

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTIONIn re: City of Pompano Beach Petition for Variance
From Rule 62-610.475(4), F.A.C

OGC File No. 15-1690

DEP File No. FLA013581

**FINAL ORDER GRANTING PETITION FOR
VARIANCE FROM RULE 62-610.475(4), F.A.C.**

On December 22, 2015, the City of Pompano Beach (“Petitioner”) filed a Petition for Variance from the requirements in Rule 62-610.475(4), Florida Administrative Code (F.A.C.), under section 120.542, Florida Statutes (F.S.), and Rule 28-104.002, F.A.C. The Petitioner seeks relief from the requirement found in Rule 62-610.475(4), F.A.C., which prohibits the use of an application method that allows for direct contact of reclaimed water on edible crops that will not be peeled, skinned, cooked, or thermally processed before consumption. The Petitioner seeks a variance in order to avoid substantial hardship to the Petitioner who might otherwise be required to expend unnecessary revenues to find additional irrigation water supply when it can economically and safely use reclaimed water. The Petitioner alleges the rule’s prohibition limits its ability to enter into contracts with ocean outfall utilities that are required by Section 403.086(9), F.S., to provide 60 percent reuse of the ocean outfall utility’s baseline flow by December 31, 2025. This limitation on the Petitioner’s ability to enter into such contracts could cost ocean outfall utilities millions of dollars of additional expenses associated with implementing the 60 percent reuse requirement.

A notice of receipt of the petition was published in the Florida Administrative Register on January 19, 2016, Vol. 42/11. No comments were received.

BACKGROUND AND APPLICABLE REGULATORY CRITERIA

1. Petitioner’s address is: City of Pompano Beach, 100 West Atlantic Boulevard, Pompano Beach, FL 33060.
2. In support of the Petition for Variance, the Petitioner alleges as follows:

(a) Petitioner receives effluent from the North Broward County Regional Wastewater Treatment Plant (NRWWTP) that has received secondary treatment. The NRWWTP is operated by Broward County pursuant to a domestic wastewater facility permit (DEP permit number FL-0031771). Effluent from the NRWWTP is diverted to the Petitioner's Pompano Beach Reuse Facility (reuse facility) which further treats the NRWWTP effluent to improve its quality through the use of additional filtration and disinfection.

(b) Reclaimed water produced by the reuse facility is required to meet specific limitations (high level disinfection, pH control, turbidity control, pathogen removal) in accordance with Rules 62-600.445 and 62-610.460, F.A.C., and pursuant to the Petitioner's wastewater facility permit (DEP permit number FLA013581-007-DW1P).

(c) The Petitioner's reuse facility is located in the northeast section of the municipal golf course 1799 North Federal Highway. The reuse facility consists of two filter structures (Dynasand Ecowash Filter), a chlorine contact basin, and two reclaimed water storage tanks. The facility has a capacity of 7.5 million gallons per day (MGD) of treated effluent and an expansion capacity of up to 12.5 MGD.

(d) The reuse facility operates in accordance with the facility's approved operating protocol which ensures that only reclaimed water that meets applicable standards is released to the reclaimed water distribution system. The operating protocol requires continuous monitoring for turbidity and chlorine residual, and reclaimed water with turbidity greater than 2.5 NTU prior to disinfection or chlorine residual less than 1.0 mg/L must be diverted from the reclaimed water distribution system back to the head of the reuse facility for recycling. The chlorine contact time for the facility is 96 minutes at peak hourly flow which exceeds the high level disinfection design requirement of Rule 62-600.440(6), F.A.C., of 15 minutes at the peak hourly flow. The operating protocol includes a polymer feed system for addition of polymer prior to filtration in the event that turbidity is high.

(e) According to the 2014 and 2015 annual test results, reclaimed water from the reuse facility met all of the potable drinking water standards except for chloride, total dissolved solids, and sodium.

(f) Other states have allowed the direct contact application of reclaimed water on edible crops that will not be peeled, skinned, cooked, or thermally processed before consumption. The direct contact application of reclaimed water has been safely practiced in other states.

(g) In accordance with Section 403.064(1), F.S., the encouragement and promotion of water conservation and reuse of reclaimed water are state objectives and are considered to be in the public interest. Use of reclaimed water is a critical component of meeting the state's existing and future water supply needs while sustaining natural systems.

(h) The Petitioner would be limited in its ability to enter into contracts with ocean outfall utilities that are required by Section 403.086(9), F.S., to provide 60 percent reuse of the utility's baseline flow by December 31, 2025. To facilitate compliance with the statute, the Petitioner may need to create mandatory reuse zones within its reclaimed water service area to expand the Petitioner's residential reuse system. Due to the prohibition on direct contact application of reclaimed water on edible crops that will not be peeled, skinned, cooked, or thermally processed before consumption and the number of residents that have gardens within the Petitioner's reclaimed water service area, the prohibition may impact creating mandatory reuse zones within the Petitioner's reclaimed water service area as residences where reclaimed water is available would be prohibited from use of reclaimed water on residential gardens.

3. Petitioner requests irrigation of edible crops that will not be peeled, skinned, cooked, or thermally processed before consumption be permitted using an application method that allows for direct contact of the reclaimed water on such edible crops within the Petitioner's reclaimed water service area identified in the Petitioner's domestic wastewater facility permit (DEP permit number FLA013581-007-DW1P).

4. With respect to the prohibition, Rule 62-610.475(4), F.A.C., provides in pertinent part:

Irrigation of edible crops that will not be peeled, skinned, cooked or thermally processed before consumption using an application method that allows for direct contact of the reclaimed water on the crop is prohibited.

The Department's rule implements the following sections: 403.021, 403.051, 403.061, 403.062, 403.085, 403.086, 403.087, and 403.088, F.S.

THE VARIANCE WILL MEET THE UNDERLYING PURPOSE OF THE STATUTE

5. Section 120.542(2), F.S., states “variances and waivers shall be granted when the person subject to the rule demonstrates that the purpose of the underlying statute will be or has been achieved by other means by the person and when application of a rule would create a substantial hardship or would violate principles of fairness.” The variance procedure is intended to provide relief from unreasonable, unfair, and unintended results in unique cases.

6. The Petitioner has already implemented treatment technologies and proposes changes to its operating protocols to safeguard public health for the direct contact application of reclaimed water on edible crops that will not be peeled, skinned, cooked, or thermally processed before consumption. The treatment technologies and proposed changes to the Petitioner’s operating protocol are consistent with the U.S. Environmental Protection Agency 2012 Guidelines for Water Reuse, EPA/600/R-12/618.

7. The statutes implemented by Rule 62-610.475(4) F.A.C., are intended to ensure that use of reclaimed water does not adversely affect public health, safety, and welfare in the state. The underlying intent of the rule is to safeguard the public health by ensuring that reclaimed water is properly treated prior to direct contact application on edible crops that will not be peeled, skinned, cooked, or thermally processed before consumption. The Petitioner’s treatment technologies and proposed changes to its operating protocols will accomplish these purposes.

SUBSTANTIAL HARDSHIP TO THE PETITIONER and VIOLATIONS OF PRINCIPLES OF FAIRNESS

8. “Substantial hardship” means a demonstrated economic, technological, legal, or other type of hardship to the person requesting the variance or waiver. “Principles of fairness” are violated when the literal application of a rule affects a particular person in a manner significantly different from the way it affects other similarly situated persons who are subject to the rule. Section 120.54(2), Florida Statutes.

9. Petitioner seeks a variance in order to avoid substantial economic hardship. Without the requested variance, the Petitioner would be required to continue to incur substantial costs to provide potable water for residential irrigation. This economic hardship is unnecessary because the Petitioner could use reclaimed water to meet this demand.

THEREFORE, IT IS ORDERED:

10. For the foregoing reasons, the Petitioner has demonstrated the requirements for a variance from Rule 62-610.475(4), F.A.C., have been met. Although the Petitioner requested a variance for 20 years, the Department is limiting this variance to the current operation permit cycle because the variance deals with an operational requirement rather than a physical construction requirement, and because the applicable science, rules, or laws may change during the permit cycle. The Petitioner can petition to renew this variance when the Petitioner applies to renew its operation permit. The Department hereby grants a temporary variance, through May 21, 2026, subject to the five conditions (10a – 10e) below:

- a. The maximum single sample fecal coliform concentration discharged to the reclaimed water distribution system shall not exceed 14/100 milliliters. The maximum single sample fecal coliform limit included in permit condition I.A.1. of the Petitioner's permit number FLA013581-007-DWIP is replaced by the limit established in this condition. The Department will provide the Petitioner with a revised Discharge Monitoring Report to reflect this condition within 5 days of the effective date of this variance. In addition, the Petitioner shall provide operational information by monitoring the fecal coliform concentration (grab sample) of the influent to the Petitioner's reuse facility on a weekly basis for six months from the effective date of this variance and maintain records of this monitoring.
- b. The Petitioner shall revise the reuse facility's operating protocol to require that the maximum single sample fecal coliform concentration discharged to the reclaimed water distribution systems shall not exceed 14/100 milliliters. Within 5 days of the effective date of this variance, the Petitioner shall submit the revised protocol to the Department for approval, which the Department shall not unreasonably delay or withhold. Approval by the Department must be received prior to allowing direct contact application of reclaimed water on edible crops that will not be peeled, skinned, cooked, or thermally processed before consumption.
- c. The Petitioner shall ensure that users of reclaimed water are informed about the origin, nature, and characteristics of reclaimed water; the manner in which reclaimed water can be safely used; and

limitations on the use of reclaimed water. Notification is required at the time of initial connection to the reclaimed water distribution system and annually after the reuse system is placed into operation. A description of on-going public notification activities shall be included in the Petitioner's Annual Reuse Report, DEP Form 62-610.300(4)(a)2.

- d. The Petitioner shall sample for giardia and cryptosporidium two times each year at intervals of approximately 6 months for the first two years after the effective date of this variance and annually after the first two years. Sampling shall be conducted in accordance with and reported on DEP Form 62-610.300(4)(a)4, Pathogen Monitoring, and shall be submitted to the addresses identified on the form. The sampling frequency for giardia and cryptosporidium included in permit conditions I.A.1. and 9. of the Petitioner's permit number FLA013581-007-DW1P is replaced by the sampling frequency established in this condition.
- e. Nothing herein shall limit the Department from initiating appropriate legal action to address any violations or enforce any requirements of Petitioner's permit, this Order, or statutes or rules administered by the Department.

NOTICE OF RIGHTS

This action is final and effective on the date filed with the Clerk of the Department unless a petition for an administrative hearing is timely filed under Sections 120.569 and 120.57, F.S., before the deadline for filing a petition. On the filing of a timely and sufficient petition, this action will not be final and effective until further order of the Department. Because the administrative hearing process is designed to formulate final agency action, the hearing process may result in a modification of the agency action or even denial of the request for a variance or waiver.

Petition for Administrative Hearing

A person whose substantial interests are affected by the Department's action may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. Pursuant to Rule 28-106.201, F.A.C., a petition for an administrative hearing must contain the following information:

(a) The name and address of each agency affected and each agency's file or identification number, if known;

(b) The name, address, telephone number, and any e-mail address of the petitioner; the name, address, telephone number, and any e-mail address of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests are or will be affected by the agency determination;

(c) A statement of when and how the petitioner received notice of the agency decision;

(d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;

(e) A concise statement of the ultimate facts alleged, including the specific facts that the petitioner contends warrant reversal or modification of the agency's proposed action;

(f) A statement of the specific rules or statutes that the petitioner contends require reversal or modification of the agency's proposed action, including an explanation of how the alleged facts relate to the specific rules or statutes; and

(g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wishes the agency to take with respect to the agency's proposed action.

The petition must be filed (received by the Clerk) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000. Also, a copy of the petition shall be mailed to the applicant at the address indicated above at the time of filing.

Time Period for Filing a Petition

In accordance with Rule 62-110.106(3), F.A.C., petitions for an administrative hearing must be filed within 21 days of receipt of this written notice. The failure to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention (in a proceeding initiated by another party) will be only at the discretion of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

Extension of Time

Under Rule 62-110.106(4), F.A.C., a person whose substantial interests are affected by the Department's action may also request an extension of time to file a petition for an administrative hearing. The Department may, for good cause shown, grant the request for an extension of time. Requests for extension of time must be filed with the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, before the applicable deadline for filing a petition for an administrative hearing. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

Mediation

Mediation is not available in this proceeding.

Judicial Review

Once this decision becomes final, any party to this action has the right to seek judicial review pursuant to Section 120.68, F.S., by filing a Notice of Appeal pursuant to Rules 9.110 and 9.190, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 3900 Commonwealth Boulevard, M.S. 35, Tallahassee, Florida 32399-3000; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this action is filed with the Clerk of the Department.

DONE AND ORDERED this 23 day of June, 2016, in Palm Beach County, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION



Jennifer K. Smith
District Director
Southeast District

CERTIFICATE OF SERVICE

The undersigned hereby certifies that this Order, including all copies, were mailed or emailed before the close of business on June 23, 2016, to the above listed persons.

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to s.120.52(7), Florida Statutes, with the designated Agency Clerk, receipt of which is hereby acknowledged.



Clerk

6/23/2016

Date

Attachments: Notice of Rights of Substantially Affected Persons
Notice for Optional Publication
Attachment A – The Original Petition and Supporting Documentation

Copies furnished to:

Suzanne Printy, Joint Administrative Procedures, Printy.Suzanne@leg.state.fl.us
Joint Administrative Procedures Committee, joint.admin.procedures@leg.state.fl.us
Randy Brown, City of Pompano Beach, Randolph.Brown@copbfl.com
Maria Loucraft, City of Pompano Beach, Maria.Loucraft@copbfl.com
Betsy Hewitt, DEP Office of General Counsel
Justin Wolfe, DEP Office of General Counsel
Lea Crandall, DEP Agency Clerk
Elsa Potts, DEP Division of Water
Sharon Sawicki, DEP Division of Water
Hsiang-Yu Chou, DEP
Andrew Tintle, DEP
Doug Beason, DEP
Joy Cottrell, DEP
Mike Bechtold, DEP Southeast District
Konstantin Dubov, DEP Southeast District
Diane Pupa, DEP Southeast District
Kent Edwards, DEP Southeast District
Jennifer K. Smith, DEP Southeast District
Jason Andreotta, DEP Southeast District

NOTICE OF RIGHTS OF SUBSTANTIALLY AFFECTED PERSONS

This determination is final and effective on the date filed with the Clerk of the Department unless a timely and sufficient petition for an administrative hearing is filed under sections 120.569 and 120.57 of the Florida Statutes as provided below. If a sufficient petition for an administrative hearing is timely filed, this determination automatically becomes only proposed agency action subject to the result of the administrative review process. Therefore, on the filing of a timely and sufficient petition, this action will not be final and effective until further order of the Department. The procedures for petitioning for a hearing are set forth in Rules 28-106.201-.202 and 62-110.106, F.A.C., and are summarized below.

Be advised that, under Florida law, your neighbors and other parties who may be substantially affected by this determination have a right to request an administrative hearing. Because the administrative hearing process is designed to re-determine final agency action, the filing of a petition for an administrative hearing may result in a final determination different from this determination. Generally speaking, the 21-day period for filing a petition begins to run on the date of publication of the notice (if published) or the date a person receives actual notice, whichever occurs first (see below).

The Department will not publish notice of this determination. Publication of notice by you is optional and is not required for you to proceed. However, in the event that an administrative hearing is held and the Department's determination is reversed, proceeding with the proposed activity before the time period for requesting an administrative hearing has expired would mean that the activity was conducted without the required permit or authorization. In cases where notice is not published, there may be instances in which a substantial amount of time could pass before an affected person receives notice of the agency action.

If you wish to limit the time within which all substantially affected persons may request an administrative hearing, you may elect to publish, at your own expense, the notice specified below in the legal advertisement section of a newspaper of general circulation in the county where the activity is to take place. A single publication will suffice.

If you wish to limit the time within which any specific person(s) may request an administrative hearing, you may provide direct notice to such person(s), by certified mail and enclosing a copy of this determination.

For the purposes of publication, a newspaper of general circulation means a newspaper meeting the requirements of sections 50.011 and 50.031 of the Florida Statutes. In the event you do publish this notice, within seven days of publication, you must provide to the following address proof of publication issued by the newspaper as provided in section 50.051 of the Florida Statutes. If you provide direct written notice to any person as noted above, you must provide to the following address a copy of the direct written notice: Florida Department of Environmental Protection, 3301 Gun Club Road, MSC7210-1, West Palm Beach, FL, 33406 Attention: Jason Andreotta; or you may submit an electronic copy to SoutheastDistrict@dep.state.fl.us, Attention: Jason Andreotta.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF ORDER GRANTING VARIANCE

The Department of Environmental Protection (Department) gives notice that a variance has been granted to the City of Pompano Beach, 100 West Atlantic Boulevard, Pompano Beach, FL 33060, to provide relief from Rule 62-610.475(4), Florida Administrative Code (F.A.C.), which prohibits the use of an application method that allows for direct contact of reclaimed water on edible crops that will not be peeled, skinned, cooked, or thermally processed before consumption. The City of Pompano Beach operates a residential reuse system. Rule 62-610.475(4), F.A.C., prohibits the use of an application method that allows for direct contact of reclaimed water on edible crops that will not be peeled, skinned, cooked, or thermally processed before consumption. The Department granted a variance from the prohibition within the City of Pompano Beach's reclaimed water service area until May 21, 2026 based upon safeguards the City of Pompano Beach has already implemented and proposed changes to operating protocols at the City of Pompano Beach Reuse Facility.

A person whose substantial interests are affected by the Department's action may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received by the clerk) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000. Mediation is not available.

If a timely and sufficient petition for an administrative hearing is filed, other persons whose substantial interests will be affected by the outcome of the administrative process have the right to petition to intervene in the proceeding. Intervention will be permitted only at the discretion of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

In accordance with Rule 62-110.106(3), F.A.C., petitions for an administrative hearing must be filed within 21 days of publication of the notice or receipt of written notice, whichever occurs first. Under Rule 62-110.106(4), F.A.C., a person whose substantial interests are affected by the Department's action may also request an extension of time to file a petition for an administrative hearing. The Department may, for good cause shown, grant the request for an extension of time. Requests for extension of time must be filed with the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000 before the applicable deadline. A timely request for extension of time will toll the running of the time period for filing a petition until the request is acted upon. Upon motion by the requesting party showing that the failure to file a request for an extension of time before the deadline was the result of excusable neglect, the Department may also grant the requested extension of time.

The petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition for an administrative hearing within the appropriate time period shall constitute a waiver of that right.

A petition that disputes the material facts on which the Department's action is based must contain the following information:

- (a) The name and address of each agency affected and each agency's file or identification number, if known;
- (b) The name, address, and telephone number of the 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; and an explanation of how the petitioner's substantial interests are or will be affected by the agency determination;
- (c) A statement of when and how the petitioner received notice of the agency decision;
- (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;

- (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action;
- (f) A statement of the specific rules or statutes that the petitioner contends require reversal or modification of the agency's proposed action, including an explanation of how the alleged facts relate to the specific rules or statutes; and
- (g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts on which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Under sections 120.569(2)(c) and (d) of the Florida Statutes, a petition for administrative hearing shall be dismissed by the agency if the petition does not substantially comply with the above requirements or is untimely filed.

Copies of documents related to this determination are available online and can be accessed through the Department's Information Portal at: <http://webapps.dep.state.fl.us/DepNexus/public/electronic-documents/FLA013581/facility!search> and are available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at the Department's Southeast District Office, 3301 Gun Club Road, MSC7210-1, West Palm Beach, FL 33406. Please contact the Department at phone number (561) 681-6600 if you have any questions or are experiencing difficulty viewing the electronic documents.

ATTACHMENT A -

December 22, 2015

RECEIVED

DEC 23 2015

Dept. of Environmental Protection
Office of General Counsel

TO: DEP Agency Clerk
Lea Crandall
Florida Department of Environmental Protection
3900 Commonwealth Boulevard
Tallahassee, Florida 32399

RE: In Re: Petition for Variance from Rule 62-610.475(4), F.A.C. Pursuant to Rule 28-104.002, F.A.C., by: City of Pompano Beach, Broward County

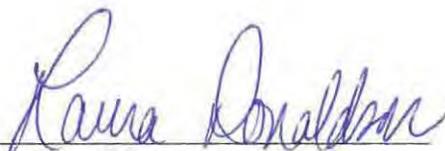
ENCLOSURE: Original Petition for Variance

SPECIAL INSTRUCTIONS:

In accordance with Section 120.542, enclosed for filing is a Petition for Variance from 62-610.475, Florida Administrative Code, on behalf of the City of Pompano Beach.

If you have any questions, please do not hesitate to contact me.

By


Laura Donaldson

Tallahassee
201 East Park Avenue
2nd Floor
Tallahassee, FL 32301

Tampa
1101 West Swann Avenue
Tampa, FL 33606
813.514.4700

Orlando
7479 Conroy Windermere
Road Suite B
Orlando, FL 32835

**STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION**

**In Re: Petition for Variance from
Rule 62-610.475(4), F.A.C.
Pursuant to Rule 28-104.002, F.A.C., by:**

**City of Pompano Beach
Broward County**

RECEIVED

DEC 23 2015

Dept. of Environmental Protection
Office of General Counsel

PETITION FOR VARIANCE

The City of Pompano Beach ("City"), pursuant to Chapter 28-104, Florida Administrative Code ("F.A.C."), hereby files its Petition for a Variance from Rule 62-610.475, F.A.C. ("Petition"), with the Florida Department of Environmental Protection ("DEP") for a variance from the requirement found in Rule 62-610.475(4), F.A.C., which prohibits the direct application of reuse water on edible crops that are not to be cooked, peeled, etc. ("Salad Crops").

In support of this Petition, the City states:

1. The City is a municipality operating pursuant to Chapter 1947-24835, Laws of Florida, and Chapter 166, Florida Statutes ("F.S.") and has the authority to develop, store, and supply potable and reuse water within its service area.

2. In accordance with Section 120.542, F.S., variances shall be granted when the person subject to the rule demonstrates that the purpose of the underlying statute will be or has been achieved by other means and when application of a rule would create a substantial hardship or would violate principles of fairness.¹ In addition to any Chapter 28, F.A.C., requirements, each request for a variance must cite the rule, the type of action requested, specific facts

¹ Section 120.542, F.S., defines "substantial hardship" as a "...demonstrated economic, technological, legal, or other type of hardship..." and that there is a violation of the "principles of fairness" when "...the literal application of a rule affects a particular person in a manner significantly different from the way it affects other similarly situated persons..."

supporting the request and an explanation of how the variance serves the purpose of the underlying statute.

3. Pursuant to Chapter 28-104, F.A.C.,² a petition for a variance must include:
 - (a) The caption shall read: Petition for (Variance from) or (Waiver of) Rule (Citation)
 - (b) The name, address, any e-mail address, telephone number, and any facsimile number of the petitioner, if the party is not represented by an attorney or a qualified representative;
 - (c) The name, address, e-mail address, telephone number, and any facsimile number of the attorney or qualified representative of the petitioner, if any;
 - (d) The applicable rule or portion of the rule;
 - (e) The citation to the statute the rule is implementing;
 - (f) The type of action requested;
 - (g) The specific facts that demonstrate a substantial hardship or a violation of principles of fairness that would justify a waiver or variance for the petitioner;
 - (h) The reason why the variance or the waiver requested would serve the purposes of the underlying statute; and
 - (i) A statement whether the variance or waiver is permanent or temporary. If the variance or waiver is temporary, the petition shall include the dates indicating the duration of the requested variance or waiver.

² Rule 62-110.104, F.A.C., recognizes that a person can seek either a variance under section 120.542, F.S., in which the person must then comply with Chapter 28-104, F.A.C., or seek a variance under Sections 373.414 or 403.201, F.S., in which the person must then comply with Rule 62-110.104, F.A.C. A variance pursuant to Section 120.542, F.S., is more appropriate to this request.

4. DEP has the authority pursuant to Section 120.542(1), F.S., and Chapter 28-104, F.A.C., to grant waivers and variances when strict application of such rules would lead to unreasonable, unfair and unintended consequences in particular instances.

5. Although the City currently provides potable water and reuse water services to its residents, the City has no wastewater facilities and its wastewater flows from the City to Broward County Water and Wastewater Services' North Broward County Regional Wastewater Treatment Plant ("NRWWTP"). The water is treated to secondary standards by Broward County and is sent to the ocean.

6. The City obtains effluent from the NRWWTP through an interlocal agreement, which is attached as Exhibit A. The interlocal agreement provides for the Broward County effluent, which is already treated to secondary standards, to be diverted prior to being discharged through an Atlantic Ocean outfall.³

7. The NRWWTP is a conventional activated sludge wastewater treatment plant, originally constructed in 1975 with capacity upgrades through the early 2000s. The NRWWTP is permitted to treat 95 mgd on an Annual Average Daily Flow (AADF) basis, with a corresponding 190 mgd Peak Hour Flow (PHF) rating, by the DEP under permit number FL 0031771, which was issued on January 25, 2013.

8. Broward County is presently designing/constructing multiple process and capacity improvements construction packages for the NRWWTP, including but not limited to: capacity improvements (two additional injection wells plus booster pumps for all eight wells and reclaimed water system expansion), chlorination improvements (addition of sodium hypochlorite, safety improvements to gaseous system), fine bubble conversion (improves

³ Pompano Beach Reuse Water Utilities, Reuse Water System Program Manual, January 2013.

biological treatment), and multiple facilities improvements bid packages (repair/replacement of headworks, biological, solids, effluent, and electrical facilities).

9. The following describes the existing treatment processes at the NRWTP, with ongoing improvements noted:

- a. Headworks and Biological Treatment. The raw wastewater is directed to the headworks facility for screening (large solids, plastics, etc) and flow diversion/measurement to five biological treatment modules. The screened wastewater is distributed hydraulically to five treatment modules (A, B, C, D and E) with flow measurement occurring via a venturi flowmeter on each dedicated pipe from the headworks to each module. Modules C and E currently utilize fine bubble aeration while the other modules employ surface aerators for biological treatment of the wastewater. Broward County is presently overseeing the design of fine bubble conversions for the remaining Modules A, B and D.
- b. Clarification and Disposal of Effluent. Following biological treatment, the effluent is clarified via circular secondary clarifiers located at each treatment module prior to disposal. The clarified effluent is then directed to three current methods of disposal: deep injection wells, on-site reclaimed water production for off- and on-site use, and ocean outfall discharge (which includes a pipeline to City's OASIS facility for the production of reclaimed water for the City's use). NRWTP presently operates with primary disposal through the deep injection wells and peak flows through the ocean outfall. NRWTP utilizes six deep injection wells and four monitor wells for disposal. Two additional

injection wells, one monitor well and eight new injection well booster pumps are under construction.

- c. Disinfection. Broward County is presently completing a construction project to replace the chlorine evaporators with a gas education system. Additionally, Broward County is maintaining sodium hypochlorite facilities constructed for interim use during construction of the gas system improvements for additional facility redundancy. The primary points of use for chlorine disinfection are the plant outfall and reclaimed water streams. One chlorine feed point is also available at the injection well pumping station. Additionally, a maintenance dose of chlorine can also be fed to the clarifier modules.
- d. Reclaimed Water. The existing reclaimed water system at the NRWTP is a 10 mgd capacity Dynasand up-flow filter system. The system includes on-site storage, pumping and conveyance facilities. The system has been in operation since 1991. The existing facility produces reclaimed water suitable for cooling water for industrial use, irrigation of public access areas and for in plant use.
- e. The single media upflow filters are designed for a hydraulic loading rate of 3.5 gpm/ft². The chlorine contact process at the filters is being operated to provide a minimum of 30 minutes of detention time at average flow. The NRWTP reclaimed water system is currently being expanded to 26 mgd to comply with the Ocean Outfall Rule legislation requirements.
- f. Solids Treatment. The solids generated during the biological treatment of the wastewater are treated onsite at the NRWTP biosolids treatment facilities. These facilities consist of dissolved air flotation thickeners, anaerobic

digesters for stabilization, and belt filter presses for dewatering. NRWTP employs anaerobic digestion to stabilize the thickened biosolids from the treatment process. The solids are then directed to the belt filter presses for dewatering prior to removal from site.

10. The City's reuse water treatment facility, otherwise known as OASIS, further treats the Broward County treated effluent to improve its quality through the use of filtration and disinfection pursuant to DEP permit number FLA-013581-006-DW1P ("FDEP Permit"), which is attached as Exhibit B. The City's reuse facility is located in the northeast section of the municipal golf course at 1799 N. Federal Highway, and consists of two filter structures, a chlorine contact basin, two reuse water storage tanks and associated pumps, air compressors and auxiliary equipment.⁴ It has a capacity of 7.5 million gallons per day ("MGD") of highly treated effluent for irrigation and an expansion capacity of up to 12.5 MGD. The system also includes over 29 miles of reuse water main.⁵

11. The City's additional treatment is highly sophisticated and effective, and has been a part of a stringent California Title 22⁶ Performance Testing of the Dynasand Ecowash Filter

⁴ The City's OASIS facility provides tertiary treatment, which is a final stage of advanced treatment to raise the effluent quality to the City's desired water quality level to allow it to be used for higher uses. There are three types of wastewater treatment: primary, secondary and tertiary. According to the World Bank Group, *Introduction to Wastewater Treatment Processes*, "tertiary treatment can remove more than 99 percent of all impurities from sewage, producing an effluent of almost drinking-water quality," with such report available at: <http://water.worldbank.org/shw-resource-guide/infrastructure/menu-technical-options/wastewater-treatment>. According to the University of Florida IFAS Extension, tertiary treatment is the "final stage that involves advanced removal of harmful chemicals and disinfection to kill disease-causing organisms," with such report available at: <http://edis.ifas.ufl.edu/ss544>.

⁵ City of Pompano Beach, Broward County, Florida, Utilities Department Annual Report, Fiscal Year Ending September 30, 2013.

⁶ Title 22 of the California Code of Administration provides California's Water Recycling Criteria, which are California state guidelines for how treated and recycled water is discharged and used. California Title 22 lists specific uses allowed with disinfected tertiary recycled water, specific uses allowed with disinfected secondary recycled water (such as irrigating animal feed and other unprocessed crops), and specific uses allowed with

project, which resulted in a system capable of meeting California Title 22 recycle water turbidity requirements as well as a reduction in total suspended solids, with such report attached as Exhibit C.⁷

12. According to its annual test results, the City's reuse water meets all of eighty (80) potable drinking water standards except for chloride, total dissolved solids and sodium.⁸

13. By using reuse water in lieu of potable water for irrigation purposes, the City's Icanwater program has achieved over 700 single family home reuse water connections with over 715 residents signed up, with an estimated savings of potable water of over 83 million gallons per year.

14. The City also provides reuse water to the City of Lighthouse Point and will soon provide reuse to Broward County. Rate payers and wholesalers are currently using about 3.0 MGD of the 7.5 MGD capacity.

15. Rule 62-610.475(4), F.A.C., states that "[i]rrigation of edible crops that will not be peeled, skinned, cooked or thermally processed before consumption using an application method that allows for direct contact of the reclaimed water on the crop is prohibited."

16. According to the DEP's report on reuse, "[s]takeholders have expressed concerns that this restriction is not technically supported" and "[d]irect irrigation has been safely and successfully practiced in other states for decades."⁹

undisinfected secondary recycled water. Allowed uses of the disinfected recycled water include irrigation of food crops.

⁷ Parkson Corporation, *Title 22 Performance Testing of the DynaSand EcoWash Testing*, January 2013, which found that the City's reuse system meets the extremely high standards of Title 22 of the California Code of Administration.

⁸ Pace Analytical Services, Inc. Analytical Results dated March 17, 2015 and Florida Spectrum Laboratory Analysis Report dated February 20, 2014.

⁹ This reference can be found in section 2.7.2.4 of the "Report on Expansion of Beneficial Use of Reclaimed Water, Stormwater, and Excess Surface Water (Senate Bill 536)" dated December 1, 2015 ("DEP's Reuse Report"), which is available at: <http://www.dep.state.fl.us/water/reuse/docs/sb536/SB536-Report.pdf>.

17. Many utilities around the United States and the world use treated wastewater for drinking water such as Orange County Water District, Singapore, Windhoek, Namibia, let alone allowing it to be sprayed directly onto Salad Crops.¹⁰

18. There are six domestic wastewater facilities in Palm Beach, Broward, and Miami-Dade counties discharging approximately 300 MGD of treated domestic wastewater directly into the Atlantic Ocean through ocean outfalls.¹¹ In 2008, the Florida Legislature passed a law that prohibited construction of new ocean outfalls and required that all 6 ocean outfalls in Florida cease discharging wastewater by December 31, 2025.¹² In addition, wastewater facilities that discharged wastewater through an ocean outfall on July 1, 2008, were required to install a reuse system no later than December 31, 2025. The reuse systems must be capable of providing a minimum of 60 percent of the wastewater facilities' actual annual flow for beneficial reuse. In 2010, the Florida Legislature passed a law addressing a concern that certain facilities would not be able to comply with the sixty percent (60%) reuse requirement of Section 403.086(9)(c), F.S.¹³ and an issue where flow received from outside their service areas could be credited to other wastewater facilities that do not discharge through ocean outfalls. In 2013, the Florida Legislature granted utilities additional flexibility to meet the sixty percent (60%) reuse requirement by contracting with an existing reuse facility to provide the sixty percent (60%) beneficial use ("Contractual Reuse") and to continue to discharge peak flows up to five percent of utilities' baseline flows through ocean outfalls.¹⁴

¹⁰ Food and Agriculture Organization of the United Nations, *Wastewater Treatment and Use in Agriculture*, which is available at: <http://fao.org/docrep/t0551e/t0551e0b.htm>.

¹¹ DEP, Implementation of Chapter 2008-232, Laws of Florida Domestic Wastewater Ocean Outfalls (June 2010), which is available at: <http://www.dep.state.fl.us/water/wastewater/docs/ocean-outfall-2010.pdf>.

¹² See Chapter 2008-232, Laws of Florida, which is available at: http://laws.flrules.org/files/Ch_2008-232.pdf.

¹³ See Chapter 2010-205, Laws of Florida, which is available at: http://laws.flrules.org/files/Ch_2010-205.pdf.

¹⁴ See Chapter 2013-31, Laws of Florida, which is available at: <http://laws.flrules.org/2013/31>.

19. The City is discussing entering into contracts with other utilities to provide Contractual Reuse to meet the statutory requirements, where such utilities would pay for the expansion of the City's reuse distribution system to achieve the contracted amount of reuse.

20. In order to meet such contractual obligations being considered, the City may need to create mandatory reuse zones within its boundaries to expand its residential irrigation-based water reuse system.¹⁵ Due to Rule 62-610.475(4), F.A.C., and the amount of residents that have home gardens within the City, there is concern regarding the impacts of creating mandatory reuse zones within the utility service area.

21. Section 373.250, F.S., provides that "[t]he encouragement and promotion of water conservation and reuse of reclaimed water...are state objectives and considered to be in the public interest. The Legislature finds that the use of reclaimed water provided by domestic wastewater treatment plants permitted and operated under a reuse program approved by the department is environmentally acceptable and not a threat to public health and safety."

22. Similarly, Section 403.064, F.S., provides "[t]he encouragement and promotion of water conservation, and reuse of reclaimed water...are state objectives and are considered to be in the public interest. The Legislature finds that the reuse of reclaimed water is a critical component of meeting the state's existing and future water supply needs while sustaining natural systems. The Legislature further finds that for those wastewater treatment plants permitted and operated under an approved reuse program by the department, the reclaimed water shall be considered environmentally acceptable and not a threat to public health and safety."

¹⁵ Mandatory reuse zones are adopted by a local government by ordinance and designate specified areas that require non-potable water users to connect to the utilities' reclaimed water system. According to the DEP Reuse Report, mandatory reuse zones "[a]llows the utility to serve those areas with reclaimed water for irrigation – reducing the pressure on local groundwater resources..."

Requested Action

23. The City is requesting a variance from Rule 62-610.475(4), F.A.C., to allow the City's reuse water, which has received tertiary treatment, to be applied directly onto residential Salad Crops that will not be cooked, peeled, thermally processed, etc. within the boundaries of the City's utility service area. The City proposes that the variance be issued for twenty years with a review by the DEP every five years, and a water quality monitoring program that requires submission of reports to DEP on the following schedule: quarterly water quality monitoring for the first year; bi-yearly water quality monitoring for years 2-3; and yearly water quality monitoring thereafter.

24. As required by Chapter 28-104, F.A.C.,¹⁶ this Petition includes:

(a) The caption shall read: Petition for (Variance from) or (Waiver of) Rule (Citation)

This Petition's caption reads: In Re: Petition for Variance from Rule 62-610.475(4), F.A.C.

(b) The name, address, any e-mail address, telephone number, and any facsimile number of the petitioner, if the party is not represented by an attorney or a qualified representative

The address of the City is 100 West Atlantic Boulevard, Pompano Beach, FL 33060. The City's telephone number is 954-545-7043 and its facsimile number is 954-545-7046. The City Manager is Dennis Beach and the City's Utility Director is A. Randolph Brown, whose email address is randolph.brown@copbfl.com.

¹⁶ Rule 62-110.104, F.A.C., recognizes that a person can seek either a variance under Section 120.542, F.S., in which the person must then comply with Chapter 28-104, F.A.C., or seek a variance under Sections 373.414 or 403.201, F.S., in which the person must then comply with Rule 62-110.104, F.A.C. A variance pursuant to Section 120.542, F.S., is more appropriate to this request.

(c) The name, address, e-mail address, telephone number, and any facsimile number of the attorney or qualified representative of the petitioner, if any

The name and address of the City's attorney is Laura Donaldson, Manson Bolves Donaldson, P.A., 1101 West Swann Avenue, Tampa, FL 33606. The phone number is 813-514-4700 and the facsimile number is 813-514-4701. For purposes of this Petition, all correspondence should be directed to the City's attorney at the referenced address.

(d) The applicable rule or portion of the rule

Rule 62-610.475(4), F.A.C., states that “[i]rrigation of edible crops that will not be peeled, skinned, cooked or thermally processed before consumption using an application method that allows for direct contact of the reclaimed water on the crop is prohibited.”

(e) The citation to the statute the rule is implementing

The statute the rule is implementing is: Section 403.021, F.S.

(f) The type of action requested

This Petition is requesting a variance from this rule for a twenty year period, which will allow the City to expand its residential irrigation-based reuse system by requiring mandatory connection of residences to its reuse water system. The City is seeking this variance from the rule only as it relates to residences.

(g) The specific facts that demonstrate a substantial hardship or a violation of principles of fairness that would justify a waiver or variance for the petitioner

Without being able to expand its residential irrigation reuse program, the City will not be able to provide a timely and cost effective solution to those entities impacted by

the ocean outfalls and sixty percent (60%) beneficial reuse requirements. Millions of dollars of additional expenses may be avoided by affected utilities seeking contracts with the City if this variance is granted, as other more expensive solutions would not be required. The City may also have to eventually pursue other more expensive sources of potable water as potable water will be used within its service area to irrigate residential lawns rather than reuse water. The prohibition on direct application of reuse water on Salad Crops is hampering the much needed expansion of the City's reuse system. Without a mandatory reuse zone for residential customers, voluntary customer connection is approximately 55%. This means that construction costs for reuse expansion would have to double to be able to provide the needed amount of reuse for a reuse contract. If the prohibition was needed to protect residents, the City would not be making this request. However, even DEP's Reuse Report states that direct irrigation of reuse water on Salad Crops has been safely and successfully practiced in other states for decades.¹⁷ In addition, as described below, there are numerous studies that support the findings that the direct application on Salad Crops is safe. This sends a mixed message to the customer on the safety of reuse water and is unique to reuse as no other water sources have a similar restriction (stormwater runoff, canal water, groundwater).

The City will be faced with a substantial hardship as it will have to expend unnecessary revenues to find additional irrigation water supply when it can economically take additional reuse water that can be utilized for residential irrigation within mandatory reuse zones as a result of an existing rule that is not scientifically based. An additional substantial hardship is that the City will be unable to enter into contracts to take

¹⁷ This reference can be found in section 2.7.2.4 of the "Report on Expansion of Beneficial Use of Reclaimed Water, Stormwater, and Excess Surface Water (Senate Bill 536)" dated December 1, 2015.

additional reuse, which will result in a protection of the environment. The City will also not be able to expand its City's reuse program, which is in the public interest.

(h) The reason why the variance or the waiver requested would serve the purposes of the underlying statute

The underlying purpose of Section 403.021, F.S., is to protect the environment and residents of the State of Florida.

Protection of the Environment

Reduction in the Discharge of Treated Wastewater

Section 403.086(9), F.S., provides that “[T]he Legislature finds that the discharge of domestic wastewater through ocean outfalls wastes valuable water supplies that should be reclaimed for beneficial purposes to meet public and natural systems demands. The Legislature also finds that discharge of domestic wastewater through ocean outfalls compromises the coastal environment, quality of life, and local economies that depend on those resources.” As previously stated, the City has an aggressive reuse water program that currently diverts treated water that is to be discharged into the Atlantic Ocean. The granting of this variance will allow the City to expand its reuse program and increase the amount of treated wastewater it can divert for an environmental beneficial use. There will be a direct reduction in the discharge of treated wastewater directly into the Atlantic Ocean through ocean outfalls, which is being mandated by Section 403.086(9), F.S. As declared by Florida Law, the “timely elimination of ocean outfalls as a primary means of domestic wastewater discharge are in the public interest.”¹⁸

¹⁸ See Section 403.086(9), F.S.

Reduction in Ground and Surface Water Withdrawals

Reuse is an integral part of Florida's water resources management and ecosystem management. It reduces demands on valuable surface and ground water used for potable water and postpones costly investment for development of new water sources and supplies. As currently provided in state law, "reuse of reclaimed water is a critical component of meeting the state's existing and future water supply needs while sustaining natural systems."¹⁹ If granted the variance, the City can expand its existing reuse system, thus increasing the amount of reuse water used for residential irrigation purposes. By using reuse water as a water source for irrigation purposes, it can help decrease the amount of potable water supply used for residential irrigation purposes as well as assisting public supply to avoid competing with other groundwater users, such as agriculture, for the limited groundwater sources within Broward County. It also can reduce the need for the South Florida Water Management District to conduct a case-by-case determination of reuse availability for consumptive use permit applications if the City creates mandatory reuse zones where reuse is available.

Protection of Citizens

Residents will be protected as the direct application of reuse that has received tertiary treatment on Salad Crops is safe. This statement is supported by DEP's Reuse Report. When the prohibition was implemented in the 1980s, there were no studies that showed that the prohibition was needed for the protection of consumers; rather it was

¹⁹ See Section 403.064, F.S.

done to encourage the use of reclaimed water.²⁰ There have been numerous studies since the rule was enacted that have shown that there are no health or safety issues with the direct spraying of reused water on Salad Crops.²¹

U.S. Food and Drug Administration

Currently, the U.S. Food and Drug Administration (“FDA”) is proposing various revisions to the microbial standard for water that is directly applied by farmers during the growing of produce.²² The agency is updating the microbial quality standard to reflect data that supports the 2012 Environmental Protection Agency recreational water quality criteria.²³ Under the proposed tiered approach, for untreated surface water—considered the most vulnerable to contamination—the FDA would require farms to do a baseline survey of the quality of agricultural water directly applied to produce during growing, using a minimum of 20 samples, collected during a time period(s) as close as practical to harvest over the course of two years. The baseline findings would be used to determine if the water meets the microbial quality standard. Recognizing that water sources have different levels of contamination risk, the FDA is proposing a tiered and more targeted approach to testing each source of untreated water that will be less burdensome on farmers while still protective of public health. If the FDA is allowing untreated surface water to be directly applied to Salad Crops (minus sprouts), then why should reuse water that has received tertiary treatment not be allowed? Effectively, the DEP has created a

²⁰ HortScience Vol. 45, *Reclaimed Water as an Alternative Water Source for Crop Irrigation* by L. Parsons, B. Sheikh, R. Holden, and D. York, November 2010, which is available at: <http://hortsci.ashspublications.org/content/45/11/1626.full.pdf+html>.

²¹ *Id.*

²² See <http://www.fda.gov/food/guidanceregulation/fsma/ucm334114.htm>.

²³ United States Environmental Protection Agency, *2012 Recreational Water Quality Criteria*, EPA-820-F-12-061, dated December 2012, which is available at:

<http://water.epa.gov/scitech/swguidance/standards/criteria/health/recreation/index.cfm>.

regulatory scheme that prevents highly treated reuse water from being used on Salad Crops even though citizens are consuming commercial Salad Crops as well as their own Salad Crops that have been irrigated with untreated surface water.²⁴

There are many places around the United States and the world that allow the direct application of reuse water on Salad Crops.²⁵ In Monterey County, California, after a five year study, it was concluded that there “appears to be no significant public health risk associated with the irrigation of raw-eaten vegetable crops” with reclaimed water that was treated through direct filtration or using California’s Title 22 water quality requirements.²⁶ The City’s system was found to be in compliance with California’s Title 22 water quality requirements. In addition, it was concluded that use of municipal reuse water is integral to California’s water needs and environmental protection and that

²⁴ U.S. Food and Drug Administration, *Analysis and Evaluation of Preventive Control Measures for the Control and Reduction/Elimination of Microbial Hazards on Fresh and Fresh-Cut Produce: Chapter II. Production Practices as Risk Factors in Microbial Food Safety of Fresh and Fresh-Cut Produce Part II*, which is available at <http://www.fda.gov/Food/FoodScienceResearch/SafePracticesforFoodProcesses/ucm091102.htm>, which states the following in regards to Florida’s Salad Crops prohibition “There is no scientific basis for the current prohibition on direct contact irrigation methods, for the so-called salad crops and removal of this prohibition has been recommended (York and others 2000; FWEA 2000).” See Water Environment Research Foundation *Final Report: Reduction of Pathogens, Indicator Bacteria, and Alternative Indicators by Wastewater Treatment and Reclamation Processes*, 2004, which is available at:

http://www.researchgate.net/publication/239924857_Reduction_of_pathogens_indicator_bacteria_and_alternative_indicators_by_wastewater_treatment_and_reclamation_processes, which states “Each successive treatment step...has the potential to reduce the concentrations of indicators and pathogens...If the treatment system is highly effective, the concentrations of indicators and pathogens may be below detection levels” and “Reclaimed water....is not pathogen free and exposure of the public to these waters carries some risk, albeit this level may be very low and quiet acceptable...” The City’s reuse water is highly treated having received treatment by Broward County and then additional treatment by the City to tertiary treatment standards.

²⁵ Food and Agriculture Organization of the United Nations, *Wastewater Treatment and Use in Agriculture*, which is available at: <http://fao.org/docrep/t0551e/t0551e0b.htm>. There are also many places that use treated wastewater for drinking water. See Columbia University, Earth Institute, State of the Planet, *From Wastewater to Drinking Water* by R. Cho, April 4, 2011, which is available at: <http://blogs.ei.columbia.edu/2011/04/04/from-wastewater-to-drinking-water/>.

²⁶ California Agriculture, *Reclaimed Water for Irrigation of Vegetables Eaten Raw* by R. Burau, B. Sheikh, R. Cort, R. Cooper, and D. Ririe, July-August 1987, which is available at: <http://ucanr.edu/repositoryfiles/ca4107p4-63027.pdf>; See also *Recycled Water Food Safety Study for Monterey County Water Recycling Projects*, Water Quality and Operations Committee, August 1998; See also National Research Council of the National Academies, *Water Reuse Potential for Expanding the Nation’s Water Supply Through Reuse of Municipal Wastewater*, 2012, which is available at: http://www.nap.edu/download.php?record_id=13303.

“[d]isinfected tertiary recycled water can be used for unrestricted irrigation of all crops, without limitation on irrigation method employed.”²⁷

Drinking water does not have federal guidelines or limits for such pathogens; rather, treatment techniques are required.²⁸ If the public health was at risk for these pathogens, then there clearly would be limitations in drinking water. Similar to drinking water treatment techniques, the City’s treatment techniques results in its reuse water meeting the California Title 22 water quality standards, which have been found to be protective of the public health. In addition, the FDA is allowing untreated water to be used without corresponding pathogen limitations. It is not appropriate to require the water quality of reclaimed water to be at a higher more restrictive standard than water that is being consumed. A study regarding pathogen removal at facilities in Monterey, California found that a reuse treatment train that met California Title 22 water quality requirements and consisted of primary sedimentation, biological secondary treatment, including trickling filter/solids contact, coagulation, flocculation, dual-media filtration, and chlorine disinfection, had no viral or bacterial pathogens in its tertiary effluent and that the “intermittent concentration of protozoan cysts detected presented a negligible health risk. These data contribute to a growing body of evidence (e.g. York, 1998) illustrating that recycled water is at least as safe, and in some cases safer, as other sources of irrigation water for growing food crops eaten raw.”²⁹

²⁷ California Agricultural Water Stewardship Initiative, *Use of Municipal Recycled Water*, http://agwaterstewards.org/index.php/practices/use_of_municipal_recycled_water.

²⁸ Despite there being an estimated 403,000 cases of gastrointestinal disease in 1993 as a result of contaminated drinking water supply, there are no federal mandatory limitations on *Cryptosporidium*.

²⁹ *Efficacy of Pathogen Removal During Full-Scale Operation of Water Reuse Facilities in Monterey, California*, by K. Nelson, B. Sheikh, R. Cort, R. Cooper, R. Holden, and K. Israel, which is available at: http://nbwra.org/docs/pdfs/pathogen_removal.pdf. The study found that even though *Cryptosporidium* oocysts,

A study of protozoan pathogens in Florida's reuse water not only looked at *Cryptosporidium* and *Giardia* in reuse water but also in the environment.³⁰ These pathogens, which have low infective doses, were found to not only exist in reuse water but also Florida's surface waters, including pristine rivers and lake, with *Cryptosporidium* existing in springs.³¹ The use of filtration and soils, including sands, were found to be effective in removing cysts and oocysts from water. It also provided that *Giardia* cysts found in reclaimed water "probably are not capable of causing infection." Finally, although the State of Arizona has *Giardia* standards for reclaimed water that irrigated Salad Crops, such standards were not based on risk assessment and the pathogen standards had recently been eliminated.³²

Currently, many of the City's residents are using untreated water being withdrawn from canals on their Salad Crops. There are no water quality standards or prohibitions on such use even though the canal water has not been treated at any level. Yet, the City's highly treated reuse water that meets the California Title 22 water quality requirements is prohibited from being used. There is no scientific basis for a distinction between these

Giardia cysts and *Cyclospora* oocysts were detected in effluent samples, the low concentrations were not believed to present a health risk (even though *Cryptosporidium* was in 39% and *Giardia* and *Cyclospora* oocysts were in 6% of the effluent samples). Total coliform bacteria and fecal coliform bacteria also did not exceed recommended levels.

³⁰ *Monitoring for Protozoan Pathogens in Reclaimed Water: Florida's Requirements and Experience* by D. York, L. Walker-Coleman, L. Williams, P. Menendez, which can be found at

<http://www.dep.state.fl.us/water/reuse/docs/protozoan.pdf>. Exhibit A of the report provides that

Cryptosporidium was found in 17% of the samples taken from the City of St. Petersburg's reclaimed water system and averaged 0.75 oocysts/100 L compared to being found in 51% of the samples taken from surface waters and averaged 43 oocysts/100 L. Exhibit B of the report provides that *Giardia* was found in 25% of the samples taken from the City of St. Petersburg's reclaimed water system and averaged 0.49 cysts/100 L compared to being found in 15% of the samples taken from surface waters and averaged 3 cysts/100 L.

³¹ *Id.*

³² *Id.*

waters and if anything, it would be more appropriate to restrict the use of canal water on Salad Crops not the high quality City reuse water.

Monitoring

The City monitors its reuse on a routine basis and all water quality samples are collected in accordance with the applicable Florida Administrative Code and its permit. Four (4) parameters are analyzed continuously and an additional two (2) parameters are analyzed daily. Operational and water quality data is required every five (5) years under the City's current FDEP Permit, but it is analyzed annually and submitted to the Broward County Environmental Protection and Growth Management annually. This data can be found in Exhibit D.

As part of this Petition, the City proposes continuation of its monitoring program. However, it proposes to submit such reports to DEP on the following schedule: quarterly water quality monitoring for the first year; bi-yearly water quality monitoring for years 2-3; and yearly water quality monitoring thereafter.

Costs

In the event the exemption is not granted, the City would need to consider other potable water sources or development of additional groundwater capacity in the area in order to meet the irrigation demands of its residents. Any or all of these options would place an increased financial burden on the local ratepayers with no economic, environmental, or social benefit. Other alternatives are similarly cost prohibitive and/or unproven at this time. There would be additional expenses for other entities as well related to meeting the statutory requirements related to ocean outfalls and sixty percent (60%) beneficial reuse requirement.

(i) A statement whether the variance or waiver is permanent or temporary. If the variance or waiver is temporary, the petition shall include the dates indicating the duration of the requested variance or waiver

The requested variance would be for a term of twenty years as substantial infrastructure will be needed to expand the City's residential reuse program. Although the City's OASIS system has capacity, additional reuse transmission lines would be needed. Currently, it costs approximately \$1.5 million per 2000 feet of reuse transmission line and \$300,000 for 10,000 feet of distribution lines. The City has invested over \$29,300,000 of public funds in the City's water and reuse system.

Summary

25. There is no evidence that supports the need for the prohibition provided in Rule 62-610.475(4), F.A.C., which is confirmed in DEP's Reuse Report.

26. Public health will not be endangered should the variance be approved as studies show that it is safe to directly apply reuse water that has received tertiary treatment onto Salad Crops. Drinking water does not have federal guidelines or limits for such pathogens; rather, treatment techniques are required. If the public health was at risk for these pathogens, then there would be set limitations. Similar to drinking water treatment techniques, the City's treatment techniques results in its reuse water meeting the California Title 22 water quality standards, which are protective of the public health. It is not appropriate to require the water quality of reclaimed water to be at a higher more restrictive standard than water that is being consumed. In addition, the FDA is allowing untreated water to be used directly on Salad Crops without corresponding pathogen limitations and there are no Florida restrictions on canal water being

directly sprayed by residents onto their Salad Crops even though such water receives no tertiary treatment and has a high probability of the presence of pathogens.

27. There will be an environmental benefit as there will be a reduction in the amount of reuse water that is discharged into the Atlantic Ocean. In addition, the City will be able to expand the use of reuse water for residential irrigation within its utility service area, which will increase available water supply for irrigation. This may delay the need for the development of additional potable water supplies.

28. The City will be faced with substantial hardship as it will not be able to provide a timely and cost effective solution to the sixty percent (60%) beneficial reuse requirement. The City will miss the opportunity to contract with utilities affected by the ocean outfall requirement to provide beneficial reuse within the City's utility service area. The City may also have to eventually pursue other more expensive sources of potable water as potable water will be used to irrigate residential lawns rather than reuse water.

29. Reused water being sprayed directly onto Salad Crops is a current practice in the United States and the world.

30. The proposed variance is in the public interest and reused water from a DEP permitted facility is considered to be environmentally acceptable and not a threat to public health and safety.

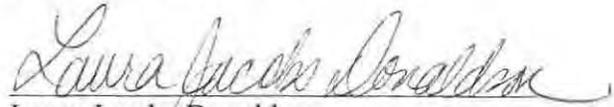
WHEREFORE, the City of Pompano Beach requests:

31. The Florida Department of Environmental Protection issue a Variance from Rule 62-610.475, F.A.C., in accordance with Section 120.54, F.S., to allow the direct application of the City's reuse water, which has received tertiary treatment, on edible crops that are not to be cooked, peeled, etc. within its utility service area, with the

variance being issued for twenty years with a review every five years, and a water quality monitoring program that requires submission of reports on the following schedule: quarterly water quality monitoring for the first year; bi-yearly water quality monitoring for years 2-3; and yearly water quality monitoring thereafter.

RESPECTFULLY SUBMITTED this 22nd day of December, 2015.

MANSON BOLVES DONALDSON, P.A.
1101 W. Swann Avenue
Tampa, Florida 33606
Ph.: (813) 514-4700
Fax: (813) 514-4701
Attorneys for Petitioner

A handwritten signature in cursive script, reading "Laura Jacobs Donaldson".

Laura Jacobs Donaldson
Florida Bar No. 0139696

Exhibit A

Agreement between City of Pompano Beach and Broward County

TEL:

Sep 11 '98 11:04 No.005 P.03

John Stearns
July 16/90

AGREEMENT
Between
BROWARD COUNTY
and
CITY OF POMPANO BEACH
for
WASTEWATER EFFLUENT REUSE

26



AGREEMENT

Between

BROWARD COUNTY

and

CITY OF POMPANO BEACH

for

WASTEWATER EFFLUENT REUSE

This is an Agreement, made and entered into by and between: BROWARD COUNTY, a political subdivision of the state of Florida, hereinafter referred to as "COUNTY,"

AND

CITY OF POMPANO BEACH, a municipal corporation, established under the laws of the state of Florida, hereinafter referred to as "CITY."

WHEREAS, COUNTY operates the North Regional Wastewater Treatment Plant; and

WHEREAS, COUNTY utilizes an ocean outfall for the disposal of secondary treated wastewater effluent; and

WHEREAS, COUNTY recognizes that effluent reuse for irrigation purposes results in a significant public benefit; and

WHEREAS, CITY desires to capture, treat, and disinfect some of the treated wastewater effluent before it leaves the ocean outfall, and use the treated wastewater for irrigation purposes; NOW, THEREFORE,

IN CONSIDERATION of the mutual terms, conditions, promises, and covenants hereinafter set forth, COUNTY and CITY agree as follows:

ARTICLE 1RATES, FEES OR CHARGES

Pursuant to the terms of this Agreement, COUNTY shall permit CITY to withdraw wastewater effluent from COUNTY'S wastewater effluent disposal system. COUNTY agrees that any rates, fees, or charges to be billed to CITY shall be the same rates, fees, or charges applicable to other customers receiving like services under similar circumstances. Any

rates, fees, or charges imposed by COUNTY may from time to time be amended and adopted by the Board of County Commissioners at a Public Hearing. The initial rate to be paid by CITY to COUNTY shall be One Dollar (\$1.00) per annum.

ARTICLE 2

PROVISIONS PERTAINING TO CONNECTION TO COUNTY OUTFALL PIPE

- 2.1 Point of Connection: COUNTY and CITY agree the point where the CITY'S connection to COUNTY'S outfall pipe and the meter locations shall be as indicated on Exhibit "A," attached hereto and made a part hereof.
- 2.2 Maintenance, and Expense of Connection: CITY agrees at its sole cost and expense to maintain the connection to COUNTY'S outfall pipe without interruption of flow or damage to COUNTY'S treatment/discharge activities, system, facilities, or equipment.
- 2.3 Pressure or Flow Problems at Connection: COUNTY does not guarantee a minimum pressure at the point of connection nor shall COUNTY be responsible for any flow or transmission problems into CITY'S system from COUNTY'S system, except as provided for in Article 7.
- 2.4 CITY To Install Meters: CITY agrees to provide and install wastewater metering devices, accessories, and appurtenances which shall continuously meter and record the volume of all wastewater effluent withdrawn by CITY from COUNTY'S system.
- 2.5 CITY to Maintain Meters: CITY agrees to have a semiannual inspection and report prepared, at its sole cost and expense, regarding the condition and accuracy of the metering devices. Such inspection and report shall be performed by a representative of the manufacturer or other certified, competent entity mutually agreed upon by COUNTY and CITY. A copy of the semiannual inspection report shall be furnished at no cost to COUNTY. COUNTY shall, upon reasonable notice to CITY, have the right to make its own inspection or to have an independent party make an inspection. All cost and expense of COUNTY'S or independent party's inspection shall be borne by COUNTY unless any metering device is found to be inaccurate beyond the manufacturer's

guaranteed range of accuracy, in which case the cost and expense of COUNTY'S or independent party's inspection shall be borne by CITY. All maintenance of the metering devices shall be performed by CITY at its sole cost and expense.

- 2.6 Meter Inaccuracy or Failure: Should any of the metering devices be determined to be inaccurate or fail at any time, upon the CITY'S knowledge of the malfunction, CITY shall repair the malfunctioning metering device at its earliest possible convenience recognizing that time is of the essence. Should CITY fail to repair the malfunctioning metering device within its earliest possible convenience, COUNTY shall have the option at its sole discretion to close the isolation valve.

ARTICLE 3

PROVISIONS RELATING TO REUSE OF WASTEWATER EFFLUENT

- 3.1 Withdrawal Rate: CITY'S withdrawal rate from COUNTY'S wastewater effluent system shall be at a rate so as to not exceed five (5) million gallons per day. Should CITY request an increase in the Withdrawal Rate, COUNTY shall determine the availability of the effluent and CITY and COUNTY shall negotiate said increase based upon the COUNTY'S determination.
- 3.2 Discharge by CITY: CITY shall not discharge, or permit a discharge of any wastewater or any other material that may re-enter the COUNTY'S wastewater effluent disposal system.
- 3.3 Reuse of Effluent. All wastewater effluent withdrawn by CITY pursuant to this Agreement shall only be reused for irrigation purposes. Should CITY permit reuse by a third party of wastewater effluent it has withdrawn, CITY shall provide COUNTY with the terms, conditions and plan for such third-party reuse. Any charges imposed by CITY for third-party reuse shall be for the sole purpose of compensating CITY for the necessary expenses of providing such service.

ARTICLE 4TERM

Both parties agree that this Agreement shall continue in full force and effect unless and until terminated as provided in Article 5.

ARTICLE 5TERMINATION

This Agreement shall not be terminated by either party except for a breach of a material term hereof. Termination shall be upon sixty (60) days written notice to the nonterminating party. Upon any termination, CITY agrees, at its sole cost and expense, to restore the system to its original design and integrity.

ARTICLE 6REPORTS

CITY shall be required to continuously meter the volume of effluent withdrawn from COUNTY'S system on a daily basis and to supply COUNTY with clear and concise monthly reports. These reports shall be in a form mutually agreed upon and a copy of such form shall be attached hereto and made a part hereof as Exhibit "B." Each monthly report shall be sent to COUNTY by the fifth calendar day of the subsequent month. COUNTY reserves the right, at its sole discretion, to waive the reports provided for hereunder. Should COUNTY exercise its right to waive these reports, it shall have the option at its sole cost and expense to design and locate a telemetering station at designated areas near the point of connection. Further, CITY shall convey at no cost to COUNTY the appropriate easement to the property needed by COUNTY to provide ingress and egress to the location of the telemetering station and other property required for the telemetering system.

ARTICLE 7SUPPLY AND QUALITY

COUNTY shall supply to CITY wastewater effluent up to the Withdrawal Rate as set forth in Section 3.1, provided, however, COUNTY does not guarantee the quality of the

wastewater effluent in COUNTY'S treatment system. Both parties agree that any restriction of wastewater effluent supply services, including COUNTY'S ability to supply, resulting from an act of God, fire, strikes, accidents, casualty, breakdown of or injury to machinery, pumps or pipelines, insurrection or riot, civil or military authority, shall not constitute a breach of this Agreement by COUNTY. COUNTY shall exercise, when possible, its regular management practices with respect to the treatment and disposal/supply of the wastewater effluent. Should COUNTY contemplate a shut down of the treatment/disposal system, COUNTY shall notify CITY of such intention.

ARTICLE 8

INDEMNIFICATION

- 8.1 CITY shall indemnify and save harmless and defend COUNTY, its agents, servants and employees from and against any claims, losses, costs, damages or causes of action of whatsoever kind or nature arising out of error, omission or negligent act of CITY, its agents, servants or employees in the performance or nonperformance of its duties under this Agreement.
- 8.2 CITY further agrees to indemnify, save harmless and defend COUNTY, its agents, servants and employees from and against any claims, losses, costs, damages or causes of action of whatever kind or nature arising out of the connection of CITY'S system to COUNTY'S outfall pipe and wastewater treatment system and the CITY'S subsequent use of wastewater effluent for irrigation purposes. This provision shall include all cause by third parties of wastewater effluent withdrawn by CITY.
- 8.3 The indemnification provided by this Article shall obligate CITY to defend at its own expense or to provide such defense at the COUNTY'S option, any and all claims and suits brought against COUNTY which may result from CITY'S performance or nonperformance of its duties under this Agreement or which arise out of connection of CITY'S system to COUNTY'S outfall pipe and wastewater treatment system and use of wastewater effluent withdrawn hereunder.
- 8.4 The indemnification provided by this Article shall be to the extent permitted by law.

ARTICLE 9NOTICES

Whenever either party desires to give notice unto the other, it must be given by written notice, sent by registered United States mail, with return receipt requested, addressed to the party for whom it is intended, at the place last specified, and the place for giving of notice in compliance with the provisions of this paragraph. For the present, the parties designate the following as the respective places for giving of notice, to-wit:

COUNTY:

Contract Administrator
Wastewater Treatment Section
Office of Environmental Services
2401 North Powerline Road
Pompano Beach, Florida 33069

CITY:

CITY MANAGER

ROY P. STYPE

P.O. DRAWER 1300, Pompano Beach, FL 33061

ARTICLE 10JURISDICTION OF OTHER AGENCIES

Both parties agree that certain federal, state, and local agencies have some jurisdiction or control over water supply matters and should any such agency issue legally enforceable laws, regulations, mandates, or orders that may alter any of the terms and conditions of this Agreement, there shall be no liability on either party because of such action. It is further agreed that if such agency shall request a change in the provisions of this Agreement that both parties will, by mutual agreement, make every effort to comply with such request.

IN WITNESS WHEREOF, the parties have made and executed this Agreement on the respective dates under each signature: BROWARD COUNTY through its BOARD OF COUNTY COMMISSIONERS, signing by and through its Chairman, authorized to execute same by Board action on the 6 day of March, 1998, and CITY OF POMPANO BEACH, signing by and through its Mayor-Commissioner, duly authorized to execute same.

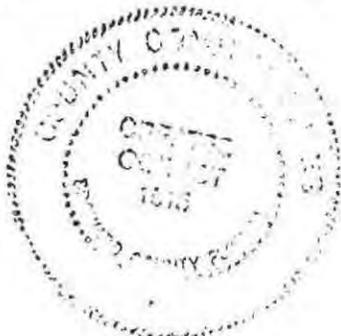
COUNTY

ATTEST:

BROWARD COUNTY, through its BOARD OF COUNTY COMMISSIONERS

Chere Bruce
County Administrator and
Ex-Officio Clerk of the
Board of County Commissioners
of Broward County, Florida

By SCOTT I. COWAN, Chairman
6 day of March, 1998.



Approved as to form by
Office of County Attorney
Broward County, Florida
JOHN J. COPELAN, JR., County Attorney
Governmental Center, Suite 423
115 South Andrews Avenue
Fort Lauderdale, Florida 33301
Telephone: (305) 357-7600
Telecopier: (305) 357-7641

BY Michael J. Kerr
MICHAEL J. KERR
Assistant County Attorney

AGREEMENT BETWEEN BROWARD COUNTY AND CITY OF POMPANO BEACH
FOR WASTEWATER EFFLUENT REUSE

CITY

WITNESSES:

Kimberly R. McManis
Debra N. Chata

CITY OF POMPANO BEACH

By [Signature]
Mayor-Commissioner

6th day of February, 1990.

ATTEST:

Vernadella Jeller
City Clerk

By [Signature]
City Manager

6th day of February, 1990.

(CORPORATE SEAL)

APPROVED AS TO FORM:

By [Signature]
City Attorney

MJK:bjw
12/5/89
pompanob.a01
#88-297

TO: L. NEFF - FYI

FROM: E. K... ..

n.

In accordance with a separate Wastewater Effluent Reuse Agreement between the COUNTY and the CITY executed in March 1990, the CITY pays \$1 per year for wastewater effluent which the CITY treats and utilizes for irrigation purposes. The Agreement gives the COUNTY the right to charge the CITY the same rates, fees and charges applicable to other customers receiving this service.

If the COUNTY determines that wastewater effluent is marketable and a charge is instituted for wastewater effluent, the COUNTY agrees to pay any fees and charges (over \$1 per year) billed to the CITY for up to 7.3 million gallons per day for as long as the COUNTY

discharges over ten million gallons per day into an ocean outfall.

IN WITNESS WHEREOF, the parties hereto have made and executed this Memorandum of Agreement on the respective dates under each signature: BROWARD COUNTY through its BOARD OF COUNTY COMMISSIONERS, signing by and through its chair or vice chair, authorized to execute same by Board action on the 18 day of May, 1993, and CITY OF POMPANO BEACH, signing by and through its Mayor-Commissioner, duly authorized to execute same.

COUNTY

BROWARD COUNTY, through its BOARD OF COUNTY COMMISSIONERS

ATTEST:

[Signature]
County Administrator and
Ex-officio Clerk of the
Board of County Commissioners
of Broward County, Florida

By *[Signature]*
Chair

18 day of May 1993.

ASSISTANT
DIRECTOR

JUN 23 1993

Approved as to form by
Office of County Attorney
Broward County, Florida
JOHN J. COPELAN, JR., County Attorney
Governmental Center, Suite 423
115 South Andrews Avenue
Fort Lauderdale, Florida 33301
Telephone: (305) 357-7600
Telecopier: (305) 357-7641

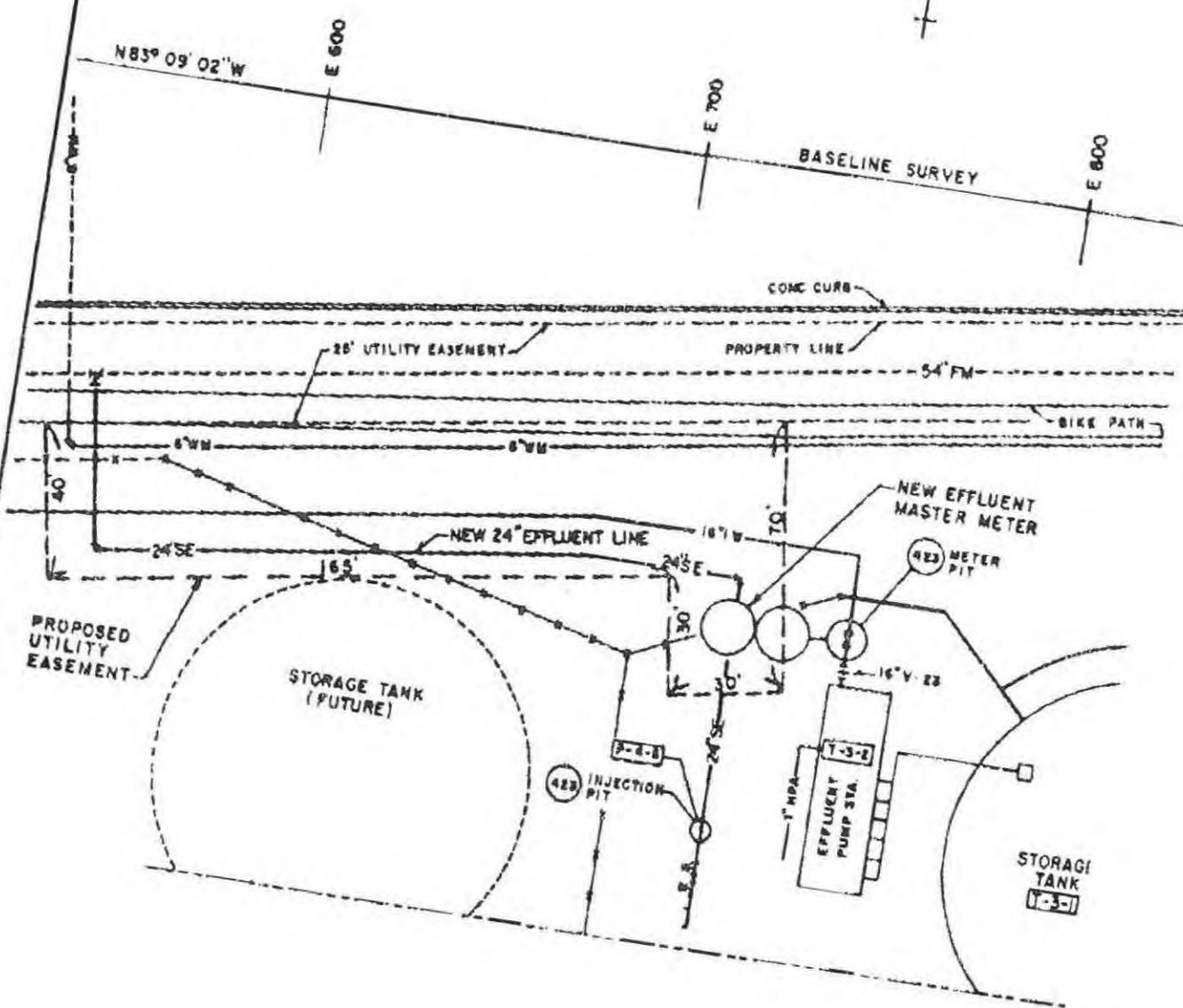
By *[Signature]*
NOEL N. PEPPER
Deputy County Attorney

TEL :

Sep 11 '98

11:10 Mo.005 P.1

POMPANO SQUARE



DATE: 8/8/89
 SCALE: 1"=40'
 DRAWN BY S.S.
 B.C.O.E.S

CITY OF POMPANO BEACH EFFLUENT IRRIGATION FACILITY EXHIBIT A

Exhibit B
DEP Permit



Florida Department of Environmental Protection

Southeast District Office
400 N. Congress Avenue, Suite 200
West Palm Beach, FL 33401

Rick Scott
Governor

Jennifer Carroll
Lt. Governor

Herschel T. Vinyard Jr.
Secretary

May 23, 2011 ELECTRONIC CORRESPONDENCE

In the Matter of an
Application for Permit by:

City of Pompano Beach
Mr. Randolph Brown
1205 NE 5th Ave
Pompano Beach, Florida 33060-5758
Email: randolph.brown@copbfl.com

File Number FLA013581-006-DW1P
Broward County
City of Pompano Beach, Permit Renewal
Reuse Treatment Facility

NOTICE OF PERMIT ISSUANCE

Enclosed is Permit Number FLA013581 to operate and to expand the reuse plant and reuse distribution system for the City of Pompano Beach, issued under Chapter 403, Florida Statutes.

Monitoring requirements under this permit are effective on the first day of the second month following permit issuance. Until such time, the Permittee shall continue to monitor and report in accordance with previously effective permit requirements, if any.

The Department's proposed agency action shall become final unless a timely petition for an administrative hearing is filed under Sections 120.569 and 120.57, Florida Statutes, within fourteen days of receipt of notice. The procedures for petitioning for a hearing are set forth below.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received by the Clerk) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000.

Under Rule 62-110.106(4), Florida Administrative Code, a person may request an extension of the time for filing a petition for an administrative hearing. The request must be filed (received by the Clerk) in the Office of General Counsel before the end of the time period for filing a petition for an administrative hearing.

Petitions by the applicant or any of the persons listed below must be filed within fourteen days of receipt of this written notice. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3), Florida Statutes, must be filed within fourteen days of publication of the notice or within fourteen days of receipt of the written notice, whichever occurs first. Section 120.60(3),



Florida Statutes, however, also allows that any person who has asked the Department for notice of agency action may file a petition within fourteen days of receipt of such notice, regardless of the date of publication.

The petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition or request for an extension of time within fourteen days of receipt of notice shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, Florida Statutes. Any subsequent intervention (in a proceeding initiated by another party) will be only at the discretion of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information, as indicated in Rule 28-106.201, Florida Administrative Code:

- (a) The name and address of each agency affected and each agency's file or identification number, if known;
- (b) The name, address, and telephone number of the 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; and an explanation of how the petitioner's substantial interests will be affected by the determination;
- (c) A statement of when and how the petitioner received notice of the Department's decision;
- (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;
- (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the Department's proposed action;
- (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the Department's proposed action; and
- (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the Department to take with respect to the Department's proposed action.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

Mediation under Section 120.573, Florida Statutes, is not available for this proceeding.

This permit action is final and effective on the date filed with the Clerk of the Department unless a petition (or request for an extension of time) is filed in accordance with the above. Upon the timely filing of a petition (or request for an extension of time), this permit will not be effective until further order of the Department.

Any party to the permit has the right to seek judicial review of the permit action under Section 120.68, Florida Statutes, by the filing of a notice of appeal under Rules 9.110 and 9.190, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida, 32399-3000, and by filing a copy of the

notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice of appeal must be filed within 30 days from the date when this permit action is filed with the Clerk of the Department.

Executed in West Palm Beach, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

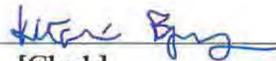


Linda A. Brien
Water Facilities Administrator
Southeast District


LAB/JAA/mwb

FILING AND ACKNOWLEDGMENT

FILED, on this date, under Section 120.52, Florida Statutes, with the designated Deputy Clerk, receipt of which is hereby acknowledged.

 5/23/11
[Clerk] [Date]

CERTIFICATE OF SERVICE

The undersigned hereby certifies that this NOTICE OF PERMIT ISSUANCE and all copies were mailed before the close of business on May 23, 2011 to the listed persons.


Date

May 23, 2011

Enclosures

- ec: Michael Hambor, DEP/WPB, Michael.Hambor@dep.state.fl.us
- Don Bayler, City of Pompano Beach, Donald.Bayler@copbfl.com
- Nona Schaffner, OGC/TLH, Nona.Schaffner@dep.state.fl.us
- Garth Hinckle, BCDPEP, ghinckle@co.broward.fl.us
- Joanne Swing, BCDPEP, JSWING@broward.org
- Timothy J. Smith, MWH/WPB, Timothy.J.Smith@mwbglobal.com



Florida Department of Environmental Protection

Southeast District Office
400 N. Congress Avenue, Suite 200
West Palm Beach, FL 33401

Rick Scott
Governor

Jennifer Carroll
Lt. Governor

Herschel T. Vinyard Jr.
Secretary

STATE OF FLORIDA DOMESTIC WASTEWATER FACILITY PERMIT

PERMITTEE:

City of Pompano Beach

RESPONSIBLE OFFICIAL:

Mr. Randolph Brown
1205 NE 5th Ave
Pompano Beach, Florida 33060-5758
(954) 545-7044

PERMIT NUMBER: FLA013581
FILE NUMBER: FLA013581-006-DW1P
ISSUANCE DATE: May 23, 2011
EXPIRATION DATE: May 23, 2016

FACILITY:

Pompano Beach, City of – Reuse Treatment Facility
1801 N Federal Hwy
Pompano Beach, FL 33062-1008
Broward County
Latitude: 26°15' 14.67" N Longitude: 80°6' 3.95" W

This permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and applicable rules of the Florida Administrative Code (F.A.C.). This permit does not constitute authorization to discharge wastewater other than as expressly stated in this permit. The above named Permittee is hereby authorized to operate the facilities in accordance with the documents attached hereto and specifically described as follows:

WASTEWATER TREATMENT:

An existing 7.5 mgd permitted capacity reuse domestic wastewater treatment plant consisting of filtration, coagulation, and chlorination. The influent to the facility is from the effluent from the North Broward County Regional Wastewater Treatment Plant traveling to a final discharge point in the Atlantic Ocean. The facility is permitted for expansion to 12.5 mgd AADF.

REUSE OR DISPOSAL:

Land Application R-001: An existing 7.5 mgd annual average daily flow permitted capacity slow-rate public access system with future expansion to over 20 mgd. R-001 is a reuse system which consists of Urban Reuse in North Broward County Florida.

IN ACCORDANCE WITH: The limitations, monitoring requirements, and other conditions set forth in this cover sheet and Part I through Part IX on pages 1 through 18 of this permit.

PERMITTEE: City of Pompano Beach
 FACILITY: City of Pompano Beach, Reuse Treatment Facility

PERMIT NUMBER: FLA013581

I. RECLAIMED WATER AND EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Reuse and Land Application Systems

1. During the period beginning on the issuance date and lasting through the expiration date of this permit, the Permittee is authorized to supplement reclaimed water with ground water and direct reclaimed water to Reuse System R-001. Such reclaimed water shall be limited and monitored by the Permittee as specified below and reported in accordance with condition I. 1. B 7.:

Parameter	Units	Max/Min	Reclaimed Water Limitations		Monitoring Requirements			Notes
			Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number	
Flow (Golf Course)	mgd	Max Max	Report Report	Annual Average Monthly Average	Continuous	Recording Flow Meter with Totalizer	FLW-001	See I. A.3. and 6..
Flow (Urban Reuse)	mgd	Max Max	Report Report	Annual Average Monthly Average	Continuous	Recording Flow Meter with Totalizer	FLW-002	See I. A.3. and 6..
Solids, Total Suspended	mg/L	Max	5.0	Single Sample	Daily; 24 hours	Grab	EFA-001	
Coliform, Fecal	#/100mL	Max	25	Single Sample	Daily; 24 hours	Grab	EFA-001	
Coliform, Fecal, % less than detection	percent	Min	75	Monthly Total	Monthly	Calculated	EFA-001	See I. A.7.
pH	s.u.	Min Max	6.0 8.5	Single Sample Single Sample	Continuous	Meter	EFA-001	See I. A.4.
Chlorine, Total Residual (For Disinfection)	mg/L	Min	1.0	Single Sample	Continuous	Meter	EFA-001	See I. A.8. 10. and 17.
Turbidity	NTU	Max	Report	Single Sample	Continuous	Meter	EFA-001	See I. A.9. and 11.
Solids, Total Suspended Using a TSS Meter	mg/L	Max	5.0	Single Sample	Continuous	Meter	EFA-001	See I. A.14. and 15.
Giardia	cysts/100L	Max	Report	Single Sample	Bi-annually; every 2 years	Grab	EFA-001	See I. A. 10. and 18
Cryptosporidium	oocysts/100L	Max	Report	Single Sample	Bi-annually; every 2 years	Grab	EFA-001	See I. A. 10. and 18

PERMITTEE: City of Pompano Beach
 FACILITY: City of Pompano Beach, Reuse Treatment Facility

PERMIT NUMBER: FLA013581

2. Reclaimed water samples shall be taken at the monitoring site locations listed in Permit Condition I.A.1. and as described below:

Monitoring Site Number	Description of Monitoring Site
FLW-001	THE REUSE FACILITY DISTRIBUTION PIPE AFTER THE HIGH PRESSURE DISTRIBUTION PUMPS (GOLF COURSE)
FLW-002	THE REUSE FACILITY DISTRIBUTION PIPE AFTER THE LOW PRESSURE DISTRIBUTION PUMPS (URBAN REUSE)
EFB-001	AFTER THE EFFLUENT FILTERS AND BEFORE DISINFECTION
EFA-001	SAMPLING LINE FROM THE END OF THE CHLORINE CONTACT BASIN WITHIN THE NEW REUSE STORAGE TANK

3. The annual average daily (AADF) flow to land application system R001 shall not exceed 7.5 mgd. After Phase Two Construction, the AADF land application system R001 shall not exceed 12.5 mgd. Flow limits may be exceeded if the demand for reclaimed water irrigation at the reuse sites is greater and the irrigation procedure complies with all Department's performance standards for Part III reuse. [62-4.070 (1) & (3)]
4. Hourly measurement of pH during the period of required operator attendance may be substituted for continuous measurement. [Chapter 62-601, Figure 2]
5. Hourly measurement of Turbidity and total residual chlorine during periods of equipment failure may be substituted for continuous monitoring. [62-4.070 (1) & (3)]
6. A recording flow meter with totalizer shall be utilized to measure flow and calibrated at least once every 12 months. [62-601.200(17) and .500(6)]
7. To report the "% less than detection," count the number of fecal coliform observations that were less than detection, divide by the total number of fecal coliform observations in the month, and multiply by 100% (round to the nearest integer). [62-600.440(5)(f)]
8. The minimum total chlorine residual shall be limited as described in the approved operating protocol, such that the permit limitation for fecal coliform bacteria will be achieved. In no case shall the total chlorine residual be less than 1.0 mg/L. [62-600.440(5)(b); 62-610.460(2); and 62-610.463(2)]
9. When the turbidity meter is used for compliance, the maximum turbidity shall be limited as described in the approved operating protocol, such that the permit limitations for total suspended solids and fecal coliforms will be achieved. The updates to the operating protocol may include an adjustment. The Department shall approve the adjustment in writing. [62-610.463(2)] [62-4.070 (1) & (3)]
10. Grab samples shall be taken during peak daily hydraulic loading that has the minimum detention time in the chlorination system. [62-4.070 (1) & (3)]
11. When the turbidity meter is used for compliance, the turbidity reading shall be taken when the TSS grab samples are taken and the reading shall be included in Part B of the monthly DMRs. [62-4.070 (1) & (3)]
12. The plant operator shall record the times that the diversion provision of the operational protocol was used in the daily log. [62-4.070 (1) & (3)]

PERMITTEE: City of Pompano Beach
FACILITY: City of Pompano Beach, Reuse Treatment Facility

PERMIT NUMBER: FLA013581

13. The plant computer system may be used in place of a 24-hour recording chart. The computer must be able to print a 24-hour time graph. Each day the computer must print a 24-hour time graph for each continuous meter system. The Permittee must retain the 24-hour time graph for a period of three years. [62-4.070 (1) & (3)]
14. When the TSS meter is used for compliance, the maximum reading from the TSS meter (TSS in mg/L) shall be limited as described in the approved operating protocol, such that the permit limitations for total suspended solids and fecal coliforms will be achieved. [62-610.463(2)]
15. When the TSS meter is used, the initial diversion set point when the effluent is sampled for TSS would be expected to exceed 5.0 mg/L is when the TSS meter reads greater than 4.0 mg/L TSS. The permit allows this set point to be updated and revised after acceptance by the Department in writing. The TSS meter shall be calibrated as per the manufacturer recommendations if the daily reading TSS value at the time of sample is over 0.5 mg/L variance from the daily laboratory grab TSS sample. The minimum sample filtration size for TSS monitoring shall be 1,000 mL (or 1 liter) and tested to 0.1 mg/L increments. [62-610.463(2)]
16. The treatment facilities shall be operated in accordance with all approved operating protocols including reporting protocol. Only reclaimed water that meets the criteria established in the approved operating protocol(s) may be released to system storage or to the reuse system. Reclaimed water that fails to meet the criteria in the approved operating protocol(s) shall be directed to filter feed pump station. [62-610.320(6) and 62-610.463(2)]
17. Instruments for continuous on-line monitoring of total residual chlorine and turbidity shall be equipped with an automated data logging or recording device. [62-610.463(2)]
18. Intervals between sampling for Giardia and Cryptosporidium shall not exceed two years. The testing shall be during the second quarter of each odd year. As long as the sampling is during the second quarter of each odd calendar year, this requirement has been complied with. [62-610.472(3)(d)]
19. This permit does not authorize the discharge to unlined storage ponds. A permit revision and applicable groundwater monitoring shall be required prior to discharge to unlined storage ponds. [62-610.463(3)] [62-4.070(1) and (3)]

PERMITTEE: City of Pompano Beach
 FACILITY: City of Pompano Beach, Reuse Treatment Facility

PERMIT NUMBER: FLA013581

B. Other Limitations and Monitoring and Reporting Requirements

1. During the period beginning on the issuance date and lasting through the expiration date of this permit, the treatment facility shall be limited and monitored by the Permittee as specified below and reported in accordance with condition I. 1. B 7.:

Parameter	Units	Max/Min	Limitations		Monitoring Requirements			Notes
			Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number	
Flow	mgd	Max Max	Report Report	Annual Average Monthly Average	Continuous	Recording Flow Meter with Totalizer	FLW-003	See I, B.3
Percent Capacity, (TMADF/Permitted Capacity) x 100	percent	Max	Report	Monthly Average	Monthly	Calculated	FLW-003	

2. Samples shall be taken at the monitoring site locations listed in Permit Condition I.B.1. and as described below:

Monitoring Site Number	Description of Monitoring Site
FLW-003	THE REUSE TREATMENT FACILITY INFLUENT PIPE FROM THE NORTH BROWARD COUNTY WWTF OCEAN OUTFALL MAIN

3. A recording flow meter with totalizer shall be utilized to measure flow and calibrated at least once every 12 months. [62-601.200(17) and .500(6)]
4. Sampling results for giardia and cryptosporidium shall be reported on DEP Form 62-610.300(4)(a)4, Pathogen Monitoring, which is attached to this permit. This form shall be submitted to the Department's Southeast District Office and to DEP's Reuse Coordinator in Tallahassee. [62-610.300(4)(a)]
5. The sample collection, analytical test methods and method detection limits (MDLs) applicable to this permit shall be conducted using a sufficiently sensitive method to ensure compliance with applicable water quality standards and effluent limitations and shall be in accordance with Rule 62-4.246, Chapters 62-160 and 62-601, F.A.C., and 40 CFR 136, as appropriate. The list of Department established analytical methods, and corresponding MDLs (method detection limits) and PQLs (practical quantitation limits), which is titled "FAC 62-4 MDL/PQL Table (April 26, 2006)" is available at <http://www.dep.state.fl.us/labs/library/index.htm>. The MDLs and PQLs as described in this list shall constitute the minimum acceptable MDL/PQL values and the Department shall not accept results for which the laboratory's MDLs or PQLs are greater than those described above unless alternate MDLs and/or PQLs have been specifically approved by the Department for this permit. Any method included in the list may be used for reporting as long as it meets the following requirements:
- a. The laboratory's reported MDL and PQL values for the particular method must be equal or less than the corresponding method values specified in the Department's approved MDL and PQL list;
 - b. The laboratory reported MDL for the specific parameter is less than or equal to the permit limit or the applicable water quality criteria, if any, stated in Chapter 62-302, F.A.C. Parameters that are listed as "report only" in the permit shall use methods that provide an MDL, which is equal to or less than the applicable water quality criteria stated in 62-302, F.A.C.; and
 - c. If the MDLs for all methods available in the approved list are above the stated permit limit or applicable water quality criteria for that parameter, then the method with the lowest stated MDL shall be used.

When the analytical results are below method detection or practical quantitation limits, the Permittee shall report the actual laboratory MDL and/or PQL values for the analyses that were performed following the instructions on the applicable discharge monitoring report.

Where necessary, the Permittee may request approval of alternate methods or for alternative MDLs or PQLs for any approved analytical method. Approval of alternate laboratory MDLs or PQLs are not necessary if the laboratory reported MDLs and PQLs are less than or equal to the permit limit or the applicable water quality criteria, if any, stated in Chapter 62-302, F.A.C. Approval of an analytical method not included in the above-referenced list is not necessary if the

analytical method is approved in accordance with 40 CFR 136 or deemed acceptable by the Department. [62-4.246, 62-160]

6. The Permittee shall provide safe access points for obtaining representative influent, reclaimed water, and effluent samples which are required by this permit. [62-601.500(5)]
7. Monitoring requirements under this permit are effective on the first day of the second month following permit issuance. Until such time, the Permittee shall continue to monitor and report in accordance with previously effective permit requirements, if any. During the period of operation authorized by this permit, the Permittee shall complete and submit to the Department Discharge Monitoring Reports (DMRs) in accordance with the frequencies specified by the REPORT type (i.e. monthly, toxicity, quarterly, semiannual, annual, etc.) indicated on the DMR forms attached to this permit. Monitoring results for each monitoring period shall be submitted in accordance with the associated DMR due dates below:

REPORT Type on DMR	Monitoring Period	Due Date
Monthly or Toxicity	first day of month - last day of month	28 th day of following month
Quarterly	January 1 - March 31 April 1 - June 30 July 1 - September 30 October 1 - December 31	April 28 July 28 October 28 January 28
Semiannual	January 1 - June 30 July 1 - December 30	July 28 January 28
Annual	January 1 - December 31	January 28

DMRs shall be submitted for each required monitoring period including months of no discharge. The Permittee shall make copies of the attached DMR form(s) and shall submit the completed DMR form(s) to the Department's Southeast District Office at the address specified in Permit Condition I.D.8. by the twenty-eighth (28th) of the month following the month of operation.

[62-620.610(18)][62-601.300(1),(2), and (3)]

8. The Permittee shall submit an Annual Reuse Report using DEP Form 62-610.300(4)(a)2. on or before January 1 of each year. [62-610.870(3)]
9. Operating protocol(s) shall be reviewed and updated periodically to ensure continuous compliance with the minimum treatment and disinfection requirements. Updated operating protocols shall be submitted to the Department's Southeast District Office for review and approval upon revision of the operating protocol(s) and with each permit application. [62-610.320(6) and 62-610.463(2)]
10. The Permittee shall maintain an inventory of storage systems. The inventory shall be submitted to the Department's Southeast District Office at least 30 days before reclaimed water will be introduced into any new storage system. The inventory of storage systems shall be attached to the annual submittal of the Annual Reuse Report. [62-610.464(5)]
11. Unless specified otherwise in this permit, all reports and other information required by this permit, including 24-hour notifications, shall be submitted to or reported to, as appropriate, the Department's Southeast District Office at the address specified below:

PERMITTEE: City of Pompano Beach
 FACILITY: City of Pompano Beach, Reuse Treatment Facility

PERMIT NUMBER: FLA013581

Florida Department of Environmental Protection Southeast District Office
 400 N Congress Ave
 Suite 200
 West Palm Beach, Florida 33401-2913
 Phone Number - (561)681-6600
 FAX Number - (561)681-6760
 (All FAX copies and e-mails shall be followed by original copies.)
 [62-620.305]

12. All reports and other information shall be signed in accordance with the requirements of Rule 62-620.305, F.A.C. [62-620.305]

II. RESIDUALS MANAGEMENT REQUIREMENTS

1. Section II is not applicable to this facility.

III. GROUND WATER REQUIREMENTS

1. Section III is not applicable to this facility.

IV. ADDITIONAL REUSE AND LAND APPLICATION REQUIREMENTS

A. Part III Public Access System(s)

1. This reuse system includes the following major user(s) of reclaimed water (i.e., using 0.1 mgd or more) and general service area(s):

Site Number	User Name	User Type	Capacity(mgd)	Acreage
PAA-01	City of Pompano Beach Recreation Facility	Athletic Complexes and Parks	2.5	400
PAA-02	Future Service Area I	Residential Developments	1.7	525
PAA-03	Future Service Area II	Residential Developments	1.5	475
PAA-04	Air Park	Business, Commercial and Industrial Parks	2.0	475
PAA-05	Future Service Area IV	Residential Developments	2.0	625
PAA-06	Future Service Area V	Residential Developments	4.2	1325
PAA-07	Future Service Area VI	Residential Developments	1.5	500
PAA-08	Future Service Area VII	Residential Developments	1.65	525
PAA-09	Palm Aire	Residential Developments	6.25	1500
PAA-10	Broward County Service Area	Residential Developments	n/a	n/a
PAA-11	Lighthouse Point Service Area	Residential Developments	n/a	n/a
Total			23.3	6350

[62-610.800(5)][62-620.630(10)(b)]

PERMITTEE: City of Pompano Beach
FACILITY: City of Pompano Beach, Reuse Treatment Facility

PERMIT NUMBER: FLA013581

2. Cross-connections to the potable water system are prohibited. [62-610.469(7)]
3. A cross-connection control program shall be implemented and/or remain in effect within the areas where reclaimed water will be provided for use. [62-610.469(7)]
4. The Permittee shall conduct inspections within the reclaimed water service area to verify proper connections, to minimize illegal cross-connections, and to verify the proper use of reclaimed water. Inspections are required when a customer first connects to the reuse distribution system. Subsequent inspections are required as specified in the cross-connection control and inspection program. [62-610.469(7)(h)]
5. If a cross-connection between the potable and reclaimed water systems is discovered, the Permittee shall:
 - a. Immediately discontinue potable water and/or reclaimed water service to the affected area.
 - b. If the potable water system is contaminated, clear the potable water lines.
 - c. Eliminate the cross-connection.
 - d. Test the affected area for other possible cross-connections.
 - e. Within 24 hours, notify the Department's Southeast District Office's domestic wastewater and drinking water programs.
 - f. Within 5 days of discovery of a cross-connection, submit a written report to the Department's Southeast District Office detailing: a description of the cross-connection, how the cross-connection was discovered, the exact date and time of discovery, approximate time that the cross-connection existed, the location, the cause, steps taken to eliminate the cross-connection, whether reclaimed water was consumed, and reports of possible illness, whether the drinking water system was contaminated and the steps taken to clear the drinking water system, when the cross-connection was eliminated, plan of action for testing for other possible cross-connections in the area, and an evaluation of the cross-connection control and inspection program to ensure that future cross-connections do not occur.

[62-555.350(3) and 62-555.360][62-620.610(20)]

6. Maximum obtainable separation of reclaimed water lines and potable water lines shall be provided and the minimum separation distances specified in Rule 62-610.469(7), F.A.C., shall be provided. Reuse facilities shall be color coded or marked. Underground piping which is not manufactured of metal or concrete shall be color coded using Pantone Purple 522C using light stable colorants. Underground metal and concrete pipe shall be color coded or marked using purple as the predominant color. [62-610.469(7)]
7. In constructing reclaimed water distribution piping, the Permittee shall maintain a 75-foot setback distance from a reclaimed water transmission facility to public water supply wells. No setback distances are required to other potable water supply wells or to any nonpotable water supply wells. [62-610.471(3)]
8. A setback distance of 75 feet shall be maintained between the edge of the wetted area and potable water supply wells, unless the utility adopts and enforces an ordinance prohibiting potable water supply wells within the reuse service area. No setback distances are required to any nonpotable water supply well, to any surface water, to any developed areas, or to any private swimming pools, hot tubs, spas, saunas, picnic tables, barbecue pits, or barbecue grills. [62-610.471(1), (2), (5), and (7)]

PERMITTEE: City of Pompano Beach
FACILITY: City of Pompano Beach, Reuse Treatment Facility

PERMIT NUMBER: FLA013581

9. Reclaimed water shall not be used to fill swimming pools, hot tubs, or wading pools. [62-610.469(4)]
10. Low trajectory nozzles, or other means to minimize aerosol formation shall be used within 100 feet from outdoor public eating, drinking, or bathing facilities. [62-610.471(6)]
11. A setback distance of 100 feet shall be maintained from indoor aesthetic features using reclaimed water to adjacent indoor public eating and drinking facilities. [62-610.471(8)]
12. The public shall be notified of the use of reclaimed water. This shall be accomplished by posting of advisory signs in areas where reuse is practiced, notes on scorecards, or other methods. [62-610.468(2)]
13. All new advisory signs and labels on vaults, service boxes, or compartments that house hose bibbs along with all labels on hose bibbs, valves, and outlets shall bear the words "do not drink" and "no beber" along with the equivalent standard international symbol. In addition to the words "do not drink" and "no beber," advisory signs posted at storage ponds and decorative water features shall also bear the words "do not swim" and "no nadar" along with the equivalent standard international symbols. Existing advisory signs and labels shall be retrofitted, modified, or replaced in order to comply with the revised wording requirements. For existing advisory signs and labels this retrofit, modification, or replacement shall occur within 365 days after the date of this permit. For labels on existing vaults, service boxes, or compartments housing hose bibbs this retrofit, modification, or replacement shall occur within 730 days after the date of this permit. [62-610.468, 62-610.469]
14. The Permittee shall ensure that users of reclaimed water are informed about the origin, nature, and characteristics of reclaimed water; the manner in which reclaimed water can be safely used; and limitations on the use of reclaimed water. Notification is required at the time of initial connection to the reclaimed water distribution system and annually after the reuse system is placed into operation. A description of on-going public notification activities shall be included in the Annual Reuse Report. [62-610.468(6)]
15. Routine aquatic weed control and regular maintenance of storage pond embankments and access areas are required. [62-610.414(8)]
16. Overflows from emergency discharge facilities on storage ponds shall be reported as abnormal events in accordance with Permit Condition IX.20. [62-610.800(9)]
17. The Permittee may return reuse water used for cooling of the on-site air compressor to the plant influent of the City of Pompano Beach Reuse Treatment Facility and mix with the influent stream from North Broward County Regional Wastewater Treatment Facility Ocean Outfall Effluent Main.

V. OPERATION AND MAINTENANCE REQUIREMENTS

A. Staffing Requirements

1. During the period of operation authorized by this permit, the wastewater facilities shall be operated under the supervision of a(n) operator(s) certified in accordance with Chapter 62-602, F.A.C. This facility does not fit the Category or Class of wastewater treatment facilities. At a minimum, operators with appropriate certification must be on the site as follows:

PERMITTEE: City of Pompano Beach
FACILITY: City of Pompano Beach, Reuse Treatment Facility

PERMIT NUMBER: FLA013581

A Class C or higher operator 6 hours/day for 7 days/week. The lead/chief operator must be a Class B operator, or higher.

[62-620.630(3)][62-699.310] [62-610.462]

2. An operator meeting the lead/chief operator class for the plant shall be available during all periods of plant operation. "Available" means able to be contacted as needed to initiate the appropriate action in a timely manner. [62-699.311(1)]

B. Capacity Analysis Report and Operation and Maintenance Performance Report Requirements

1. When the three-month average daily flow for the most recent three consecutive months exceeds 50 percent of the permitted capacity of the treatment plant or reuse and disposal systems, the Permittee shall submit to the Department a capacity analysis report. This initial capacity analysis report shall be submitted within 180 days after the last day of the last month of the three-month period referenced above. The capacity analysis report shall be prepared in accordance with Rule 62-600.405, F.A.C. [62-600.405(4)]
2. The application to renew this permit shall include a detailed operation and maintenance performance report prepared in accordance with Rule 62-600.735, F.A.C. [62-600.735(1)]

C. Recordkeeping Requirements

1. The Permittee shall maintain the following records and make them available for inspection on the site of the permitted facility.
 - a. Records of all compliance monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, including, if applicable, a copy of the laboratory certification showing the certification number of the laboratory, for at least three years from the date the sample or measurement was taken;
 - b. Copies of all reports required by the permit for at least three years from the date the report was prepared;
 - c. Records of all data, including reports and documents, used to complete the application for the permit for at least three years from the date the application was filed;
 - d. Monitoring information, including a copy of the laboratory certification showing the laboratory certification number, related to the residuals use and disposal activities for the time period set forth in Chapter 62-640, F.A.C., for at least three years from the date of sampling or measurement;
 - e. A copy of the current permit;
 - f. A copy of the current operation and maintenance manual as required by Chapter 62-600, F.A.C.;
 - g. A copy of any required record drawings;
 - h. Copies of the licenses of the current certified operators; and
 - i. Copies of the logs and schedules showing plant operations and equipment maintenance for three years from the date of the logs or schedules. The logs shall, at a minimum, include identification of the plant; the signature and license number of the operator(s) and the signature of the person(s) making any entries; date and time in and out; specific operation and maintenance activities, including any preventive maintenance or repairs made or

requested; results of tests performed and samples taken, unless documented on a laboratory sheet; and notation of any notification or reporting completed in accordance with Rule 62-602.650(3), F.A.C. The logs shall be maintained on-site in a location accessible to 24-hour inspection, protected from weather damage, and current to the last operation and maintenance performed.

[62-620.350, 62-602.650]

VI. SCHEDULES

1. The following self improvement construction shall be completed according to the following schedule:

Item Number	Improvement Action	Estimated Completion Date
1.	Expand the reuse service area throughout the City's Service Area , Broward County's Service Area, and Lighthouse Point Service Area	August 11, 2017
2.	Expand the Plant to 12.5 mgd	August 11, 2017

The Permittee shall submit preliminary design report for Item Number 2 to the Department and received approval of the preliminary design report prior to start of construction. [62-620.320(6)]

2. Prior to placing the modifications to existing facilities into operation or any individual unit processes into operation, for any purpose other than testing for leaks and equipment operation, the Permittee shall complete and submit to the Department DEP Form 62-620.910(12), Notification of Completion of Construction for Wastewater Facilities or Activities. [62-620.410(7)]
3. Within ninety days of issuance of this permit The Permittee shall update the operating protocol to establish reporting requirements during the startup of the plant after a shutdown that was in compliance of minimum TRC and maximum Turbidity and when not in compliance with those specific requirements. The operating protocol should be updated to clarify when continuous monitoring data should be reported and when not reported on the DMRs. [62-4.070 (1)]
4. Within six months after a facility is placed in operation, the Permittee shall provide written certification to the Department on Form 62-620.910(13) that record drawings pursuant to Chapter 62-600, F.A.C., and that an operation and maintenance manual pursuant to Chapters 62-600 and 62-610, F.A.C., as applicable, are available at the location specified on the form. [62-620.410(6) and 62-620.630(7)]
5. If the Permittee wishes to continue operation of this wastewater facility after the expiration date of this permit, the Permittee shall submit an application for renewal no later than one-hundred and eighty days (180) prior to the expiration date of this permit. Application shall be made using the appropriate forms listed in Rule 62-620.910, F.A.C., including submittal of the appropriate processing fee set forth in Rule 62-4.050, F.A.C. With the permit renewal application, the Permittee shall submit the results of the monitoring of the primary and secondary drinking water standards contained in Chapter 62-550, F.A.C., (except for asbestos, color, odor, and corrosivity). [62-620.335(1) and (2)][62-601.300(4)][62-601.500(3)][62-610.300(4)]

VII. INDUSTRIAL PRETREATMENT PROGRAM REQUIREMENTS

1. This facility is not required to have a pretreatment program at this time. [62-625.500]

VIII. OTHER SPECIFIC CONDITIONS

1. In the event that the treatment facilities or equipment no longer function as intended, are no longer safe in terms of public health and safety, or odor, noise, aerosol drift, or lighting adversely affects neighboring developed areas at the levels prohibited by Rule 62-600.400(2)(a), F.A.C., corrective action (which may include additional maintenance or modifications of the permitted facilities) shall be taken by the Permittee. Other corrective action may be required to ensure compliance with rules of the Department. Additionally, the treatment, management, use or land application of residuals shall not cause a violation of the odor prohibition in Rule 62-296.320(2), F.A.C. [62-600.410(8) and 62-640.400(6)]

2. The deliberate introduction of stormwater in any amount into collection/transmission systems designed solely for the introduction (and conveyance) of domestic/industrial wastewater; or the deliberate introduction of stormwater into collection/transmission systems designed for the introduction or conveyance of combinations of storm and domestic/industrial wastewater in amounts which may reduce the efficiency of pollutant removal by the treatment plant is prohibited, except as provided by Rule 62-610.472, F.A.C. [62-604.130(3)]

3. Collection/transmission system overflows shall be reported to the Department in accordance with Permit Condition IX, 20. [62-604.550] [62-620.610(20)]

4. The operating authority of a collection/transmission system and the Permittee of a treatment plant are prohibited from accepting connections of wastewater discharges which have not received necessary pretreatment or which contain materials or pollutants (other than normal domestic wastewater constituents):
 - a. Which may cause fire or explosion hazards; or
 - b. Which may cause excessive corrosion or other deterioration of wastewater facilities due to chemical action or pH levels; or
 - c. Which are solid or viscous and obstruct flow or otherwise interfere with wastewater facility operations or treatment; or
 - d. Which result in the wastewater temperature at the introduction of the treatment plant exceeding 40^oC or otherwise inhibiting treatment; or
 - e. Which result in the presence of toxic gases, vapors, or fumes that may cause worker health and safety problems?[62-604.130(5)]

5. The treatment facility, storage ponds for Part II systems, rapid infiltration basins, and/or infiltration trenches shall be enclosed with a fence or otherwise provided with features to discourage the entry of animals and unauthorized persons. [62-600.400(2)(b)]

6. Screenings and grit removed from the wastewater facilities shall be collected in suitable containers and hauled to a Department approved Class I landfill or to a landfill approved by the Department for receipt/disposal of screenings and grit. [62-701.300(1)(a)]

7. Where required by Chapter 471 or Chapter 492, F.S., applicable portions of reports that must be submitted under this permit shall be signed and sealed by a professional engineer or a professional geologist, as appropriate. [62-620.310(4)]

PERMITTEE: City of Pompano Beach
FACILITY: City of Pompano Beach, Reuse Treatment Facility

PERMIT NUMBER: FLA013581

8. The Permittee shall provide verbal notice to the Department's Southeast District Office as soon as practical after discovery of a sinkhole or other karst feature within an area for the management or application of wastewater, wastewater residuals (sludges), or reclaimed water. The Permittee shall immediately implement measures appropriate to control the entry of contaminants, and shall detail these measures to the Department's Southeast District Office in a written report within 7 days of the sinkhole discovery. [62-620.320(6)]
9. The Permittee shall provide adequate notice to the Department of the following:
 - a. Any new introduction of pollutants into the facility from an industrial discharger which would be subject to Chapter 403, F.S., and the requirements of Chapter 62-620, F.A.C., if it were directly discharging those pollutants; and
 - b. Any substantial change in the volume or character of pollutants being introduced into that facility by a source which was identified in the permit application and known to be discharging at the time the permit was issued.

Adequate notice shall include information on the quality and quantity of effluent introduced into the facility and any anticipated impact of the change on the quantity or quality of effluent or reclaimed water to be discharged from the facility.

[62-620.625(2)]

IX. GENERAL CONDITIONS

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are binding and enforceable pursuant to Chapter 403, Florida Statutes. Any permit noncompliance constitutes a violation of Chapter 403, Florida Statutes, and is grounds for enforcement action, permit termination, permit revocation and reissuance, or permit revision. [62-620.610(1)]
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviations from the approved drawings, exhibits, specifications, or conditions of this permit constitutes grounds for revocation and enforcement action by the Department. [62-620.610(2)]
3. As provided in subsection 403.087(7), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor authorize any infringement of federal, state, or local laws or regulations. This permit is not a waiver of or approval of any other Department permit or authorization that may be required for other aspects of the total project which are not addressed in this permit. [62-620.610(3)]
4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title. [62-620.610(4)]
5. This permit does not relieve the Permittee from liability and penalties for harm or injury to human health or welfare, animal or plant life, or property caused by the construction or operation of this permitted source; nor does it allow the Permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department. The Permittee shall take all reasonable steps to minimize or prevent any discharge, reuse of reclaimed water, or residuals use or disposal in violation of this permit

PERMITTEE: City of Pompano Beach
FACILITY: City of Pompano Beach, Reuse Treatment Facility

PERMIT NUMBER: FLA013581

which has a reasonable likelihood of adversely affecting human health or the environment. It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. [62-620.610(5)]

6. If the Permittee wishes to continue an activity regulated by this permit after its expiration date, the Permittee shall apply for and obtain a new permit. [62-620.610(6)]
7. The Permittee shall at all times properly operate and maintain the facility and systems of treatment and control, and related appurtenances, that are installed and used by the Permittee to achieve compliance with the conditions of this permit. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to maintain or achieve compliance with the conditions of the permit. [62-620.610(7)]
8. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a permit revision, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition. [62-620.610(8)]
9. The Permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, including an authorized representative of the Department and authorized EPA personnel, when applicable, upon presentation of credentials or other documents as may be required by law, and at reasonable times, depending upon the nature of the concern being investigated, to:
 - a. Enter upon the Permittee's premises where a regulated facility, system, or activity is located or conducted, or where records shall be kept under the conditions of this permit;
 - b. Have access to and copy any records that shall be kept under the conditions of this permit;
 - c. Inspect the facilities, equipment, practices, or operations regulated or required under this permit; and
 - d. Sample or monitor any substances or parameters at any location necessary to assure compliance with this permit or Department rules.[62-620.610(9)]
10. In accepting this permit, the Permittee understands and agrees that all records, notes, monitoring data, and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except as such use is proscribed by Section 403.111, F.S., or Rule 62-620.302, F.A.C. Such evidence shall only be used to the extent that it is consistent with the Florida Rules of Civil Procedure and applicable evidentiary rules. [62-620.610(10)]
11. When requested by the Department, the Permittee shall within a reasonable time provide any information required by law which is needed to determine whether there is cause for revising, revoking and reissuing, or terminating this permit, or to determine compliance with the permit. The Permittee shall also provide to the Department upon request copies of records required by this permit to be kept. If the Permittee becomes aware of relevant facts that were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be promptly submitted or corrections promptly reported to the Department. [62-620.610(11)]

PERMITTEE: City of Pompano Beach
FACILITY: City of Pompano Beach, Reuse Treatment Facility

PERMIT NUMBER: FLA013581

12. Unless specifically stated otherwise in Department rules, the Permittee, in accepting this permit, agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance; provided, however, the Permittee does not waive any other rights granted by Florida Statutes or Department rules. A reasonable time for compliance with a new or amended surface water quality standard, other than those standards addressed in Rule 62-302.500, F.A.C., shall include a reasonable time to obtain or be denied a mixing zone for the new or amended standard. [62-620.610(12)]
13. The Permittee, in accepting this permit, agrees to pay the applicable regulatory program and surveillance fee in accordance with Rule 62-4.052, F.A.C. [62-620.610(13)]
14. This permit is transferable only upon Department approval in accordance with Rule 62-620.340, F.A.C. The Permittee shall be liable for any noncompliance of the permitted activity until the transfer is approved by the Department. [62-620.610(14)]
15. The Permittee shall give the Department written notice at least 60 days before inactivation or abandonment of a wastewater facility or activity and shall specify what steps will be taken to safeguard public health and safety during and following inactivation or abandonment. [62-620.610(15)]
16. The Permittee shall apply for a revision to the Department permit in accordance with Rules 62-620.300, F.A.C., and the Department of Environmental Protection Guide to Permitting Wastewater Facilities or Activities Under Chapter 62-620, F.A.C., at least 90 days before construction of any planned substantial modifications to the permitted facility is to commence or with Rule 62-620.325(2), F.A.C., for minor modifications to the permitted facility. A revised permit shall be obtained before construction begins except as provided in Rule 62-620.300, F.A.C. [62-620.610(16)]
17. The Permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. The Permittee shall be responsible for any and all damages which may result from the changes and may be subject to enforcement action by the Department for penalties or revocation of this permit. The notice shall include the following information:
 - a. A description of the anticipated noncompliance;
 - b. The period of the anticipated noncompliance, including dates and times; and
 - c. Steps being taken to prevent future occurrence of the noncompliance.[62-620.610(17)]
18. Sampling and monitoring data shall be collected and analyzed in accordance with Rule 62-4.246 and Chapters 62-160, 62-601, and 62-610, F.A.C., and 40 CFR 136, as appropriate.
 - a. Monitoring results shall be reported at the intervals specified elsewhere in this permit and shall be reported on a Discharge Monitoring Report (DMR), DEP Form 62-620.910(10), or as specified elsewhere in the permit.
 - b. If the Permittee monitors any contaminant more frequently than required by the permit, using Department approved test procedures, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR.
 - c. Calculations for all limitations which require averaging of measurements shall use an arithmetic mean unless otherwise specified in this permit.

PERMITTEE: City of Pompano Beach
FACILITY: City of Pompano Beach, Reuse Treatment Facility

PERMIT NUMBER: FLA013581

- d. Except as specifically provided in Rule 62-160.300, F.A.C., any laboratory test required by this permit shall be performed by a laboratory that has been certified by the Department of Health Environmental Laboratory Certification Program (DOH ELCP). Such certification shall be for the matrix, test method and analyte(s) being measured to comply with this permit. For domestic wastewater facilities, testing for parameters listed in Rule 62-160.300(4), F.A.C., shall be conducted under the direction of a certified operator.
- e. Field activities including on-site tests and sample collection shall follow the applicable standard operating procedures described in DEP-SOP-001/01 adopted by reference in Chapter 62-160, F.A.C.
- f. Alternate field procedures and laboratory methods may be used where they have been approved in accordance with Rules 62-160.220, and 62-160.330, F.A.C.

[62-620.610(18)]

19. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule detailed elsewhere in this permit shall be submitted no later than 14 days following each schedule date. [62-620.610(19)]
20. The Permittee shall report to the Department's Southeast District Office any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Permittee becomes aware of the circumstances. A written submission shall also be provided within five days of the time the Permittee becomes aware of the circumstances. The written submission shall contain: a description of the noncompliance and its cause; the period of noncompliance including exact dates and time, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.
 - a. The following shall be included as information which must be reported within 24 hours under this condition:
 - (1) Any unanticipated bypass which causes any reclaimed water or effluent to exceed any permit limitation or results in an unpermitted discharge,
 - (2) Any upset which causes any reclaimed water or the effluent to exceed any limitation in the permit,
 - (3) Violation of a maximum daily discharge limitation for any of the pollutants specifically listed in the permit for such notice, and
 - (4) Any unauthorized discharge to surface or ground waters.
 - b. Oral reports as required by this subsection shall be provided as follows:
 - (1) For unauthorized releases or spills of treated or untreated wastewater reported pursuant to subparagraph (a)4. that are in excess of 1,000 gallons per incident, or where information indicates that public health or the environment will be endangered, oral reports shall be provided to the STATE WARNING POINT TOLL FREE NUMBER (800) 320-0519, as soon as practical, but no later than 24 hours from the time the Permittee becomes aware of the discharge. The Permittee, to the extent known, shall provide the following information to the State Warning Point:
 - (a) Name, address, and telephone number of person reporting;
 - (b) Name, address, and telephone number of Permittee or responsible person for the discharge;
 - (c) Date and time of the discharge and status of discharge (ongoing or ceased);
 - (d) Characteristics of the wastewater spilled or released (untreated or treated, industrial or domestic wastewater);
 - (e) Estimated amount of the discharge;

PERMITTEE: City of Pompano Beach
FACILITY: City of Pompano Beach, Reuse Treatment Facility

PERMIT NUMBER: FLA013581

- (f) Location or address of the discharge;
 - (g) Source and cause of the discharge;
 - (h) Whether the discharge was contained on-site, and cleanup actions taken to date;
 - (i) Description of area affected by the discharge, including name of water body affected, if any; and
 - (j) Other persons or agencies contacted.
- (2) Oral reports, not otherwise required to be provided pursuant to subparagraph b.1 above, shall be provided to the Department's Southeast District Office within 24 hours from the time the Permittee becomes aware of the circumstances.
- c. If the oral report has been received within 24 hours, the noncompliance has been corrected, and the noncompliance did not endanger health or the environment, the Department's Southeast District Office shall waive the written report.

[62-620.610(20)]

21. The Permittee shall report all instances of noncompliance not reported under Permit Conditions IX.17., IX.18., or IX.19. of this permit at the time monitoring reports are submitted. This report shall contain the same information required by Permit Condition IX.20. of this permit. [62-620.610(21)]
22. Bypass Provisions.
- a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment works.
 - b. Bypass is prohibited, and the Department may take enforcement action against a Permittee for bypass, unless the Permittee affirmatively demonstrates that:
 - (1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; and
 - (2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
 - (3) The Permittee submitted notices as required under Permit Condition IX.22.b. of this permit.
 - c. If the Permittee knows in advance of the need for a bypass, it shall submit prior notice to the Department, if possible at least 10 days before the date of the bypass. The Permittee shall submit notice of an unanticipated bypass within 24 hours of learning about the bypass as required in Permit Condition IX.20. of this permit. A notice shall include a description of the bypass and its cause; the period of the bypass, including exact dates and times; if the bypass has not been corrected, the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent recurrence of the bypass.
 - d. The Department shall approve an anticipated bypass, after considering its adverse effect, if the Permittee demonstrates that it will meet the three conditions listed in Permit Condition IX.22.a.1. through 3. of this permit.
 - e. A Permittee may allow any bypass to occur which does not cause reclaimed water or effluent limitations to be exceeded if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Permit Condition IX.22.a. through c. of this permit.

PERMITTEE: City of Pompano Beach
FACILITY: City of Pompano Beach, Reuse Treatment Facility

PERMIT NUMBER: FLA013581

[62-620.610(22)]

23. Upset Provisions.

- a. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based effluent limitations because of factors beyond the reasonable control of the Permittee.
 - (1) An upset does not include noncompliance caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, careless or improper operation.
 - (2) An upset constitutes an affirmative defense to an action brought for noncompliance with technology based permit effluent limitations if the requirements of upset provisions of Rule 62-620.610, F.A.C., are met.
- b. A Permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed contemporaneous operating logs, or other relevant evidence that:
 - (1) An upset occurred and that the Permittee can identify the cause(s) of the upset;
 - (2) The permitted facility was at the time being properly operated;
 - (3) The Permittee submitted notice of the upset as required in Permit Condition IX.20. of this permit; and
 - (4) The Permittee complied with any remedial measures required under Permit Condition IX.5. of this permit.
- c. In any enforcement proceeding, the burden of proof for establishing the occurrence of an upset rests with the Permittee.
- d. Before an enforcement proceeding is instituted, no representation made during the Department review of a claim that noncompliance was caused by an upset is final agency action subject to judicial review.

[62-620.610(23)]

Executed in West Palm Beach, Florida.

STATE OF FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION



Linda A. Brien
Water Facilities Administrator

DATE: May 23, 2011

Attachment(s):
Discharge Monitoring Report and "Pathogen Monitoring" Form

DEPARTMENT OF ENVIRONMENTAL PROTECTION DISCHARGE MONITORING REPORT - PART A

When Completed mail this report to: Department of Environmental Protection, 400 N Congress Ave, Suite 200, West Palm Beach, FL 33401-2913

PERMITTEE NAME:	City of Pompano Beach	PERMIT NUMBER:	FLA013581		
MAILING ADDRESS:	1205 NE 5th Ave Pompano Beach, Florida 33060-5758	LIMIT:	Final	REPORT FREQUENCY:	Monthly
FACILITY:	City of Pompano Beach, Reuse Treatment Facility	CLASS SIZE:	N/A	PROGRAM:	Domestic
LOCATION:	1801 N Federal Hwy Pompano Beach, FL 33062-1008	MONITORING GROUP NUMBER:	R-001		
COUNTY:	Broward	MONITORING GROUP DESCRIPTION:	Reuse with influent flows		
OFFICE:	Southeast District	RE-SUBMITTED DMR: <input type="checkbox"/>			
		NO DISCHARGE FROM SITE: <input type="checkbox"/>			
		MONITORING PERIOD From: _____ To: _____			

Parameter		Quantity or Loading	Units	Quality or Concentration	Units	No. Ex.	Frequency of Analysis	Sample Type
Flow (Golf Course)	Sample Measurement							
PARM Code 50050 Y Mon. Site No. FLW-001	Permit Requirement	Report (An. Avg.)	mgd				Continuous	Flow Totalizer
Flow (Golf Course)	Sample Measurement							
PARM Code 50050 1 Mon. Site No. FLW-001	Permit Requirement	Report (Mo. Avg.)	mgd				Continuous	Flow Totalizer
Flow (Urban Reuse)	Sample Measurement							
PARM Code 50050 O Mon. Site No. FLW-002	Permit Requirement	Report (An. Avg.)	mgd				Continuous	Flow Totalizer
Flow (Urban Reuse)	Sample Measurement							
PARM Code 50050 P Mon. Site No. FLW-002	Permit Requirement	Report (Mo. Avg.)	mgd				Continuous	Flow Totalizer
Solids, Total Suspended	Sample Measurement							
PARM Code 00530 B Mon. Site No. EFB-001	Permit Requirement			5.0 (Max.)	mg/L		Daily, 24 hours	Grab

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

NAME/TITLE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED	TELEPHONE	DATE

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here):

DISCHARGE MONITORING REPORT - PART A (Continued)

FACILITY: City of Pompano Beach Reuse Treatment Facility

MONITORING GROUP: R-001

PERMIT NUMBER: FLA013581

NUMBER: _____
 MONITORING PERIOD From: _____ To: _____

Parameter		Quantity or Loading	Units	Quality or Concentration	Units	No. Ex.	Frequency of Analysis	Sample Type
Coliform, Fecal	Sample Measurement							
PARM Code 74055 1 Mon. Site No. EFA-001	Permit Requirement			25 (Max.)	#/100ml.		Daily; 24 hours	Grab
Coliform, Fecal, % less than detection	Sample Measurement							
PARM Code 51005 1 Mon. Site No. EFA-001	Permit Requirement			75 (Mo. Total)	percent		Monthly	Calculated
pH	Sample Measurement							
PARM Code 00400 1 Mon. Site No. EFA-001	Permit Requirement			6.0 (Min.)	8.5 (Max.)	s.u.	Continuous	Meter
Chlorine, Total Residual(For Disinfection)	Sample Measurement							
PARM Code 50060 1 Mon. Site No. EFA-001	Permit Requirement			1.0 (Min.)	mg/L		Continuous	Meter
Turbidity	Sample Measurement							
PARM Code 00070 1 Mon. Site No. EFB-001	Permit Requirement				Report (Max.)	NTU	Continuous	Meter
Solids, Total Suspended (Using TSS Meter)	Sample Measurement							
PARM Code 00530 O Mon. Site No. EFB-001	Permit Requirement				4.0 (Max.)	mg/L	Continuous	TSS Meter
Flow (Influent)	Sample Measurement							
PARM Code 50050 Q Mon. Site No. FLW-003	Permit Requirement	Report (An. Avg.)	mgd				Continuous	Flow Totalizer
Flow (Influent)	Sample Measurement							
PARM Code 50050 R Mon. Site No. FLW-003	Permit Requirement	Report (Mo. Avg.)	mgd				Continuous	Flow Totalizer
Percent Capacity, (TMADE/Permitted Capacity) x 100	Sample Measurement							
PARM Code 00180 1 Mon. Site No. FLW-003	Permit Requirement				Report (Mo Total)	percent	Monthly	Calculated

DAILY SAMPLE RESULTS - PART B

Permit Number: FLA013581
 Monitoring Period From: _____ To: _____

Facility: City of Pompano Beach Reuse Treatment Facility

	Flow (Golf Course) mgd	Flow (Urban Reuse) mgd	Solids, Total Suspended mg/L	Coliform, Fecal #/100mL	pH (Min.) s.u.	pH (Max.) s.u.
Code	50050	50050	00530	74055	00400	00400
Mon.	FLW-001	FLW-002	EFB-001	EFA-001	EFA-001	EFA-001
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
Total						
Mo.						

PLANT STAFFING:

Day Shift Operator Class: _____ Certificate No: _____ Name: _____

Evening Shift Operator Class: _____ Certificate No: _____ Name: _____

Night Shift Operator Class: _____ Certificate No: _____ Name: _____

Lead Operator Class: _____ Certificate No: _____ Name: _____

DAILY SAMPLE RESULTS - PART B

Permit Number: FLA013581

Facility: City of Pompano Beach Reuse Treatment Facility

Monitoring Period From: _____ To: _____

	Chlorine, Total Residual (For Disinfection) mg/L	Turbidity NTU	Solids, Total Suspended mg/L (Using TTS Meter)	Flow (Influent) mgd
Code	50060	00070	00530	50050
Mon.	EFA-001	EFB-001	EFB-001	FLW-003
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
Total				
Mo.				

INSTRUCTIONS FOR COMPLETING THE WASTEWATER DISCHARGE MONITORING REPORT

Read these instructions before completing the DMR. Hard copies and/or electronic copies of the required parts of the DMR were provided with the permit. All required information shall be completed in full and typed or printed in ink. A signed, original DMR shall be mailed to the address printed on the DMR by the 28th of the month following the monitoring period. The DMR shall not be submitted before the end of the monitoring period.

The DMR consists of three parts--A, B, and D--all of which may or may not be applicable to every facility. Facilities may have one or more Part A's for reporting effluent or reclaimed water data. All domestic wastewater facilities will have a Part B for reporting daily sample results. Part D is used for reporting ground water monitoring well data.

When results are not available, the following codes should be used on parts A and D of the DMR and an explanation provided where appropriate. Note: Codes used on Part B for raw data are different.

CODE	DESCRIPTION/INSTRUCTIONS
ANC	Analysis not conducted.
DRY	Dry Well
FLD	Flood disaster.
IFS	Insufficient flow for sampling.
LS	Lost sample.
MNR	Monitoring not required this period.

CODE	DESCRIPTION/INSTRUCTIONS
NOD	No discharge from/to site.
OPS	Operations were shutdown so no sample could be taken.
OTH	Other. Please enter an explanation of why monitoring data were not available.
SEF	Sampling equipment failure.

When reporting analytical results that fall below a laboratory's reported method detection limits or practical quantification limits, the following instructions should be used:

1. Results greater than or equal to the PQL shall be reported as the measured quantity.
2. Results less than the PQL and greater than or equal to the MDL shall be reported as the laboratory's MDL value. These values shall be deemed equal to the MDL when necessary to calculate an average for that parameter and when determining compliance with permit limits.
3. Results less than the MDL shall be reported by entering a less than sign (" $<$ ") followed by the laboratory's MDL value, e.g. < 0.001 . A value of one-half the MDL or one-half the effluent limit, whichever is lower, shall be used for that sample when necessary to calculate an average for that parameter. Values less than the MDL are considered to demonstrate compliance with an effluent limitation.

PART A -DISCHARGE MONITORING REPORT (DMR)

Part A of the DMR is comprised of one or more sections, each having its own header information. Facility information is preprinted in the header as well as the monitoring group number, whether the limits and monitoring requirements are interim or final, and the required submittal frequency (e.g. monthly, annually, quarterly, etc.). Submit Part A based on the required reporting frequency in the header and the instructions shown in the permit. The following should be completed by the Permittee or authorized representative:

Resubmitted DMR: Check this box if this DMR is being re-submitted because there was information missing from or information that needed correction on a previously submitted DMR. The information that is being revised should be clearly noted on the re-submitted DMR (e.g. highlight, circle, etc.)

No Discharge From Site: Check this box if no discharge occurs and, as a result, there are no data or codes to be entered for all of the parameters on the DMR for the entire monitoring group number; however, if the monitoring group includes other monitoring locations (e.g., influent sampling), the "NOD" code should be used to individually denote those parameters for which there was no discharge.

Monitoring Period: Enter the month, day, and year for the first and last day of the monitoring period (i.e. the month, the quarter, the year, etc.) during which the data on this report were collected and analyzed.

Sample Measurement: Before filling in sample measurements in the table, check to see that the data collected correspond to the limit indicated on the DMR (i.e. interim or final) and that the data correspond to the monitoring group number in the header. Enter the data or calculated results for each parameter on this row in the non-shaded area above the limit. Be sure the result being entered corresponds to the appropriate statistical base code (e.g. annual average, monthly average, single sample maximum, etc.) and units.

No. Ex.: Enter the number of sample measurements during the monitoring period that exceeded the permit limit for each parameter in the non-shaded area. If none, enter zero.

Frequency of Analysis: The shaded areas in this column contain the minimum number of times the measurement is required to be made according to the permit. Enter the actual number of times the measurement was made in the space above the shaded area.

Sample Type: The shaded areas in this column contain the type of sample (e.g. grab, composite, continuous) required by the permit. Enter the actual sample type that was taken in the space above the shaded area.

Signature: This report must be signed in accordance with Rule 62-620.305, F.A.C. Type or print the name and title of the signing official. Include the telephone number where the official may be reached in the event there are questions concerning this report. Enter the date when the report is signed.

Comment and Explanation of Any Violations: Use this area to explain any exceedances, any upset or by-pass events, or other items which require explanation. If more space is needed, reference all attachments in this area.

PART B - DAILY SAMPLE RESULTS

Monitoring Period: Enter the month, day, and year for the first and last day of the monitoring period (i.e. the month, the quarter, the year, etc.) during which the data on this report were collected and analyzed.

Daily Monitoring Results: Transfer all analytical data from your facility's laboratory or a contract laboratory's data sheets for all day(s) that samples were collected. Record the data in the units indicated. Table 1 in Chapter 62-160, F.A.C., contains a complete list of all the data qualifier codes that your laboratory may use when reporting analytical results. However, when transferring numerical results onto Part B of the DMR, only the following data qualifier codes should be used and an explanation provided where appropriate.

CODE	DESCRIPTION/INSTRUCTIONS
<	The compound was analyzed for but not detected.
A	Value reported is the mean (average) of two or more determinations.
J	Estimated value, value not accurate.
Q	Sample held beyond the actual holding time.
Y	Laboratory analysis was from an unpreserved or improperly preserved sample.

To calculate the monthly average, add each reported value to get a total. For flow, divide this total by the number of days in the month. For all other parameters, divide the total by the number of observations.

Plant Staffing: List the name, certificate number, and class of all state certified operators operating the facility during the monitoring period. Use additional sheets as necessary.

PART D - GROUND WATER MONITORING REPORT

Monitoring Period: Enter the month, day, and year for the first and last day of the monitoring period (i.e. the month, the quarter, the year, etc.) during which the data on this report were collected and analyzed.

Date Sample Obtained: Enter the date the sample was taken. Also, check whether or not the well was purged before sampling.

Time Sample Obtained: Enter the time the sample was taken.

Sample Measurement: Record the results of the analysis. If the result was below the minimum detection limit, indicate that.

Detection Limits: Record the detection limits of the analytical methods used.

Analysis Method: Indicate the analytical method used. Record the method number from Chapter 62-160 or Chapter 62-601, F.A.C., or from other sources.

Sampling Equipment Used: Indicate the procedure used to collect the sample (e.g. airlift, bucket/bailer, centrifugal pump, etc.)

Samples Filtered: Indicate whether the sample obtained was filtered by laboratory (L), filtered in field (F), or unfiltered (N).

Signature: This report must be signed in accordance with Rule 62-620.305, F.A.C. Type or print the name and title of the signing official. Include the telephone number where the official may be reached in the event there are questions concerning this report. Enter the date when the report is signed.

Comments and Explanation: Use this space to make any comments on or explanations of results that are unexpected. If more space is needed, reference all attachments in this area.

SPECIAL INSTRUCTIONS FOR LIMITED WET WEATHER DISCHARGES

Flow (Limited Wet Weather Discharge): Enter the measured average flow rate during the period of discharge or divide gallons discharged by duration of discharge (converted into days). Record in million gallons per day (mgd).

Flow (Upstream): Enter the average flow rate in the receiving stream upstream from the point of discharge for the period of discharge. The average flow rate can be calculated based on two measurements; one made at the start and one made at the end of the discharge period. Measurements are to be made at the upstream gauging station described in the permit.

Actual Stream Dilution Ratio: To calculate the Actual Stream Dilution Ratio, divide the average upstream flow rate by the average discharge flow rate. Enter the Actual Stream Dilution Ratio accurate to the nearest 0.1.

No. of Days the SDF > Stream Dilution Ratio: For each day of discharge, compare the minimum Stream Dilution Factor (SDF) from the permit to the calculated Stream Dilution Ratio. On Part B of the DMR, enter an asterisk (*) if the SDF is greater than the Stream Dilution Ratio on any day of discharge. On Part A of the DMR, add up the days with an "*" and record the total number of days the Stream Dilution Factor was greater than the Stream Dilution Ratio.

CBOD₅: Enter the average CBOD₅ of the reclaimed water discharged during the period shown in duration of discharge.

TKN: Enter the average TKN of the reclaimed water discharged during the period shown in duration of discharge.

Actual Rainfall: Enter the actual rainfall for each day on Part B. Enter the actual cumulative rainfall to date for this calendar year and the actual total monthly rainfall on Part A. The cumulative rainfall to date for this calendar year is the total amount of rain, in inches, that has been recorded since January 1 of the current year through the month for which this DMR contains data.

Rainfall During Average Rainfall Year: On Part A, enter the total monthly rainfall during the average rainfall year and the cumulative rainfall for the average rainfall year. The cumulative rainfall for the average rainfall year is the amount of rain, in inches, which fell during the average rainfall year from January through the month for which this DMR contains data.

No. of Days LWWD Activated During Calendar Year: Enter the cumulative number of days that the limited wet weather discharge was activated since January 1 of the current year.

Reason for Discharge: Attach to the DMR a brief explanation of the factors contributing to the need to activate the limited wet weather discharge.

PATHOGEN MONITORING

Part I - Instructions

1. Completion of this report is required by Rules 62-610.463(4), 62-610.472(3)(d), 62-610.525(13), 62-610.568(11), 62-610.568(12), and 62-610.652(6)(c), F.A.C., for all domestic wastewater facilities that provide reclaimed water to certain types of reuse activities. The schedule for sampling and reporting shall be in accordance with the permit for the facility. If a schedule for sampling or re-sampling is not included in the permit, the following schedule shall apply:
 - a. Routine Sampling:

If sampling is required once every two years, this report shall be submitted on or before November 28 of each even numbered year (2006, 2008, 2010, etc.).

If sampling is required once every five years, this report shall be submitted with the application for permit renewal.

If sampling is required quarterly, this report shall be submitted on or before February 28, May 28, August 28, and November 28 of each year.
 - b. Subsequent Re-Sampling:

If subsequent re-sampling is required by Item 9 in Part I of this form, this form shall be submitted for the subsequent re-sampling(s) in accordance with the schedule established in Item 9 in Part I of this form.
2. Submit one copy of this form and a copy of the laboratory's final report for the analysis of *Giardia* and *Cryptosporidium* to each of the following two addresses:
 - a. The appropriate DEP district office (attention Domestic Wastewater Program). Addresses for the DEP district offices are available at www.dep.state.fl.us/secretary/dist/default.htm.
 - b. DEP Water Reuse Coordinator
Mail Station 3540
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
3. Please type or print legibly.
4. In Part II, Items 7 through 12 need to be completed only if this is the first submittal of this report, if the information in Items 7 through 12 has changed since the last submittal, or if the information in any of these questions has not been previously provided.
5. Part III is to be used when sampling for *Giardia* and *Cryptosporidium* at the treatment plant. Part III is also to be used when sampling for *Giardia* and *Cryptosporidium* in a supplemental water supply (see Rule 62-610.472, F.A.C.).
6. For each sample, record the sample volume obtained in liters.
7. For *Giardia*, record the concentrations in cysts per 100 liters. For *Cryptosporidium*, record the concentrations in oocysts per 100 liters. Sufficient sample volumes shall be collected and processed such that the detection limit is no greater than 5 cysts or oocysts per 100 liters. Detection levels on the order of 1 cyst or oocyst per 100 liters are recommended. If an observation is less than the detection limit, make an entry in the form "<2" (where 2 per 100 liters is the detection limit in this example). The actual detection limit will be dictated by the volumes of sample obtained, filtered, and processed. Do NOT record nondetectable values as zero.

8. EPA Method 1623 or other approved methods for reclaimed water or nonpotable waters, adjusted appropriately to accommodate the detection limit requirements, shall be used. Methods previously allowed for EPA's Information Collection Rule (ICR) shall not be used. The full requirements of the approved method, including quality assurance and quality control, are to be met. Quality assurance and sampling requirements in Chapter 62-160, F.A.C., shall apply.

Two concentrations of *Giardia* and *Cryptosporidium* shall be recorded on Part III of this form:

- a. Total cysts and oocysts shall be enumerated using EPA Method 1623 or other approved methods.
 - b. Potentially viable cysts and oocysts shall be enumerated using the DAPI staining technique contained in EPA Method 1623 or similar enumeration techniques included in other approved methods. Cysts and oocysts that are stained DAPI positive or show internal structure by D.I.C. shall be considered as being potentially viable. If the laboratory reports separate values for DAPI positive and for cysts or oocysts having internal structure, the larger of the two concentrations will be reported as being potentially viable.
9. If the number of potentially viable cysts of *Giardia* reported exceeds 5 per 100 liters, a subsequent sample shall be taken and analyzed using EPA Method 1623 or other approved methods and reported using this form. If the number of potentially viable oocysts of *Cryptosporidium* reported exceeds 22 per 100 liters, a subsequent sample shall be taken and analyzed using EPA Method 1623 or other approved methods and reported using this form. This subsequent sample shall be collected within 90 days of the date the initial sample was taken, analyzed for both *Giardia* and *Cryptosporidium*, and the results of the subsequent analysis shall be submitted to DEP using this form within 60 days of sample collection.
 10. Rule 62-160.300, F.A.C., requires that all laboratories generating environmental data for submission to the DEP shall hold certification from the Department of Health's (DOH) Environmental Laboratory Certification Program (ELCP). Certification by the ELCP for analysis of *Giardia* and *Cryptosporidium* using EPA Method 1623 for non-potable waters is required. If other approved methods are used, certification by the ELCP is required for the specific method and for the test matrix. Lists of certified laboratories can be found at www.dep.state.fl.us/labs/cgi-bin/aams/index.asp
 11. Samples shall be collected during peak flow periods (normally between the hours of 8:00 a.m. and 6:00 p.m.).
 12. Recognizing that concentrations of these pathogens generally increase during the late summer through fall period, it is recommended that utilities sample during the August through October time period.
 13. If the wastewater treatment facility uses chlorination for disinfection, samples obtained for analysis of *Giardia* and *Cryptosporidium* shall be dechlorinated.
 14. When sampling at the treatment facility, obtain a grab sample for total suspended solids (TSS) that is representative of the water leaving the filters at the treatment facility during the period when pathogen samples are being obtained. In addition, record the highest turbidity and the lowest total chlorine residual observed during the period when pathogen samples are being obtained.
 15. When sampling a supplemental water supply, obtain a grab sample for total suspended solids (TSS) that is representative of the surface water or treated stormwater as it is added to the reclaimed water system. This TSS sample shall be taken during the period when pathogen samples are being obtained. In addition, record the lowest total chlorine residual observed during the period when pathogen samples are being obtained.

Part II - General Information

1. DEP wastewater facility identification number: **FLA013581**

Wastewater facility name: Pompano Beach, City of - Reuse Treatment

Permittee name: City of Pompano Beach

2. Person completing this form:

Name: _____

Telephone: (_____) _____

Email address: _____

3. Sampling and analysis:

Date samples were taken: _____

Organization collecting the samples: _____

Was the sample dechlorinated in the field? Yes No

Was the sample refrigerated or kept on ice during shipment to the laboratory? Yes No

Date samples delivered to laboratory: _____

Date analytical work was done: _____

Laboratory doing the analysis: _____

Laboratory's DOH Identification Number: _____

Approved method used:

EPA Method 1623

Other approved method: _____

Contact person at the laboratory: _____

Email address of the lab contact person: _____

4. Is this the first time that this form has been submitted for the facility?

Yes [Please complete Questions 7 through 16.]

No [Proceed to Question 5.]

5. Is this a report of "subsequent re-sampling" required by Item 9 in Part I of this form based on concentrations of potentially viable cysts or oocysts in a previous sampling?

No [Proceed to Question 6.]

Yes [Attach a description of any facility or operational changes made to the treatment facilities since the time of the previous sampling and proceed to Question 6.]

6. Has the information requested in Questions 7 through 12 (below) changed since the last submittal of this form?

Yes [Please complete Questions 7 through 16.]

No [Proceed to Questions 13 through 16 of Part II of this form. You do not need to complete Questions 7 through 12.]

7. Type of secondary treatment system:

Conventional activated sludge

Extended aeration

Contact stabilization

Biological nutrient removal (such as Bardenpho)

Other:

8. Does this treatment facility nitrify (convert ammonia nitrogen to nitrate)?

Yes

No

9. Filter type:

Deep bed, single media

Deep bed, multiple media

Shallow bed, automatic backwash

Upflow (including Dynasand)

Slow rate sand filter

Diatomaceous earth filter

Fabric filter

Cartridge filter

Membranes (microfiltration, ultrafiltration, membrane bioreactor, reverse osmosis)

Other: _____

10. Filter Media (complete for each type of media provided):

Top layer of media: _____ Media type: _____

Effective size: _____ mm

Uniformity coefficient: _____

Bed depth: _____ inches

Middle layer of media: Media type: _____
Effective size: _____ mm
Uniformity coefficient: _____
Bed depth: _____ inches

Bottom layer of media: Media type: _____
Effective size: _____ mm
Uniformity coefficient: _____
Bed depth: _____ inches

11. Filter backwash water:

- Backwash water is returned to the headworks of the treatment plant.
- Backwash water is returned to the aeration basin.
- Other. Please describe: _____

12. Disinfection system:

- Chlorination, gas Hypochlorite
- Chlorine dioxide Chlorination, other _____
- Ultraviolet Ozone
- Other: _____

13. Is chlorine added before the filters? No Yes Dose: _____ mg/L

14. During the period that samples were taken, did you add a coagulant, coagulant aid, polyelectrolyte, or other chemical to enhance filtration?

No

Yes. Please list the chemicals being added and their dose.

Chemical 1 - Name: _____ Dose: _____ mg/L

Chemical 2 - Name: _____ Dose: _____ mg/L

Chemical 3 - Name: _____ Dose: _____ mg/L

15. Wastewater treatment plant permitted capacity: _____ mgd

16. Wastewater flow being treated at the time samples were collected: _____ mgd

PART III - PATHOGEN MONITORING REPORT

FACILITY ID: FLA013581

FACILITY NAME: Pompano Beach, City of - Community Park Reuse City

FACILITY ADDRESS: 1801 N Federal Hwy, Pompano Beach, FL 33062-1008

PERMITTEE NAME: City of Pompano Beach

MAILING ADDRESS: 1205 NE 5th Ave, Pompano Beach, Florida 33060-5758

DATE OF SAMPLING: _____

Parameter	Quantity or Loading		Quality or Concentration	
	Sample Measurement	Units	Sample Measurement	Units
Treatment Plant: After Filter Monitoring Site No.				
Turbidity PARM Code 00070				NTU
TSS PARM Code 00530				mg/L
Treatment Plant: After Disinfection Monitoring Site No.				
Total Chlorine Residual PARM Code 50060				mg/L
Volume Collected PARM Code 71994		Liters		
<i>Giardia</i> , total count * PARM Code GIARD				total cysts/100 L
<i>Giardia</i> , potentially viable cysts * PARM Code VGIAR				potentially viable cysts/100 L
<i>Cryptosporidium</i> , total count * PARM Code CRYPT				total oocysts/100 L
<i>Cryptosporidium</i> , potentially viable oocysts * PARM Code VCRYP				potentially viable oocysts/100 L
Supplemental Water Supply (surface water or stormwater): After Treatment & Disinfection Monitoring Site No.				
TSS PARM Code 00530				mg/L
Total Chlorine Residual PARM Code 50060				mg/L
Volume Collected PARM Code 71994		Liters		
<i>Giardia</i> (total count) * PARM Code GIARD				total cysts/100 L
<i>Giardia</i> , potentially viable cysts * PARM Code VGIAR				potentially viable cysts/100 L
<i>Cryptosporidium</i> , total count * PARM Code CRYPT				total oocysts/100 L
<i>Cryptosporidium</i> , potentially viable oocysts * PARM Code VCRYP				potentially viable oocysts/100 L

* Data entries must be made for both total and potentially viable cysts and oocysts.

PART IV - CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein; and based upon my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

Name/Title of Principle Executive Officer or Authorized Agent (Type or Print)	Signature of Principle Executive Officer or Authorized Agent	Telephone No.	Date (YY/MM/DD)
Email Address			

**FACT SHEET
FOR
STATE OF FLORIDA DOMESTIC WASTEWATER FACILITY PERMIT**

April 27, 2011

PERMIT NUMBER: FLA013581

FACILITY NAME: Pompano Beach, City of - Reuse Treatment Facility

FACILITY LOCATION: 1801 N Federal Hwy, Pompano Beach, FL 33062
Broward County

NAME OF PERMITTEE: City of Pompano Beach

PERMIT WRITER: Michael Bechtold, P.E.

1. SUMMARY OF APPLICATION

a. Chronology of Application

Application Number: FLA013581-006-DW1P

Application Submittal Date: April 12, 2010

b. Type of Facility

Domestic Wastewater Treatment Plant

Ownership Type: Municipal

SIC Code: 4952

c. Facility Capacity

Existing Permitted Capacity: 7.5 mgd Annual Average Daily Flow

Proposed Increase in Permitted Capacity: 5.0 mgd Annual Average Daily Flow

Proposed Total Permitted Capacity: 12.5 mgd Annual Average Daily Flow

d. Description of Wastewater Treatment

An existing 7.5 mgd permitted capacity reuse domestic wastewater treatment plant consisting of filtration, coagulation, and chlorination. The influent to the facility is from the effluent from the North Broward County Regional Wastewater Treatment Plant traveling to final discharge point in the Atlantic Ocean. The facility is permitted for expansion to 12.5 mgd AADF.

e. Description of Effluent Disposal and Land Application Sites (as reported by applicant)

See attached map of the reuse service area.

2. BASIS FOR PERMIT LIMITATIONS AND MONITORING REQUIREMENTS

This facility is authorized to direct reclaimed water to Reuse System R-001, a slow-rate public access system, based on the following:

Parameter	Units	Max /Min	Limit	Statistical Basis	Rationale
Flow, Effluent (High pressure system to golf course)	mgd	Max	Report	Annual Average	62-4.070 FAC (BPJ)
		Max	Report	Monthly Average	62-600.400(3)(b) & 62-610.810(5) FAC
(Flow, Effluent Low pressure system to residential reuse)	mgd	Max	Report	Annual Average	62-4.070 FAC (BPJ)
		Max	Report	Monthly Average	62-600.400(3)(b) & 62-610.810(5) FAC
Solids, Total Suspended	mg/L	Max	5.0	Single Sample	62-610.460(1) & 62-600.440(5)(f)3. FAC
Solids, Total Suspended (Using TSS Meter)	mg/L	Max	4.0	Single Sample	BPJ
Coliform, Fecal	#/100mL	Max	25	Single Sample	62-610.460 & 62-600.440(5)(f)2. FAC
Coliform, Fecal, % less than detection	percent	Min	75	Monthly Total	62-600.440(5)(f)1. FAC
pH	s.u.	Min	6.0	Single Sample	62-600.445 FAC
		Max	8.5	Single Sample	62-600.445 FAC
Chlorine, Total Residual (For Disinfection)	mg/L	Min	1.0	Single Sample	62-600.440(5)(b), 62-610.460(2), & 62-610.463(2) FAC
Turbidity	NTU	Max	Report	Single Sample	62-610.463(2) FAC
Giardia	cysts/100L	Max	Report	Single Sample	62-610.463(4) FAC
Cryptosporidium	oocysts/100 L	Max	Report	Single Sample	62-610.463(4) FAC

CBOD₅ is typically monitored as part of the effluent. However, the effluent has already been monitored at the discharge from Broward County North Regional WWTF which effluent is the influent for further treatment by filtration to have the Total Suspended Solids (TSS) below 5 mg/L. The additional CBOD₅ monitoring is not necessary and the permit writer had eliminated the duplicate CBOD₅ monitoring.

The chlorine contact chamber is a tank within the four (4) million gallon Reuse Storage Tank. The size of the tank was designed for the ultimate capacity of 12.5 mgd. Presently, the actual flow is only 2 mgd. Therefore, the plant is only operated part of the day with shut down of the facility during periods of the day/week/month. At startup, the chlorine contact chamber/tank (CCC/T) is full of treated effluent from the end of the previous operation. The chlorine residual falls during the period until the effluent being produced currently has traveled through the CCC/T. The operating protocol is now required to delay reporting the Total Residual Chlorine (TRC) reading until half the volume of the CCC/T has been filled with newly treated reuse. This complies with the minimum TRC, stated in the protocol, that is approved by the Department.

Other Limitations and Monitoring Requirements:

Parameter	Units	Max/Min	Limit	Statistical Basis	Rationale
Flow Influent	mgd	Max	Report	Annual Average	62-600.400(3)(b) FAC
		Max	Report	Monthly Average	62-600.400(3)(b) FAC
Percent Capacity, (TMADF/Permitted Capacity) x 100	percent	Max	Report	Monthly Average	62-600.405(4) FAC
Monitoring Frequencies and Sample Types	-	-	-	All Parameters	62-601 FAC & 62-699 FAC and/or BPJ of permit writer
Sampling Locations	-	-	-	All Parameters	62-601, 62-610.412, 62-610.463(1), 62-610.568, 62-610.613 FAC and/or BPJ of permit writer

The influent CBOD₅ and TSS are not required as the influent is the effluent from the Broward County North Regional Wastewater Treatment Facility where the monitoring is already being performed. The permit writer determined that this duplication of monitoring is not needed.

The plant will have design flow of 7.5 mgd and may be expanded to 12.5 mgd. The design includes some extra capacity for reliability. Therefore, the limit for flows is report only as the treatment limit is based on compliance with the Operating protocol that establishes some set point for diversion. As long as the treatment complies with the standards and the irrigation does not exceed demand, the facility will be in compliance. Also, the "report only" flow limits were determined to be preferred in the permit by the permit writer..

3. DISCUSSION OF CHANGES TO PERMIT LIMITATIONS: The current wastewater permit for this facility DEP File Number FLA013581-004-DWIP expired on April 25, 2010. The facility is presently operating on the conditions of the last permit issued. The prior permit required annual monitoring of Primary and Secondary Groundwater Standards. The raw wastewater is treated at the Broward County North Regional WWTF. The effluent from North Broward Regional is by Deep Injection wells, Part III reuse and Open Ocean discharge. The influent flow for this reuse facility is from the North Regional ocean outfall. The North Regional is already required to sample for the Primary and Secondary Drinking Water Standards. If any parameter in the Part III reuse at the North Broward Regional WWTF, the permit may be reopened to add groundwater monitoring. The Permittee shall submit monitoring reports on the sampling of the Primary and Secondary Drinking Water Standards with the Permit Renewal Application.

4. RESIDUALS MANAGEMENT

This section does not apply. This facility does not receive or generate residuals.

5. GROUND WATER MONITORING REQUIREMENTS

Ground water monitoring requirements have been established in accordance with Chapters 62-520, 532, 601, 610, and 620, F.A.C. As such, Section III is not applicable to this facility.

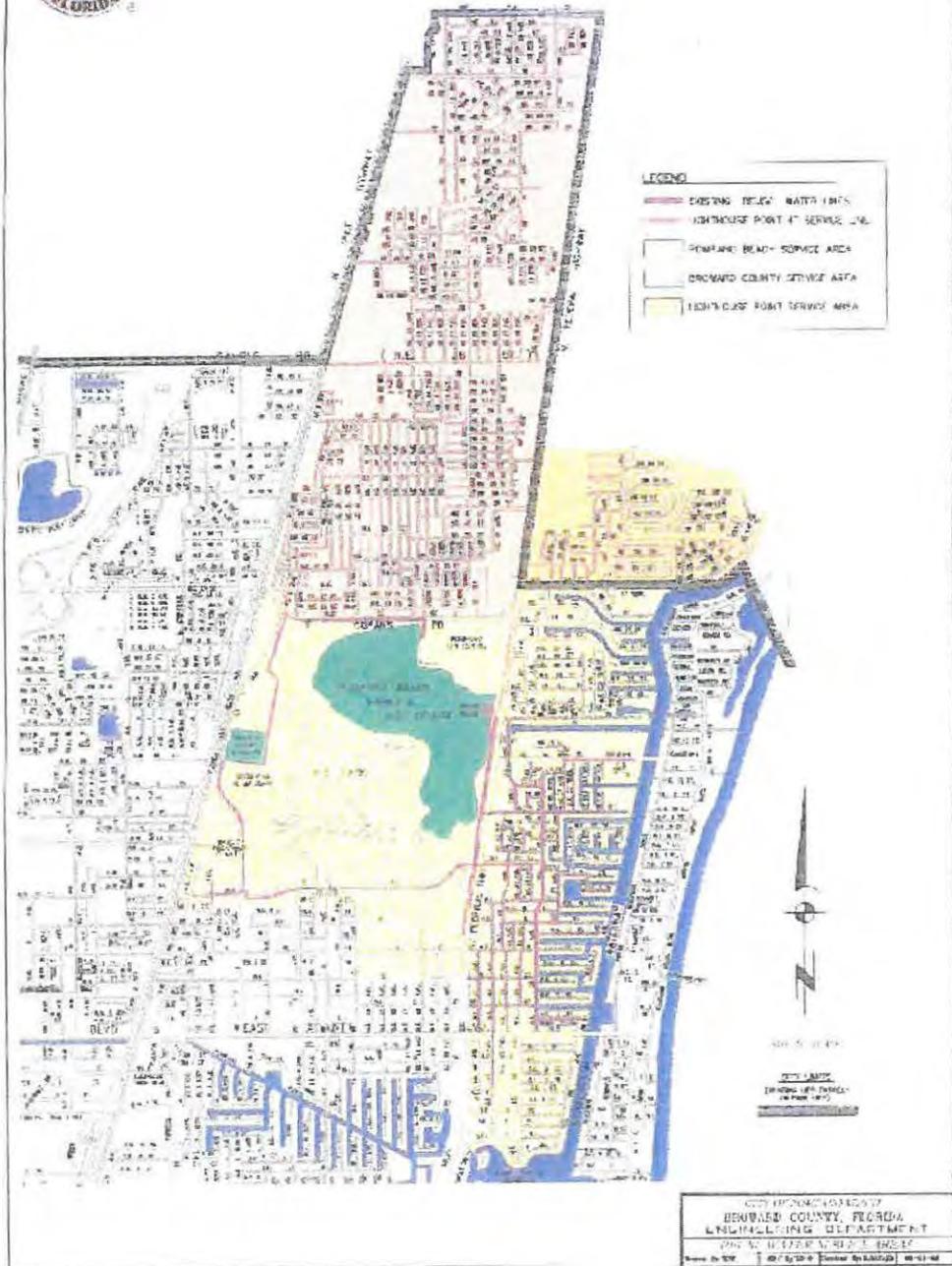


Exhibit C

Parkson Corporation Report



PARKSON CORPORATION

TITLE 22 PERFORMANCE TESTING OF THE
DYNASAND® ECOWASH™ FILTER

FINAL

January 2013



PARKSON CORPORATION

TITLE 22 PERFORMANCE TESTING OF THE DYNASAND® ECOWASH™ FILTER

TABLE OF CONTENTS

EXECUTIVE SUMMARY.....	1
1.0 INTRODUCTION.....	1
2.0 DESCRIPTION OF THE DYNASAND® ECOWASH™.....	2
2.1 DynaSand® Ecowash™ Backwashing Operation.....	6
2.1.1 No Backwash Operation.....	6
2.1.2 Backwash Operation.....	6
3.0 METHODS AND PROCEDURES.....	7
3.1 Testing Site.....	7
3.1.1 California Sponsor.....	7
3.2 Testing Protocol.....	9
4.0 RESULTS.....	11
4.1 Turbidity.....	11
4.1.1 Continuous Backwash Mode.....	11
4.1.2 50 Percent Backwash Mode.....	12
4.1.3 10 Percent Backwash Mode.....	13
4.1.4 Summary of Turbidity Results.....	14
4.2 Total Suspended Solids.....	15
4.3 Backwash Reject Water Results.....	17
5.0 TITLE 22 PERFORMANCE TESTING CONCLUSIONS.....	17

LIST OF APPENDICES

- Appendix A – Napa Sanitation District Sponsor Letter
- Appendix B – DynaSand® Ecowash™ Testing Protocol
- Appendix C – Daily Turbidity Results

LIST OF TABLES

Table 1	Experimental Design.....	10
Table 2	Summary of Experimental Parameters.....	10
Table 3	Summary of Turbidity Results.....	15
Table 4	Summary of TSS Test Results.....	16
Table 5	Summary of Reject Water Generation.....	17

LIST OF FIGURES

Figure 1 DynaSand® Continuous Backwash Filter 3
Figure 2 DynaSand® EcoWash™ Continuous Backwash Filter..... 4
Figure 3 Pictures of the Dynasand® EcoWash™ Backwash System Components 5
Figure 4 Influent Climber Screens at the Pompano Beach Reuse Utilities Plant 8
Figure 5 Picture of the manual plate screen downstream of the climber screen 9
Figure 6 Turbidity performance during the continuous backwash test 12
Figure 7 Turbidity performance during the 50 percent backwash mode test..... 13
Figure 8 Turbidity performance during the 10 percent backwash mode test..... 14

TITLE 22 PERFORMANCE TESTING OF THE DYNASAND® ECOWASH™ FILTER

EXECUTIVE SUMMARY

The Parkson DynaSand® filter is a continuous, upflow, granular media filter with continuous backwashing. During the filtration process the system cleans the sand bed so that the filter is not shut down during backwashing. Feed water is passed upwards through the sand bed and exits the top of the filter as clean water. At the same time, sand can be removed from the bottom, cleaned and returned to the top. A small portion of the filtered water is used to wash the sand and leaves the filter as a reject stream.

The DynaSand® EcoWash™ filter provides continuous filtration like the standard DynaSand® filter with intermittent backwashing instead of continuous backwashing. Operating in this mode reduces the amount of reject water produced from sand washing. Previous full-scale testing conducted by Parkson, showed that the EcoWash™ feature reduced operation and maintenance time, significantly reduced the capacity lost and the costs associated with reprocessing backwash water, as well as reduced the energy requirements by 60-90 percent as compared to operation in a continuous backwashing mode.

This report on the performance of the DynaSand® EcoWash™ filter includes the results of a full-scale study that was conducted to obtain California Department of Public Health (CDPH) Title 22 conditional acceptance for use in the production of recycled water in California.

The performance of the Dynasand® EcoWash™ filter was evaluated while operating in the standard continuous backwashing mode and two intermittent backwash modes (50 percent and 10 percent) that reflect the EcoWash™ feature.

Testing was conducted following a test protocol approved by the CDPH (*DynaSand® EcoWash™ Testing Procedure* June 2012) to demonstrate compliance with the California Recycled Water Criteria (Title 22) turbidity requirements.

As a result of the performance testing, it was determined that the DynaSand® EcoWash™ filter while operating in a continuous, 50 percent, or 10 percent backwash mode, met the Title 22 effluent turbidity requirements.

The following is a summary of the key conclusions from the performance testing:

- While treating a filter influent with a turbidity that ranged between 1.1 and 5.0 NTU 99 percent of the time, the Dynasand® EcoWash™ filter, regardless of the mode of operation (i.e., backwashing in a continuous or an intermittent mode), produced a filtered effluent with a turbidity value of less than or equal to 2.0 NTU (0.65 to 2.69 NTU), 99.5 percent of the time.
- The operational filter headloss increased as the backwash frequency was reduced. During the continuous backwash mode, the headloss through the filter was 18.4 inches and increased to 22.7 inches as the backwash frequency decreased to 10 percent.

- Reduction in backwash frequency resulted in a decrease of the reject water generated.
- The percent reject water generated was 5.67, 2.51, and 1.25 percent for the continuous, 50 percent, and 10 percent backwash mode tests, respectively.
- A 50 percent reduction in the backwash frequency resulted in a 55.7 percent reduction in backwash water generated as compared to the continuous backwash mode.
- A 90 percent reduction in backwash frequency resulted in a 77.9 percent reduction in the backwash water generated as compared to the continuous backwash mode.

TITLE 22 PERFORMANCE TESTING OF THE DYNASAND® ECOWASH™ FILTER

1.0 INTRODUCTION

The Parkson DynaSand® filter is a continuous, upflow, granular media filter with continuous backwashing. During the filtration process the system cleans the sand bed so that the filter is not shut down during backwashing. Feed water is passed upwards through the sand bed and exits the top of the filter as clean water. At the same time, sand can be removed from the bottom, cleaned and returned to the top. A small portion of the filtered water is used to wash the sand and leaves the filter as a reject stream.

The DynaSand® EcoWash™ filter provides continuous filtration like the standard DynaSand® filter with intermittent backwashing instead of continuous backwashing. Operating in this mode reduces the amount of reject water produced from sand washing. Previous full-scale testing conducted by Parkson, showed that the EcoWash™ feature reduced operation and maintenance time, significantly reduced the capacity lost and the costs associated with reprocessing backwash water, as well as reduced the energy requirements by 60-90 percent as compared to operation in a continuous backwashing mode.

The DynaSand® continuous backwash filter was granted conditional acceptance by the California Department of Public Health (CDPH) for use in water recycling applications in December of 1986. Since that time, the DynaSand® continuous backwash filter has been effectively used to produce recycled water in California and throughout the nation. Parkson developed the automated intermittent backwash version of the DynaSand® system called the EcoWash™ to improve operations and reduce amount of reject water generated and energy used. To be able to use the EcoWash™ in the production of recycled water in California, conditional acceptance must be granted by CDPH.

Parkson contracted with Carollo Engineers (Carollo) to help develop a testing protocol and then to perform third party performance testing to obtain CDPH Title 22 conditional acceptance of the of the DynaSand® EcoWash™ filtration system. The protocol (*DynaSand® EcoWash™ Testing Procedure* June 2012) for this testing was previously submitted and approved by CDPH in July of 2012.

This report provides the necessary information to the CDPH for review and conditional Title 22 acceptance of the DynaSand® EcoWash™ filtration system for the production of recycled water in California. The specific objectives of this report are to:

- Provide a detailed description of the DynaSand® EcoWash™ filtration system.
- Provide information on the performance testing methods and procedures.
- Present the results of the performance testing conducted.

- Draw conclusions on the ability of the DynaSand® EcoWash™ filtration system to meet the Title 22 Water Recycling Criteria for filtration while operating in an intermittent backwash mode.

2.0 DESCRIPTION OF THE DYNASAND® ECOWASH™

The DynaSand® filter is a continuous, upflow, granular media filter with continuous backwashing. Feed water is passed upwards through the sand bed and exits the top of the filter as filtered effluent. At the same time, the sand filter media is cleaned and returned to the top of the filter bed. A small portion of the filtered water is used to backwash the sand. This backwash water leaves the filter as a reject stream. As can be seen in Figure 1, water enters the filter through an influent pipe where it is fed to the bottom of the filter through filter influent feed radials. The wastewater is filtered while flowing upwards through a bed of downward moving sand. The dirtiest sand in this filter is located at the bottom of the filter. At the bottom of the airlift pipe, air is injected into the sand and water. The resulting air, sand, and water mixture has a density less than water. This mixture is lifted up the airlift pipe and discharged into the reject compartment. As the sand falls through the sand washer the turbulence caused by the filter effluent flowing through the sand washer cleans the sand. The clean sand then falls to the top of the downward moving bed of sand, while the wash water and solids that have been removed from the filter media flow from the sand washer, through the reject compartment, and over the reject weir into the reject pipe.

The DynaSand® EcoWash™ filter allows continuous upflow filtration as described above, while utilizing timed/programmable sand circulation and intermittent washing to reduce the volume of reject water being produced. Several additional components are required in the EcoWash™ system over the traditional DynaSand® filter. These additional components include:

- Central Control Panel: Used to control, operate, and monitor the EcoWash™ system.
- Air Control Panel: Used to control airflow.
- Ultrasonic level indicators: Measure changes in the headloss through the filter.
- Sand Movement Detection System: Sensor (DynaSensor™) provides feedback to the control system to confirm proper airlift and sand movement during backwashing.
- Additional air supply line: Because the EcoWash™ is an intermittent backwash system an additional air line is needed to provide a dual, instead of single, air burst at the initiation of backwashing to facilitate the startup of sand movement. Air flow during backwashing is the same as the traditional DynaSand®.
- Reject water reduction control valves: Used to open and close the reject line to allow or prevent reject flow. The valves are controlled by differential pressure or operator selected time points.

A schematic of the important components of the DynaSand® EcoWash™ filter is presented in Figure 2. Pictures of the reject compartment, reject weir, and sand movement detection system are presented in Figure 3.

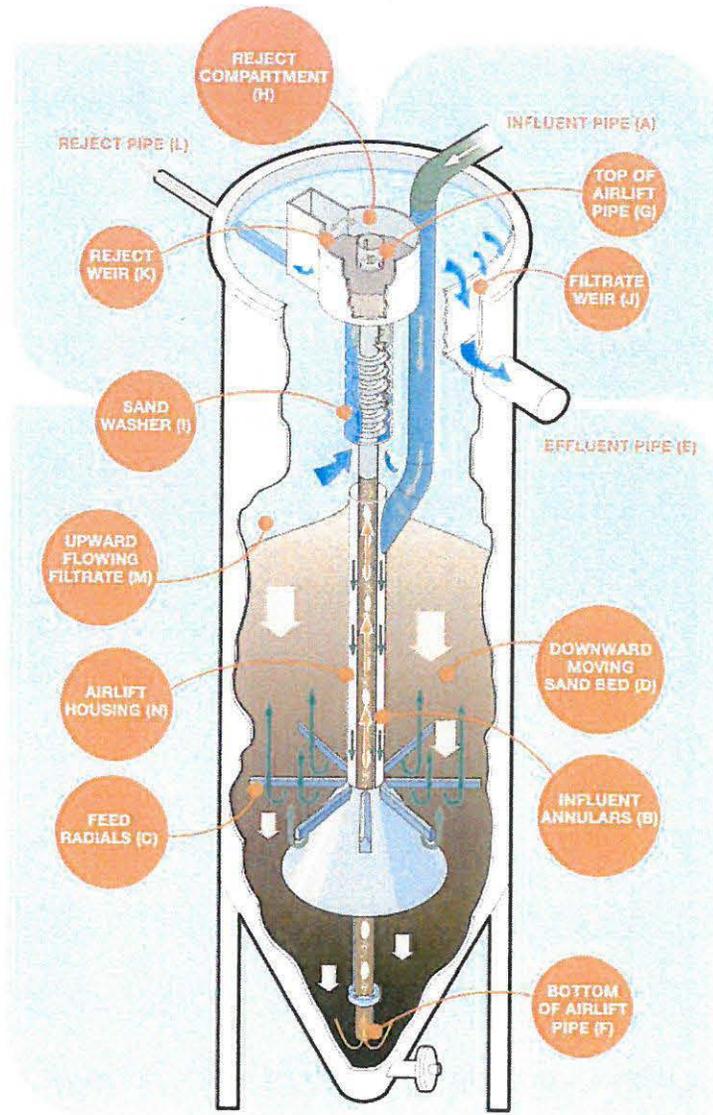


Figure 1 DynaSand® Continuous Backwash Filter

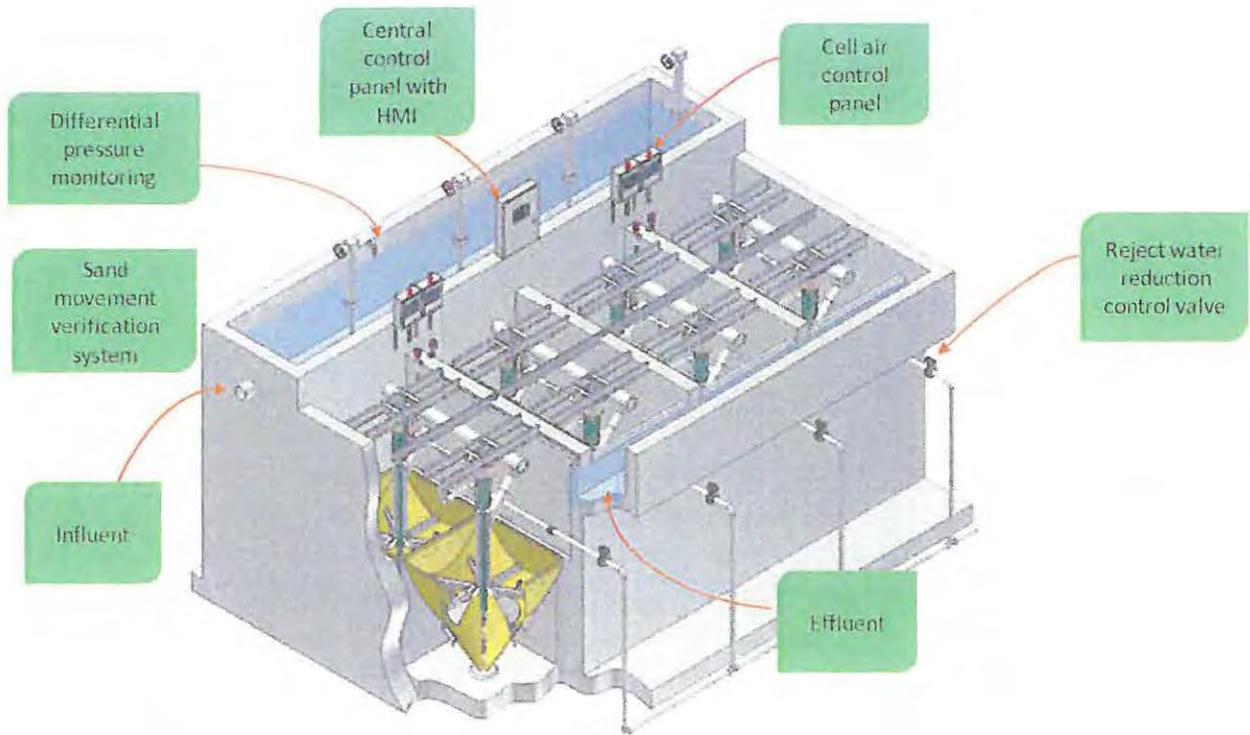


Figure 2 DynaSand® EcoWash™ Continuous Backwash Filter

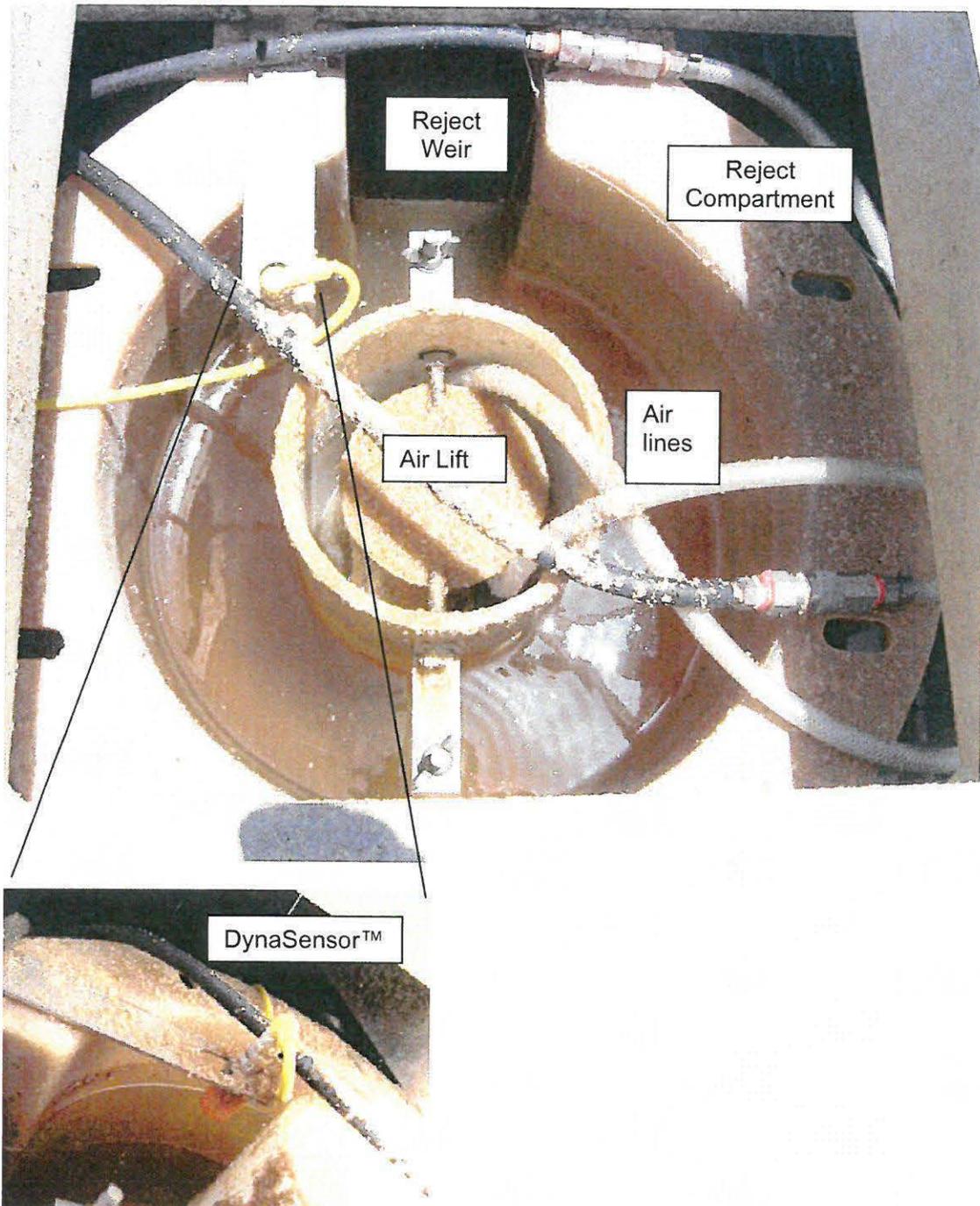


Figure 3 Pictures of the Dynasand® EcoWash™ Backwash System Components

2.1 DynaSand® Ecowash™ Backwashing Operation

The DynaSand® EcoWash™ filter uses an automated sand movement detection system to monitor sand movement (DynaSensor™), trigger alarms for systems failures, and monitor filter operation remotely. Even though there are modifications to the airlift design and filter operation to ensure consistent sand movement during the intermittent backwash cycles, the DynaSand® EcoWash™ system uses the same air flow rate as the traditional DynaSand® filter. Reject (backwash) water use is minimized by reducing the backwash time. This is done by closing an automatic valve on the reject line during periods when the backwash is not in operation. The backwashing sequence is controlled by time and differential pressure (headloss) set points chosen by the operators and can be adapted to the requirements of plant conditions. A typical sequence of operation is listed below in bulleted form.

- An operator programs the backwash ON and OFF times
- Water levels are measured to monitor headloss across the filters
- Airlift/reject starts at the programmed time or at programmed headloss set-point
- The backwash runs for the pre-set period of time or until the differential pressure is reduced to the minimum set-point

High headloss will override the time set point and allow the system to initiate backwashing.

2.1.1 No Backwash Operation

During this phase, the reject valve is closed and the airlift is OFF, allowing the filter to accumulate solids. During this process, solids are progressively captured and retained in the bed. The headloss across the filter increases as more solids are captured in the bed and the filtrate quality is expected to improve.

2.1.2 Backwash Operation

When the timer for the OFF backwash cycle is complete or the differential pressure reaches the set point, the airlift is turned ON and the reject valve is opened to initiate the backwash process. The Sand Movement Detection System provides feedback to the control panel to confirm proper airlift operation and sand movement. The headloss drops as the solids are removed from the sand and clean media falls back into the filter. The backwash cycle lasts for the time set at the EcoWash™ control panel or until the headloss across the filters reaches a lower set point. At the end of this cycle, the airlift is turned OFF and the reject valve is closed. The airlift and the reject valve are controlled by a pneumatic valve located in the air control panel.

3.0 METHODS AND PROCEDURES

The purpose of this testing was to demonstrate compliance with the California Title 22 Water Recycling Criteria daily average turbidity limit of 2.0 NTU while operating in both a continuous and intermittent backwash mode. Carollo witnessed testing during several site visits and analyzed the data collected by the facilities SCADA system.

3.1 Testing Site

The performance testing took place on the full-scale DynaSand® EcoWash™ system installed at the City of Pompano Beach Reuse Utilities Plant, in Pompano Beach Florida. The influent to the Pompano Reuse Plant is unfiltered secondary effluent, which is pumped from the Broward County North Regional WWTP. Chlorine is added after the transfer pumps. After chlorine addition, the flow passes through a climber screen (Figure 4) and a manual plate screen (Figure 5). The climber screen removes the majority of plastics while the manual plate screen captures those plastics that pass through the climber screen, when the climber action occurs.

The plant has two separate DynaSand® filter banks (North Bank and South Bank). For the purpose of this testing the gate valve to the North Bank was closed to allow for testing of the South Bank filters. The South Bank filters consist of 2 cells with 8 deep bed filters per cell and 50 square feet of filtration area per filter, thus providing a total of 16 deep bed filters and 800 square feet of filtration surface area.

3.1.1 California Sponsor

The CDPH requires that a California city or utility sponsor the Title 22 performance testing. The Napa Sanitation District (Napa) is investigating a conversion of their DynaSand® filters to the EcoWash™ mode of operation. Napa has agreed to sponsor the Parkson DynaSand® EcoWash™ Title 22 performance testing. A letter stating the Districts intention to sponsor this work is included in Appendix A.

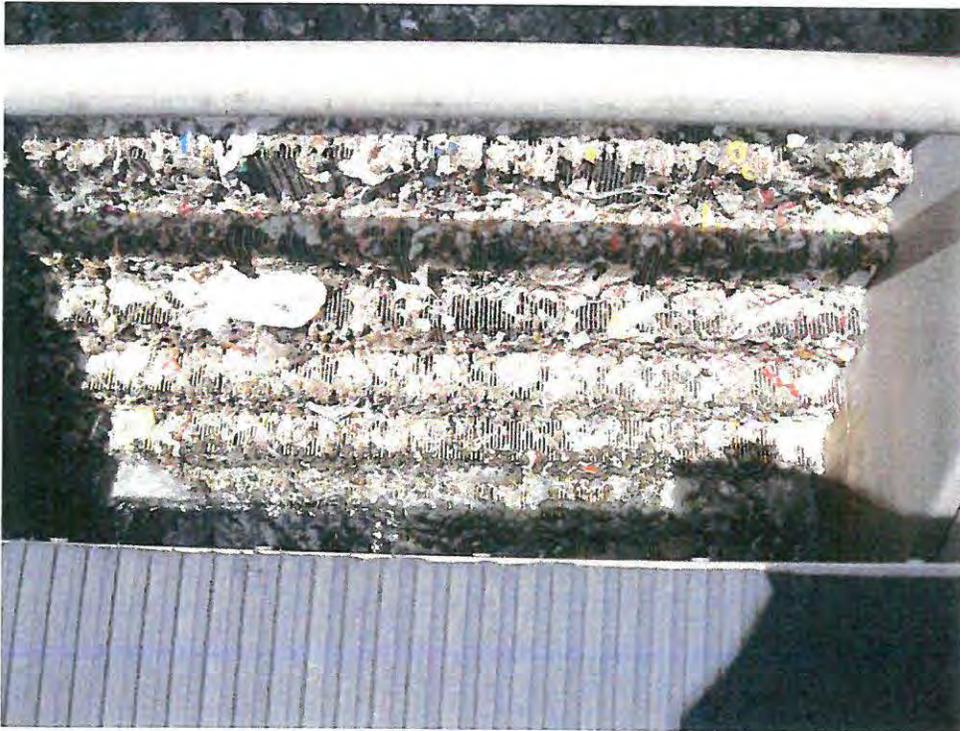


Figure 4 *Influent Climber Screens at the Pompano Beach Reuse Utilities Plant*

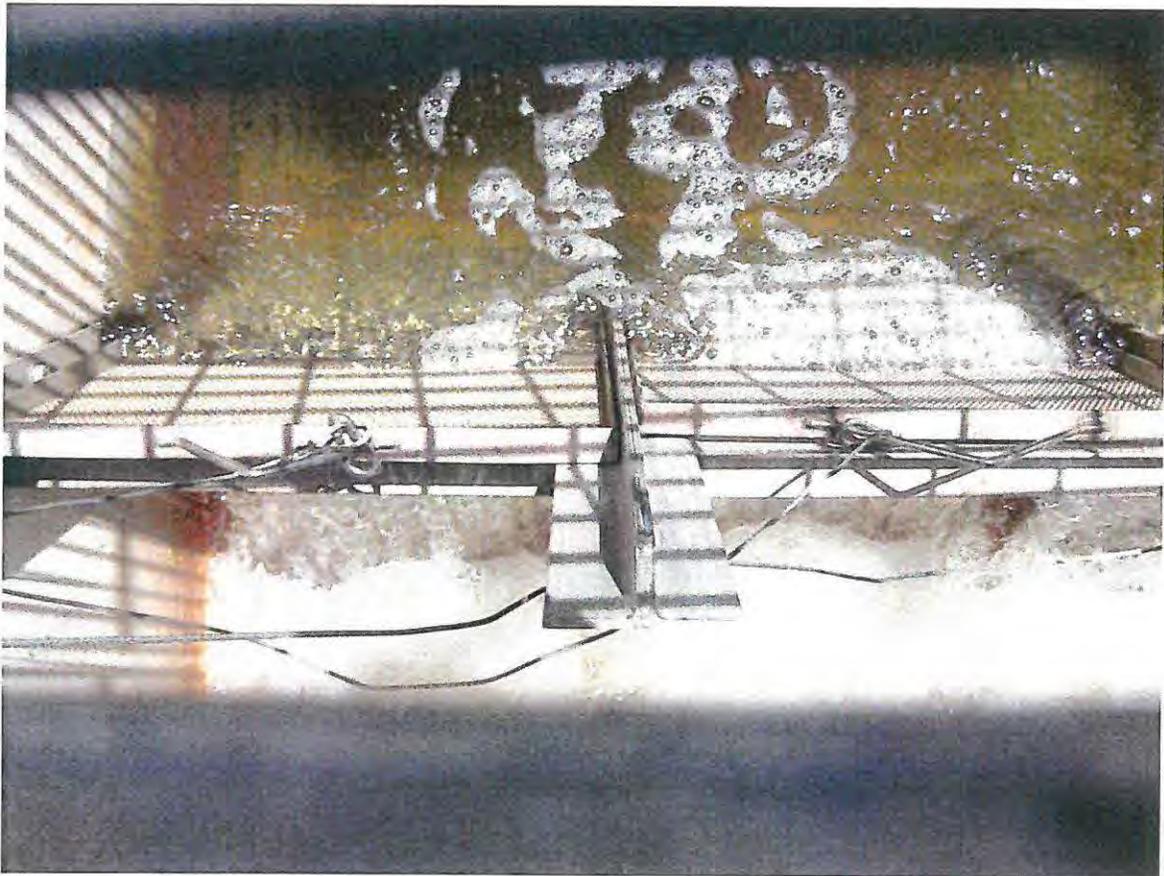


Figure 5 Picture of the manual plate screen downstream of the climber screen

3.2 Testing Protocol

To determine the ability of the DynaSand® EcoWash™ filter to meet the Title 22 recycled water quality criteria of 2.0 NTU under various conditions, testing was performed for approximately three weeks as per the approved testing protocol (Appendix B). The Pompano Reuse Plant only operates during a portion of the day (usually 6 to 12 hours) to make enough water to fill the recycled water storage tanks onsite and to meet the recycled water daily demand. During the Title 22 performance testing the DynaSand® EcoWash™ filter was operated in continuous and intermittent backwash modes. A summary of the experimental design for this testing is presented in Table 1. During Experiment 1 the filter was operated in a standard continuous backwash mode. For Experiment 2, the filter was backwashing 50 percent of the time. During Experiment 3, the filter was backwashing 10 percent of the time.

Title 22 Performance Testing of the DynaSand® EcoWash™ Filter

Table 1 Experimental Design Title 22 Performance Testing of the DynaSand® EcoWash™ Filter Parkson Corporation						
Experiment Number	Mode of Operation	Airlift ON (min./hour)	Airlift OFF (min./hour)	Hydraulic Loading Rate ⁽¹⁾ (gpm/ft ²)	Air Flow, SCFH	Headloss Override Set Point ⁽²⁾ , inches
1	Standard backwash	Continuously	0	4.4	80	31
2	EcoWash™ backwash occurs 50% of the time	30	30	4.4	80	31
3	EcoWash™ backwash occurs 10% of the time	6	54	4.4	80	31

Notes:

1. The plant flow rate is limited by the Reuse Utilities Plant pump capacity which does not allow for a sustained hydraulic loading rate of more than 4.4 gpm/ft².
2. Set point reflects the difference in water level at the influent and effluent of the filter.

Table 2 contains a summary of the parameters that were monitored during the performance testing. The filter influent and effluent turbidity, and system flowrate values were continuously monitored and recorded by the plant SCADA. The headloss through the filter and the reject water flowrate were measured and calculated by the EcoWash™ systems programmable logic controller (PLC). Filter influent and effluent grab samples were collected daily and analyzed for total suspended solids (TSS).

Table 2 Summary of Experimental Parameters Title 22 Performance Testing of the DynaSand® EcoWash™ Filter Parkson Corporation	
Source	Parameter Measured
Filter Influent	Turbidity ⁽¹⁾ , Total suspended solids (TSS) ⁽²⁾ , and Flowrate ⁽¹⁾
Filter Effluent	Turbidity ⁽¹⁾ and TSS ⁽²⁾
Filter	Headloss ⁽³⁾ and Reject flowrate ⁽³⁾

Notes:

1. These parameters were continuously monitored and recorded by the plant SCADA.
2. Grab samples were collected and analyzed once a day for TSS.
3. The headloss values were continuously monitored and/or calculated by the EcoWash™ PLC.

4.0 RESULTS

As mentioned previously, the purpose of this testing was to evaluate the performance of the DynaSand® EcoWash™ filter and to determine if the filter could meet the Title 22 recycled water quality turbidity requirements of 2.0 NTU under three different operational backwash conditions (i.e., continuous, 50 percent, and 10 percent). All tests were conducted at a target hydraulic loading rate of 4.4 gpm/ft², the maximum sustainable hydraulic loading rate that could be maintained by the Pompano Reuse Plant influent pumps. Each parameter discussed in the Methods and Procedures section is discussed separately below followed by a Conclusion section for all of the performance testing results.

4.1 Turbidity

The influent and effluent turbidity of the DynaSand® EcoWash™ filter were monitored continuously by on-line turbidimeters during the testing. Each experiment represents a different backwash condition (refer to Table 1). A probability plot of the influent and the filter effluent turbidity was developed for each experiment from the on-line data (collected every minute) to illustrate filter performance. These probability plots, presented in the following subsections, can be used to evaluate the performance of the DynaSand® EcoWash™ filter at different backwash conditions with regard to the Title 22 recycled water turbidity requirements. Chronological turbidity graphs (showing turbidity versus time) for each experiment are contained in Appendix C. The chronological turbidity graphs contain notes to indicate events that occurred during the testing (e.g., flushing and calibration of turbidity meters, power outages, and equipment maintenance). Turbidity values recorded during these events were not included in the probability analysis.

4.1.1 Continuous Backwash Mode

During Experiment 1, testing was performed with the DynaSand® EcoWash™ filter operating in a standard continuous backwash mode. The average hydraulic loading rate during Experiment 1 was 3.85 gpm/ft². A probability figure displaying the influent and effluent turbidity values is presented in Figure 6. During Experiment 1 the filter effluent turbidity value was found to be below 2.0 NTU 99.5 percent of the time, with a range of 0.65 to 2.60. The influent turbidity ranged from 1.5 to 4.0 NTU 99 percent of the time.

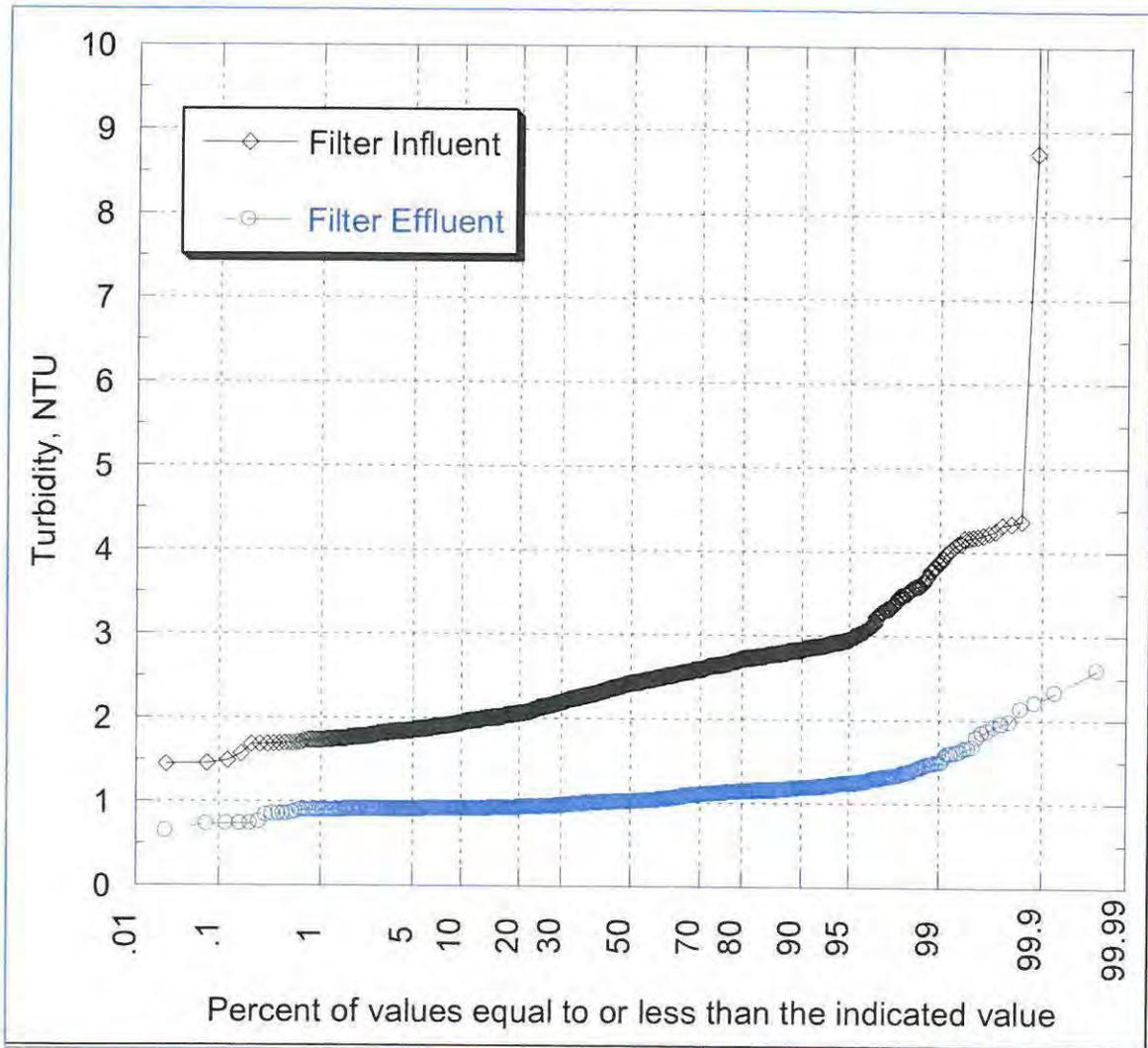


Figure 6 Turbidity performance during the continuous backwash test

4.1.2 50 Percent Backwash Mode

During Experiment 2, testing was performed with the DynaSand® EcoWash™ filter in a 50 percent backwash mode, where the filter was backwashing 50 percent of the time. The average hydraulic loading to the filter rate during Experiment 2 was 4.4 gpm/ft². A probability figure displaying the influent and effluent turbidity values is presented in Figure 7. During Experiment 2 the filter effluent turbidity value was found to be below 2.0 NTU 99.5 percent of the time, with a range of 0.82 to 2.40 NTU. The influent turbidity ranged from 1.1 to 5.0 NTU, 99 percent of the time

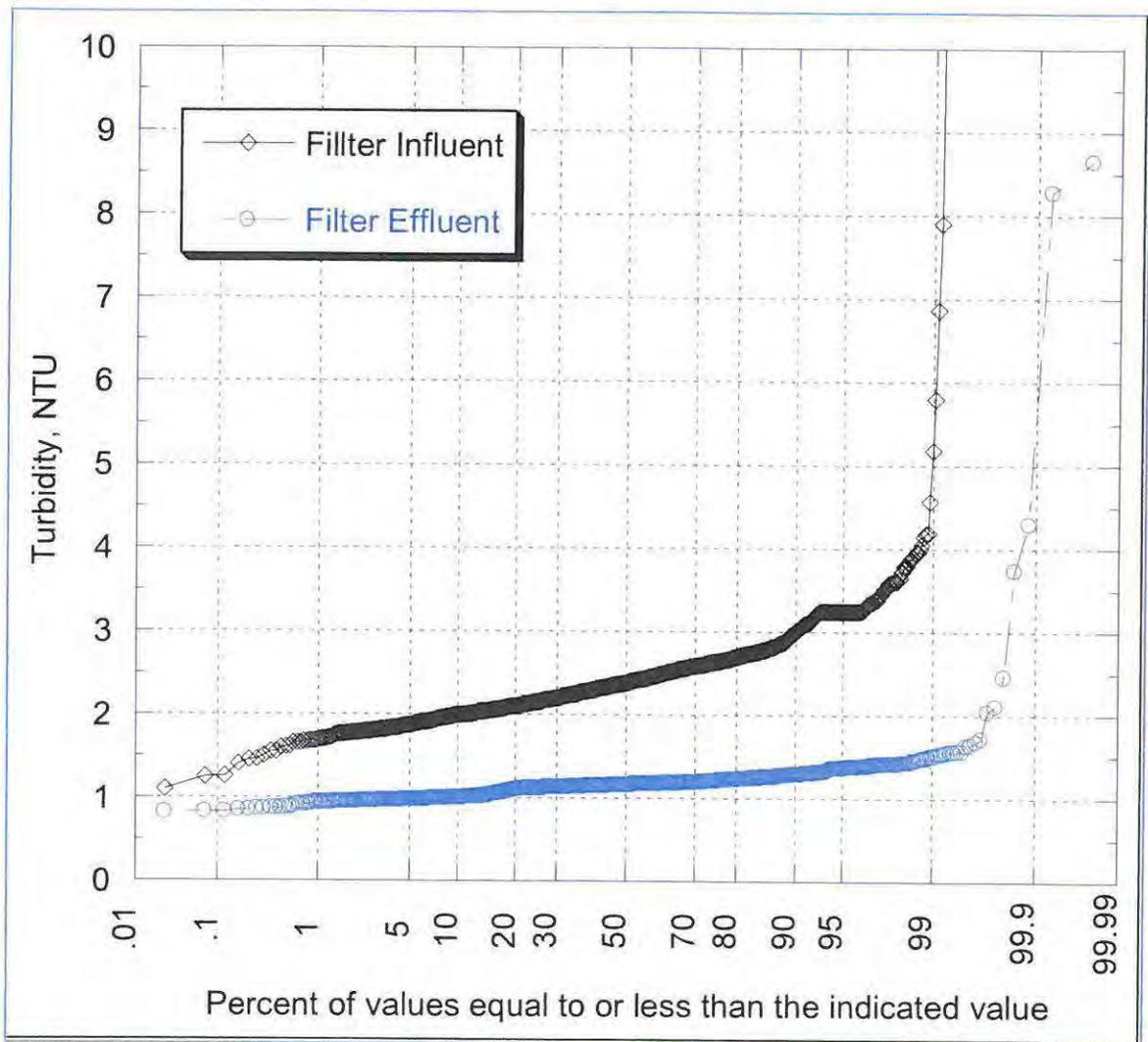


Figure 7 Turbidity performance during the 50 percent backwash mode test

4.1.3 10 Percent Backwash Mode

During Experiment 3, testing was performed with the DynaSand® EcoWash™ filter in a 10 percent backwash mode, where the filter was backwashing only 10 percent of the time. The average hydraulic loading to the filter rate during Experiment 3 was 3.85 gpm/ft². A probability figure displaying the influent and effluent turbidity values is presented in Figure 8. During Experiment 3 the filter effluent turbidity value was found to be below 2.0 NTU 99.5 percent of the time, with a range of 0.88 to 2.69. The influent turbidity ranged from 1.8 and 5.0 NTU, 99 percent of the time.

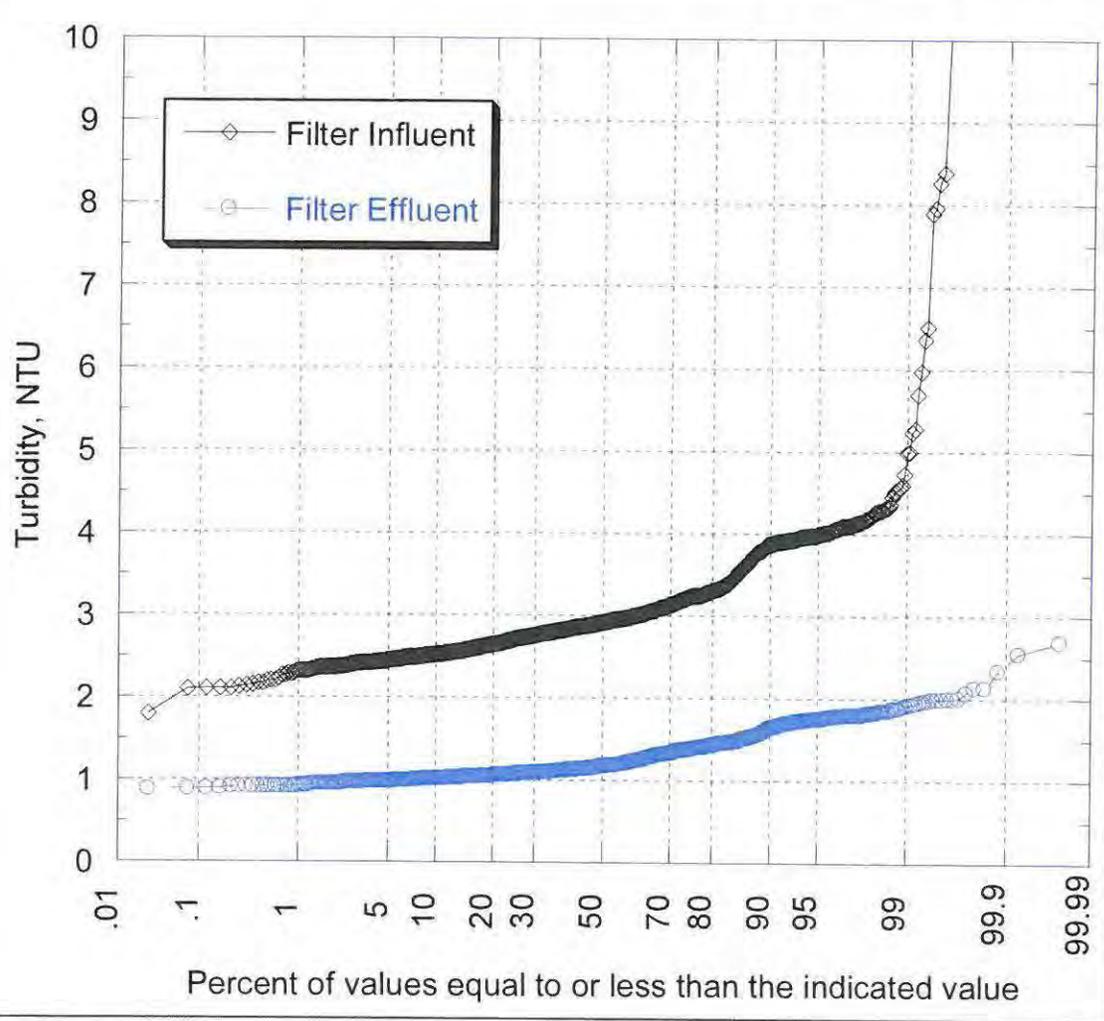


Figure 8 Turbidity performance during the 10 percent backwash mode test

4.1.4 Summary of Turbidity Results

A summary of the average turbidity results for each of the three experiments is presented in Table 3. The values reflect an average of the daily averages. The following is a summary of important points from the turbidity results.

- The DynaSand® EcoWash™ was capable of meeting the Title 22 recycled water turbidity requirement of 2.0 NTU regardless of the mode of backwash operation 99.5 percent of the time.
- Comparing Figures 6, 7, and 8, there is very little difference in filter effluent turbidity between the different backwashing modes of operation. To be precise, the reduced backwashing tests did see higher influent turbidity and thus there was a small increase in filter effluent turbidity (Table 3).

- The operational filter headloss increased as the backwash frequency was reduced. During the continuous backwash mode, the headloss through the filter was 18.4 inches and increased to 22.7 inches as the backwash frequency decreased to 10 percent.

Exp. No.	Backwash Condition	Test Duration, days	Average Time of Operation ⁽¹⁾ per day, hours	Average Flowrate, gpm	Average Hydraulic loading rate, gpm/ft ²	Average Headloss, inches	Average Influent Turbidity, NTU	Average Effluent Turbidity, NTU
1	Continuous (100%)	6	5.79	3,077	3.85	18.40	2.48	1.04
2	50% mode	6	6.78	3,536	4.42	19.33	2.59	1.17
3	10% mode	6	5.94	3,080	3.85	22.71	3.10	1.25

Notes:
1. These values represent an average of the daily averages.

4.2 Total Suspended Solids

During the testing, daily influent and effluent samples were collected and analyzed for TSS. A summary of the daily measurements and the average measurements per experiment are presented in Table 4. During Experiment 1 when the DynaSand® EcoWash™ filter operated in a continuous backwash mode, the percent removal of TSS ranged from 63 to 79 with an average removal of 69 percent. The TSS removal during Experiment 2 ranged from 64 to 74 percent with an average removal of 70 percent. During Experiment 3, the percent removal of TSS ranged from 67 to 86 with an average removal of 75 percent. Decreasing the percent time the backwash operated resulted in an increase in TSS removal by the DynaSand® EcoWash™.

Table 4 Summary of TSS Test Results Title 22 Performance Testing of the DynaSand® EcoWash™ Filter Parkson Corporation					
Exp. No.	Backwash Condition	Date	Influent, TSS	Effluent, TSS	Percent Removal
1	Standard	9/22	3.5	1.3	63
		9/23	2.8	1.0	64
		9/24	2.5	1.0	60
		9/25	3.3	0.7	79
		9/26	3.8	1.0	74
		9/27	3.3	0.9	73
		Average			3.20
2	50% mode	9/15	2.3	0.6	74
		9/16	3.0	1.0	67
		9/17	2.5	0.7	72
		9/18	3.0	0.6	80
		9/19	3.3	1.2	64
		9/20	2.8	0.9	68
		Average			2.82
3	10% mode	9/29	3.0	0.8	73
		9/30	3.0	0.7	77
		10/1	2.8	0.4	86
		10/2	4.0	1.2	70
		10/3	3.3	1.1	67
		10/4	3.5	0.7	80
		Average			3.00

4.3 Backwash Reject Water Results

The quantity of washwater generated was measured by calculating the flow over the weir using the ultrasonic level indicators. The PLC converts the results of the ultrasonic level indicators to flow using rectangular weir formulas. The percent backwash reject water was calculated for each experiment and is presented in Table 5. During Experiment 1 when the DynaSand® EcoWash™ filter was operating in a continuous backwash mode a reject rate of 5.67 percent of the influent flow was generated. Operating the filter in a 50 percent mode (Experiment 2) resulted in a 55.7 percent reduction in the reject rate such that only a reject rate of 2.51 percent of the influent flow was generated. Reducing the backwash frequency to only 10 percent (Experiment 3) of the time only resulted in a 77.9 percent reduction in reject rate as compared to the standard continuous backwash operation mode.

Exp. No.	Backwash Condition	Reject Water Generated, % of feed flow	Reduction in Reject Water by Using the EcoWash Function, %
1	Standard	5.67	-
2	50% mode	2.51	55.7
3	10% mode	1.25	77.9

5.0 TITLE 22 PERFORMANCE TESTING CONCLUSIONS

As a result of the Title 22 performance testing, it was determined that the DynaSand® EcoWash™ filter for all conditions tested met the Title 22 recycled water effluent turbidity requirements. The key conclusions of the DynaSand® EcoWash™ filter performance testing are:

- The DynaSand® EcoWash™ filter was capable of meeting the Title 22 recycled water turbidity requirement of less than 2.0 NTU 99.5 percent of the time for all backwash conditions while operating at a hydraulic loading rate ranging between 3.85 to 4.4 gpm/ft².
- Decreasing backwash frequency did not substantially change filter effluent turbidity.
- Decreasing the backwash frequency improved TSS removal.
- During the continuous backwash mode of operation the DynaSand® EcoWash™ filter generated reject water at 5.67 percent of the influent feed flow.
- When the DynaSand® EcoWash™ filter operated in 50 percent backwash mode, the reject water generated decreased by 55.7 percent to 2.51 percent of the influent feed flow.

- Operating the DynaSand® EcoWash™ filter in the 10 percent backwash mode further reduced the reject water generated by 77.9 percent to 1.25 percent of the influent feed flow.

NAPA SANITATION DISTRICT SPONSOR LETTER



Dedicated to Preserving the Napa River for Generations to Come

June 12, 2012

Mr. Randy Barnard
California Department of Public Health
1350 Front Street
San Diego, CA 92101

Subject: Parkson Corporation Dynasand EcoWash

Dear Mr. Barnard:

The Napa Sanitation District (District) is evaluating the use of the EcoWash modifications to our existing Parkson Dynasand filtration system. The District understands that the Parkson Corporation has contracted Carollo Engineers to evaluate the EcoWash at a full-scale system in Pompano Beach, Florida. The District respectfully requests that the California Department of Public Health (CDPH) review upcoming certification materials related to the EcoWash System on the District's behalf. The District understands that there will be a charge for this effort and are will to cover CDPH costs.

Please contact me at (707) 258-6000 x507 or adamron@napasan.com with questions.

Sincerely,

Andrew Damron, P.E.
Associate Engineer

cc: Rich Chan, P.E., Carollo Engineers

DYNASAND® ECOWASH™ TESTING PROTOCOL

DynaSand® EcoWash™ Testing Procedure

Testing for Compliance with the California Recycled Water Criteria (Title 22) from the California Department of Public Health (CDPH).

City of Pompano Beach Reuse Utilities Plant

Pompano Beach, FL

June 2012



1 Summary

Continuous backwash sand filters have been used for water treatment over 30 years with very satisfactory results. However, there are design characteristics that can be improved, such as volume of backwash water and sand washing rate for nutrient removal applications. Based on these two points of improvements, Parkson Corporation developed an automated intermittent backwash system called the EcoWash™ system.

The EcoWash™ system was released to the market in 2010 after a 8-month testing period at the existing DynaSand® filters at the City of Pompano Beach Reuse Utilities Plant in Florida. During this test, the DynaSand® EcoWash™ filter was compared to the continuous backwash sand filters using two DynaSand® cells, one cell was converted to a DynaSand EcoWash™ Filter while the other cell was left in its standard continuous backwash mode. The DynaSand® EcoWash™ filter cell was tested with several programmed and time-controlled backwash scenarios to reduce reject/backwash production while maintaining effluent quality within the plant guidelines. Over the duration of the full scale test, the results showed a 90-95% reduction in backwash production and energy use, coupled with a 15-25% average improvement in filtrate quality.

Based on the operation and energy savings provided by the EcoWash™ testing at the existing continuous backwash DynaSand filters, the city of Pompano decided to convert all their installed filters into the EcoWash™ system. The installation of the EcoWash™ system was finalized in January 2012, and has been successfully running under EcoWash™ mode since then.

The purpose of this testing protocol is to confirm the performance of the fully implemented EcoWash™ filtration system to verify compliance with the California Recycled Water Criteria (Title 22) from the California Department of Public Health (CDPH). The DynaSand® EcoWash™ system will be tested under a variety of time controlled and differential pressure controlled backwash scenarios. Each scenario will run for a minimum of three (3) days to gather the data required to measure performance.

2 DynaSand® EcoWash™ Filter Process Description

The DynaSand® EcoWash™ filtration system allows continuous filtration with intermittent backwash cycles. This mode of operation uses a programmable and controlled system that reduces the amount of backwash water produced, improves the filtrate quality, and reduces the energy consumption.

The DynaSand® EcoWash™ filter uses an automated sand movement detection system that can trigger alarms for systems failures and be monitored from the plant's control room. As part of the EcoWash™ system, there are few modifications to the airlift design and operation to ensure consistent sand movement during the intermittent backwash cycles. Reject (backwash) water use is minimized by reducing backwash time and it will require the use of an automatic valve to close the reject line during the periods when the backwash is not in operation. It is important

to mention that even after the modifications of the airlift, the filter will use the same air flow as the previous design when the backwash is activated.

The backwashing sequence is controlled by time and headloss setpoints chosen by the operators and can adapt the system to the requirements of each plant conditions.

Sequence of Operation:

- Operator programs the backwash ON and OFF times
- Inlet water level is measured to monitor headloss across the filters
- Airlift/reject starts at the programmed time
- The backwash runs for the pre-set period of time
- High headloss will override the time setpoint to assure proper filtration

2.1 No Backwash Operation

During this phase, the reject valve is closed and the airlift is OFF, allowing the filter to accumulate solids. During this process, solids are progressively captured and retained in the bed, and the incoming solids will have less space to pass through as the captured solids fill the voids between the media particles. This phenomenon results in higher filtration performance and, is also referred to as the “Schmutzdecke Effect”. The airlift and the reject valve are controlled by a pneumatic valve located in the air control panel. The headloss across the filter increases as more solids are captured in the bed and the filtrate quality improves.

2.2 Backwash Operation

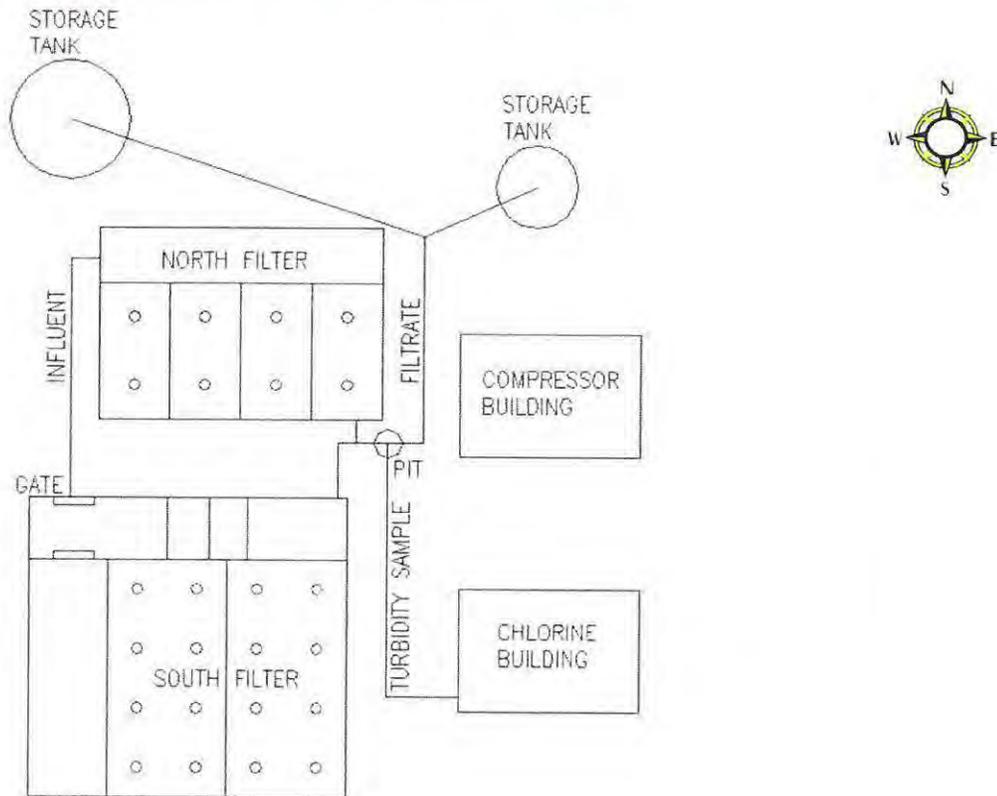
When the timer for the OFF backwash cycle is complete or the differential pressure reaches the set point, the airlift is turned ON and the reject valve is opened to allow for a proper sand backwash process. The Sand Movement Detection System provides feedback to the control panel to confirm proper airlift operation and sand movement. The headloss drops as the solids are removed from the sand and clean media falls back into the filter. The backwash cycle lasts for the time set at the EcoWash™ control panel or until the headloss across the filters reaches a lower setpoint. At the end of this cycle, the airlift is turned OFF and the reject valve is closed.

3 Testing Site Overview

The City of Pompano Beach Reuse Utilities Plant has a maximum filtration capacity of 8.64 MGD. The influent turbidity usually ranges between 3 and 6 NTU with an effluent requirement of less than 2.5 NTU. The plant has two separate DynaSand® filter banks: the North Bank and the South Bank. The North Bank consists of 4 cells of 2 standard bed filters per cell, while the South Bank consists of 2 cells of 8 deep bed filters per cell; providing a total of 24 filters. The standard bed filters have 40” of effective sand depth and the deep bed filters have 80” of effective filtration depth.

Testing will be performed on the South filters consisting of a total of 16 deep bed filters because they have more filtration area allowing passage of all the plant flow through this bank of filters. The North filters will be off-line during testing.

Pompano Reuse Water Utilities Layout



The influent to the City of Pompano Beach Reuse Utilities Plant comes from the Broward County North Regional WWTP effluent discharge to the ocean. The influent passes through a bar screen and a gate valve directs the flow to each of the north and south filters. For the purpose of this testing, the gate valve to the North filters will be closed to allow for testing of the South filters. The effluent from the South filters flows into the sump tank where the sample pumps are located. The sample of the effluent water flows into the control building for monitoring and testing the effluent turbidity. The effluent flow is then taken into the storage tank and is sold as reuse water for irrigation.

4 Scope of Testing

The purpose of the test is to evaluate the performance of a fully implemented DynaSand® EcoWash™ Filter design at the City of Pompano Beach Reuse Utilities Plant in Florida. The evaluation of performance is based on a municipal tertiary filtration application, removing only solids and turbidity from the water. The test will be conducted at the South Bank filters, consisting of two (2) cells of eight (8) modules per cell and 50 square feet of filtration area per filter, providing a total of 16 deep bed filters and 800 square feet of filtration surface area.

The following equipment will be used during this test

1. Two (2) Air Control Panels (ACPs) for control of airflow to the EcoWash™ operation.
2. One (1) Central Control Panel (CCP) for control, operation, and monitoring of EcoWash™ system.
3. Sixteen (16) sand movement sensors, also called DynaSensors, located at the top of each filter.
4. One (1) pressure transducer with mounting brackets.
5. Two (2) submersible pumps for sampling.
6. Two (2) pneumatic valves.

4.1 Description of Testing Activities

The testing will compare the influent and effluent water characteristics from the (16) deep bed filters at the South bank, during three different backwash cycle frequencies.

The following parameters will be monitored:

- Influent Turbidity – continuously monitored on plant’s SCADA
 - Effluent Turbidity – continuously monitored on plant’s SCADA
 - Influent TSS – grab sample once a day and tested by plant’s lab⁽¹⁾
 - Effluent TSS – grab sample once a day and tested by plant’s lab⁽¹⁾
 - Feed Flow Rate – continuously monitored on plant’s SCADA
 - Headloss values – continuously monitored at EcoWash™ PLC
- ⁽¹⁾ The procedure used to analyze the sample for TSS is titled “Total Suspended Solids – Non filterable Residue SM 2540D”. Refer to Appendix for document.

Considering the existing Title 22 certification of the DynaSand Continuous Backwash filter, a Particle Size Distribution test will not be included for this testing.

A Parkson staff member and a plant operator will monitor the testing of the EcoWash™ system during the regular schedule of the plant from Monday to Friday.

In order to test the overall performance of the DynaSand® EcoWash™ filter, we will evaluate three (3) different lengths of backwashing; ON time and OFF time. Backwash ON and OFF times will be determined based on the water characteristics of the plant and the experience from the full scale pilot testing done before the full upgrade of the filters to the EcoWash™ system. There are three (3) scenarios of backwash cycles that will be tested:

1. Continuous backwash mode: this will provide data of the performance of an upflow filter without the EcoWash™ system.
2. Intermediate EcoWash™ mode: The backwash cycle will run at a more frequent cycle than the current EcoWash™ mode. The cycle time will allow measurement of filter performance at a 50% reduction of the backwash rate.
3. Current EcoWash™ mode: The plant has been running at backwash cycles that allows for 90% reject reduction for the past month. We will test the performance of the filters at this frequency since it provides good results for the plant and was also proven during the full scale pilot.

The details of the operational parameters of the filters during the three (3) backwash cycles are included in the following table.

Operational Parameters

Table 1

Test	Mode	Airlift ON – Backwashing (Minutes/hour)	Airlift OFF – Not Backwashing (Minutes/hour)	Flow Rate (gpm/ft ²)	Air Flow	Headloss Override
1	Standard continuous backwash operation (No EcoWash™)	Continuously	0	4.4 ¹	80 SCFH	31 inches
2	EcoWash™ operation with 50% reduction of reject	30	30	4.4 ¹	80 SCFH	31 inches
3	EcoWash™ operations with 90% reduction of reject	6	54	4.4 ¹	80 SCFH	31 inches

Notes:

(1) The flow rate is limited by the pump capacity of the plant, which does not allow for more than 4.4 gpm/sf.

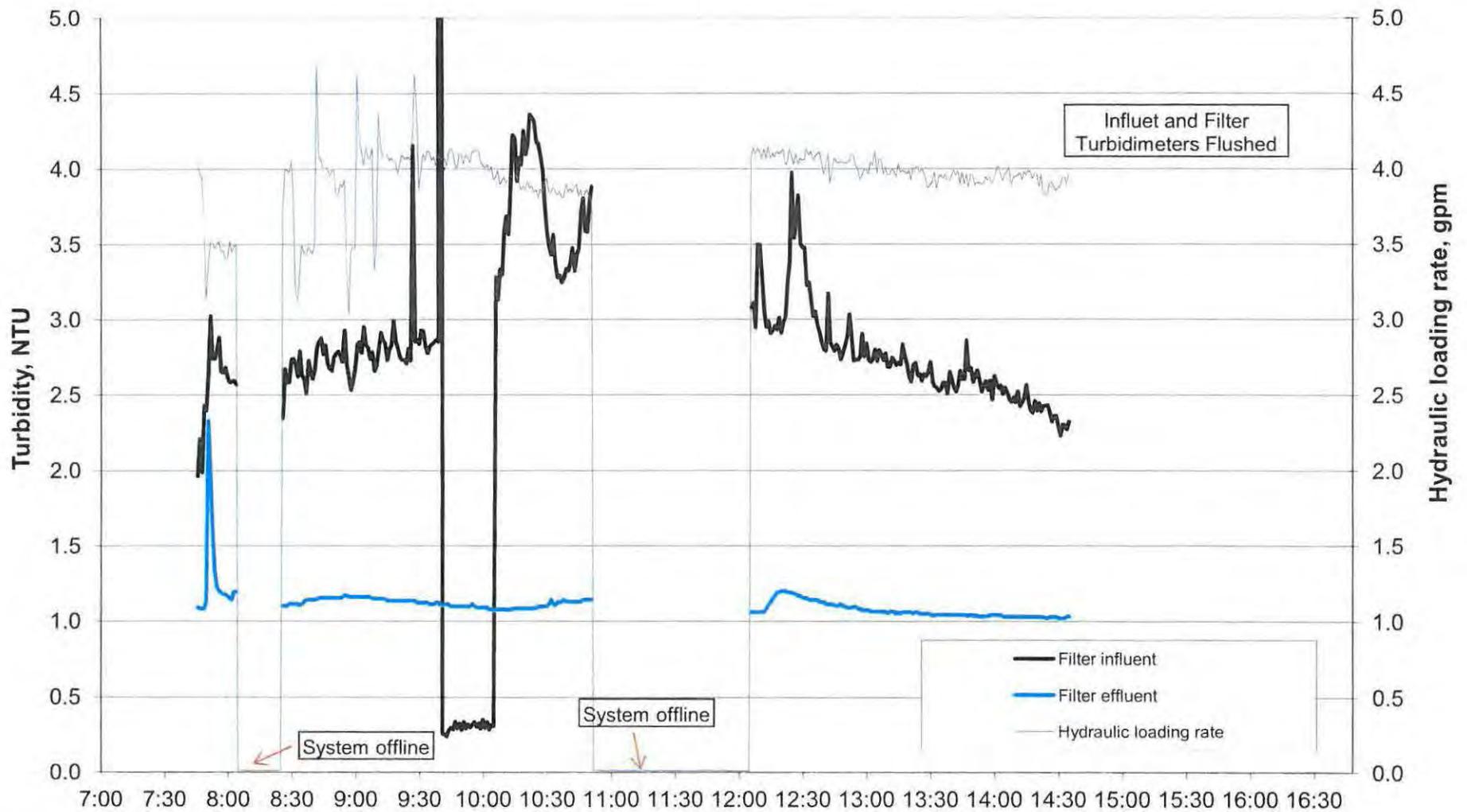
As mentioned before, the purpose of this testing is to confirm compliance of the DynaSand® filters under EcoWash™ operations with the California Recycled Water Criteria (Title 22) from the California Department of Public Health (CDPH). The requirements of this certification are listed below:

- The filtration rate does not exceed 5 gpm/ft² in mono media gravity filtration systems,
- The effluent turbidity does not exceed a daily average of 2 NTU,
- The effluent turbidity does not exceed 5 NTU more than 5% of the time within a 24 hour period and 10 NTU at any time.

Parkson and Carollo Engineering Representatives Contact Information

- Marianna Novellino – cell (954) 610-9004
Parkson Corporation. 1401 W. Cypress Creek Road.
Fort Lauderdale, FL 33309
- Frank Arleth – cell (954) 699-7851
Parkson Corporation. 1401 W. Cypress Creek Road.
Fort Lauderdale, FL 33309
- Andrew Salvesson - cell (925) 788-9857.
Carollo Engineers. 2700 Ygnacio Valley Road, Suite 300.
Walnut Creek. CA 94598.

DAILY TURBIDITY RESULTS

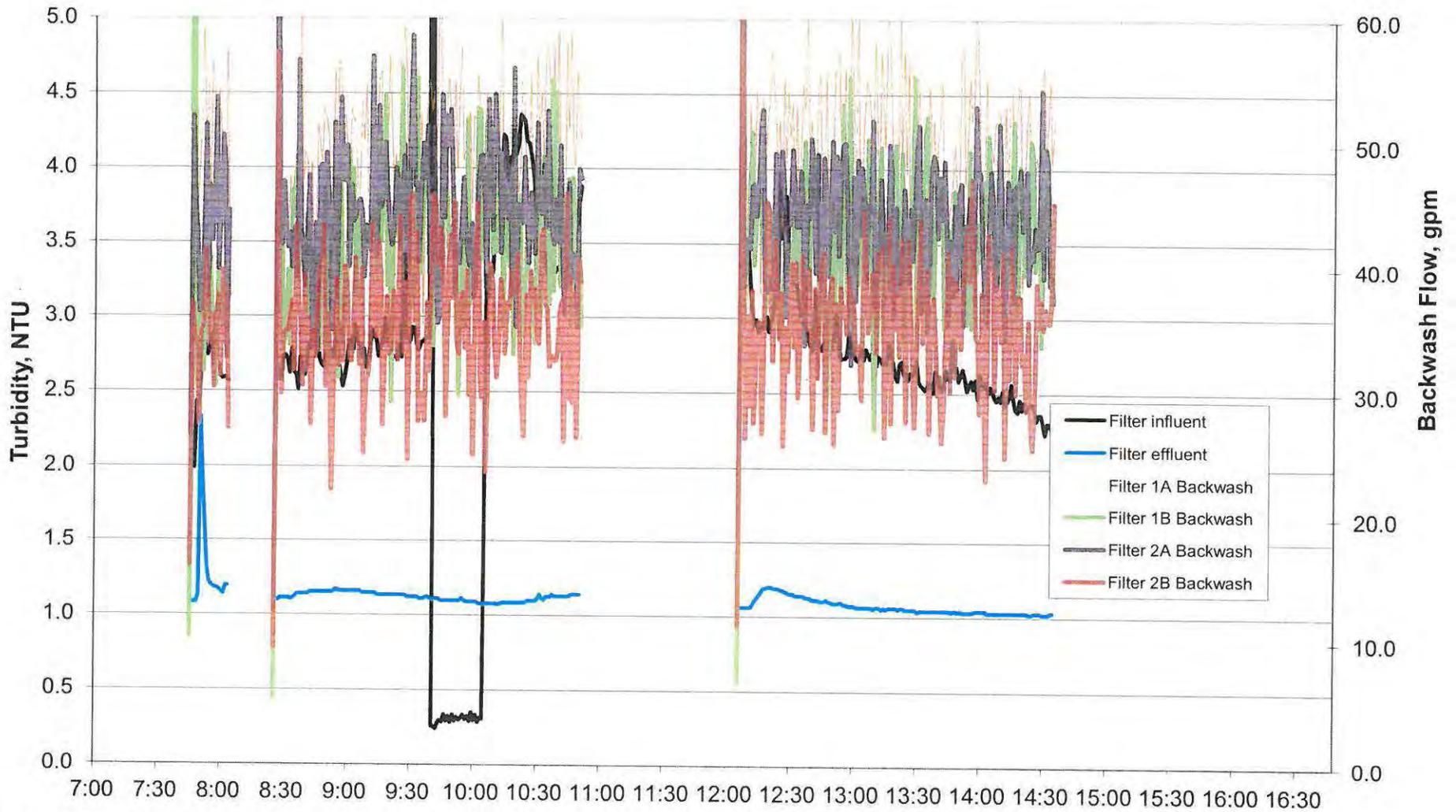


Dynasand® Ecowash Hydraulic Loading Rate 3.93 gpm/ft²
 Standard continuous backwash operation

9/22/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 1 (No Ecowash- Continuous Backwash Mode)**

FIGURE C.1

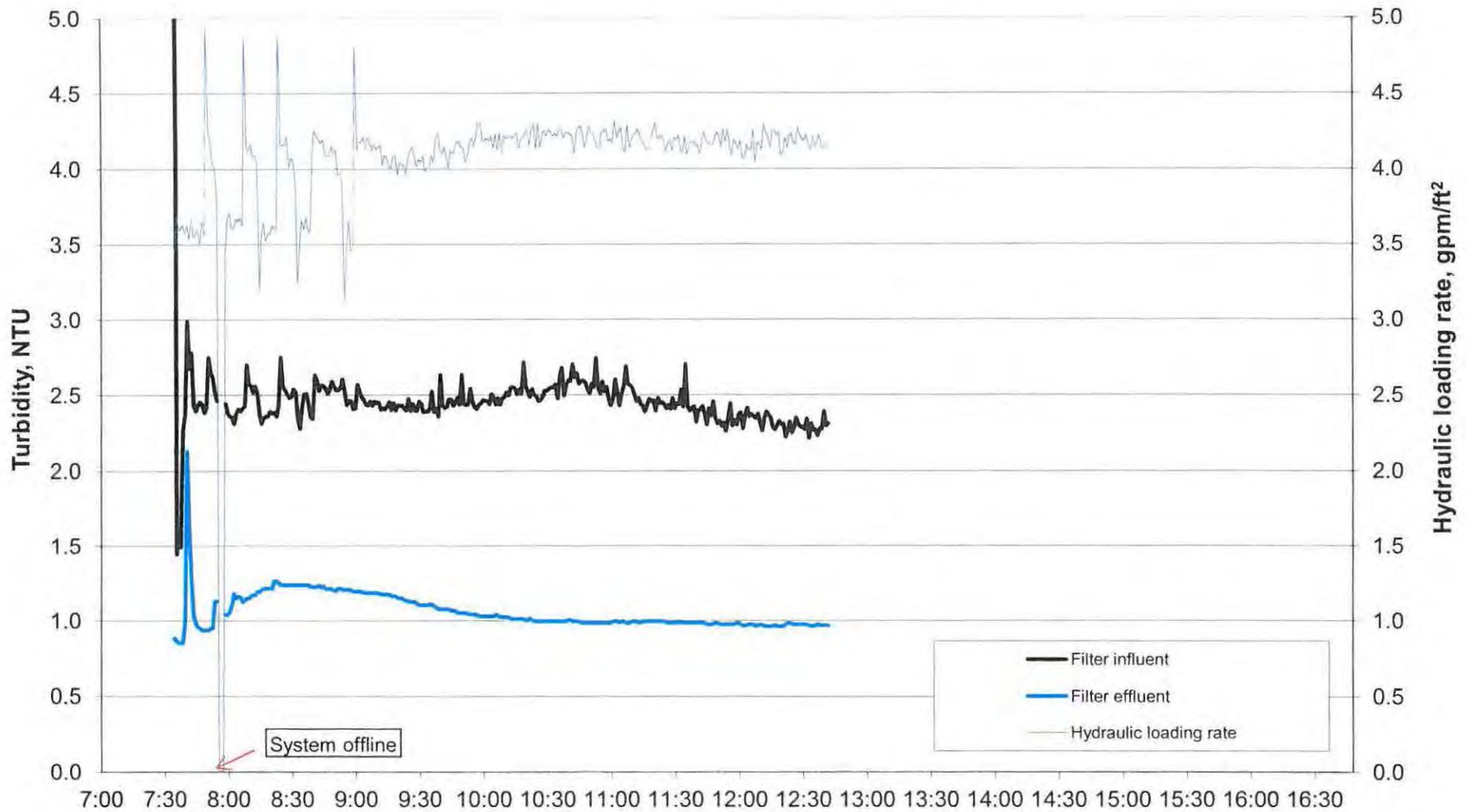


Dynasand® Ecowash Hydraulic Loading Rate 3.93 gpm/ft²
 Standard continuous backwash operation

9/22/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 1 (No Ecowash- Continuous Backwash Mode)**

FIGURE C.2

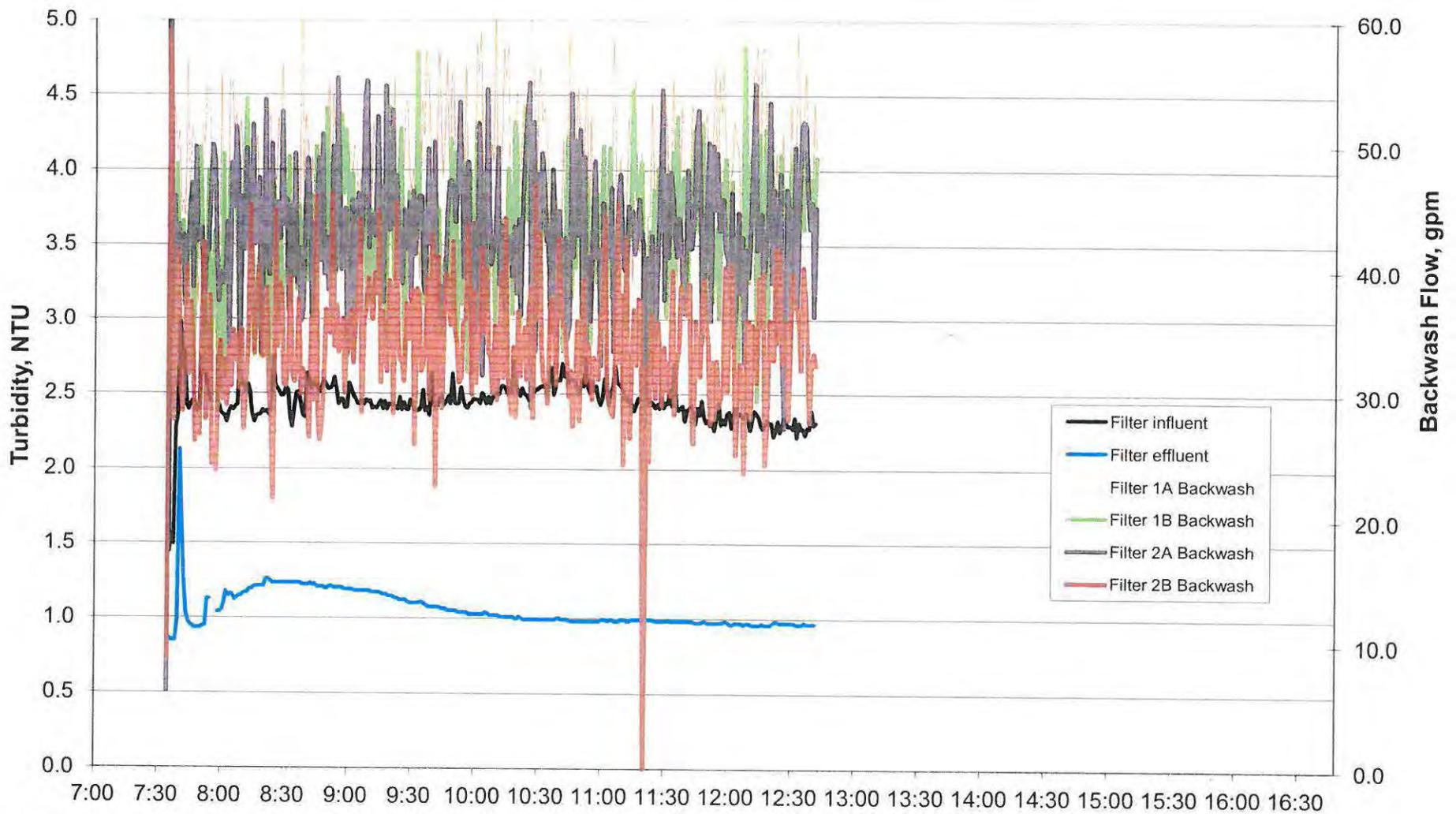


Dynasand® Ecowash Hydraulic Loading Rate 4.08 gpm/ft²
 Standard continuous backwash operation

9/23/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 1 (No Ecowash - Continuous Backwash Mode)**

FIGURE C.3

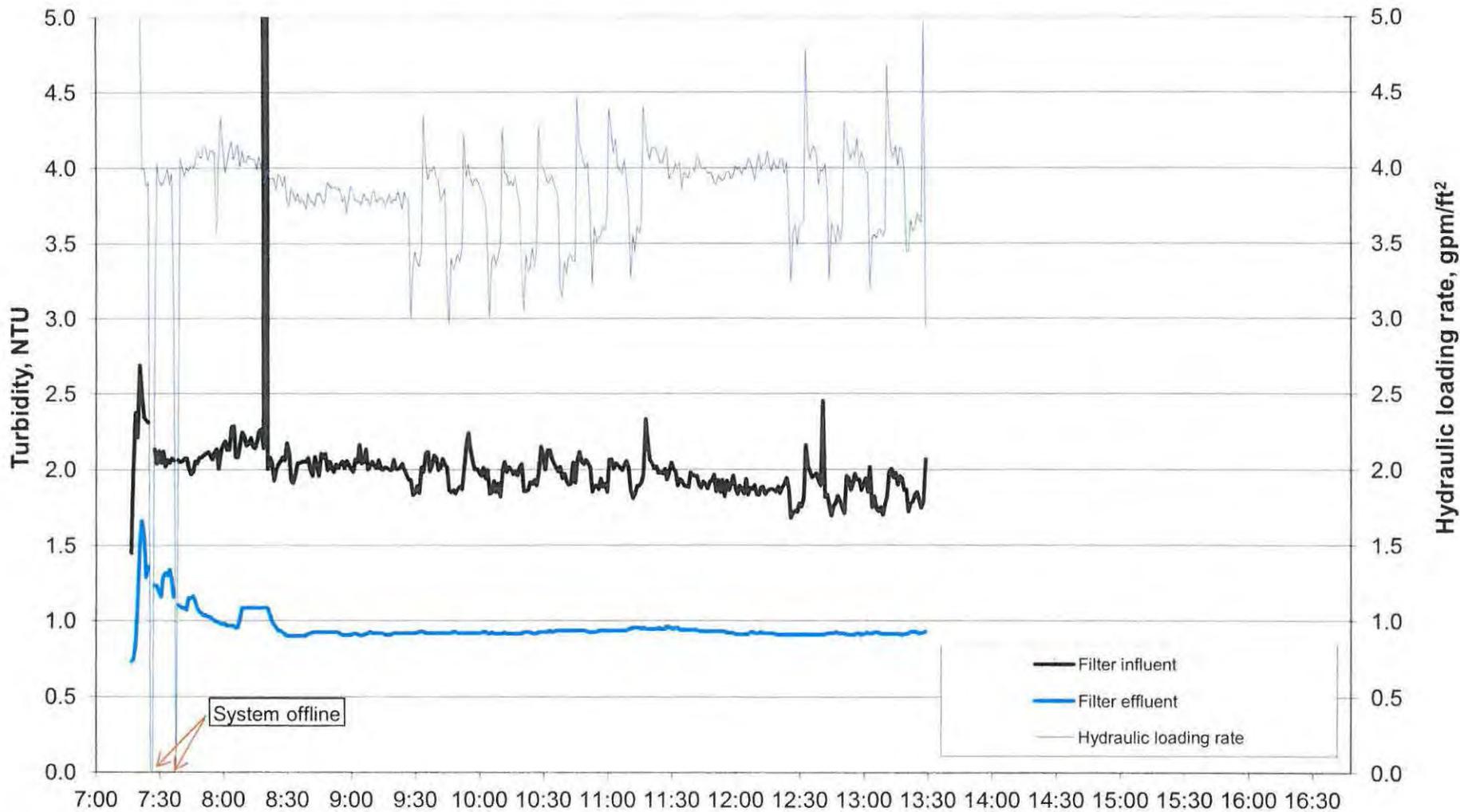


Dynasand® Ecowash Hydraulic Loading Rate 4.08 gpm/ft²
 Standard continuous backwash operation

9/23/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 1 (No Ecowash- Continuous Backwash Mode)**

FIGURE C.4



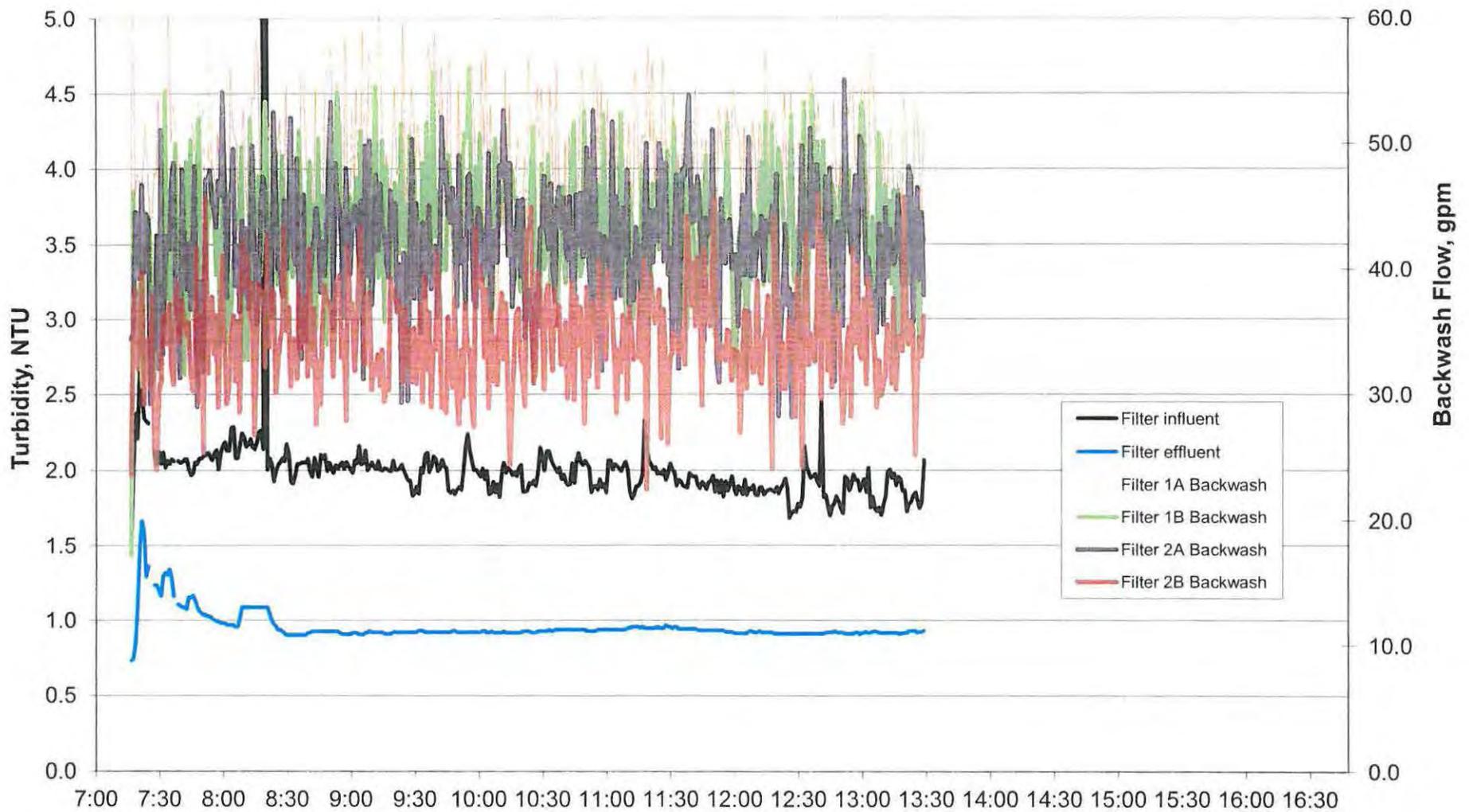
Dynasand® Ecowash Hydraulic Loading Rate 3.84 gpm/ft²
 Standard continuous backwash operation

9/24/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 1 (No Ecowash- Continuous Backwash Mode)**

FIGURE C.5



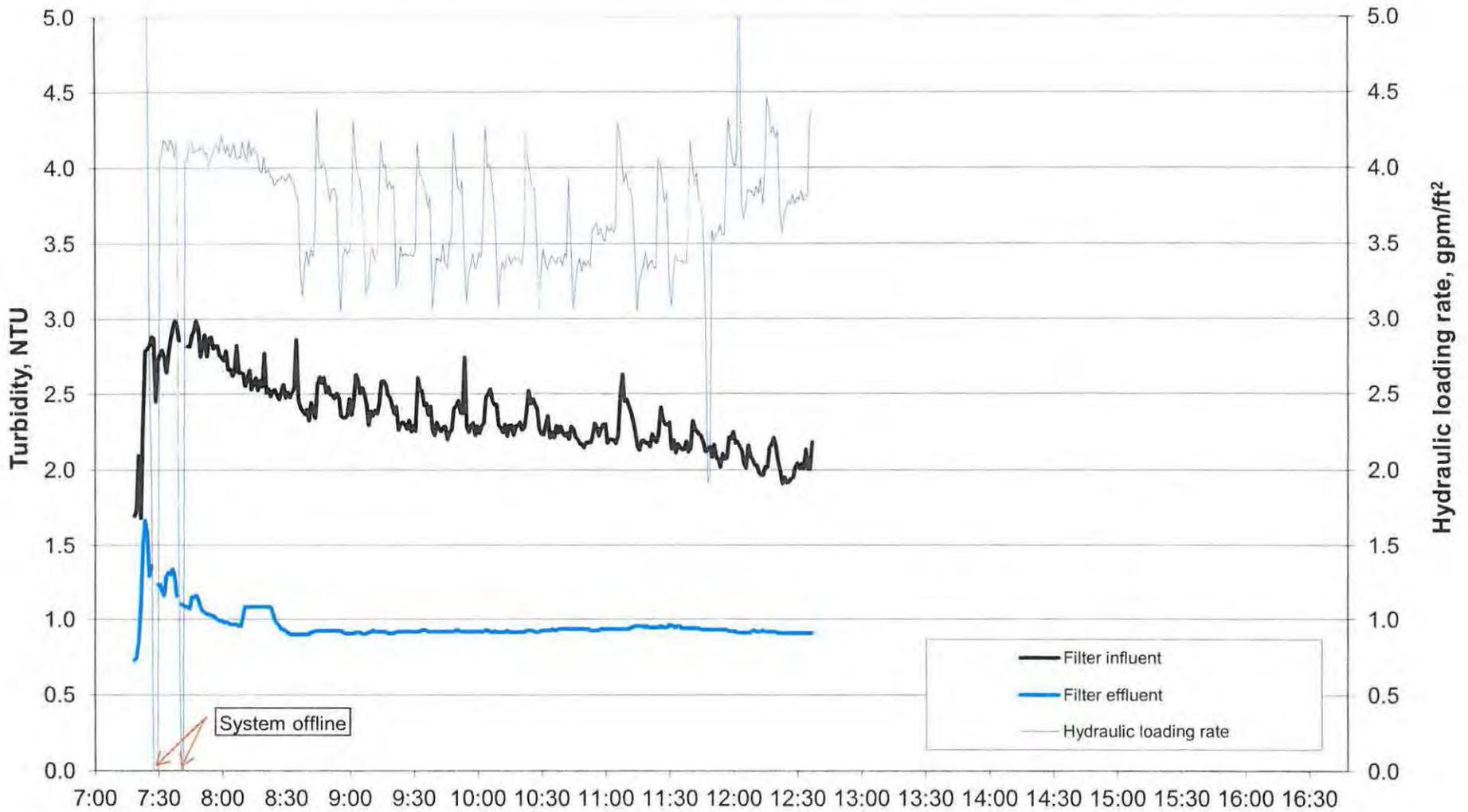


Dynasand® Ecowash Hydraulic Loading Rate 3.84 gpm/ft²
 Standard continuous backwash operation

9/24/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 1 (No Ecowash- Continuous Backwash Mode)**

FIGURE C.6



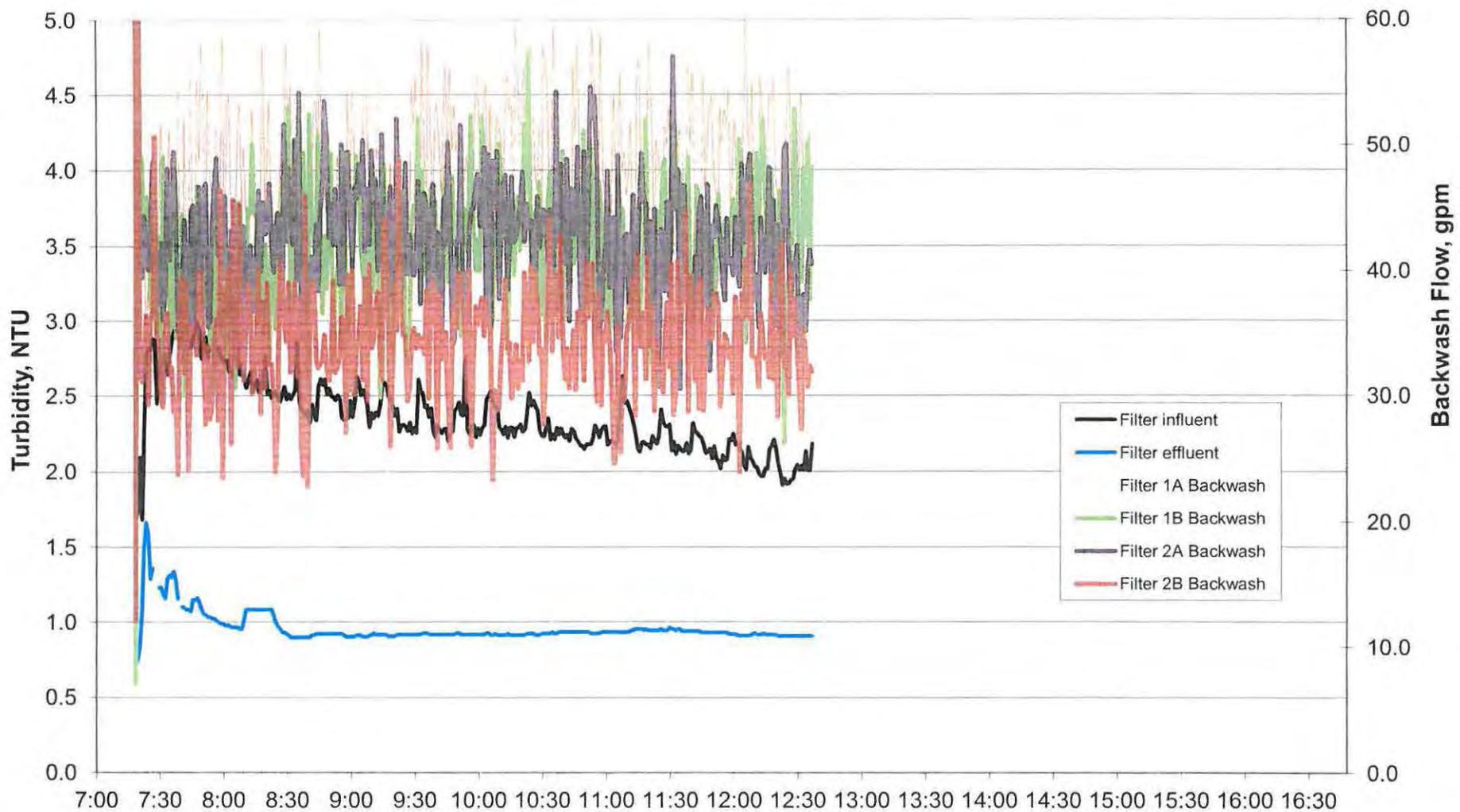
Dynasand® Ecowash Hydraulic Loading Rate 3.68 gpm/ft²
 Standard continuous backwash operation

9/25/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 1 (No Ecowash- Continuous Backwash Mode)**

FIGURE C.7





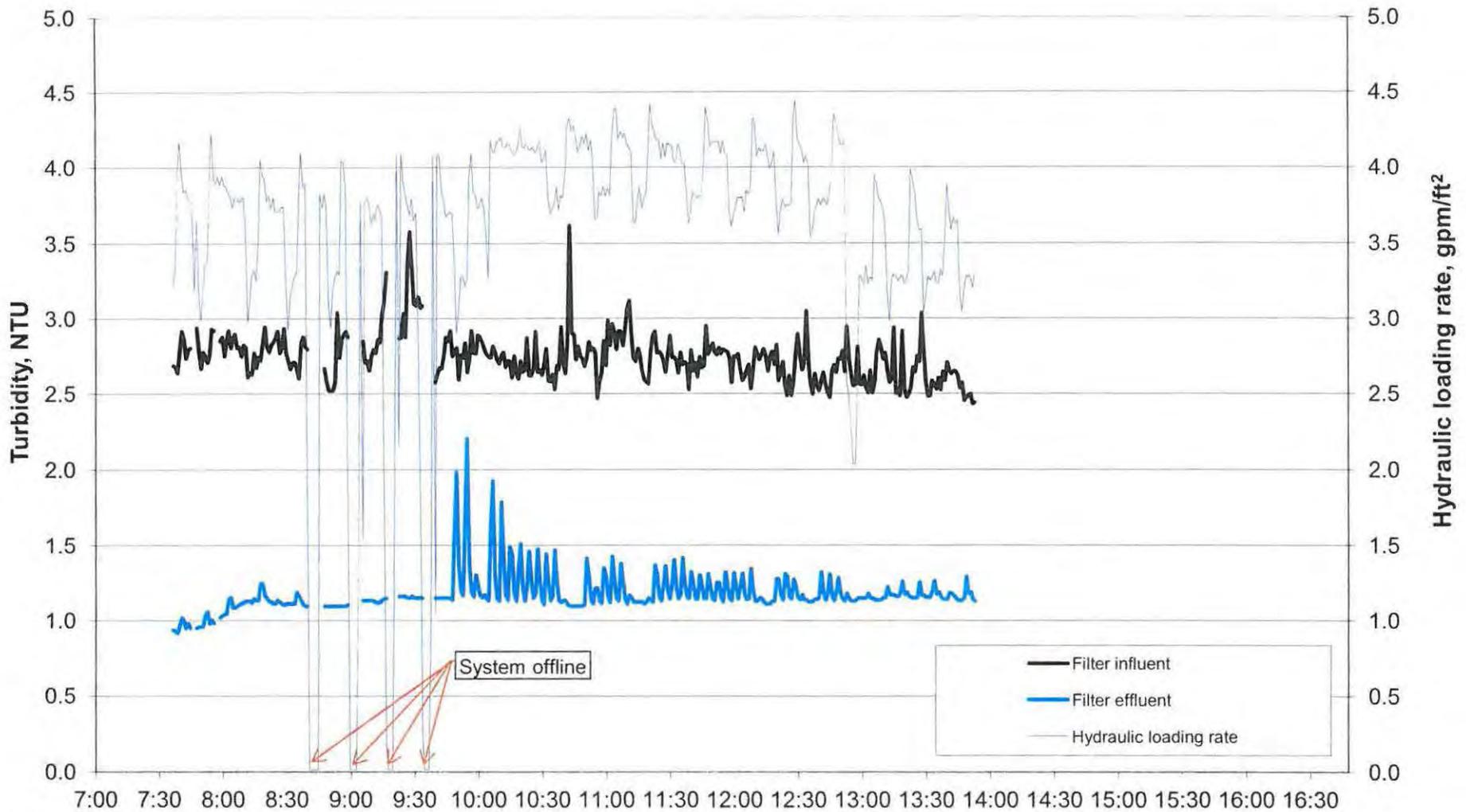
Dynasand® Ecowash Hydraulic Loading Rate 3.68 gpm/ft²
 Standard continuous backwash operation

9/25/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 1 (No Ecowash- Continuous Backwash Mode)**

FIGURE C.8



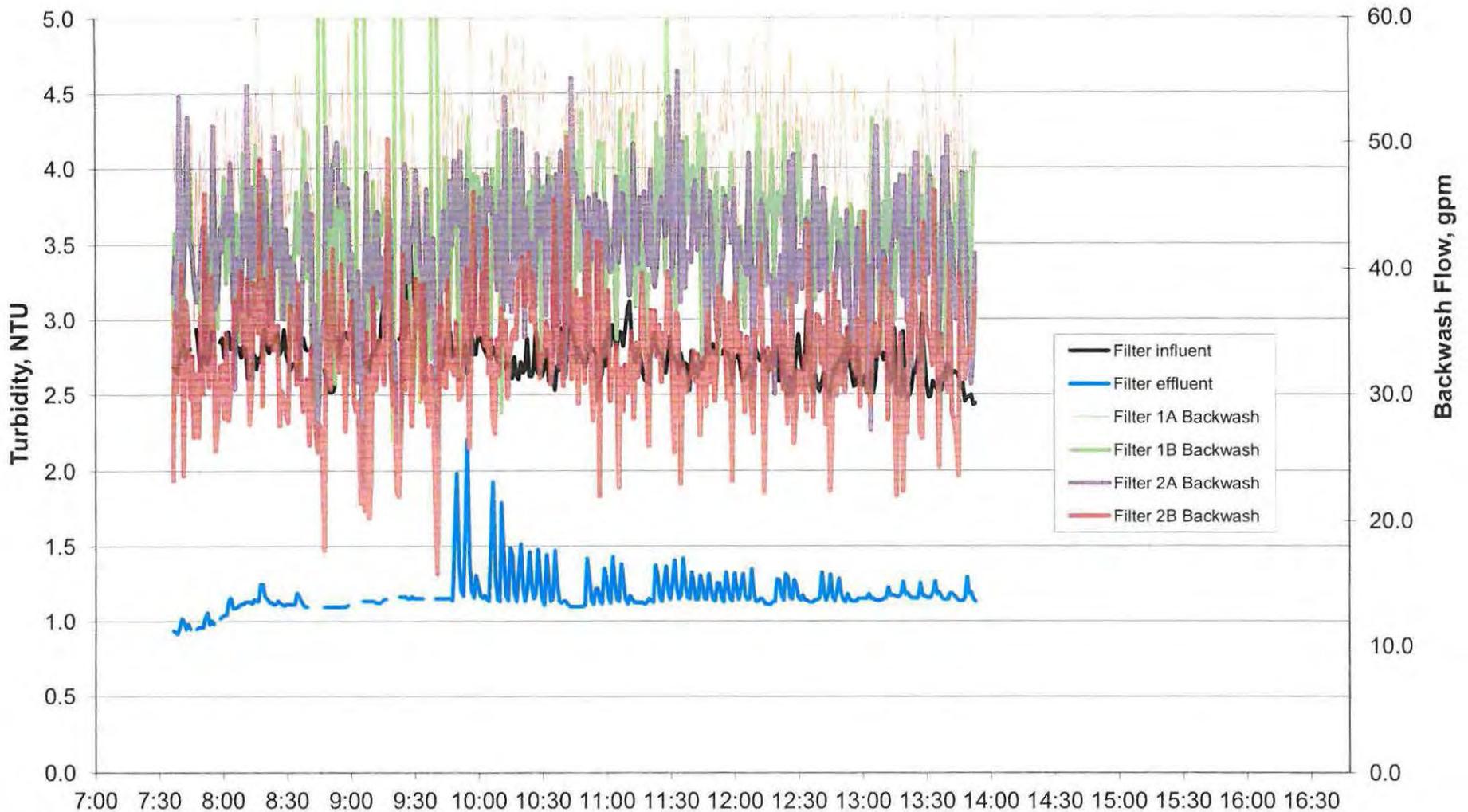


Dynasand® Ecowash Hydraulic Loading Rate 3.71 gpm/ft²
 Standard continuous backwash operation

9/26/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 1 (No Ecowash- Continuous Backwash Mode)**

FIGURE C.9

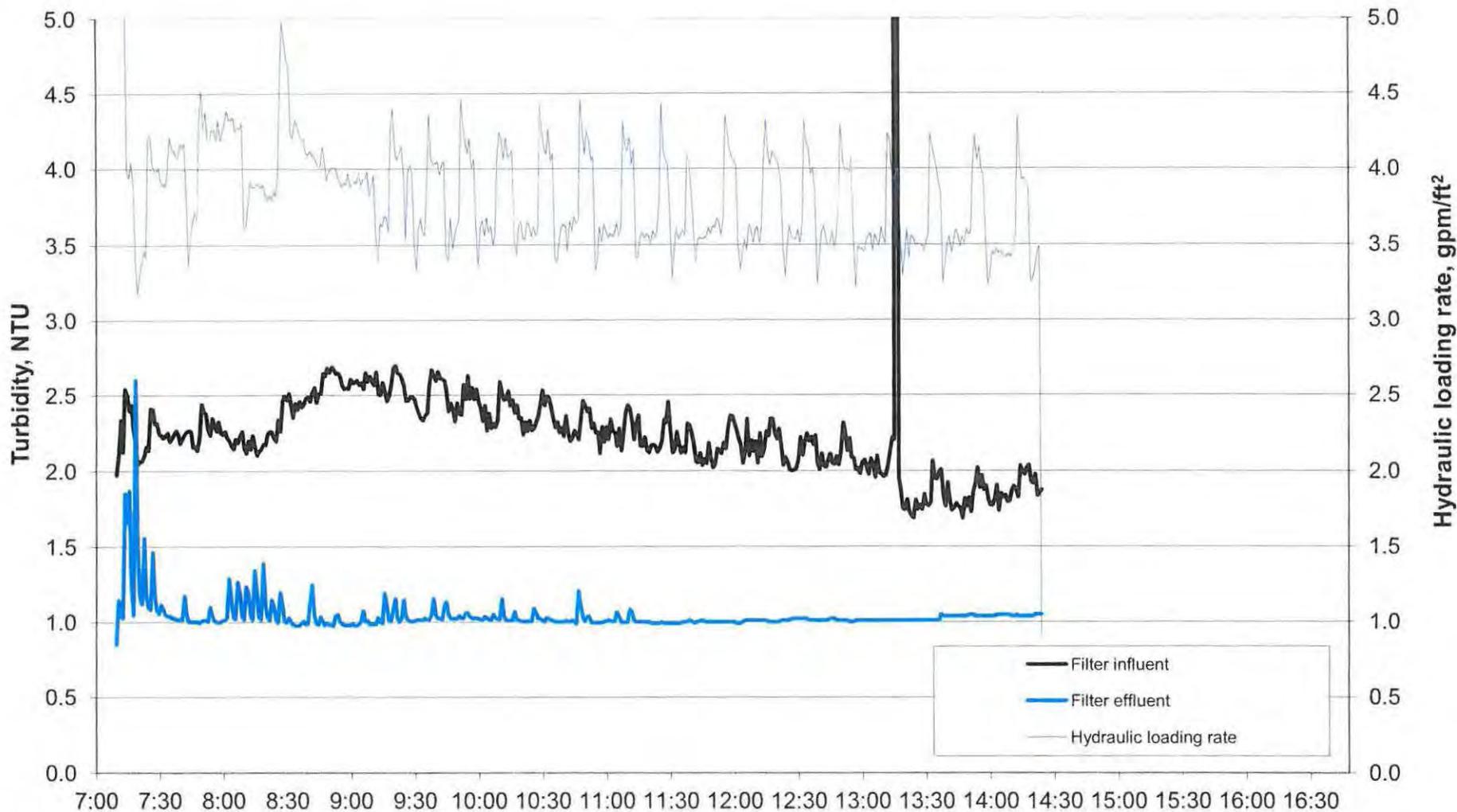


Dynasand® Ecowash Hydraulic Loading Rate 3.71 gpm/ft²
 Standard continuous backwash operation

9/26/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 1 (No Ecowash- Continuous Backwash Mode)**

FIGURE C.10



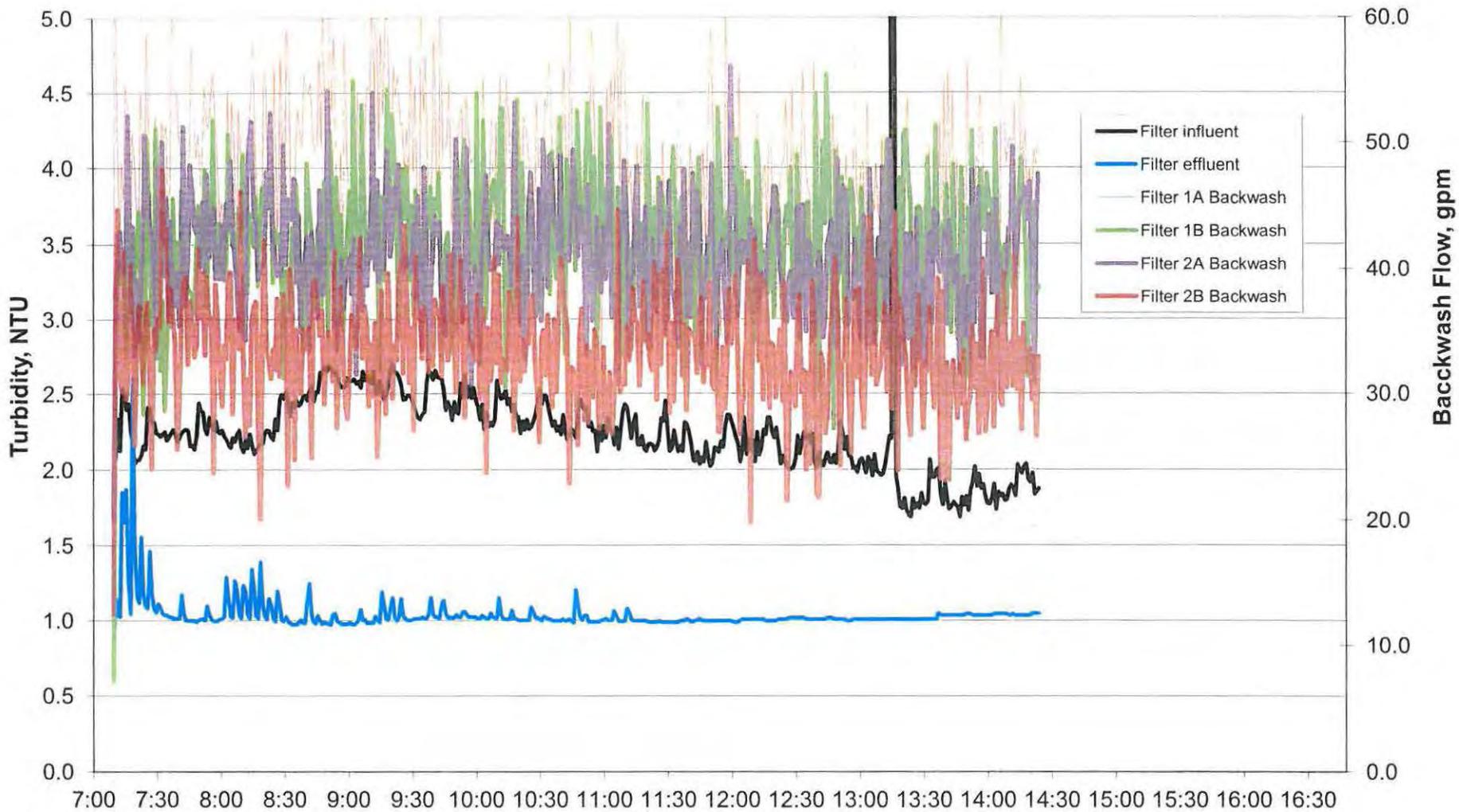
Dynasand® Ecowash Hydraulic Loading Rate 3.83 gpm/ft²
 Standard continuous backwash operation

9/27/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 1 (No Ecowash- Continuous Backwash Mode)**

FIGURE C.11



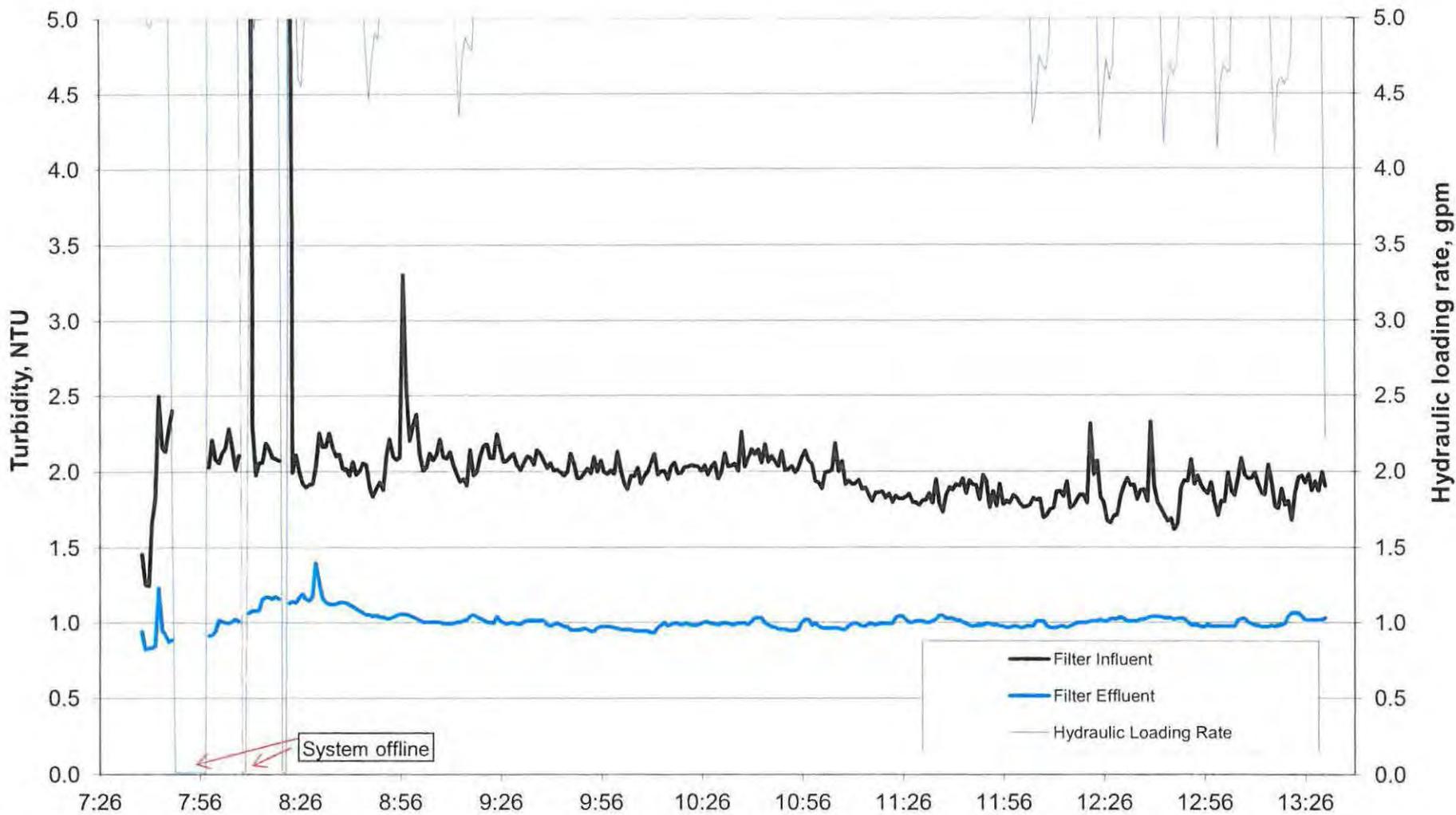


Dynasand® Ecowash Hydraulic Loading Rate 3.83 gpm/ft²
 Standard continuous backwash operation

9/27/2012

**BACKWASH DATA -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 1 (No Ecowash-Continuous Backwash Mode)**

FIGURE C.12

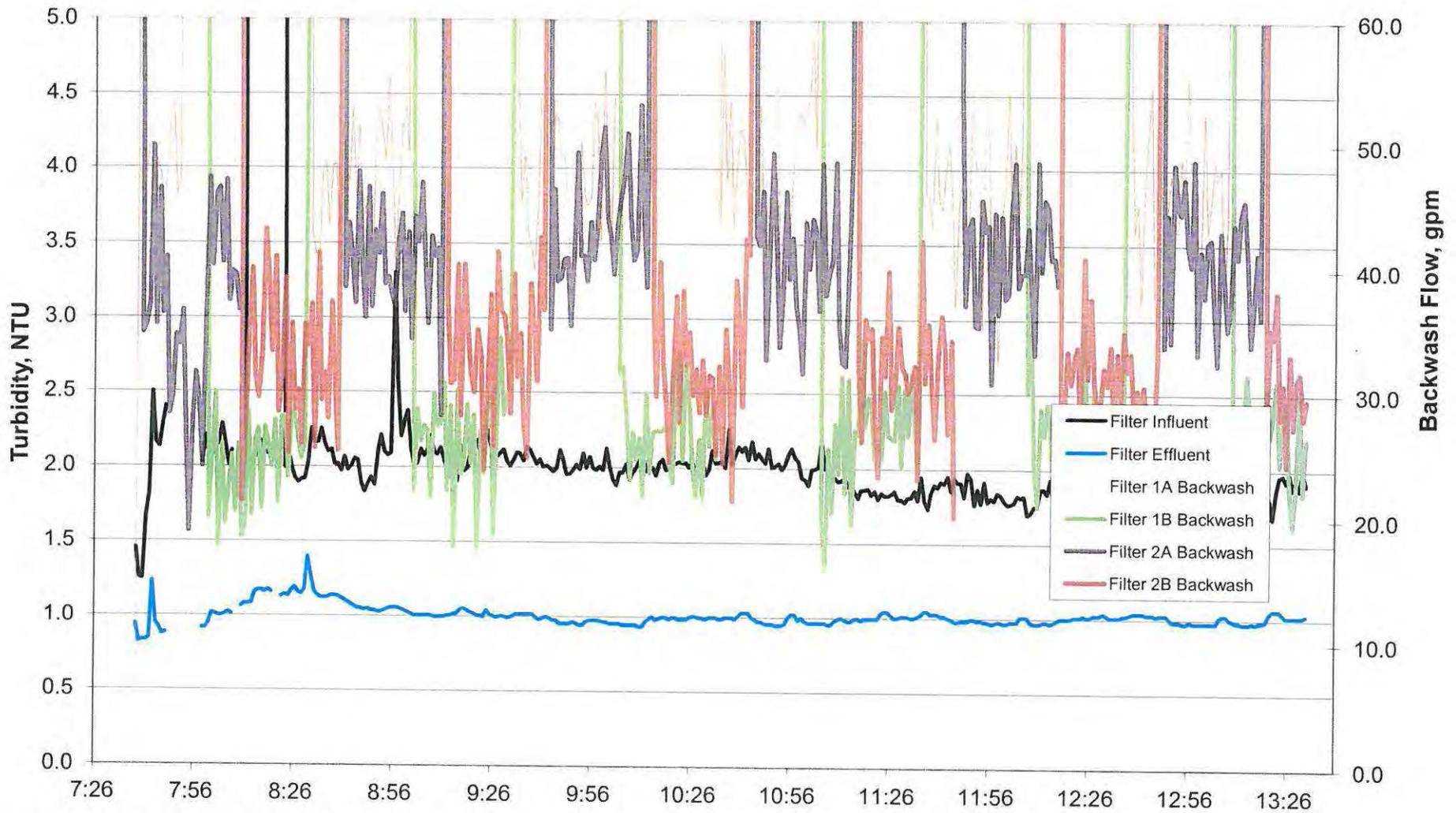


Dynasand® Ecowash Hydraulic Loading Rate 5.37 gpm/ft²
 50 percent backwash operation

9/15/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 2 (Ecowash- 50 Percent Backwash Mode)**

FIGURE C.14

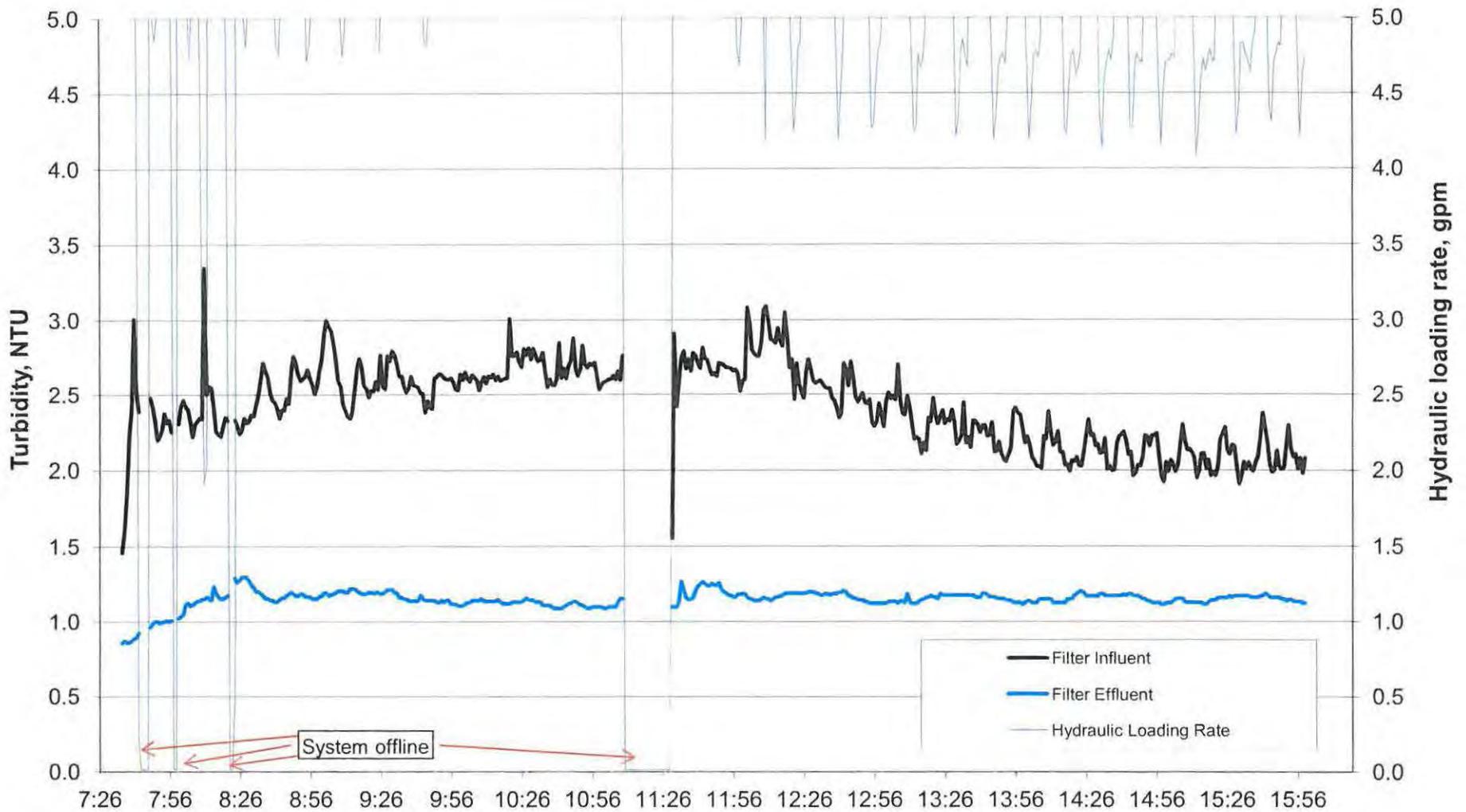


Dynasand® Ecowash Hydraulic Loading Rate 5.37 gpm/ft²
 50 percent backwash operation

9/15/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 2 (Ecowash- 50 Percent Backwash Mode)**

FIGURE C.15

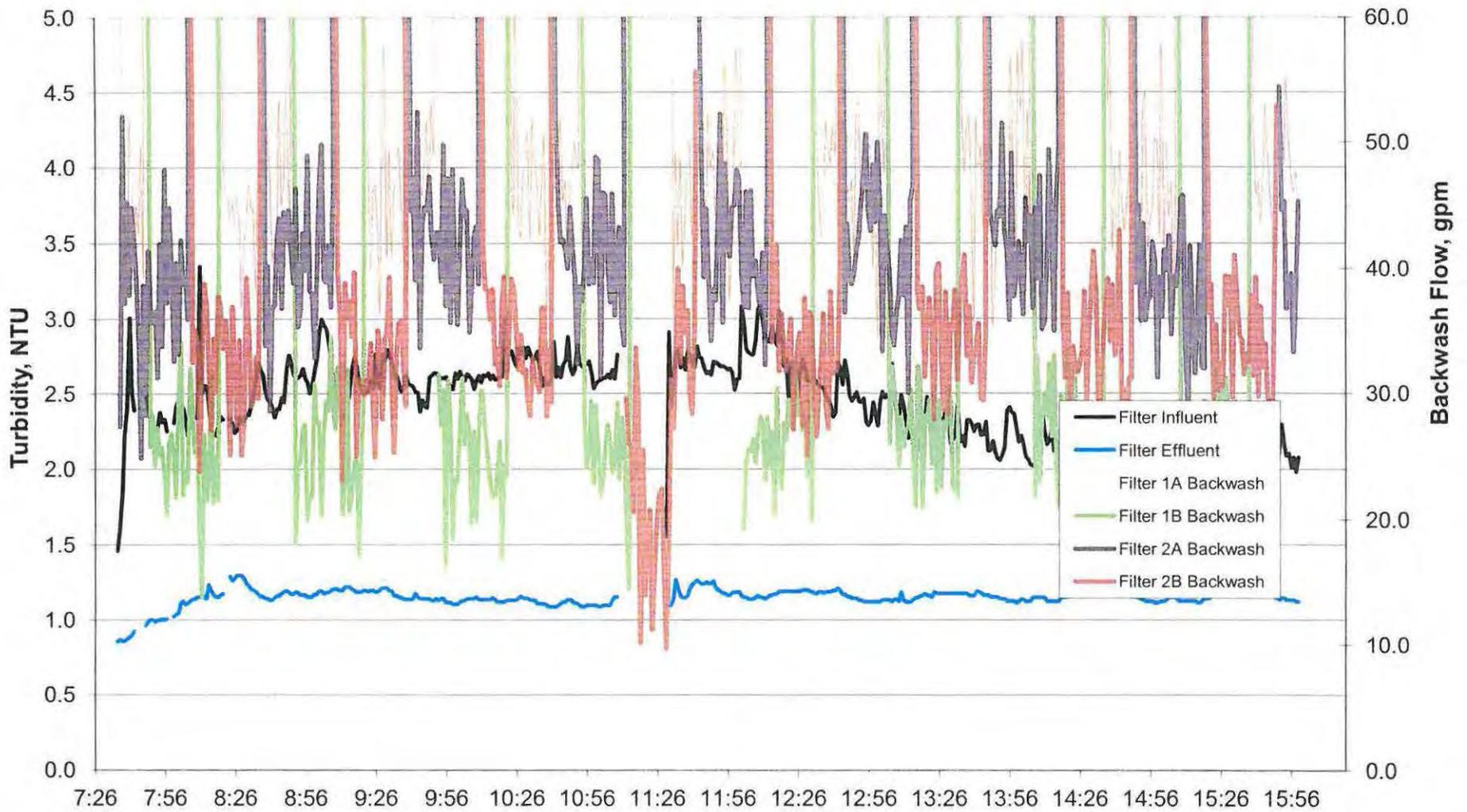


Dynasand® Ecowash Hydraulic Loading Rate 5.36 gpm/ft²
 50 percent backwash operation

9/16/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 2 (Ecowash- 50 Percent Backwash Mode)**

FIGURE C.16

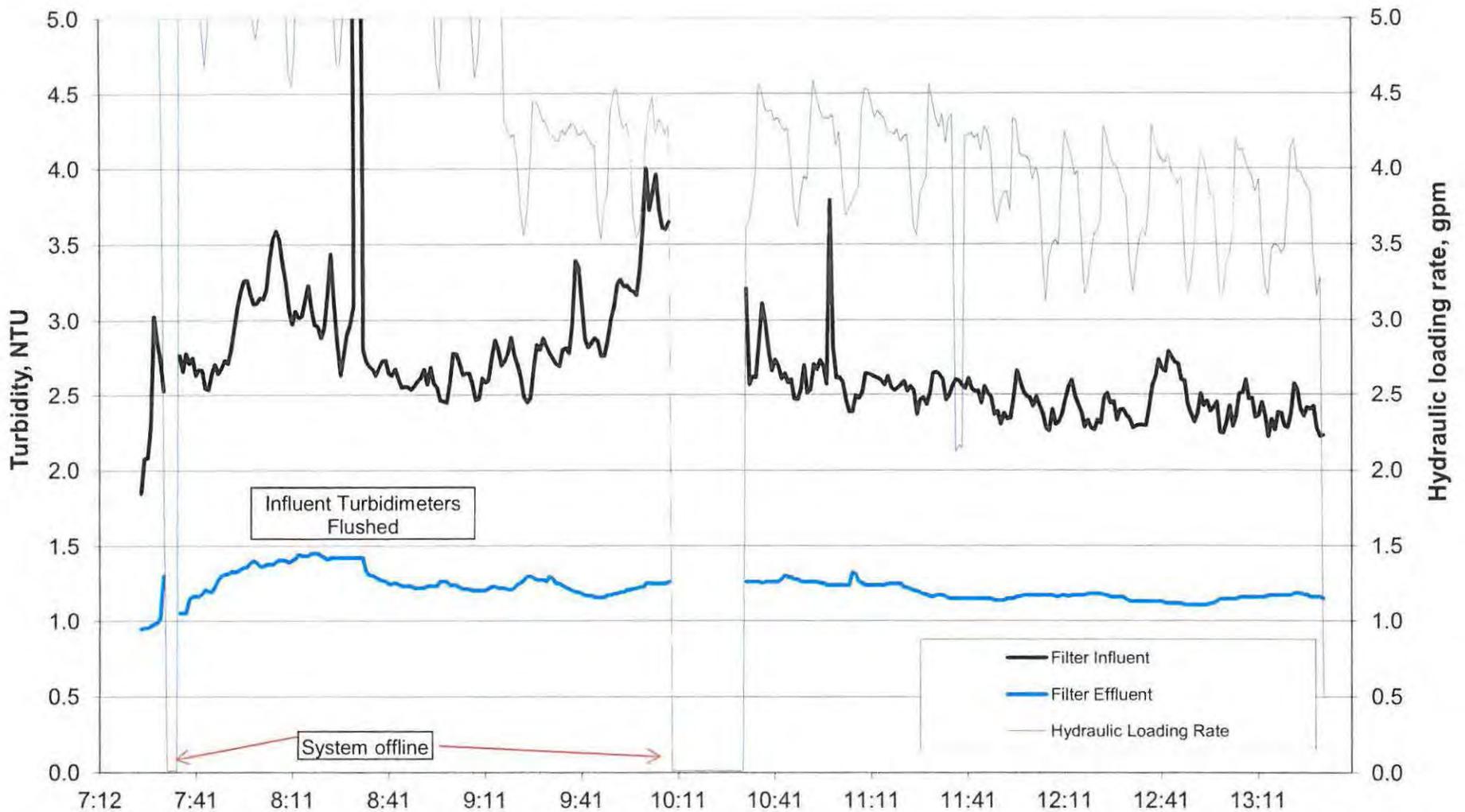


Dynasand® Ecowash Hydraulic Loading Rate 5.36 gpm/ft²
 50 percent backwash operation

9/16/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 2 (Ecowash- 50 Percent Backwash Mode)**

FIGURE C.17

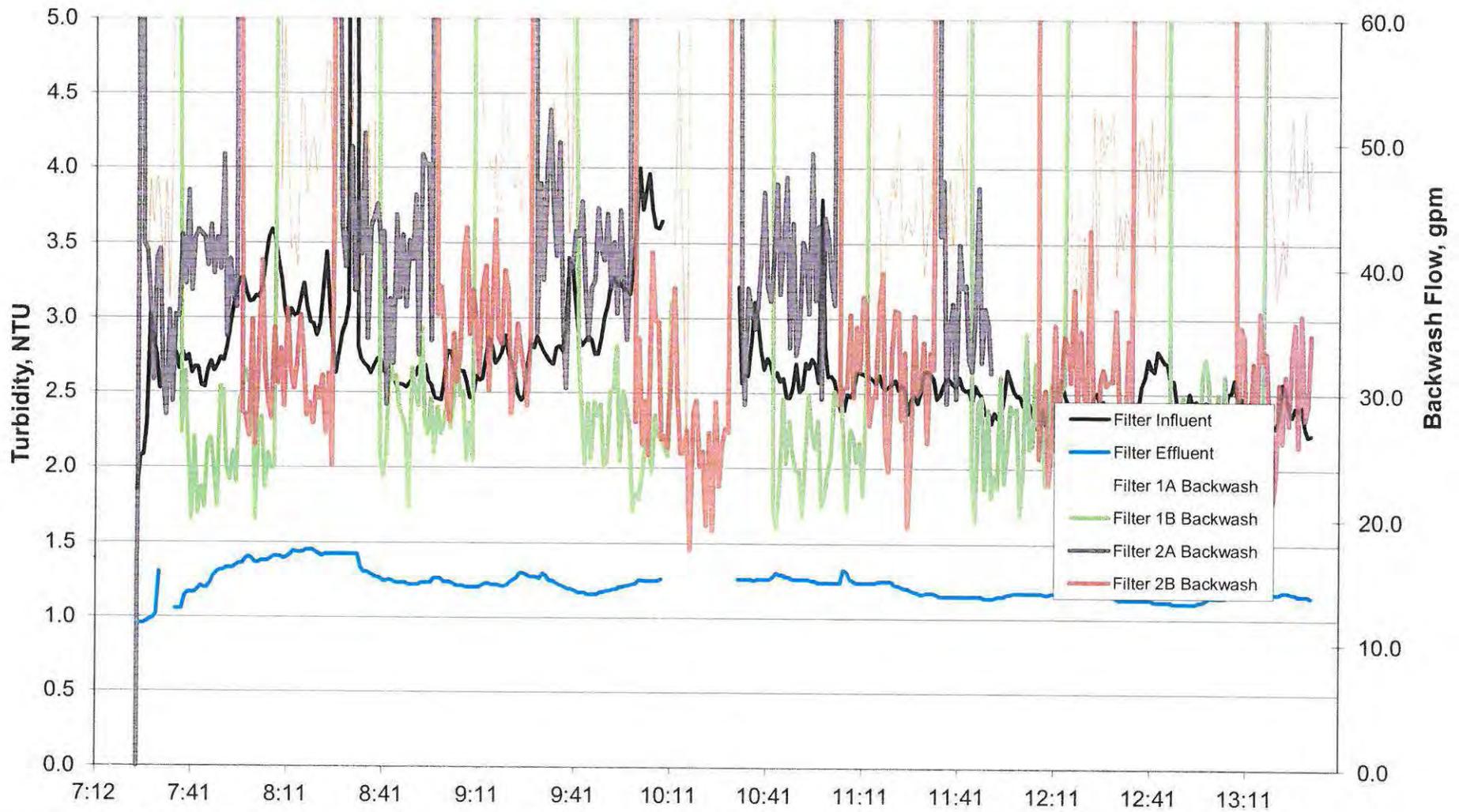


Dynasand® Ecowash Hydraulic Loading Rate 4.45 gpm/ft²
 50 percent backwash operation

9/17/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 2 (Ecowash- 50 Percent Backwash Mode)**

FIGURE C.18

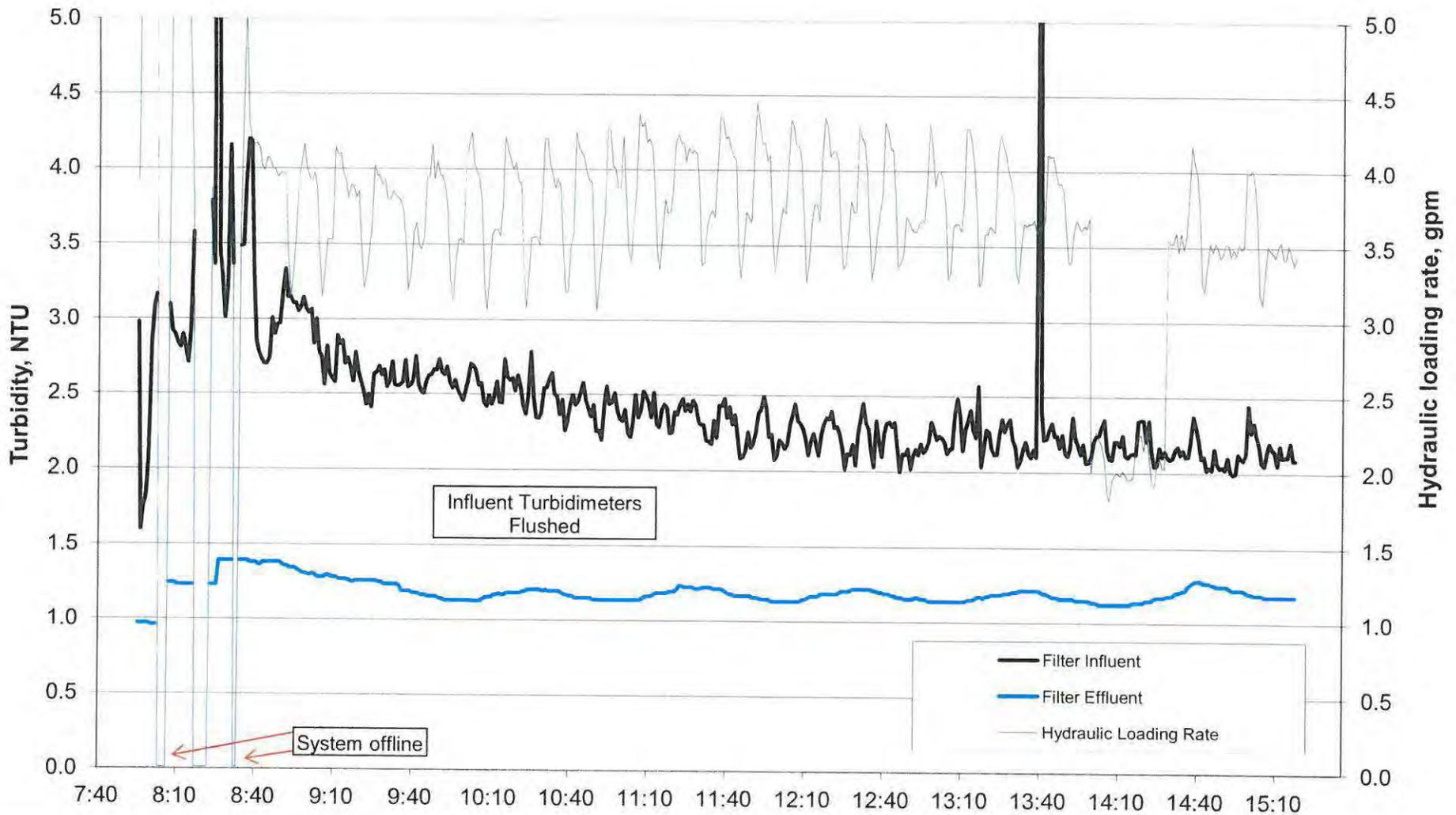


Dynasand® Ecowash Hydraulic Loading Rate 4.45 gpm/ft²
 50 percent backwash operation

9/17/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 2 (Ecowash- 50 Percent Backwash Mode)**

FIGURE C.19

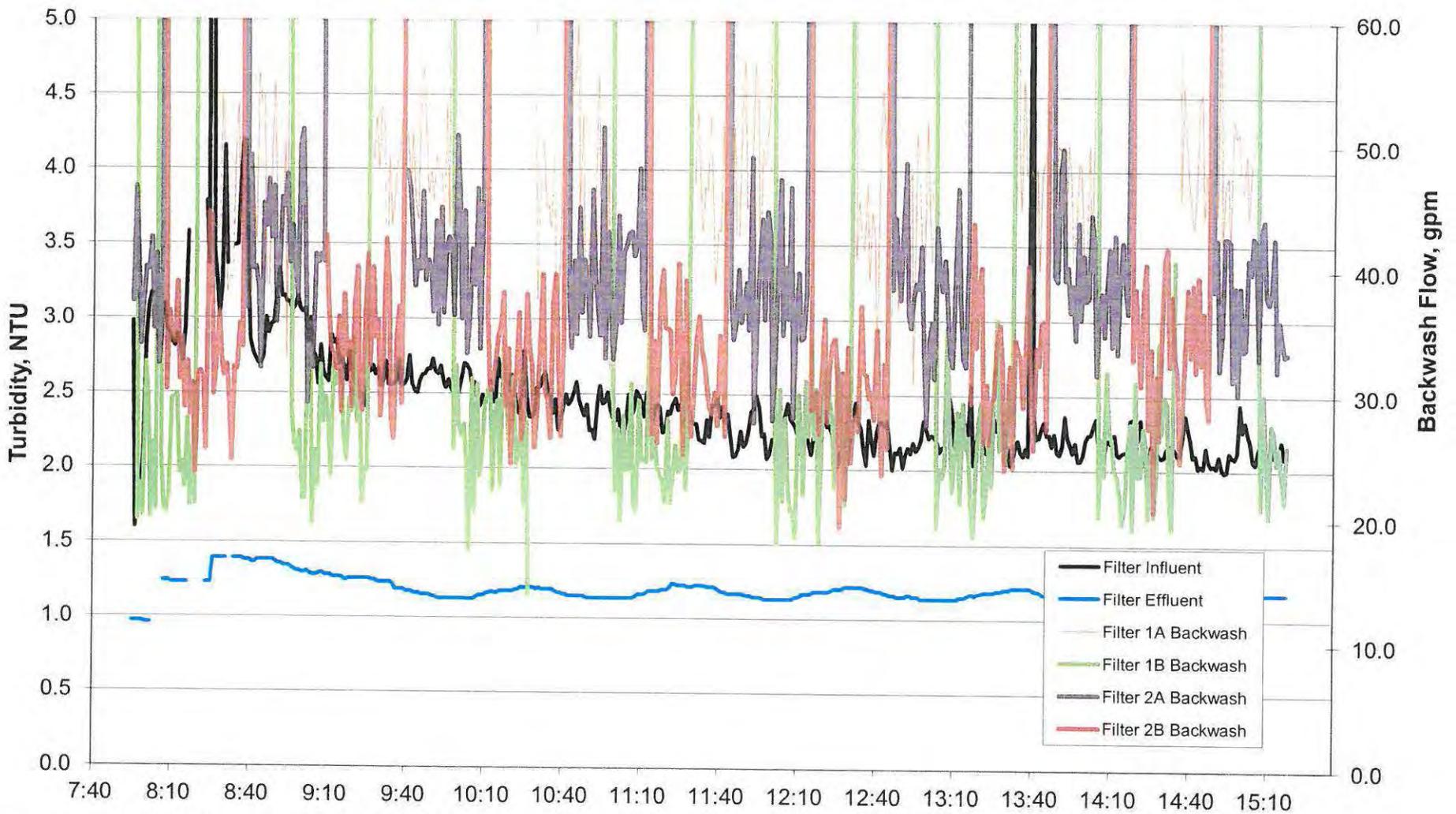


Dynasand® Ecowash Hydraulic Loading Rate 3.71 gpm/ft²
 50 percent backwash operation

9/18/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 2 (Ecowash- 50 Percent Backwash Mode)**

FIGURE C.20

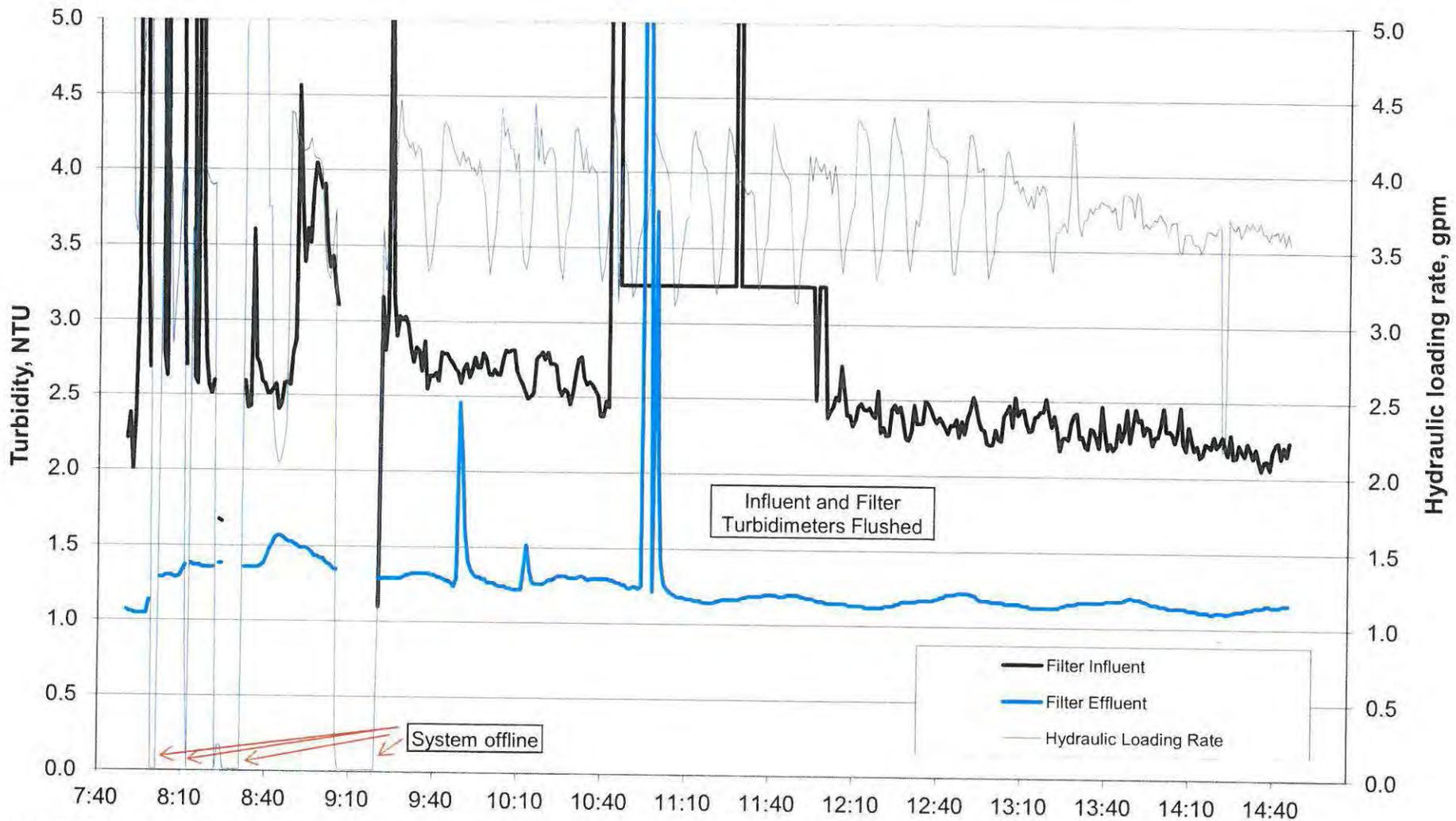


Dynasand® Ecowash Hydraulic Loading Rate 3.71 gpm/ft²
 50 percent backwash operation

9/18/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 2 (Ecowash- 50 Percent Backwash Mode)**

FIGURE C.21

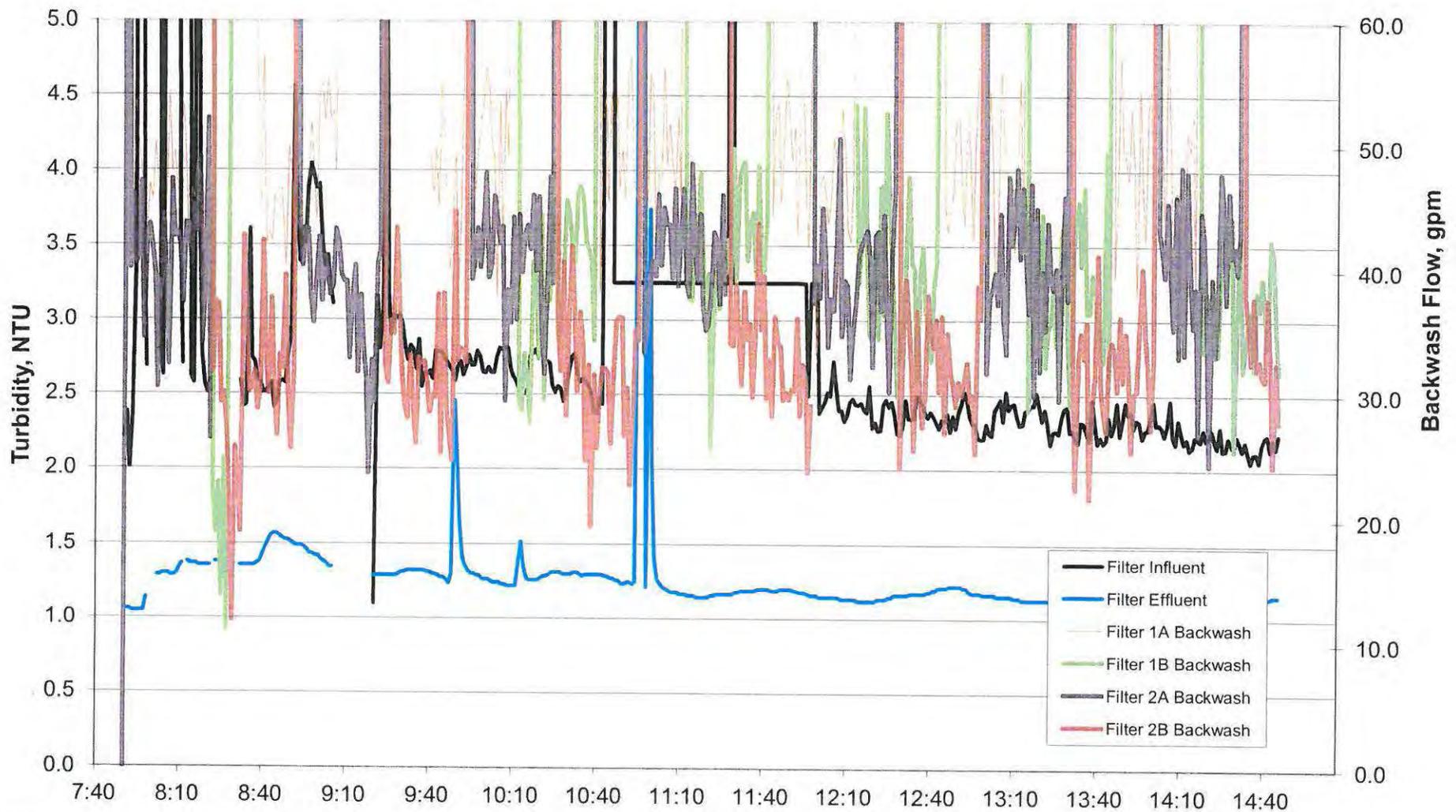


Dynasand® Ecowash Hydraulic Loading Rate 3.81 gpm/ft²
 50 percent backwash operation

9/19/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 2 (Ecowash- 50 Percent Backwash Mode)**

FIGURE C.22

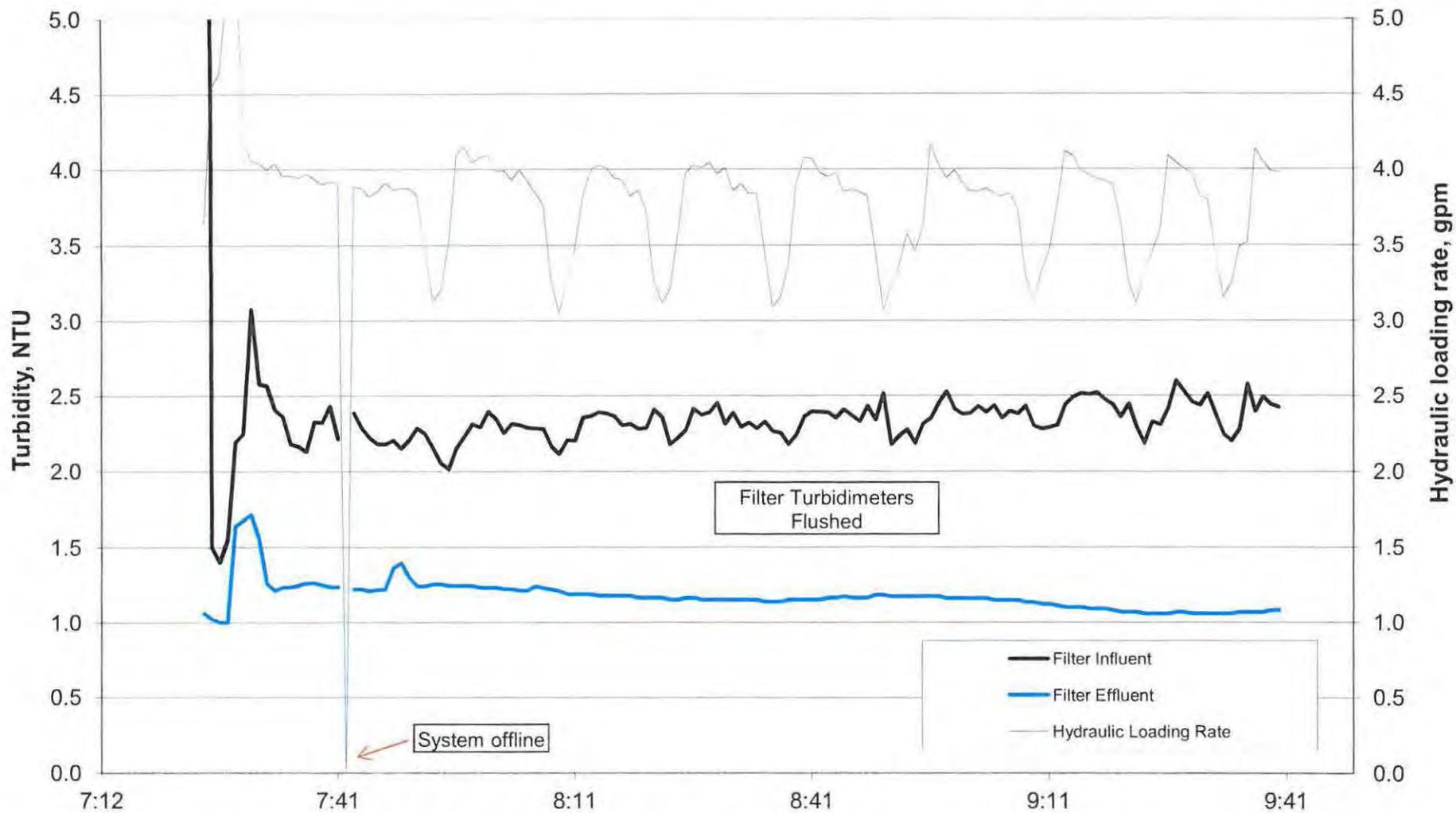


Dynasand® Ecowash Hydraulic Loading Rate 3.81 gpm/ft²
 50 percent backwash operation

9/19/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 2 (Ecowash- 50 Percent Backwash Mode)**

FIGURE C.23

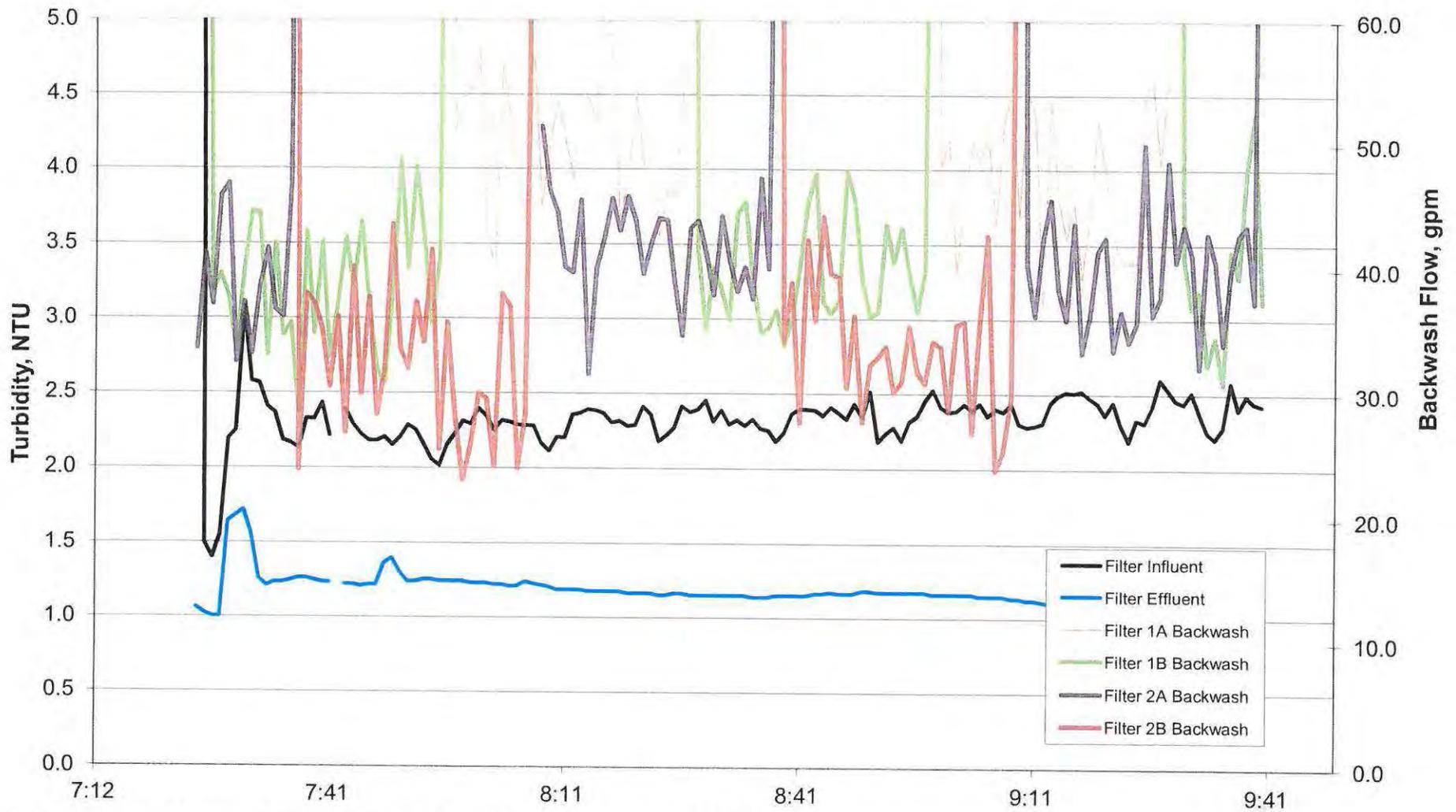


Dynasand® Ecowash Hydraulic Loading Rate 3.82 gpm/ft²
50 percent backwash operation

9/20/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
EXPERIMENT 2 (Ecowash- 50 Percent Backwash Mode)**

FIGURE C.24



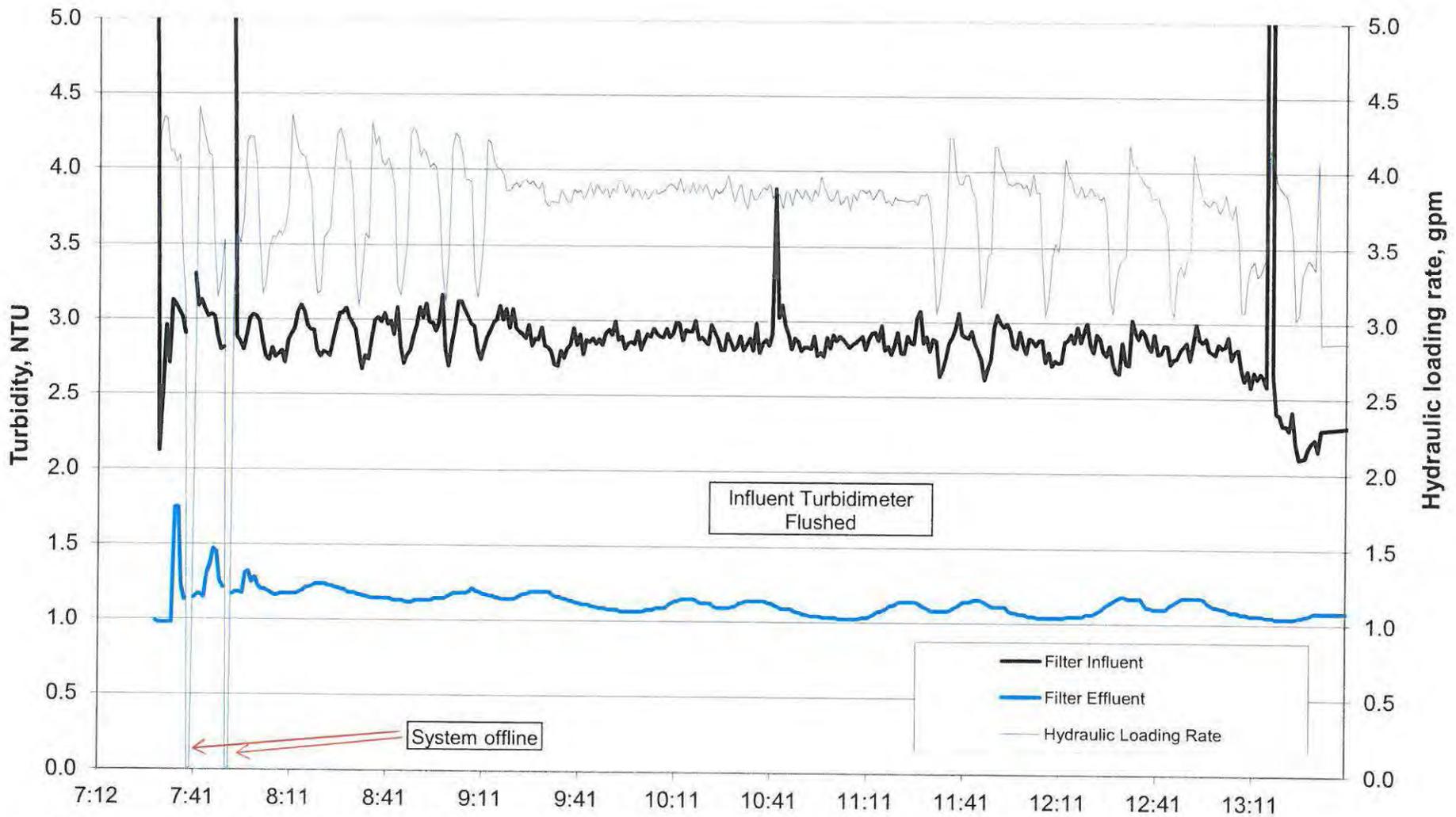
Dynasand® Ecowash Hydraulic Loading Rate 3.82 gpm/ft²
 50 percent backwash operation

9/20/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 2 (Ecowash- 50 Percent Backwash Mode)**

FIGURE C.25



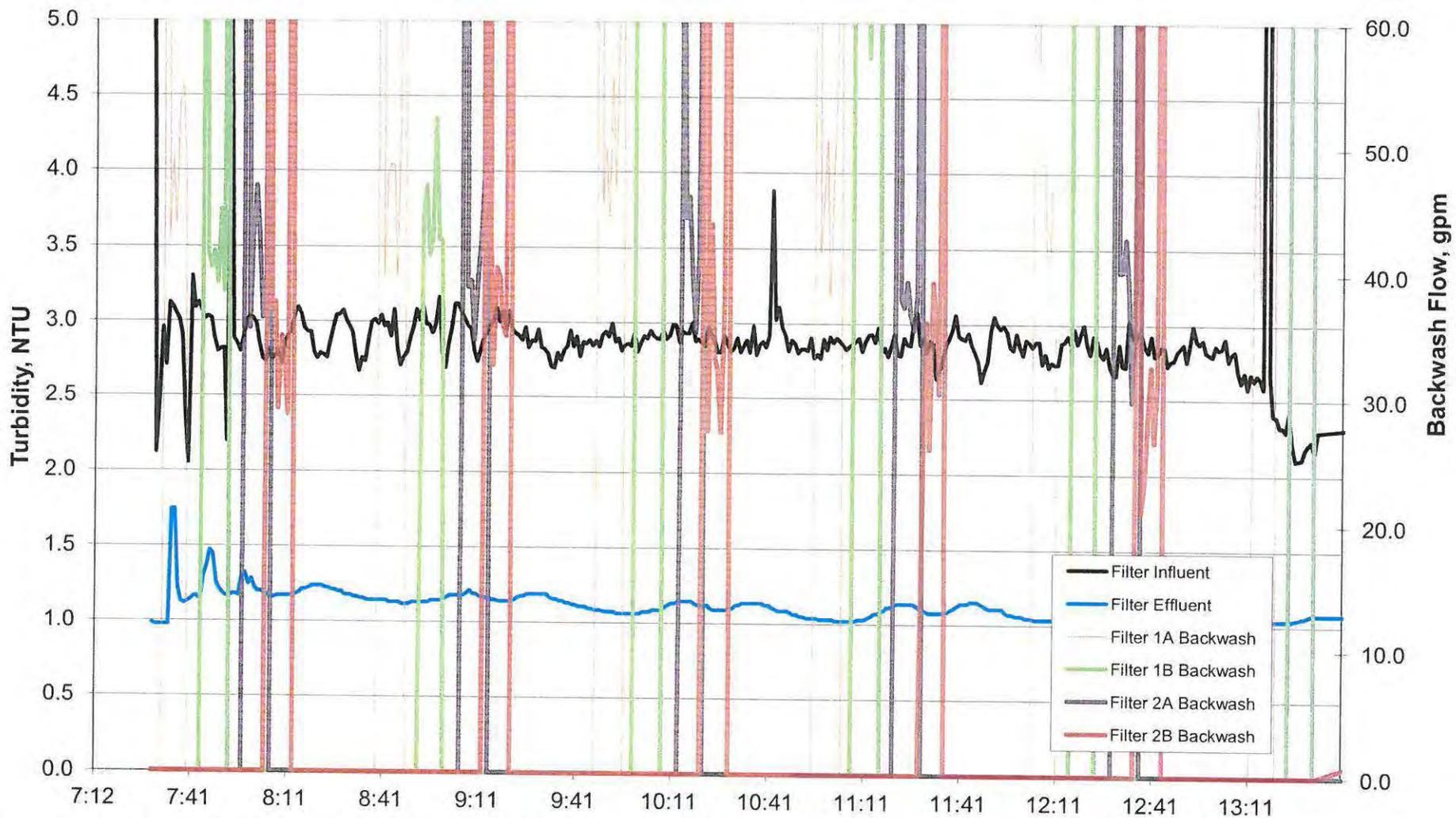


Dynasand® Ecowash Hydraulic Loading Rate 3.78 gpm/ft²
 10 percent backwash operation

9/29/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 3 (Ecowash- 10 Percent Backwash Mode)**

FIGURE C.26

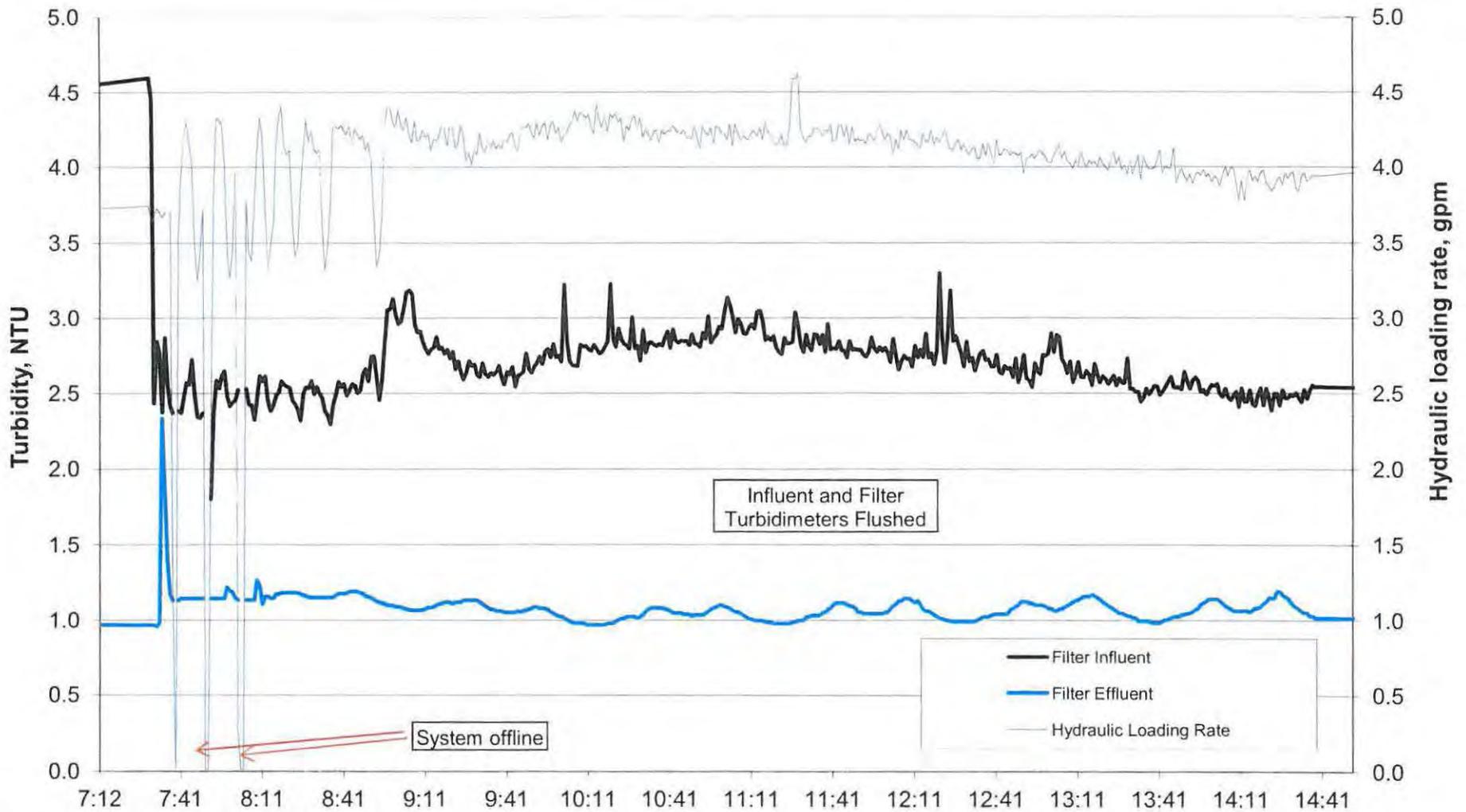


Dynasand® Ecowash Hydraulic Loading Rate 3.78 gpm/ft²
 10 percent backwash operation

9/29/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 3 (Ecowash- 10 Percent Backwash Mode)**

FIGURE C.27

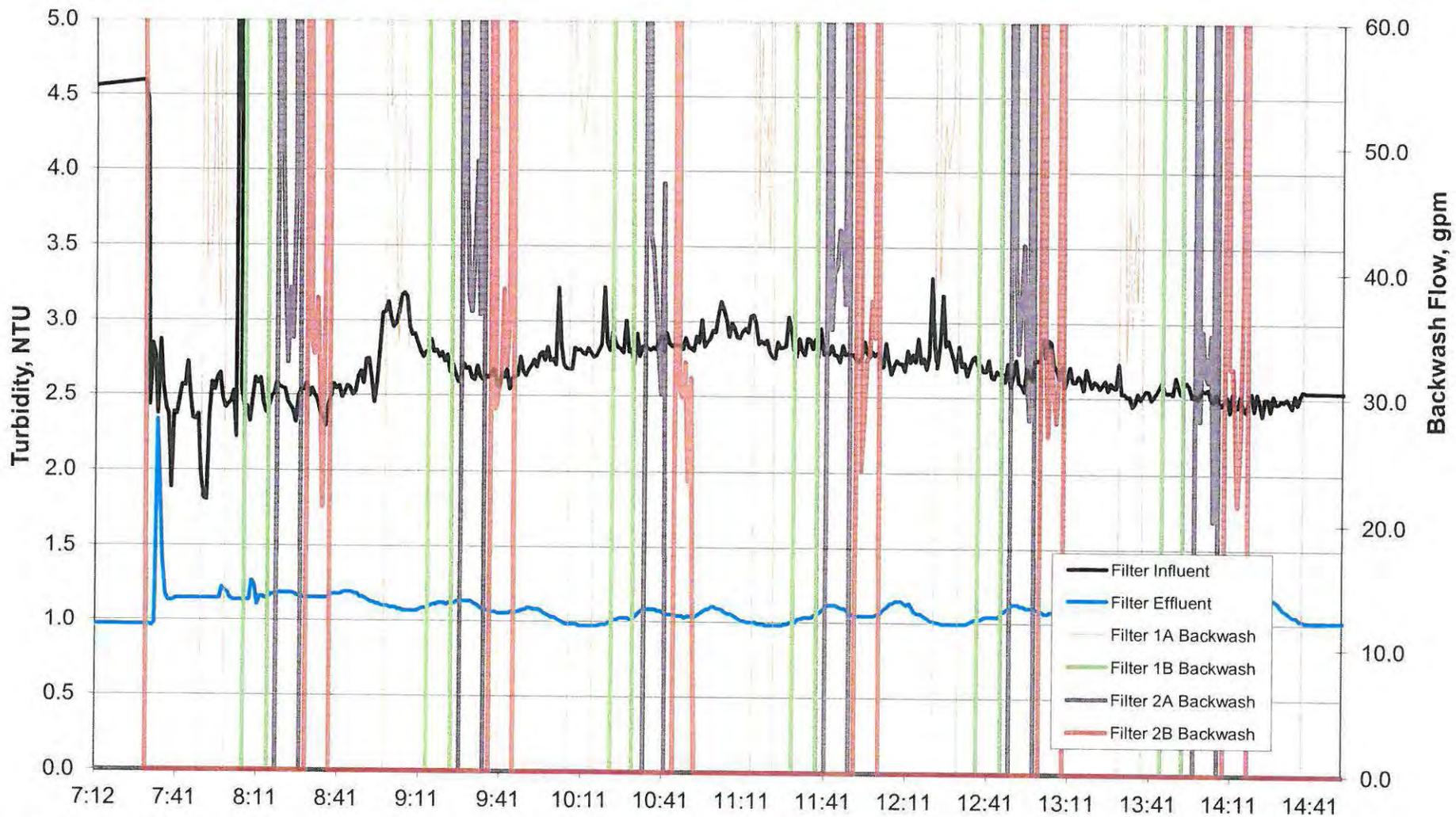


Dynasand® Ecowash Hydraulic Loading Rate 4.07 gpm/ft²
 10 percent backwash operation

9/30/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 3 (Ecowash- 10 Percent Backwash Mode)**

FIGURE C.28

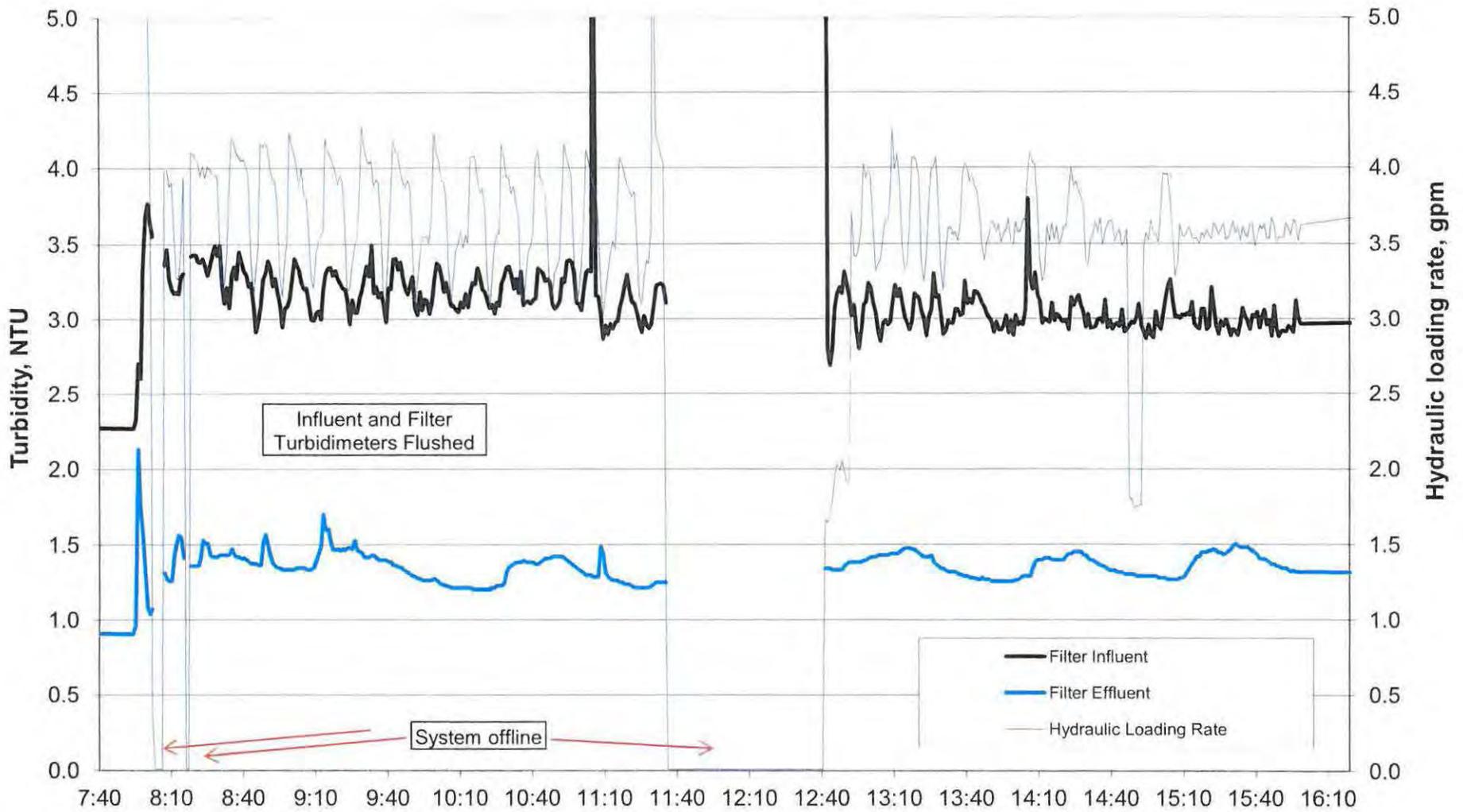


Dynasand® Ecowash Hydraulic Loading Rate 4.07 gpm/ft²
 10 percent backwash operation

9/30/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 3 (Ecowash- 10 Percent Backwash Mode)**

FIGURE C.29

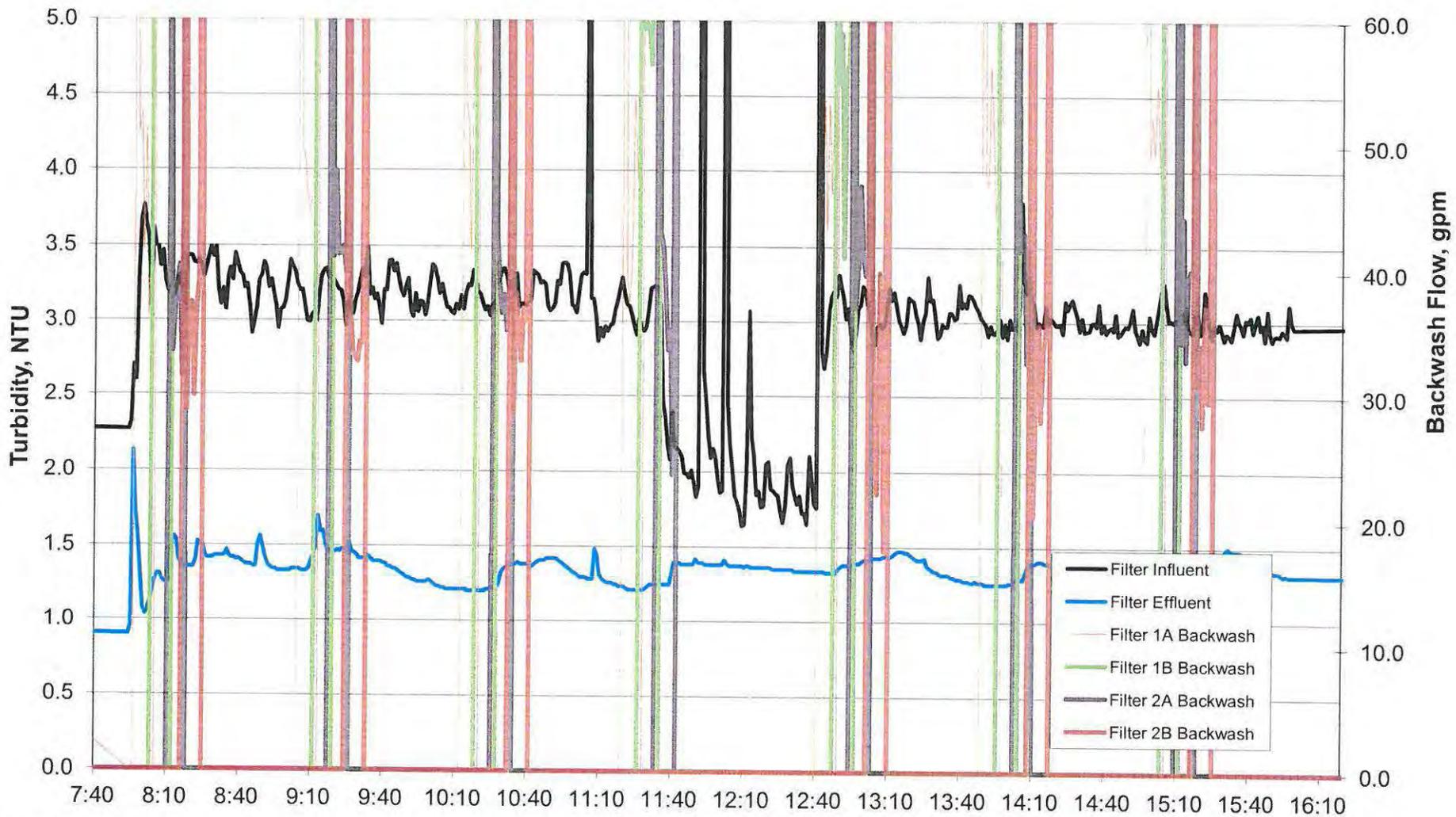


Dynasand® Ecowash Hydraulic Loading Rate 3.63 gpm/ft²
 10 percent backwash operation

10/1/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 3 (Ecowash- 10 Percent Backwash Mode)**

FIGURE C.30

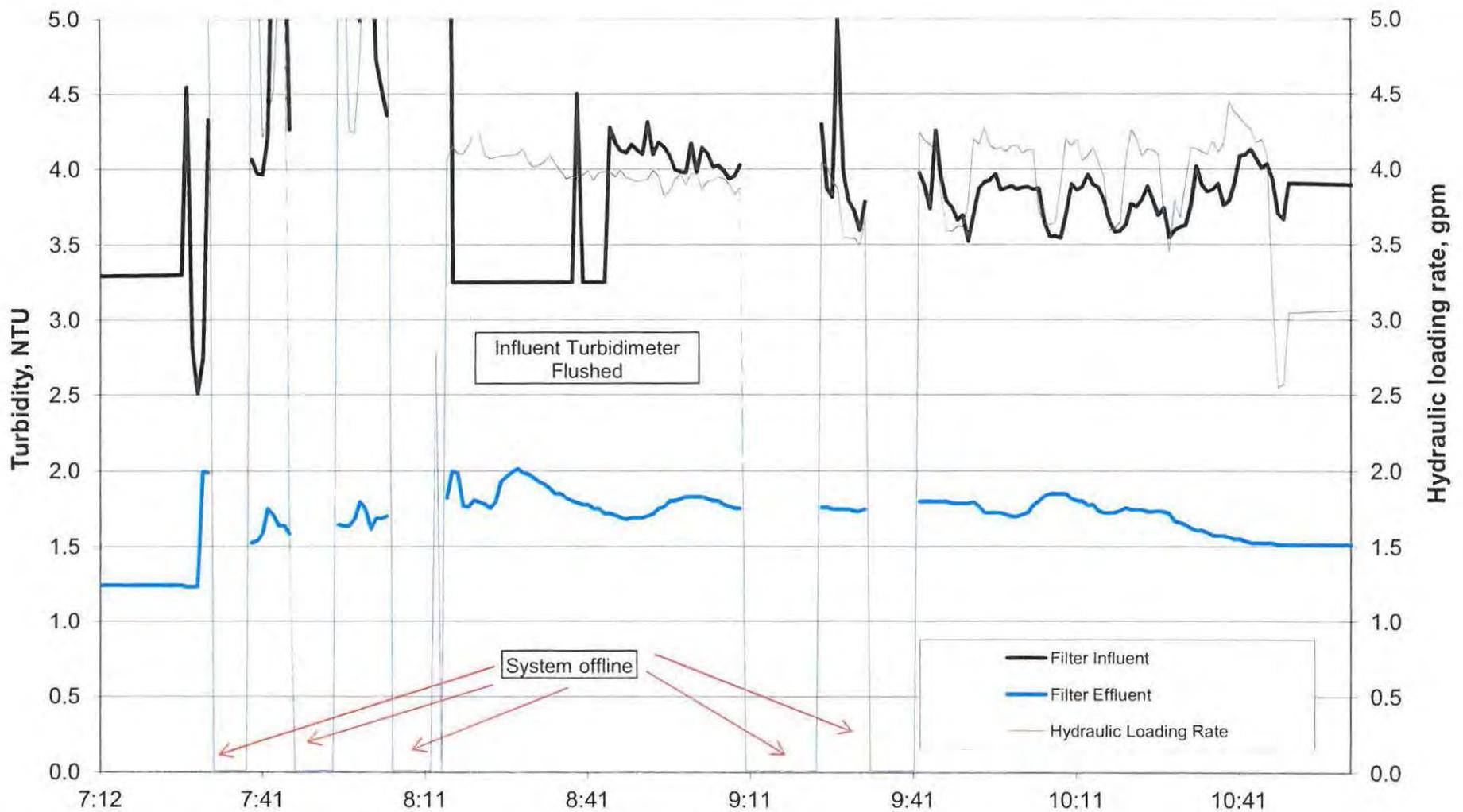


Dynasand® Ecowash Hydraulic Loading Rate 3.63 gpm/ft²
 10 percent backwash operation

10/1/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 3 (Ecowash- 10 Percent Backwash Mode)**

FIGURE C.31

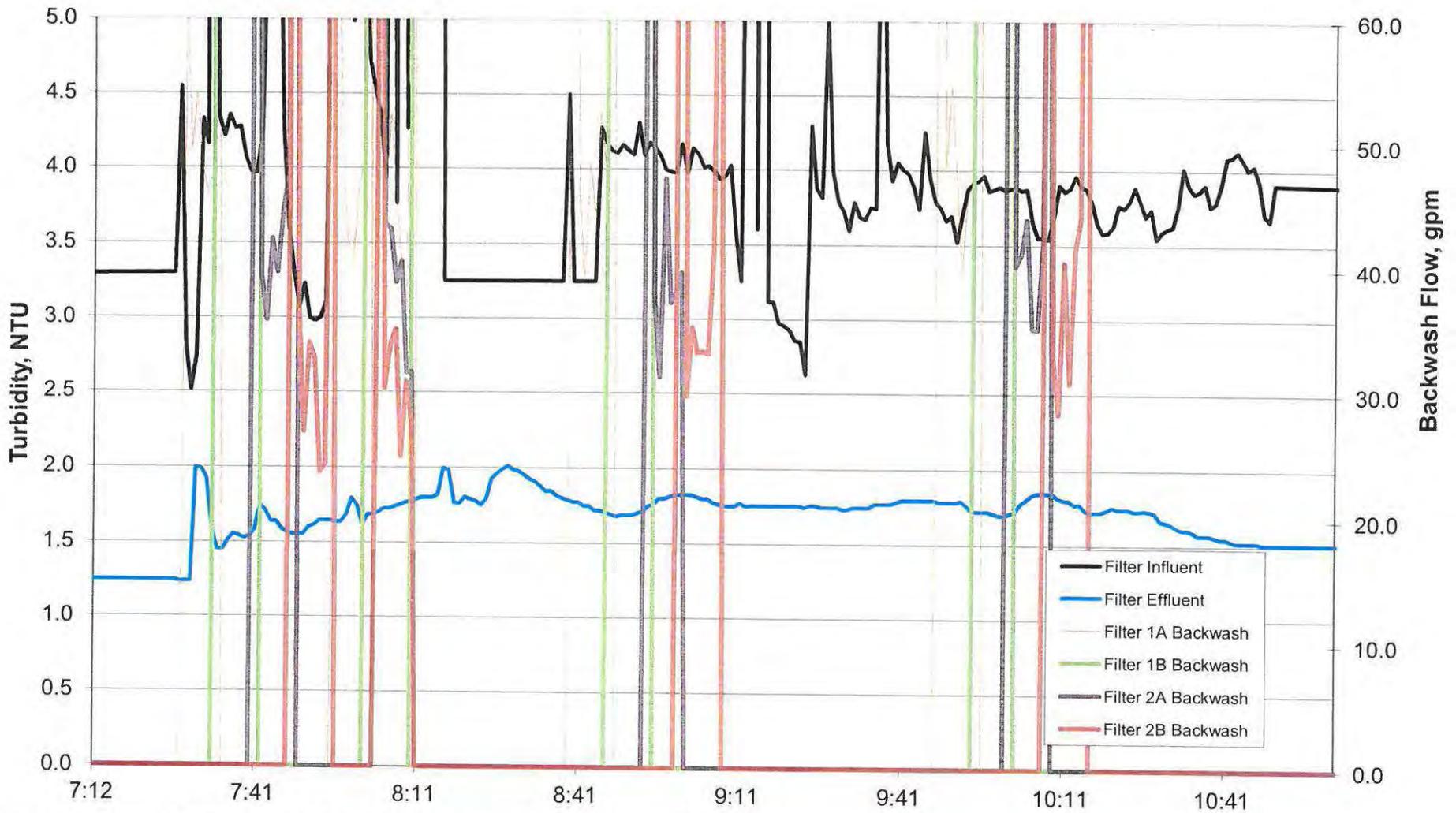


Dynasand® Ecowash Hydraulic Loading Rate 4.15 gpm/ft²
10 percent backwash operation

10/2/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
EXPERIMENT 3 (Ecowash- 10 Percent Backwash Mode)**

FIGURE C.32

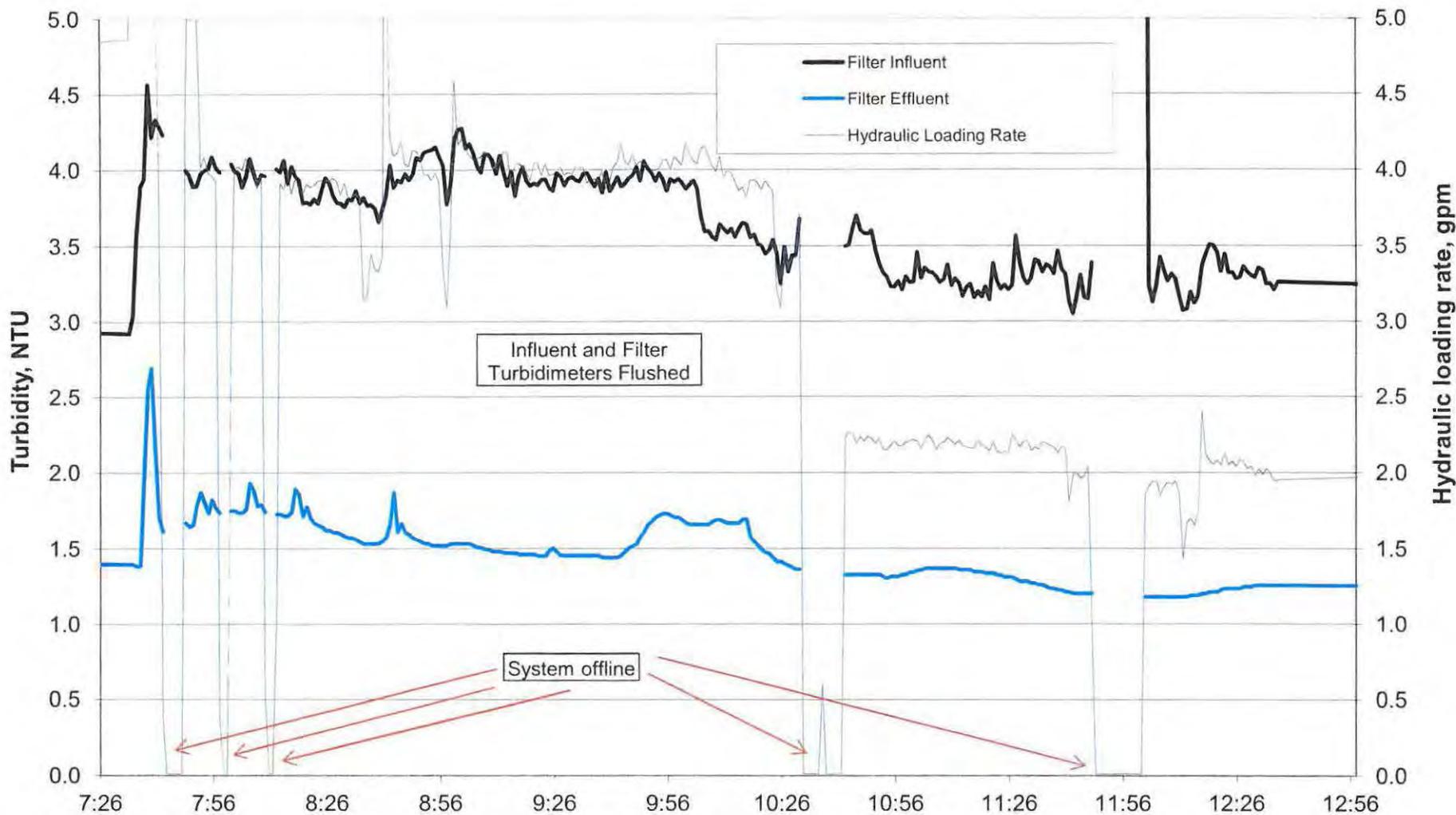


Dynasand® Ecowash Hydraulic Loading Rate 4.15 gpm/ft²
 10 percent backwash operation

10/2/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 3 (Ecowash- 10 Percent Backwash Mode)**

FIGURE C.33



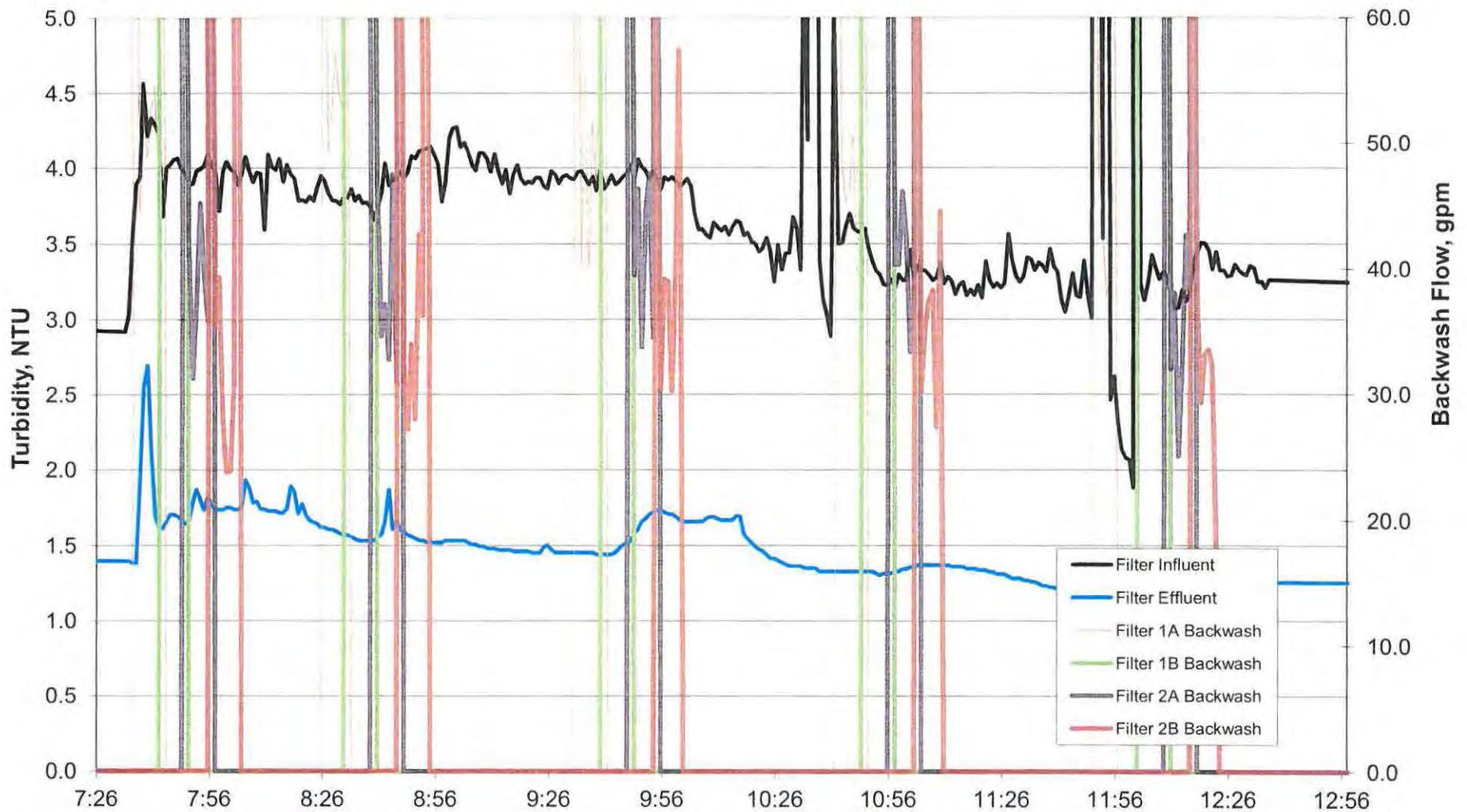
Dynasand® Ecowash Hydraulic Loading Rate 3.25 gpm/ft²
 10 percent backwash operation

10/3/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 3 (Ecowash- 10 Percent Backwash Mode)**

FIGURE C.34





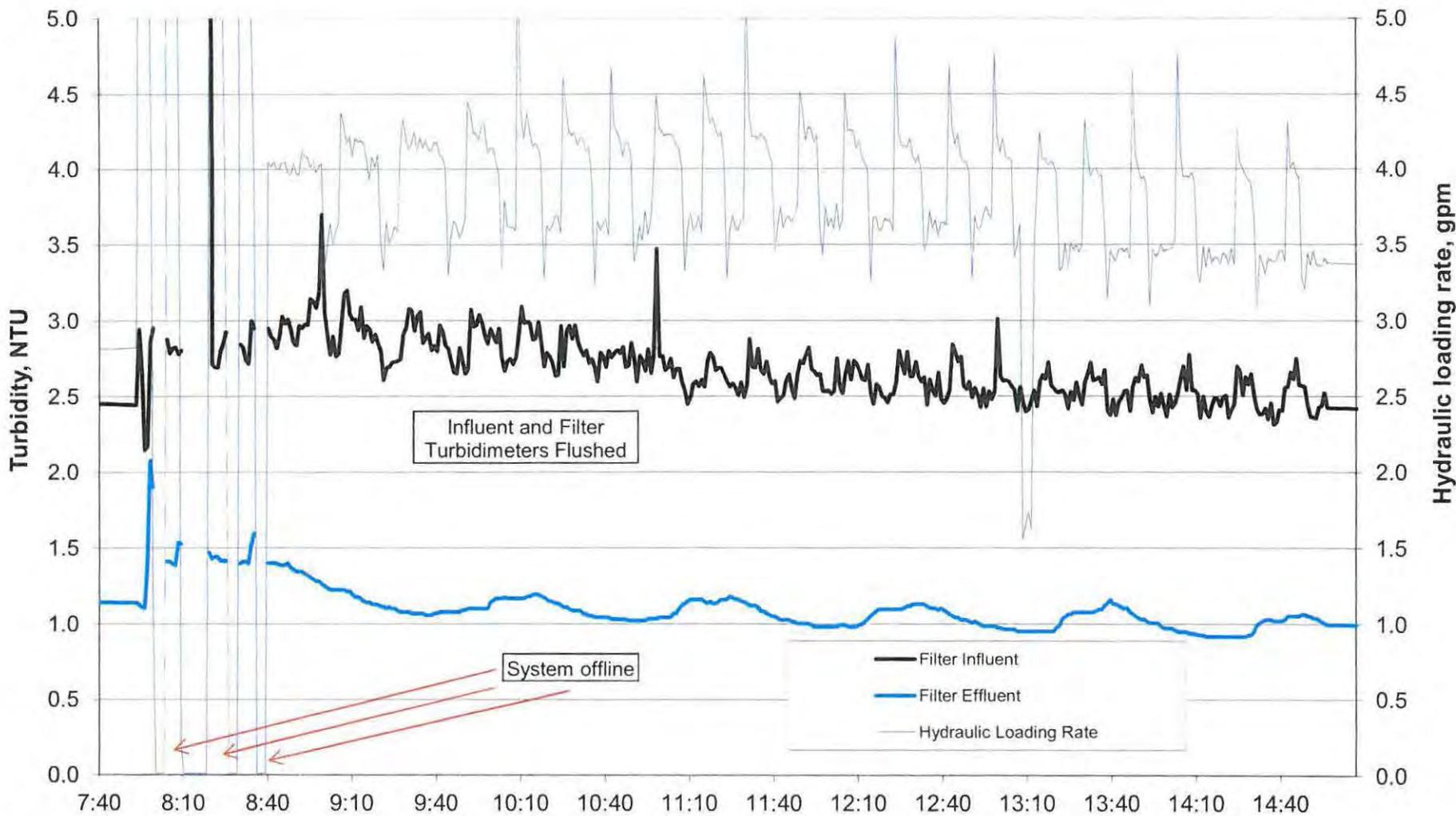
Dynasand® Ecowash Hydraulic Loading Rate 3.25 gpm/ft²
 10 percent backwash operation

10/3/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 3 (Ecowash- 10 Percent Backwash Mode)**

FIGURE C.35



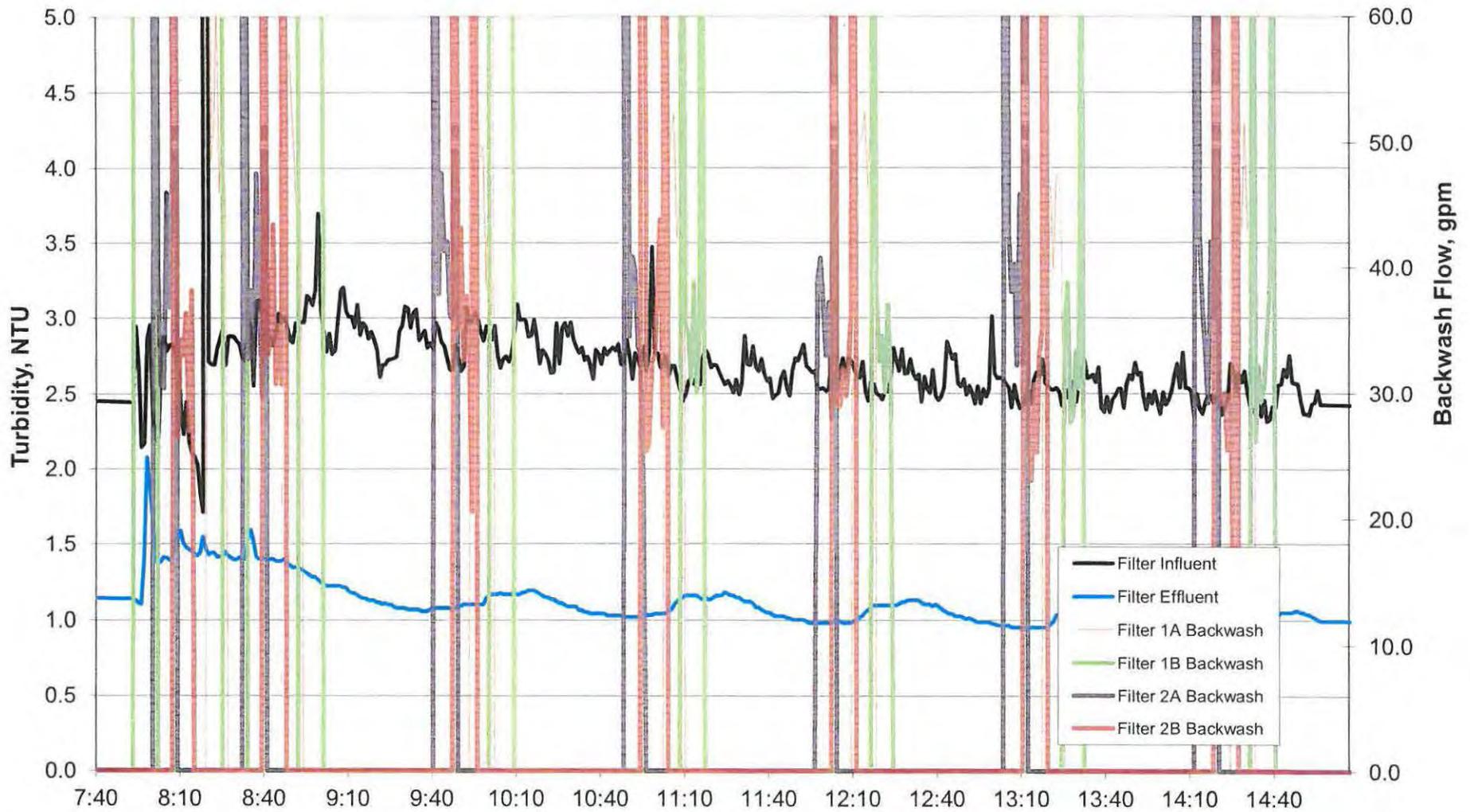


Dynasand® Ecowash Hydraulic Loading Rate 3.86 gpm/ft²
 10 percent backwash operation

10/4/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 3 (Ecowash- 10 Percent Backwash Mode)**

FIGURE C.36



Dynasand® Ecowash Hydraulic Loading Rate 3.86 gpm/ft²
 10 percent backwash operation

10/4/2012

**TURBIDITY PERFORMANCE -CITY OF POMPANO BEACH REUSE UTILITIES PLANT
 EXPERIMENT 3 (Ecowash- 10 Percent Backwash Mode)
 FIGURE C.37**



Exhibit D
Data

ANALYTICAL RESULTS

Project: Annual Reuse

Pace Project No.: 35175646

Sample: Composite Lab ID: 35175646001 Collected: 02/13/15 12:45 Received: 02/13/15 16:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
504.1 GCS EDB and DBCP									
Analytical Method: EPA 504.1 Preparation Method: EPA 504.1									
1,2-Dibromo-3-chloropropane	0.0049 U	ug/L	0.020	0.0049	1	02/18/15 12:00	02/18/15 21:44	96-12-8	
1,2-Dibromoethane (EDB)	0.0062 U	ug/L	0.010	0.0062	1	02/18/15 12:00	02/18/15 21:44	106-93-4	
508.1 GCS Pesticides									
Analytical Method: EPA 508.1 Preparation Method: EPA 508.1									
Alachlor	0.032 U	ug/L	0.19	0.032	1	02/17/15 10:30	02/19/15 16:01	15972-60-8	
Atrazine	0.020 U	ug/L	0.095	0.020	1	02/17/15 10:30	02/19/15 16:01	1912-24-9	
gamma-BHC (Lindane)	0.0029 U	ug/L	0.019	0.0029	1	02/17/15 10:30	02/19/15 16:01	58-89-9	
Chlordane (Technical)	0.045 U	ug/L	0.19	0.045	1	02/17/15 10:30	02/19/15 16:01	57-74-9	
Endrin	0.0019 U	ug/L	0.0095	0.0019	1	02/17/15 10:30	02/19/15 16:01	72-20-8	
Heptachlor	0.0057 U	ug/L	0.038	0.0057	1	02/17/15 10:30	02/19/15 16:01	76-44-8	
Heptachlor epoxide	0.0029 U	ug/L	0.019	0.0029	1	02/17/15 10:30	02/19/15 16:01	1024-57-3	
Hexachlorobenzene	0.010 U	ug/L	0.095	0.010	1	02/17/15 10:30	02/19/15 16:01	118-74-1	
Hexachlorocyclopentadiene	0.030 U	ug/L	0.095	0.030	1	02/17/15 10:30	02/19/15 16:01	77-47-4	
Methoxychlor	0.013 U	ug/L	0.095	0.013	1	02/17/15 10:30	02/19/15 16:01	72-43-5	
PCB-1016 (Aroclor 1016)	0.076 U	ug/L	0.095	0.076	1	02/17/15 10:30	02/19/15 16:01	12674-11-2	
PCB-1221 (Aroclor 1221)	0.028 U	ug/L	0.095	0.028	1	02/17/15 10:30	02/19/15 16:01	11104-28-2	
PCB-1232 (Aroclor 1232)	0.028 U	ug/L	0.095	0.028	1	02/17/15 10:30	02/19/15 16:01	11141-16-5	
PCB-1242 (Aroclor 1242)	0.049 U	ug/L	0.095	0.049	1	02/17/15 10:30	02/19/15 16:01	53469-21-9	
PCB-1248 (Aroclor 1248)	0.059 U	ug/L	0.095	0.059	1	02/17/15 10:30	02/19/15 16:01	12672-29-6	
PCB-1254 (Aroclor 1254)	0.022 U	ug/L	0.095	0.022	1	02/17/15 10:30	02/19/15 16:01	11097-69-1	
PCB-1260 (Aroclor 1260)	0.063 U	ug/L	0.095	0.063	1	02/17/15 10:30	02/19/15 16:01	11096-82-5	
PCB, Total	0.076 U	ug/L	0.095	0.076	1	02/17/15 10:30	02/19/15 16:01	1336-36-3	
Simazine	0.042 U	ug/L	0.067	0.042	1	02/17/15 10:30	02/19/15 16:01	122-34-9	
Toxaphene	0.58 U	ug/L	0.95	0.58	1	02/17/15 10:30	02/19/15 16:01	8001-35-2	
Surrogates									
Decachlorobiphenyl (S)	124	%	70-130		1	02/17/15 10:30	02/19/15 16:01	2051-24-3	
515.3 Chlorinated Herbicides									
Analytical Method: EPA 515.3 Preparation Method: EPA 515.3									
2,4-D	0.081 U	ug/L	0.10	0.081	1	02/16/15 08:00	02/17/15 16:06	94-75-7	
Dalapon	0.89 U	ug/L	1.0	0.89	1	02/16/15 08:00	02/17/15 16:06	75-99-0	
Dinoseb	0.16 U	ug/L	0.20	0.16	1	02/16/15 08:00	02/17/15 16:06	88-85-7	
Pentachlorophenol	0.030 U	ug/L	0.040	0.030	1	02/16/15 08:00	02/17/15 16:06	87-86-5	
Picloram	0.094 U	ug/L	0.10	0.094	1	02/16/15 08:00	02/17/15 16:06	1918-02-1	
2,4,5-TP (Silvex)	0.16 U	ug/L	0.20	0.16	1	02/16/15 08:00	02/17/15 16:06	93-72-1	
Surrogates									
2,4-DCAA (S)	96	%	70-130		1	02/16/15 08:00	02/17/15 16:06	19719-28-9	
200.7 MET ICP									
Analytical Method: EPA 200.7 Preparation Method: EPA 200.7									
Iron	0.27	mg/L	0.040	0.020	1	02/18/15 07:33	02/20/15 08:23	7439-89-6	
Sodium	192	mg/L	1.0	0.50	1	02/18/15 07:33	02/20/15 08:23	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Aluminum	0.025	mg/L	0.010	0.0058	1	02/18/15 07:33	02/23/15 13:20	7429-90-5	
Antimony	0.00050 U	mg/L	0.0010	0.00050	1	02/18/15 07:33	02/23/15 13:20	7440-36-0	
Arsenic	0.0021	mg/L	0.0010	0.00050	1	02/18/15 07:33	02/23/15 13:20	7440-38-2	
Barium	0.0091	mg/L	0.0010	0.00050	1	02/18/15 07:33	02/20/15 15:25	7440-39-3	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.

Date: 03/17/2015 04:32 PM





ANALYTICAL RESULTS

Project: Annual Reuse

Pace Project No.: 35175646

Sample: Composite Lab ID: 35175646001 Collected: 02/13/15 12:45 Received: 02/13/15 16:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Beryllium	0.000050 U	mg/L	0.00010	0.000050	1	02/18/15 07:33	02/23/15 13:20	7440-41-7	
Cadmium	0.000050 U	mg/L	0.00010	0.000050	1	02/18/15 07:33	02/23/15 13:20	7440-43-9	
Chromium	0.0013	mg/L	0.0010	0.00050	1	02/18/15 07:33	02/23/15 13:20	7440-47-3	
Copper	0.0046	mg/L	0.0010	0.00050	1	02/18/15 07:33	02/23/15 13:20	7440-50-8	
Lead	0.00075 I	mg/L	0.0010	0.00050	1	02/18/15 07:33	02/23/15 13:20	7439-92-1	
Manganese	0.024	mg/L	0.0010	0.00069	1	02/18/15 07:33	02/20/15 15:25	7439-96-5	
Nickel	0.0015	mg/L	0.0010	0.00062	1	02/18/15 07:33	02/23/15 13:20	7440-02-0	
Selenium	0.00050 U	mg/L	0.0010	0.00050	1	02/18/15 07:33	02/23/15 13:20	7782-49-2	
Silver	0.000050 U	mg/L	0.00010	0.000050	1	02/18/15 07:33	02/23/15 13:20	7440-22-4	
Thallium	0.00050 U	mg/L	0.0010	0.00050	1	02/18/15 07:33	02/23/15 13:20	7440-28-0	
Zinc	0.040	mg/L	0.0050	0.0025	1	02/18/15 07:33	02/23/15 13:20	7440-66-6	
245.1 Mercury									
Analytical Method: EPA 245.1 Preparation Method: EPA 245.1									
Mercury	0.00010 U	mg/L	0.00020	0.00010	1	02/19/15 10:40	02/20/15 13:23	7439-97-6	
524.2 MSV									
Analytical Method: EPA 524.2									
Benzene	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:12	71-43-2	
Bromodichloromethane	1.3	ug/L	1.0	0.25	1		02/18/15 13:12	75-27-4	
Bromoform	0.25 U	ug/L	1.0	0.25	1		02/18/15 13:12	75-25-2	
Carbon tetrachloride	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:12	56-23-5	
Chlorobenzene	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:12	108-90-7	
Chloroform	5.9	ug/L	1.0	0.25	1		02/18/15 13:12	67-66-3	
Dibromochloromethane	0.28 I	ug/L	1.0	0.25	1		02/18/15 13:12	124-48-1	
1,2-Dichlorobenzene	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:12	95-50-1	
1,4-Dichlorobenzene	0.49 I	ug/L	0.50	0.25	1		02/18/15 13:12	106-46-7	
1,2-Dichloroethane	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:12	107-06-2	
1,1-Dichloroethene	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:12	75-35-4	
cis-1,2-Dichloroethene	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:12	156-59-2	
trans-1,2-Dichloroethene	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:12	156-60-5	
1,2-Dichloropropane	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:12	78-87-5	
Ethylbenzene	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:12	100-41-4	
Methylene Chloride	0.44 U	ug/L	0.50	0.44	1		02/18/15 13:12	75-09-2	
Styrene	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:12	100-42-5	
Tetrachloroethene	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:12	127-18-4	
Toluene	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:12	108-88-3	
Total Trihalomethanes (Calc.)	7.5	ug/L	1.0	0.25	1		02/18/15 13:12		
1,2,4-Trichlorobenzene	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:12	120-82-1	
1,1,1-Trichloroethane	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:12	71-55-6	
1,1,2-Trichloroethane	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:12	79-00-5	
Trichloroethene	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:12	79-01-6	
Vinyl chloride	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:12	75-01-4	
Xylene (Total)	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:12	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-130		1		02/18/15 13:12	460-00-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, Inc.



ANALYTICAL RESULTS

Project: Annual Reuse
 Pace Project No.: 35175646

Sample: Composite Lab ID: 35175646001 Collected: 02/13/15 12:45 Received: 02/13/15 16:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
524.2 MSV									
Analytical Method: EPA 524.2									
Surrogates									
Toluene-d8 (S)	101	%	70-130		1		02/18/15 13:12	2037-26-5	
1,2-Dichloroethane-d4 (S)	98	%	70-130		1		02/18/15 13:12	17060-07-0	
2150B Threshold Odor Number									
Analytical Method: SM 2150B									
Temperature, Water (C)	39.8	deg C			1		02/13/15 18:15		
Threshold Odor Number	1.0	TON		1.0	1		02/13/15 18:15		N2
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Total Dissolved Solids	736	mg/L	10.0	10.0	1		02/20/15 14:57		
4500H+ pH, Electrometric									
Analytical Method: SM 4500-H+B									
Temperature, Water (C)	26.1	deg C	0.010	0.010	1		02/18/15 12:00		
pH at 25 Degrees C	7.5	Std. Units	0.10	0.10	1		02/18/15 12:00		Q
2120B True Color									
Analytical Method: SM 2120B									
True Color	35.0	units	5.0	5.0	1		02/14/15 11:25		
5540C MBAS Surfactants									
Analytical Method: SM 5540C									
LAS Molecular Weight, g/mol	320				1		02/14/15 10:41		
MBAS, Calculated as LAS	0.080 l	mg/L	0.20	0.059	1		02/14/15 10:41		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Chloride	274	mg/L	25.0	12.5	5		02/15/15 06:52	16887-00-6	
Fluoride	0.70	mg/L	0.25	0.17	5		02/15/15 06:52	16984-48-8	
Sulfate	53.9	mg/L	25.0	12.5	5		02/15/15 06:52	14808-79-8	
335.4 Cyanide, Total									
Analytical Method: EPA 335.4 Preparation Method: EPA 335.4									
Cyanide	0.0078 l	mg/L	0.010	0.0050	1	02/20/15 10:15	02/20/15 16:24	57-12-5	
351.2 Total Kjeldahl Nitrogen									
Analytical Method: EPA 351.2 Preparation Method: EPA 351.2									
Nitrogen, Kjeldahl, Total	19.9	mg/L	0.50	0.086	1	02/17/15 11:30	02/18/15 00:25	7727-37-9	
353.2 Nitrogen, NO2/NO3 unpres									
Analytical Method: EPA 353.2									
Nitrogen, Nitrate	0.30	mg/L	0.050	0.025	1		02/14/15 08:55		
Nitrogen, Nitrite	1.2	mg/L	0.050	0.025	1		02/14/15 08:55		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, Inc.



ANALYTICAL RESULTS

Project: Annual Reuse
 Pace Project No.: 35175646

Sample: Trip Blank Lab ID: 35175646002 Collected: 02/12/15 12:30 Received: 02/13/15 16:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
524.2 MSV									
Analytical Method: EPA 524.2									
Benzene	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:36	71-43-2	
Bromodichloromethane	0.25 U	ug/L	1.0	0.25	1		02/18/15 13:36	75-27-4	
Bromoform	0.25 U	ug/L	1.0	0.25	1		02/18/15 13:36	75-25-2	
Carbon tetrachloride	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:36	56-23-5	
Chlorobenzene	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:36	108-90-7	
Chloroform	0.25 U	ug/L	1.0	0.25	1		02/18/15 13:36	67-66-3	
Dibromochloromethane	0.25 U	ug/L	1.0	0.25	1		02/18/15 13:36	124-48-1	
1,2-Dichlorobenzene	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:36	95-50-1	
1,4-Dichlorobenzene	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:36	106-46-7	
1,2-Dichloroethane	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:36	107-06-2	
1,1-Dichloroethene	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:36	75-35-4	
cis-1,2-Dichloroethene	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:36	156-59-2	
trans-1,2-Dichloroethene	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:36	156-60-5	
1,2-Dichloropropane	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:36	78-87-5	
Ethylbenzene	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:36	100-41-4	
Methylene Chloride	0.44 U	ug/L	0.50	0.44	1		02/18/15 13:36	75-09-2	
Styrene	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:36	100-42-5	
Tetrachloroethene	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:36	127-18-4	
Toluene	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:36	108-88-3	
Total Trihalomethanes (Calc.)	0.25 U	ug/L	1.0	0.25	1		02/18/15 13:36		
1,2,4-Trichlorobenzene	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:36	120-82-1	
1,1,1-Trichloroethane	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:36	71-55-6	
1,1,2-Trichloroethane	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:36	79-00-5	
Trichloroethene	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:36	79-01-6	
Vinyl chloride	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:36	75-01-4	
Xylene (Total)	0.25 U	ug/L	0.50	0.25	1		02/18/15 13:36	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-130		1		02/18/15 13:36	460-00-4	
Toluene-d8 (S)	102	%	70-130		1		02/18/15 13:36	2037-26-5	
1,2-Dichloroethane-d4 (S)	99	%	70-130		1		02/18/15 13:36	17060-07-0	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, Inc.



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Annual Reuse
 Pace Project No.: 35175646

Sample: Composite Lab ID: 35175646001 Collected: 02/13/15 12:45 Received: 02/13/15 16:10 Matrix: Water
 PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0	2.99U ± 1.57 (2.99) C:NA T:NA	pCi/L	02/27/15 20:05	12587-46-1	
Radium-226	EPA 903.1	0.774U ± 0.475 (0.774) C:NA T:88%	pCi/L	03/02/15 10:15	13982-63-3	
Radium-228	EPA 904.0	0.878U ± 0.423 (0.878) C:85% T:64%	pCi/L	02/26/15 12:48	15262-20-1	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, Inc.



Pace Analytical Services, Inc.
3610 Park Central Blvd N
Pompano Beach, FL 33064
954-582-4300

ANALYTICAL RESULTS

Project: Annual Reuse

Pace Project No.: 35180834

Sample: 03241550 Lab ID: 35180834001 Collected: 03/24/15 09:50 Received: 03/24/15 23:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
365.4 Phosphorus, Total	Analytical Method: EPA 365.4 Preparation Method: EPA 365.4								
Phosphorus, Total (as P)	0.99	mg/L	0.10	0.050	1	03/25/15 11:20	03/25/15 18:08	7723-14-0	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.



QUALIFIERS

Project: Annual Reuse

Pace Project No.: 35175646

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
ND - Not Detected at or above adjusted reporting limit
MDL - Adjusted Method Detection Limit
PQL - Practical Quantitation Limit.
RL - Reporting Limit.
S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
NC - Not Calculable.
SG - Silica Gel - Clean-Up
U - Indicates the compound was analyzed for, but not detected.
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
Act - Activity
Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval)
Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)
(MDC) - Minimum Detectable Concentration
Trac - Tracer Recovery (%)
Carr - Carrier Recovery (%)
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes
TNI - The NELAC Institute.

LABORATORIES

PASI-O Pace Analytical Services - Ormond Beach
PASI-PA Pace Analytical Services - Greensburg
PASI-SF Pace Analytical Services - South Florida

SAMPLE QUALIFIERS

Sample: 35175646001

[1] Upon receipt at the laboratory, 7.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

ANALYTE QUALIFIERS

I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
U Compound was analyzed for but not detected
J(M1) Estimated Value. Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
L Off-scale high. Actual value is known to be greater than value given.
N2 The lab does not hold TNI accreditation for this parameter.
Q Sample held beyond the accepted holding time.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full
without the written consent of Pace Analytical Services, Inc.



WO#: 35175646



RECORD

note: _____

Page 1 of 2

Container Type Codes

AV	Amber Vial	ES	Environ Sampler
CV	Clear Vial	PPV	Prepreserved vial
P	Plastic	PL C	Plastic container
AL	Amber Litr	PL J	Plastic Jar
CL	Clear Litr	Z	Zinc bag
AP	Amber Plastic	TD	Teflon bag
AG	Amber Glass	WP	What pak
CJ	Seal Jar	C	Calort Jug
Other		TC	Terra-com
PPV	Prepreserved vial		

Size(s) 2oz, 4oz, 8oz, 16oz, 32oz or 1L, other
 48oz 500ml 250ml 125 ml
 Example: 4ozP = 4oz Plastic, 8ozZ = 8oz Seal Jar

Company Name: C. O. Pompano Beach PO#

Address: _____

City: Pompano Beach State: FL Zip: _____

Attn: Fran Orey Fax# _____

email: _____ Phone: 2-13-15 2 P

Project Name: Annual Wastewater Re-use 24 hr comp only

Sample Sign-off: Chris Hully Circle One Event: Daily Weekly Monthly Quarterly Semi-Annual Annual N/A

LAB ANALYSIS

Sample	TRC	pH	Pres Codes	Parameters	metals	color MBAS	ODOR	TDS, pH	NO ₂ , NO ₃ , SO ₄	F, Cl	CN	SO ₄ EDB	508.1	515.3
--------	-----	----	------------	------------	--------	------------	------	---------	---	-------	----	---------------------	-------	-------

Matrix Codes

SD	Solid Waste	OL	Oil
GW	Ground Water	SL	Sludge
EFF	Effluent	SO	Soil Sediment
AFW	Analyte Free H ₂ O	AO	Aqueous
WW	Waste Water	NA	Nonaqueous
DW	Drinking Water	PE	Petroleum
SW	Surface Water	O	Other
ML	Misc. Liquid		(Please specify)

Preservative Type Codes

A. None	E. HCL	I. Ice
B. HNO ₃	F. MeOH	J. MCAA
C. H ₂ SO ₄	G. Na ₂ S ₂ O ₃	K. Zn Acetate
D. NaOH	H. NaHSO ₄	O. Other

EXAMPLE Diss. Lead 6010

of Containers Size/Type 1 16ozP

Sample #	Sample ID	Collect Date	Collect Time	Matrix Code*	F&B Filtered	Integrity OK (Y/N)	Total # of Containers	Parameters	metals	color MBAS	ODOR	TDS, pH	NO ₂ , NO ₃ , SO ₄	F, Cl	CN	SO ₄ EDB	508.1	515.3	
1	Wastewater-Comp	2-13-15	1245	WW			10		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
2									<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
3									<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
4									<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
5									<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
6									<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
7									<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
8									<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
9									<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
10									<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				

REMARKS
 (3 prob)
 pH=7.57 temp=23.1 COND=792

FT=2^h
 TF=2^h

set-up-2-12-15-1245
 sample-2-13-15-1245
 7078

Circle T, A, F, H, Q, R, S, T (Mark from Appropriate)	Short Hold	Circle QA/QC Report Level	EDD (Fees May Apply)	COC Condition	Required State Certification
Y N Today 1D 2D 3D 4D 5D	Y N	1 2 3 4 CLP AFCEE QAPP Other	AD IPT SEDD ERPIMS TSV CSV Other	OK Incomplete	FL GA SC NC NJ PA LA TX IL

18 Coolers #'s - Temp °C
 1272 3 4 5

Item	Relinquished by	Affiliation	Date	Time	Received by	Affiliation	Date	Time
1	Chris Hully	PACE	2-13-15	16:10	W Melanina Pad	PACE	2/13/15	23:30
2								
3								
4								

Non-Contaminance Found?	ES	NO	ND
Samples INTACT upon arrival?	Y	N	
Received on Wet Ice?	Y	N	
Proper Preservatives Indicated?	Y	N	
Received within holding time?	Y	N	
Custody seals Intact?	Y	N	
Vials/Can rec'd without breakage?	Y	N	
Proper Containers Used?	Y	N	

Page 36 of 38



CHAIN OF CUSTODY RECORD

LAB W.O.# _____ Quote: _____ Page 2 of 2

Container Type Codes		
AV Amber Vial	ES	Encom Sample
CV Clear Vial	PPV	Prepreserved vial
P Plastic	PLC	Plastic container
AL Amber Litter	PLJ	Plastic Jar
CL Clear Litter	Z	Ziploc bag
AP Amber Plastic	TB	Tedlar bag
AG Amber Glass	WP	What pack
SJ Soil Jar	G	Gallon Jug
Other	TC	Tetra-can
PPV	Prepreserved vial	
Size(s): 2oz, 4oz, 8oz, 16oz, 32oz or 1L, other		
4oz = 50ml 2oz = 125 ml		
Example: 4ozP = 4oz Plastic, 8ozSJ = 8oz Soil Jar		

Company Name: C.O. Pompano PO# _____
 Address: _____
 City: Pompano Beach State: FL Zip: _____
 Attn: Fran Onzy Fax: _____
 email: _____ Phone: _____
 Project Name: Annual wastewater re-use 2-13-15 D.P. Proj # _____
 Sampler Signature: Doug Phillips Circle One Event: Daily Weekly Monthly Quarterly Semi-Annual Annual N/A

LAB ANALYSIS

Sample	TRC	pH	Pres. Codes	Parameters	534.2	VOC	G.A. rad	226/228	TKN
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									

Matrix Codes		
SD Solid Waste	DL	Dic
GW Ground Water	DL	Sludge
EFF Effluent	SO	Soil Sediment
AWW Analyte Free H2O	AO	Aqueous
WW Waste Water	NA	Nonsuspension
DW Drinking Water	PE	Permeate
SW Surface Water	O	Other (Specify Name)
ML Misc. Liquid		

Preservative Type Codes		
A. None	E. HCL	I. Ice
B. HNO3	F. MeOH	J. MCAA
C. H2SO4	G. Na2S2O3	K. Zn Acetate
D. NaOH	H. NaHSO4	O. Other

Sample #	Sample ID	Collect Date	Collect Time	Matrix Code	Field Filtered	Integrity OK(Y/N)	Total # of containers	Parameters	# of Containers Size/Type													
									1	2	3	4	5	6	7	8	9	10				
1	wastestream	2-13-15	1245	WV			5		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>										
2	trip Blank	2-10-15	1030	AWW			1		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3									<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4									<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5									<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6									<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7									<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8									<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9									<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10									<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

EXAMPLE Diss. Lead 6010

Item	Relinquished by	Affiliation	Date	Time	Received by	Affiliation	Date	Time
1	<u>Doug Phillips</u>	<u>PACE</u>	<u>2-13-15</u>	<u>1610</u>	<u>Wendy Moore</u>	<u>PACE</u>	<u>2/13/15</u>	<u>23:30</u>
2								
3								
4								

REMARKS	
T-187 Coolers #'s - Temp °C 122 3 4 5	
Non-Conformance Found? Samples INTACT upon arrival? Received on Wet Ice? Proper Preservatives Indicated? Received within holding time? Custody seals Intact? Vials/ies rec'd without headspace? Proper Containers Used?	



Utilities Laboratory

City of Pompano Beach, Florida

1205 NE 5th Ave., Pompano Beach, Florida 33060 | p: 954.545.7018 | f: 954.545.7046

April 9, 2014

Ms. Andrea Zavodska Gibbs
Environmental Protection Department/Wastewater Section
1 North University Drive – Suite 2010
Plantation, FL 33324

Re: 2014 Annual Reuse Plant Analysis Report – WWTP-2400-13

Dear Ms. Zavodska Gibbs:

I've enclosed the 2014 Annual Reuse Plant Analysis Report as required in License WWTP-2400-13. The samples were analyzed by Florida Spectrum Environmental Services, Ft. Lauderdale, FL, Certification E86006.

Please contact me at (954) 545-7018 if you need any additional information.

Respectfully,

Fran Oney
Laboratory Manager

Enclosure

C: Maria Loucraft, Utilities Compliance and Efficiency Manager
Phil Hyer, Utilities Water Plants Superintendent
James Clark, Water Plant Supervisor
Robert Moore, Operator II



Report To:
 Fran Oncy
 City of Pompano Beach
 1205 NE 5th Avenue
 Pompano Beach FL, 33060

Page 1 of 27
 Report Printed: 2/20/2014
 Work Order # 14A0906
 Project:
 Annual Reuse (Composite)

1799 N. Federal Hwy., Pompano Beach, FL
 33062

Lab ID: 14A0906-01
 Client Sample ID: 01291430
 Matrix: Water

Collection Date: 01/29/14 09:00
 Received Date: 01/29/14 15:55
 Collected By: G. Williams

Laboratory Analysis Report

Parameter	Result	QC	Units	Dil	MDL	PQL	Method	Date Est.	Date Analy.	Analyst
-----------	--------	----	-------	-----	-----	-----	--------	-----------	-------------	---------

Chlorinated Herbicides by EPA 515.3

2,4,5-TP (Silvex)	ND	U	ug/L	1	0.0410	0.123	EPA 515.3	02/03 10:19	02/03 20:33	AC
2,4-D	ND	U	ug/L	1	0.0830	0.249	EPA 515.3	02/03 10:19	02/03 20:33	AC
Dalapon	ND	U	ug/L	1	0.0900	0.270	EPA 515.3	02/03 10:19	02/03 20:33	AC
Dicamba	ND	U	ug/L	1	0.104	0.312	EPA 515.3	02/03 10:19	02/03 20:33	AC
Dinoseb	ND	U	ug/L	1	0.110	0.330	EPA 515.3	02/03 10:19	02/03 20:33	AC
Pentachlorophenol	ND	U	ug/L	1	0.0220	0.0660	EPA 515.3	02/03 10:19	02/03 20:33	AC
Picloram	ND	U	ug/L	1	0.0610	0.183	EPA 515.3	02/03 10:19	02/03 20:33	AC

Classical Chemistry Parameters

pH	7.04	Q	pH Units	1	0.100	0.300	SM4500 H+	01/30 10:00	01/30 10:00	ROL
----	------	---	----------	---	-------	-------	-----------	-------------	-------------	-----

Wet Chemistry

Chloride	302		mg/L	10	1.10	3.30	EPA 300.0	01/30 17:14	01/30 17:14	DGK
Fluoride	0.600	I	mg/L	10	0.420	1.26	EPA 300.0	01/30 17:14	01/30 17:14	DGK
MBAS	0.0930	I	mg/L	1	0.0603	0.181	SM5540C	01/30 09:00	01/30 09:00	DGK
Nitrate as N	2.40		mg/L	10	0.380	1.14	EPA 300.0	01/30 17:14	01/30 17:14	DGK
Phosphorus-Total	0.504		mg/L	1	0.0640	0.192	EPA 365.4	02/04 10:30	02/04 13:53	MSG
Sulfate	55.2		mg/L	10	1.07	3.21	EPA 300.0	01/30 17:14	01/30 17:14	DGK
Total Dissolved Solids	740		mg/L	1	10.0	30.0	TDS SM 2540C	01/31 13:50	02/03 14:50	MCZ
Total Kjeldahl Nitrogen	14.2		mg/L	1	0.0700	0.210	EPA 351.2	02/04 10:30	02/04 13:53	MSG

EDB and DBCP by EPA Method 504.1

Florida-Spectrum Environmental Services, Inc.
 1460 W. McNab Road, Fort Lauderdale, FL 33309

Pembroke Laboratory
 528 Gooch Rd.
 Fort Mead, FL 33841

Big Lake Laboratory
 610 Parrot Ave. N.
 Okeechobee, FL 34972

Spectrum Laboratories
 630 Indian St.
 Savannah, GA 31401



Report To:
 Fran Oney
 City of Pompano Beach
 1205 NE 5th Avenue
 Pompano Beach FL, 33060

Page 2 of 27
 Report Printed: 2/20/2014
 Work Order # 14A0906
 Project:
 Annual Reuse (Composite)

1799 N. Federal Hwy., Pompano Beach, FL
 33062

Lab ID: 14A0906-01
 Client Sample ID: 01291430
 Matrix: Water

Collection Date: 01/29/14 09:00
 Received Date: 01/29/14 15:55
 Collected By: G. Williams

Laboratory Analysis Report

Parameter	Result	QC	Units	Dil	MDL	PQL	Method	Date Ext.	Date Analy.	Analyst
-----------	--------	----	-------	-----	-----	-----	--------	-----------	-------------	---------

EDB and DBCP by EPA Method 504.1

1,2-Dibromo-3-chloropropane	ND	U	ug/L	1	0.00600	0.0180	EPA 504.1	02/03 10:51	02/03 15:38	AC
1,2-Dibromoethane	ND	U	ug/L	1	0.00600	0.0180	EPA 504.1	02/03 10:51	02/03 15:38	AC

Metals (Drinking Water) by EPA 200 Series Methods

Arsenic	0.00239		mg/L	1	0.000160	0.000480	EPA 200.8	01/31 09:00	01/31 16:17	IN
Barium	0.00667		mg/L	1	0.0000600	0.000180	EPA 200.8	01/31 09:00	01/31 16:17	IN
Copper	0.00327		mg/L	1	0.000170	0.000510	EPA 200.8	01/31 09:00	01/31 16:17	IN
Lead	0.000420		mg/L	1	0.0000600	0.000180	EPA 200.8	01/31 09:00	01/31 16:17	IN
Manganese	0.0224		mg/L	1	0.000130	0.000390	EPA 200.8	01/31 09:00	01/31 16:17	IN
Selenium	ND	U	mg/L	1	0.000410	0.00123	EPA 200.8	01/31 09:00	01/31 16:17	IN
Silver	ND	U	mg/L	1	0.0000100	0.0000300	EPA 200.8	01/31 09:00	01/31 16:17	IN
Zinc	0.0374		mg/L	1	0.000200	0.000600	EPA 200.8	01/31 09:00	01/31 16:17	IN

Total Recoverable Metals by EPA 200 Series Methods

Cadmium	ND	U	mg/L	1	0.0000400	0.000120	EPA 200.7	01/30 11:00	01/30 13:53	MAZ
Chromium	ND	U	mg/L	1	0.000800	0.00240	EPA 200.7	01/30 11:00	01/30 13:53	MAZ
Iron	0.223		mg/L	1	0.000800	0.00240	EPA 200.7	01/30 11:00	01/30 13:53	MAZ
Mercury	ND	U	mg/L	1	0.0000630	0.000190	EPA 245.1	01/30 10:00	01/30 13:23	EN
Sodium	191		mg/L	1	0.0028	0.0084	EPA 200.7	01/30 11:00	01/30 13:53	MAZ

Organochlorine Pesticides & PCBs by EPA 508

Aldrin	ND	U	ug/L	1	0.0110	0.0330	EPA 508	02/03 09:47	02/04 19:30	JR
Aroclor-1016	ND	U	ug/L	1	0.0520	0.156	EPA 508	02/03 09:47	02/04 19:30	JR

Florida-Spectrum Environmental Services, Inc.
 1460 W. McNab Road, Fort Lauderdale, FL 33309

Pembroke Laboratory
 528 Gooch Rd.
 Fort Mead, FL 33841

Big Lake Laboratory
 610 Parrot Ave. N.
 Okeechobee, FL 34972

Spectrum Laboratories
 630 Indian St.
 Savannah, GA 31401



Report To:
 Fran Oney
 City of Pompano Beach
 1205 NE 5th Avenue
 Pompano Beach FL, 33060

Page 3 of 27
 Report Printed: 2/20/2014
 Work Order # 14A0906
 Project:
 Annual Reuse (Composite)

1799 N. Federal Hwy., Pompano Beach, FL
 33062

Lab ID: 14A0906-01
 Client Sample ID: 01291430
 Matrix: Water

Collection Date: 01/29/14 09:00
 Received Date: 01/29/14 15:55
 Collected By: G. Williams

Laboratory Analysis Report

Parameter	Result	QC	Units	Dil	MDL	PQL	Method	Date Ext.	Date Analy.	Analyst
-----------	--------	----	-------	-----	-----	-----	--------	-----------	-------------	---------

Organochlorine Pesticides & PCBs by EPA 508

Aroclor-1221	ND	U	ug/L	1	0.0210	0.0630	EPA 508	02/03 09:47	02/04 19:30	JR
Aroclor-1232	ND	U	ug/L	1	0.0250	0.0750	EPA 508	02/03 09:47	02/04 19:30	JR
Aroclor-1242	ND	U	ug/L	1	0.0190	0.0570	EPA 508	02/03 09:47	02/04 19:30	JR
Aroclor-1248	ND	U	ug/L	1	0.0340	0.102	EPA 508	02/03 09:47	02/04 19:30	JR
Aroclor-1254	ND	U	ug/L	1	0.0240	0.0720	EPA 508	02/03 09:47	02/04 19:30	JR
Aroclor-1260	ND	U	ug/L	1	0.0270	0.0810	EPA 508	02/03 09:47	02/04 19:30	JR
Chlordane	ND	U	ug/L	1	0.0130	0.0390	EPA 508	02/03 09:47	02/04 19:30	JR
Dieldrin	ND	U	ug/L	1	0.0110	0.0330	EPA 508	02/03 09:47	02/04 19:30	JR
Endrin	ND	U	ug/L	1	0.0101	0.0303	EPA 508	02/03 09:47	02/04 19:30	JR
gamma-BHC (Lindane)	0.126		ug/L	1	0.0119	0.0357	EPA 508	02/03 09:47	02/04 19:30	JR
Heptachlor	ND	U	ug/L	1	0.0125	0.0375	EPA 508	02/03 09:47	02/04 19:30	JR
Heptachlor epoxide	ND	U	ug/L	1	0.0108	0.0324	EPA 508	02/03 09:47	02/04 19:30	JR
Hexachlorobenzene	ND	U	ug/L	1	0.00910	0.0270	EPA 508	02/03 09:47	02/04 19:30	JR
Hexachlorocyclopentadiene	ND	U	ug/L	1	0.0100	0.0300	EPA 508	02/03 09:47	02/04 19:30	JR
Methoxychlor	ND	U	ug/L	1	0.0132	0.0396	EPA 508	02/03 09:47	02/04 19:30	JR
PCBs	ND	U	ug/L	1	0.0520	0.156	EPA 508	02/03 09:47	02/04 19:30	JR
Propachlor	ND	U	ug/L	1	0.0120	0.0360	EPA 508	02/03 09:47	02/04 19:30	JR
Toxaphene	ND	U	ug/L	1	0.210	0.630	EPA 508	02/03 09:47	02/04 19:30	JR

Purgeable Organic Compounds by EPA Method 524.2

1,1,1,2-Tetrachloroethane	ND	U	ug/L	1	0.0467	0.140	EPA 524.2	02/04 12:19	02/04 18:43	BBL
1,1,1-Trichloroethane	ND	U	ug/L	1	0.0823	0.247	EPA 524.2	02/04 12:19	02/04 18:43	BBL

Florida-Spectrum Environmental Services, Inc.
 1460 W. McNab Road, Fort Lauderdale, FL 33309

Pembroke Laboratory
 528 Gooch Rd.
 Fort Mead, FL 33841

Big Lake Laboratory
 610 Parrot Ave. N.
 Okcechobee, FL 34972

Spectrum Laboratories
 630 Indian St.
 Savannah, GA 31401



Report To:
 Fran Oney
 City of Pompano Beach
 1205 NE 5th Avenue
 Pompano Beach FL, 33060

Page 4 of 27
 Report Printed: 2/20/2014
 Work Order # 14A0906
 Project:
 Annual Reuse (Composite)

1799 N. Federal Hwy., Pompano Beach, FL
 33062

Lab ID: 14A0906-01
 Client Sample ID: 01291430
 Matrix: Water

Collection Date: 01/29/14 09:00
 Received Date: 01/29/14 15:55
 Collected By: G. Williams

Laboratory Analysis Report

Parameter	Result	QC	Units	Dil	MDL	PQL	Method	Date Ext.	Date Analy.	Analyst
Purgeable Organic Compounds by EPA Method 524.2										
1,1,2,2-Tetrachloroethane	ND	U	ug/L	1	0.0669	0.201	EPA 524.2	02/04 12:19	02/04 18:43	BBL
1,1,2-Trichloroethane	ND	U	ug/L	1	0.0788	0.236	EPA 524.2	02/04 12:19	02/04 18:43	BBL
1,1-Dichloroethane	ND	U	ug/L	1	0.0770	0.231	EPA 524.2	02/04 12:19	02/04 18:43	BBL
1,1-Dichloroethylene	ND	U	ug/L	1	0.107	0.320	EPA 524.2	02/04 12:19	02/04 18:43	BBL
1,1-Dichloropropene	ND	U	ug/L	1	0.0759	0.228	EPA 524.2	02/04 12:19	02/04 18:43	BBL
1,2,3-Trichloropropane	ND	U	ug/L	1	0.110	0.329	EPA 524.2	02/04 12:19	02/04 18:43	BBL
1,2,4-Trichlorobenzene	ND	U	ug/L	1	0.177	0.532	EPA 524.2	02/04 12:19	02/04 18:43	BBL
1,2-Dibromo-3-chloropropane	ND	U	ug/L	1	0.154	0.463	EPA 524.2	02/04 12:19	02/04 18:43	BBL
1,2-Dichlorobenzene	ND	U	ug/L	1	0.0835	0.251	EPA 524.2	02/04 12:19	02/04 18:43	BBL
1,2-Dichloroethane	ND	U	ug/L	1	0.0644	0.193	EPA 524.2	02/04 12:19	02/04 18:43	BBL
1,2-Dichloropropane	ND	U	ug/L	1	0.0575	0.172	EPA 524.2	02/04 12:19	02/04 18:43	BBL
1,3-Dichlorobenzene	ND	U	ug/L	1	0.0778	0.233	EPA 524.2	02/04 12:19	02/04 18:43	BBL
1,3-Dichloropropane	ND	U	ug/L	1	0.0759	0.228	EPA 524.2	02/04 12:19	02/04 18:43	BBL
1,4-Dichlorobenzene	0.270		ug/L	1	0.0229	0.0687	EPA 524.2	02/04 12:19	02/04 18:43	BBL
2,2-Dichloropropane	ND	U	ug/L	1	0.130	0.390	EPA 524.2	02/04 12:19	02/04 18:43	BBL
2-Chlorotoluene	ND	U	ug/L	1	0.0516	0.155	EPA 524.2	02/04 12:19	02/04 18:43	BBL
4-Chlorotoluene	ND	U	ug/L	1	0.0592	0.178	EPA 524.2	02/04 12:19	02/04 18:43	BBL
Benzene	ND	U	ug/L	1	0.0616	0.185	EPA 524.2	02/04 12:19	02/04 18:43	BBL
Bromobenzene	ND	U	ug/L	1	0.0803	0.241	EPA 524.2	02/04 12:19	02/04 18:43	BBL
Bromodichloromethane	5.96		ug/L	1	0.0835	0.251	EPA 524.2	02/04 12:19	02/04 18:43	BBL
Bromoform	1.22		ug/L	1	0.190	0.570	EPA 524.2	02/04 12:19	02/04 18:43	BBL

Florida-Spectrum Environmental Services, Inc.
 1460 W. McNab Road, Fort Lauderdale, FL 33309

Pembroke Laboratory
 528 Gooch Rd.
 Fort Mead, FL 33841

Big Lake Laboratory
 610 Parrot Ave. N.
 Okeechobee, FL 34972

Spectrum Laboratories
 630 Indian St.
 Savannah, GA 31401



Report To:
 Fran Oney
 City of Pompano Beach
 1205 NE 5th Avenue
 Pompano Beach FL, 33060

Page 5 of 27
 Report Printed: 2/20/2014
 Work Order # 14A0906
 Project:
 Annual Reuse (Composite)

1799 N. Federal Hwy., Pompano Beach, FL
 33062

Lab ID: 14A0906-01
 Client Sample ID: 01291430
 Matrix: Water

Collection Date: 01/29/14 09:00
 Received Date: 01/29/14 15:55
 Collected By: G. Williams

Laboratory Analysis Report

Parameter	Result	QC	Units	Dil	MDL	PQL	Method	Date Ext.	Date Analy.	Analyst
Purgeable Organic Compounds by EPA Method 524.2										
Bromomethane	ND	U	ug/L	1	0.180	0.540	EPA 524.2	02/04 12:19	02/04 18:43	BBL
Carbon Tetrachloride	ND	U	ug/L	1	0.0660	0.198	EPA 524.2	02/04 12:19	02/04 18:43	BBL
Chlorobenzene	ND	U	ug/L	1	0.0796	0.239	EPA 524.2	02/04 12:19	02/04 18:43	BBL
Chloroethane	ND	U	ug/L	1	0.118	0.355	EPA 524.2	02/04 12:19	02/04 18:43	BBL
Chloroform	7.37		ug/L	1	0.110	0.330	EPA 524.2	02/04 12:19	02/04 18:43	BBL
Chloromethane	ND	U	ug/L	1	0.112	0.336	EPA 524.2	02/04 12:19	02/04 18:43	BBL
cis-1,2-Dichloroethene	ND	U	ug/L	1	0.0751	0.225	EPA 524.2	02/04 12:19	02/04 18:43	BBL
cis-1,3-Dichloropropene	ND	U	ug/L	1	0.0467	0.140	EPA 524.2	02/04 12:19	02/04 18:43	BBL
Dibromochloromethane	3.95		ug/L	1	0.124	0.373	EPA 524.2	02/04 12:19	02/04 18:43	BBL
Dibromomethane	ND	U	ug/L	1	0.142	0.427	EPA 524.2	02/04 12:19	02/04 18:43	BBL
Dichlorodifluoromethane	ND	U	ug/L	1	0.103	0.310	EPA 524.2	02/04 12:19	02/04 18:43	BBL
Ethyl Benzene	ND	U	ug/L	1	0.0516	0.155	EPA 524.2	02/04 12:19	02/04 18:43	BBL
Methylene Chloride	ND	U	ug/L	1	0.380	1.14	EPA 524.2	02/04 12:19	02/04 18:43	BBL
Methyl-tert-butyl ether	ND	U	ug/L	1	0.0527	0.158	EPA 524.2	02/04 12:19	02/04 18:43	BBL
Styrene	ND	U	ug/L	1	0.0284	0.0852	EPA 524.2	02/04 12:19	02/04 18:43	BBL
Tetrachloroethene	ND	U	ug/L	1	0.0946	0.284	EPA 524.2	02/04 12:19	02/04 18:43	BBL
Toluene	ND	U	ug/L	1	0.0475	0.143	EPA 524.2	02/04 12:19	02/04 18:43	BBL
trans-1,2-Dichloroethene	ND	U	ug/L	1	0.0946	0.284	EPA 524.2	02/04 12:19	02/04 18:43	BBL
trans-1,3-Dichloropropene	ND	U	ug/L	1	0.0730	0.219	EPA 524.2	02/04 12:19	02/04 18:43	BBL
Trichloroethene	ND	U	ug/L	1	0.151	0.452	EPA 524.2	02/04 12:19	02/04 18:43	BBL
Trichlorofluoromethane	ND	U	ug/L	1	0.0741	0.222	EPA 524.2	02/04 12:19	02/04 18:43	BBL

Florida-Spectrum Environmental Services, Inc.
 1460 W. McNab Road, Fort Lauderdale, FL 33309

Pembroke Laboratory
 528 Gooch Rd.
 Fort Mead, FL 33841

Big Lake Laboratory
 610 Parrot Ave. N.
 Okeechobee, FL 34972

Spectrum Laboratories
 630 Indian St.
 Savannah, GA 31401



Report To:
 Fran Oney
 City of Pompano Beach
 1205 NE 5th Avenue
 Pompano Beach FL, 33060

Page 6 of 27
 Report Printed: 2/20/2014
 Work Order # 14A0906
 Project:
 Annual Reuse (Composite)

1799 N. Federal Hwy., Pompano Beach, FL
 33062

Lab ID: 14A0906-01
 Client Sample ID: 01291430
 Matrix: Water

Collection Date: 01/29/14 09:00
 Received Date: 01/29/14 15:55
 Collected By: G. Williams

Laboratory Analysis Report

Parameter	Result	QC	Units	Dil	MDL	PQL	Method	Date Ext.	Date Analy.	Analyst
-----------	--------	----	-------	-----	-----	-----	--------	-----------	-------------	---------

Purgeable Organic Compounds by EPA Method 524.2

Vinyl chloride	ND	U	ug/L	1	0.0971	0.291	EPA 524.2	02/04 12:19	02/04 18:43	BBL
Xylenes, total	ND	U	ug/L	1	0.0759	0.228	EPA 524.2	02/04 12:19	02/04 18:43	BBL

Subcontracted Analyses

Gross Alpha	2.3U±1.3	U	pCi/L	1	2.30	6.90	EPA 900.0	02/06 06:16	02/07 13:34	SUB
Radium-226	0.2±0.1		pCi/L	1	0.200	0.600	EPA 903.1	02/04 08:48	02/11 10:54	SUB
Radium-228	1.0U±0.6	U	pCi/L	1	1.00	3.00	EPA Ra-05	02/04 08:48	02/11 13:13	SUB

Trihalomethanes by EPA Method 524.2

Bromodichloromethane	5.96		ug/L	1	0.08	0.24	EPA 524.2	02/04 12:19	02/04 18:43	BBL
Bromoform	1.22		ug/L	1	0.19	0.57	EPA 524.2	02/04 12:19	02/04 18:43	BBL
Chloroform	7.37		ug/L	1	0.11	0.33	EPA 524.2	02/04 12:19	02/04 18:43	BBL
Dibromochloromethane	3.95		ug/L	1	0.12	0.36	EPA 524.2	02/04 12:19	02/04 18:43	BBL
Total Trihalomethanes	18.5		ug/L	1			EPA 524.2	02/04 12:19	02/04 18:43	BBL

Florida-Spectrum Environmental Services, Inc.
 1460 W. McNab Road, Fort Lauderdale, FL 33309

Pembroke Laboratory
 528 Gooch Rd.
 Fort Mead, FL 33841

Big Lake Laboratory
 610 Parrot Ave. N.
 Okeechobee, FL 34972

Spectrum Laboratories
 630 Indian St.
 Savannah, GA 31401

SUBMISSION #
 1410906
 Logged in LIMS by
 CSNI assigned



CHAIN OF CUSTODY RECORD

1460 W. McNab Road Ft Laud. FL 33309 Tel: (954) 978-6400 Fax: (954) 978-2233
 630 Indian Street Savannah, GA 31401 Tel: (912) 238-5050 Fax: (912) 234-4815
 528 Gooch Road Fort Meade, FL 33841 Tel: (863) 285-8145 Fax: (863) 285-7030
 610 Parrot Ave. N, Okeechobee, FL 34972 Tel: (863) 763-3336 Fax: (863) 763-1544

DUE DATE Requested

RUSH RESERVATION #

Rush Surcharges apply

Report to: (company name) City of Pompano Beach **Report to Address:** 1205 NE 5th AVE
Invoice to: (company name) **Purchase Order #** **Invoice to Address:** 1205 NE 5th AVE
Project Name and/or Number: Annual Reuse (comps) **Site Location:** 1799 N Federal Hwy
Project Contact: Fran Oney **Phone:** 954-545-7018 **Fax:** **Email:**
Sampler Name: (printed) G. Williams **Affiliation:** COPB **Sampler Signature:** *[Signature]*

Lab Control Number	Sample ID	Date Sampled	Time Sampled	Matrix	Bottle & Pres.	Number of Containers Received & NELAC Letter Suffixes	Analysis Required							Field Tests				
							DW	SW	GW	WW	S	SED	HW	BIO	SEA	OIL	X	AIR
1	01291430	1-29-14	0900	EFF			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	7.24	9.34
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

24 HR SHORT HOLD

Special Comments:

I waive TNI protocol (emergency) (sign here) >

Deliverables: **QA/QC Report Needed?** Yes No (additional charge)

Sample Custody Bottle Type Additional Preservatives
 Sample Date Time Matrix Bottle & Pres. Number of Containers Received & NELAC Letter Suffixes
 Sample Date Time Matrix Bottle & Pres. Number of Containers Received & NELAC Letter Suffixes

	Signature	Affiliation	Date/Time
1	Relinquished by: <i>[Signature]</i>	COPB	1/29/14 13:13
1	Received by: <i>[Signature]</i>	FSES	1/29/14 13:13
2	Relinquished by: <i>[Signature]</i>	FSES	1/29/14 15:55
2	Received by: <i>[Signature]</i>	FSES	1/29/14 15:55
3	Relinquished by:		
3	Received by:		

www.flenviro.com COC Page 1 of 2

SUBMISSION #
144090

Florida Occitum

CHAIN OF CUSTODY RECORD

1460 W. McNab Road Ft Laud. FL 33309 Tel: (954) 978-6400 Fax: (954) 978-2233
 630 Indian Street Savannah, GA 31401 Tel: (912) 238-5050 Fax: (912) 234-4815
 528 Gooch Road Fort Meade, FL 33841 Tel: (863) 285-8145 Fax: (863) 285-7030
 610 Parrot Ave. N, Okeechobee, FL 34972 Tel: (863) 763-3336 Fax: (863) 763-1544

DUE DATE Requested

RUSH RESERVATION #

Rush Surcharges apply

Original Return w/ report Yellow Lab Site Copy Pink Sampler Copy

Report to: (company name) City of Pompano Beach

Report to Address: See page 1

Invoice to: (company name) City of Pompano Beach

Invoice to Address: See page 1

Project Name and/or Number

Project Contact: FRAN ONEY **Phone:** 954-545-7018 **Site Location:**

Sampler Name: (printed) G. Williams **Affiliation:** COPB **Sampler Signature:**

ORDB# Lab Count Number	Sample ID	Date Sampled	Time Sampled	Matrix	Bottle & Pres Combo Codes	Number of Containers Received & NELAC Letter Suffixes # A-?	Analysis Required				Field Tests							
							T	P	C	C	H	ON	D	OLOR				
1	01291430	1-29-14	0900	EFF														
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

Special Comments:

"I waive TNI protocol" (emergency) (sign here) >

Deliverables: **QA/QC Report Needed?** Yes No (additional charge)

Signature: **Affiliation:** **Date/Time:**

1 Relinquished by: FRAN ONEY COPB 1/29/14 1313

1 Received by: [Signature] FSES 1/29/14 1313

2 Relinquished by: [Signature] FSES 1/29/14 15:55

2 Received by: [Signature] FSES 1/29/14 15:55

3 Relinquished by: [Signature] FSES 1/29/14 0:55

3 Received by: _____

Sample Custody & Field Comments:

Matrix: DW, SW, GW, WW, S, SED, HW, BIO, SEA, OIL, X, AIR

Preservatives: A-ascorbic acid, B-HCl, C-GlucSAO4, D-DE water, E-HNO3, M-MGAB, MeOH-Methanol, Z-zinc acetate

Additional Preservatives: H-H3PO4, I-H2SO4, J-Na2S2O3, L-Unpreserved, N-NaOH, NH4-NH4Cl

Page 29 of 29