



**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** (*Our Alternative Supply Irrigation System*). 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 PREVENTION PROGRAM

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

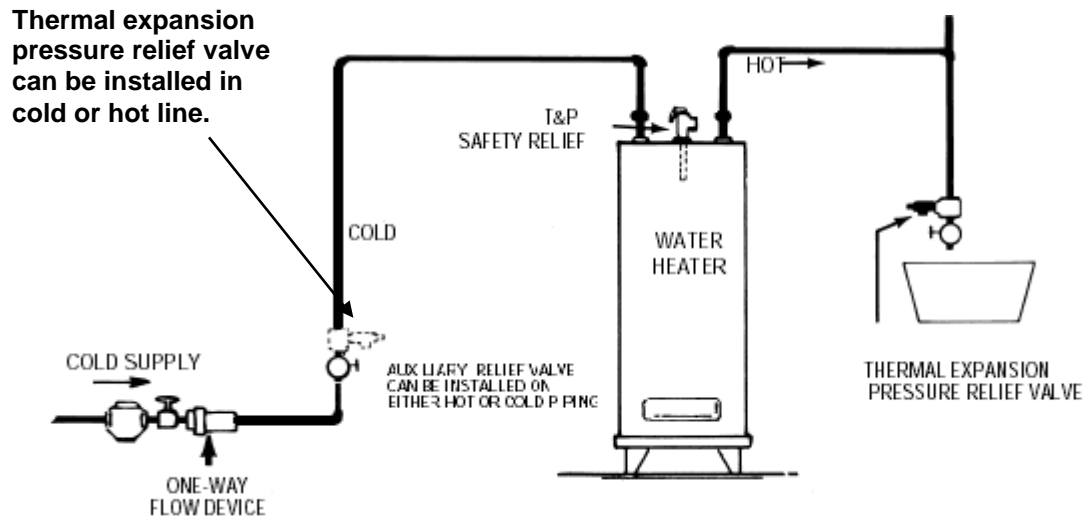
Customer Instructions For Reuse Hook Up

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.

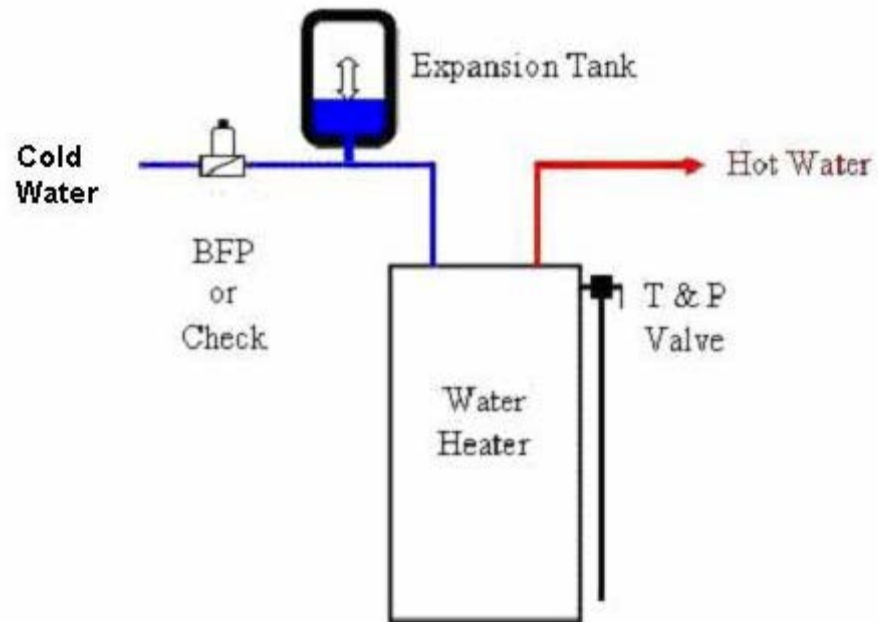
Customer Instructions for Reuse Hook Up

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

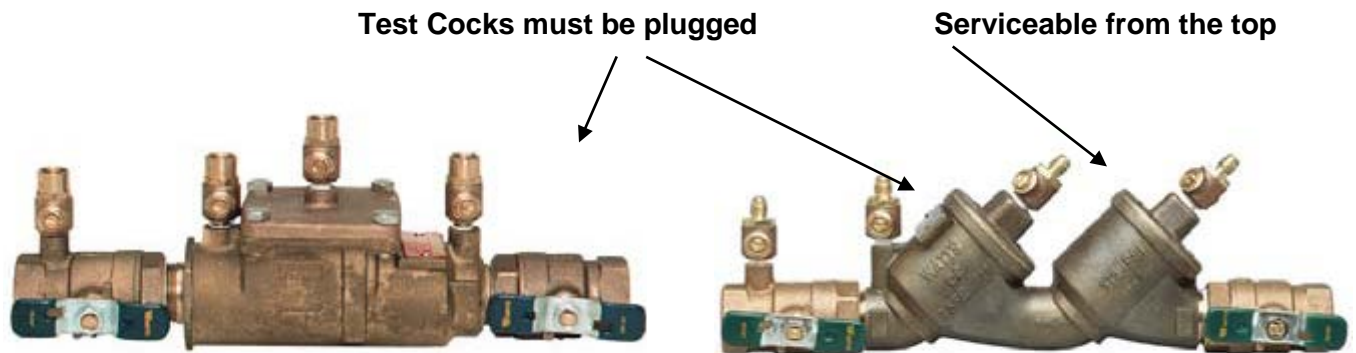


Another method of controlling thermal expansion is by the use of a thermal expansion tank. This tank must be installed on the water supply as show in Detail B. Thermal expansion tanks must be properly sized and installed as per the manufactures installation instructions.

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 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 Statute 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 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 <input type="checkbox"/> Failed <input type="checkbox"/>
	Test Date _____
	Permit # _____

<u>Mailing Address</u>	<u>Service Address</u>
Correct?	
Location: <input type="checkbox"/> _____	Meter #: <input type="checkbox"/> _____
Hazard: <input type="checkbox"/> _____	Serial #: <input type="checkbox"/> _____
	Mfg <input type="checkbox"/> _____
	Model: <input type="checkbox"/> _____
	Type: <input type="checkbox"/> _____
	Size: <input type="checkbox"/> _____

Reduced Pressure Principle Assembly				Dual Check Replaced Yes <input type="checkbox"/> No <input type="checkbox"/>		RP <input type="checkbox"/> DC <input type="checkbox"/> RPDA <input type="checkbox"/> DCDA <input type="checkbox"/> PVB <input type="checkbox"/> Air Gap <input type="checkbox"/> SVB <input type="checkbox"/> AVB <input type="checkbox"/>			
Double Check Valve Assembly									
	Check Valve #1	Check Valve #2	Relief Valve	PVB/SVB					
Initial Test	Leaked <input type="checkbox"/>	Leaked <input type="checkbox"/>	Did not Open <input type="checkbox"/>	AIR INLET					
	Closed Tight <input type="checkbox"/>	Closed Tight <input type="checkbox"/>	Opened at _____ PSID	Did not Open <input type="checkbox"/>					
Repairs Details	Cleaned <input type="checkbox"/>	Cleaned <input type="checkbox"/>	Cleaned <input type="checkbox"/>	CHECK VALVE					
	Replaced <input type="checkbox"/>	Replaced <input type="checkbox"/>	Replaced <input type="checkbox"/>	Leaked <input type="checkbox"/>					
Final Test	Closed Tight <input type="checkbox"/>	Closed Tight <input type="checkbox"/>	Opened at _____ PSID	Held at _____ PSID					
	Held at _____ PSID	Held at _____ PSID		AIR INLET					
Orientation Vertical Up <input type="checkbox"/> Vertical Down <input type="checkbox"/> Horizontal <input type="checkbox"/>		Use Domestic <input type="checkbox"/> Fire <input type="checkbox"/> Irrigation <input type="checkbox"/>		Protection Containment <input type="checkbox"/> Isolation <input type="checkbox"/>		New <input type="checkbox"/> Existing <input type="checkbox"/> Replaced <input type="checkbox"/> Date Installed _____ Replaced Serial # _____		Outlet Shutoff Valve Closed Tight <input type="checkbox"/> Leaked <input type="checkbox"/>	

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 _____



REUSE INSPECTION FORM

Customer Address: _____ Permit # _____

Plumber Name/Company: _____ Date: _____

Plumbing License # _____

The following items must be inspected as required by City Standards or Florida Regulations.

Item #		YES	NO	N/A
1	All plastic reuse water piping, valves, outlets, manifolds and other appurtenances are continuously/consistently color-coded Pantone Purple 522C, or otherwise marked (i.e., meter box) to differentiate reuse water from other water per Rule 62-610.469(7)(f).			
2	New purple piping was installed from the meter to the irrigation control valve using Pantone 522C SCH 40 irrigation pipe.			
3	Hose bibbs or hand-operated systems attached to the reuse water system are visible from the street, locked and clearly labeled.			
4	An approved backflow preventer is installed on the potable water service per Rule 62-555.360.			
5	Hose bibb vacuum breakers are installed on all potable hose bibbs.			
6	Sprinklers are supplied only by reuse water, with no connections to the potable water system, ground water, or canal water per Rule 62-610.476(2)(b).			
7	The top of the reuse water line is installed at least 12-inches below the bottom of the potable water line per Rule 62-610.469(7)(c).			
8	Entire irrigation system connection has been exposed for plumbing inspector.			
9	Plumber has entered building to personally perform cross-connection check:			
	a. Capped off irrigation and checked all interior plumbing fixtures for water flow before connecting irrigation line to reuse meter.			
	b. Turned off potable water system and checked all irrigation zones for operations using the mechanical timer device, if possible.			
	c. Turned off reuse system and checked interior plumbing fixtures as well as external hose bibbs, docks and pools for water flow.			
10	All zones of the irrigation system have been tested after the reuse connection to be sure that irrigation system is working (if it was working prior to connection).			

Document condition of existing irrigation system:

No irrigation system Working irrigation system

Not working/disrepair irrigation system (describe deficiencies): _____

Signature of Plumber: _____ Date: _____

City Plumbing Inspector Signature: _____ Date: _____

Inspector's notes: _____

City of Pompano Beach Reuse Water

The City of Pompano Beach 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 private properties. Every gallon of reuse water used for irrigation results in comparable savings of potable water.

INSIDE APPENDIX D

- Pompano Beach Reuse Water
- Instructions for Private Hook Up
- Reuse Hose Bibb Connection
- Reuse Hose Bibb Components
- Assembled Hose Bibb (Photos)

Instructions for Private Hook Up

Please refer to the Pompano Beach Reuse Water System Program Manual (available at pompanobeachfl.gov) for detailed information on Cross Connection Control, Backflow Prevention and Reuse Water Hook Up Instructions. Only a fully licensed plumber can perform a reuse water connection. A plumbing permit must be issued and Customer Service must open up an account for reuse water before connecting to reuse is allowed. The City will install or activate the reuse meter.

Reuse Hose Bibb Connection

The reuse hose bibb connection is an alternative hook up to reuse water for irrigation.

It is suitable for properties that do not have a working irrigation system.

The next page will detail the components of a reuse hose bibb, along with photos of an assembled reuse hose bibb.



All plumbers must ensure that a backflow preventer has been installed on outlet side of the domestic water meter. The City of Pompano Beach is not responsible for any private reuse connections or materials.

Reuse Hose Bibb Components

1. One (1) Reuse Meter Box (**purple**) with lid that says “Reclaimed Water Do Not Drink” in 1-inch size (CVR composite)
2. One (1) Rubber Uniseal Insert (size contingent on hose size)
3. One (1) Hose Bibb Vacuum Breaker, **Lead-Free**, in ¾-inch size
4. One (1) Meter Brass in ¾-inch size
5. Two (2) Female Poly Adapters
6. One (1) Brass Nipple in ¾-inch by 6-inch size
7. One (1) Brass Nipple in ¾-inch by 4-inch size
8. One (1) Ball Valve in ¾-inch size
9. One (1) length of Poly Pipe (**purple**) labeled for reclaimed water
10. One (1) **purple** garden hose (¾-inch) in length of your choice (must be **purple**)(can be any style of **purple** garden hose - see left side bar for examples)

All of these components can be purchased from the supplier of your choice; they are also available from HD Supply in Oakland Park, Florida (954) 772-7343. James at HD has the component list; just tell him you want to buy the City of Pompano Beach reuse hose bibb setup and he will give you a price for everything, including the purple hose. No substitutions of materials are permitted.

NOTE: The vacuum breaker is attached to the potable water hose bibb, **not** the reuse water hose bibb.

Assembled Hose Bibb (Photos)



Purple Hoses come in a variety of styles. You can use any style as long as it is purple.

GOOD to KNOW

- The reuse hose bibb box is installed at grade (level with the ground) next to the reuse meter box.
- Before doing the actual reuse connection work, ask Customer Service to create a work order to do a reuse meter flow check at the site (954-786-4637).

