID CHECK VALVE Held at_____PSID

Orientation	Use	Protection		Outlet Shutoff Valve
Vertical Up ☐	Domestic ☐	Containment ☐	New ☐ Existing ☐ Replaced ☐	Closed Tight ☐
Vertical Down ☐	Fire ☐	Isolation ☐	Date Installed _____	Leaked ☐
Horizontal ☐	Irrigation ☐	Line Pressure _____	Replaced Serial # _____	

Comments
_____
_____

Test Kit Make _____ Model _____ Serial # _____ Calibration Date _____

Tester certifies that this assembly has been tested and verifies that shut-off valves were returned to pre-test orientation.

Tester # _____ Certification Expiration Date _____

Tester Name _____ Tester Signature _____

APPENDIX E

POMPANO BEACH OASIS REUSE WATER UTILITIES

REUSE INSPECTION FORM

Customer Address: _____ **Inspection Date/Time:** _____ **Name/Company:** _____

Permit number: _____ **Property type: Single Family Residential / Multi-family / Commercial**

The following items are inspected as required by the reuse connection contract, City Standards and Florida Regulations.

Item #		
1	All reuse water valves and outlets are appropriately tagged or labeled bearing the words "Do Not Drink" in English and Spanish along with the equivalent standard international symbol (Rule 62-610.469(7)(f)).	YES NO NA
2	All reuse water piping, pipelines, valves, outlets, manifolds and other appurtenances continuously/ consistently color coded using Pantone Purple 522C, or otherwise marked (i.e. meter box) to differentiate reuse water from other water (Rule 62-610.469(7)(f)).	YES NO NA
3	New piping was installed from the meter to the irrigation control valve using Pantone Purple 522C irrigation pipe for single family residential properties.	YES NO NA
4	An approved backflow preventer is installed on the potable water service (Rule 62-555.360).	YES NO NA
5	Hose bibb vacuum breaker installed on all potable hose faucets.	YES NO NA
6	Hose bibbs or hand operated systems connected to the reuse system are visible from the street, locked and clearly labeled.	YES NO NA
7	The piping is free of cross-connection between the potable water system and reuse system as demonstrated by turning on sprinkler system (before connecting reuse) and testing all faucets, toilets and water connected fixtures (hot & cold sides) within the home and outside the home (boat docks) to make sure water is available. For multifamily and commercial properties, the piping is free of cross-connection between the potable and reuse system as demonstrated by shutoff and testing of each system.	YES NO NA
8	Sprinklers are supplied only by reuse water with no connections to the potable water system	YES NO NA
9	The top of the reuse water line is installed at least 12 inches below the bottom of the potable water line (Rule 62-610.469(7)(c)(1)).	YES NO NA

Comments: _____

_____

_____

_____

_____

_____

_____

Signature **Date**

_____

Plumbing License #

Leave completed and signed form in the permit bag on-site for the Plumbing Inspector