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May 13, 2019

U. S. Environmental Protection Agency, Region 1
5 Post Office Square, Suite 100
Mail code OES04-04
Boston, Massachusetts 02109-3912
Attn: Neil Handler

Massachusetts D.E.P., CERO
8 New Bond Street
Worcester, MA 01606
Attn: David Boyer, P.E.

Subject: Transmittal Letter; Consent Decree, Remedial Measures
Part C. Wastewater Management Plan, Submission No. 1

Dear Mr. Handler and Mr. Boyer,

Due to electronic file sizes, please find the files sharing link to the City's preliminary submission of the Consent Decree required "***Wastewater Management Plan (WWMP)***":

https://sharefile.wseinc.com/message/UHqFLMEoYFilhsMOpOA8UA

This submission is the first of three submissions of the WWMP, intended to bring the City into compliance with the Federal Clean Water Act, the City's NPDES Permit (No. MA0100986), and the Massachusetts Clean Waters Act. Included within this submission, as an appendix to the WWMP ("***Appendix D***") is the City's "***CSO Long-Term Control Plan***". The significance of the inclusion of the "***CSO Long-Term Control Plan***" in the WWMP aligns with the City's determination that the most adversely impactful existing condition relative to the purpose and interests of the Clean Water Act is the combined sewers and combined sewer outfalls, and to a lesser extent the combination manholes. Accordingly, the City is committing to prioritizing the separation of combined sewers and combination manholes in the City's collection system.

During the negotiation phase of the Consent Decree (prior to June 1, 2012), the City was preparing and making meaningful advances toward the end goals of the Consent Decree. Within the negotiation phase of the Consent Decree time period, the City:

- Completed it's first large Combined Sewer Separation Project ("***CSS 1, 2, 3***");
- Completed it's first of three capital improvement projects defined in "*POTW Optimization Study*", the "***Chemically Enhanced Primary Treatment (CEPT) Project***";
- Designed, bid, awarded and initiated construction on the City's second large Combined Sewer Separation Project ("***CSS 2B, 3C and CSO 038 Modifications Project***");
- Contracted a multi-year engineering services agreement, in order to continue advances on the numerous anticipated Remedial Measures requirements to be incorporated into the Consent Decree, including:
    - the City's third large Combined Sewer Separation Project (the "***CSS 4D Project***");
    - the City's second of three capital improvement projects defined in "*POTW Optimization Study*", the "***Secondary Systems Upgrades (SSU) Project***";

- the City's "***Hydraulic Model Update***" and the "***Hydraulic Capacity Assessment***";
- the multi-phased "***Sewer System Evaluation Survey (SSES)***" in order to identify and eliminate sources of excessive infiltration & inflow.

Since the execution of the Consent Decree (June 1, 2012), the City:

- Has completed it's "***CSS 2B, 3C and CSO 038 Modifications Project***";
- Has completed it's "***CSS 4D Project***";
- Has designed, bid, and completed construction of it's fourth combined sewer separation project (the "***Beech and Hazel Streets Sewer Separation Project***");
- Is nearing completion of it's SSU Project at the Easterly Wastewater Treatment Plant;
- Has contracted a second multi-year engineering services agreement, in order to continue advances on the numerous anticipated Remedial Measures requirements within the Consent Decree, including (but not limited to):
  - Contracting for design of the City's fifth combined sewer separation project ("***CSO 039, 048, and Clarendon Street Sewer Separation Projec***t");
  - Soliciting design services proposal for permanent closures of Combination Manholes, and issuing a "notice to proceed" to the designer for the services;
  - Contracting for services associated with the City's first submission of the "***Wastewater Management Plan***";
  - Contracting for services associated with development and preparation of a "***CSOs Long-Term Control Plan***" for the City.

The beneficial advances made by the City, in both the collection system and at the POTW, have been marked and noticeable. The treatment plant has performed at a high level, when not adversely affected by flow spikes attributable to wet weather.

Based on benefits gained and lessons learned within in the first seven years of Consent Decree systems improvements, and from improvements implemented in the preceding years leading up to the execution of the Consent Decree, and to maximize the environmental benefits of the City's expenditures, the City's primary focus going forward for the next 10-years planning period, will be to:

1. Continue combined sewer separations work (pursuing the reduction of CSO occurrences and CSOs volume discharges; and the reduction of non-sewerage influent flow to the POTW, and the incidences of secondary treatment bypasses);
2. Continue combination manhole permanent separations:
   a. Seventeen (17) combination manholes will be permanently separated as a part of the "***CSO 039, 048 and Clarendon Street Project***".
   b. On May 3, 2019, the City executed a "notice to proceed" to design engineer, to commence the designer services for the permanent separation of up to one hundred fifty (150) combined sewer manholes. The anticipated schedule for completion of bidding documents preparation is December 31, 2019.
3. Continue SSES work, to eliminate sources of excessive infiltration and inflow from the collection system.

Sincerely,

FITCHBURG DPW, WASTEWATER DIVISION

Jeffrey A. Murawski, P.E.
Fitchburg DPW Deputy Commissioner of Wastewater

Electronic copy:	Chief, Environmental Enforcement Section, DOJ
(Transmittal letter only)	Susan M. Poswistilo, Assistant U.S. Attorney
	Michael Wagner, U.S.E.P.A.
	Louis Dundin, Assistant Attorney General, Massachusetts AG
	Vincent Pusateri, II, Fitchburg City Solicitor
Electronic copy:	Lenny R. Laakso, P.E., Fitchburg Commissioner of Public Works
	Anthony W. Maressa, P.E., Sewer System Manager

"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."

Jeffrey A. Murawski

Jeffrey A. Murawski, P.E., DPW Deputy Commissioner Wastewater

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REPORT

May 2019

CITY OF
Fitchburg
MASSACHUSETTS

Wastewater Management Plan

TABLE OF CONTENTS

Page

LIST OF FIGURES

LIST OF APPENDICES

\\wse03.local\WSE\Projects\MA\Fitchburg MA\2170514 Wastewater On-Call Assistance\WMP\Wastewater Management Plan.docx

1.0 INTRODUCTION

Fitchburg, Massachusetts is located approximately 50 miles northwest of Boston and has a population of over 40,000 residents. The City operates a 142-mile wastewater collection system that consists of approximately 131 miles of sanitary sewers, 8.4 miles of combined sewers, 2.5 miles of force mains, and three (3) publicly owned pump stations. Wastewater in the City is treated at the Easterly Wastewater Treatment Facility (EWWTF), where the effluent is discharged to the North Nashua River. A map of the sewer system is provided in Figure 1. The combined system contains 11 regulator manholes that discharge combined sewage (combined wastewater and stormwater) to the North Nashua River, Punch Brook, Birch Brook, and Falulah Canal. Discharges to waterbodies are regulated through the City's National Pollutant Discharge Elimination System (NPDES) Permit. The NPDES permit can be found in Appendix A.

1.1 Consent Decree

In 2012, a Consent Decree (CD) was issued to the City of Fitchburg by the Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) as a result of the City failing to meet the discharge requirements outlined in their 2010 NPDES Permit. The CD requires the City to perform remedial measures necessary to achieve compliance with all applicable regulatory documents, including the Clean Water Act (CWA), the Massachusetts Act, the NPDES Permit, and state and federal regulations. The CD can be found in Appendix B.

The CD required the following tasks to be completed (*United States, Commonwealth of Massachusetts v. City of Fitchburg*, 2012):

- Sewer System Operation and Maintenance Submittal
- Long-Term Sewer System Preventative Maintenance Plan
- Assessment of Sewer System Maintenance Staff, Equipment, and Spare Parts Inventories
- Management, Operations, and Maintenance (MOM) Corrective Action Plan
- Priority Cleaning Plan Submittal
- Routine Cleaning Plan Submittal
- Annual GIS Mapping Updates
- Combination Manholes NPDES Permit Compliance
- Intermittent and Continuous Stream Connection Report
- Sanitary Sewer Evaluation Survey (SSES) Scope of Work and Investigation
- Annual Inspection Certification of Combined Sewer Overflow (CSO) Outfalls
- Annual CSO Monitoring Reports
- Annual Itemized List of Weir Adjustments
- CSO Dry Weather Overflow Notifications
- Regulator 023 Closure Notification and CSO Separation Projects 2B, 3C, and 4D
- Post Construction Monitoring Plan and Report for CSO Separation Projects 2B, 3C, and 4D
- Emergency Response Plan Submittal
- Hydraulic Model and Capacity Assessment
- Wastewater Treatment Facility Phosphorus Upgrades
- *POTW Optimization Report for the Easterly Wastewater Treatment Facility* Upgrades
- Wastewater Management Plan (WMP)
- Illicit Discharge Detection and Elimination (IDDE) Report

- Falulah Brook Bank Stabilization Supplemental Environmental Project
- Sanitary Sewer Overflow (SSO)/Dry Weather Overflow Notifications and Reporting
- Semi-Annual Compliance Reports

1.2 Wastewater Management Plan

The CD requires the City to develop a WMP that embodies all projects previously completed under the CD. The plan is set forth to bring the City into compliance with the NPDES Permit and other regulatory documents. The original submittal for the WMP was July 1, 2018. However, due to delays in submittals for the Hydraulic Model and Capacity Assessment, a formal extension request was filed by the City on May 22, 2018. The extension request extended the deadline to March 31, 2019. An additional request was submitted on March 29, 2019, extending the deadline to April 30, 2019.

1.2.1 Wastewater Management Plan Requirements

The WMP is required to address the following items under the CD (*United States, Commonwealth of Massachusetts v. City of Fitchburg*, 2012):

- An itemized schedule of construction of facilities needed to meet a seasonal phosphorus concentration limit of 0.2 mg/L and a seasonal total phosphorus mass-based limit of 20.7 lb./day.
- An itemized schedule for investigation, rehabilitation, and construction work required for the collection system to meet the CSO conditions in the NPDES Permit by the end of 2030.

In order to address the requirements of the CD, Weston & Sampson performed a flow and loads Analysis of the EWWTF, conducted a peer review of the Hydraulic Model and Capacity Assessment, and developed a CSO Long-Term Control Plan (LTCP). Each of these tasks is summarized in the WMP. Recommendations for each task are provided in the implementation schedule under Section 8 of this report.

2.0 REGULATORY REQUIREMENTS

Water quality standards for the United States and MassDEP are regulated under the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq) and the Massachusetts Water Quality Standards (314 CMR 4.00). The WMP is required to develop a plan of projects that will ultimately result in Fitchburg achieving compliance with state and federal water quality standards. The following sections outline the regulatory requirements that will impact the development of the LTCP and WMP.

2.1 Federal and State Regulatory Guidance

MassDEP and the EPA have multiple guidance documents for creating a LTCP.

- EPA 833-R-01-002 *Guidance: Coordinating Long-Term Planning with Water Quality Standards Reviews*
- EPA 832-B-95-003 *Combined Sewer Overflows Guidance for Nine Minimum Controls*
- MassDEP *Guidance for Abatement of Pollution from CSO Discharges*
- EPA 823-B-95-002 *Interim Economic Guidance for Water Quality Standards Workbook*
- EPA 832-B-95-002 *Combined Sewer Overflows Guidance for Long-Term Control Plan*
- EPA 832-B-99-002 *Combined Sewer Overflows Guidance for Monitoring and Modeling*
- EPA 833-K-11-001 *CSO Post Construction Compliance Monitoring Guidance*

In addition, the regulatory requirements that govern the creation of a LTCP and water quality standards are as follows:

- 33 U.S.C. 1251 et seq: *Federal Water Pollution Control Act*
- 314 CMR 4.00 *Massachusetts Surface Water Quality Standards*
- EPA's *Combined Sewer Overflow (CSO) Control Policy; Notice*.

2.1.1 EPA Regulatory Requirements and Methods for Compliance for Combined Sewer Overflows

In 1995, the EPA created their *Combined Sewer Overflow (CSO) Control Policy; Notice* requiring municipalities with combined sewers to create LTCPs to facilitate the removal of untreated CSO discharges to surface waterbodies. As stated in the Notice, municipalities are required to prove adherence to water quality standards through a LTCP following the Presumption Approach or Demonstration Approach. The Presumption Approach achieves compliance through limiting the number of CSO events to a maximum of (four) 4 each year, or by capturing and treating at least 85% of combined sewage during rain events. In the Demonstration Approach, compliance is achieved by proving CSOs are not violating any water quality standards or a waterbody's total maximum daily limit (TMDL). Fitchburg's compliance with the EPA will be achieved through the development of the LTCP with goals that will achieve the Presumption Approach. (EPA, *CSO Control Policy: Notice*, 1994)

2.1.2 EPA's Nine Minimum Controls

EPA requires the Nine Minimum Controls (NMC) to be implemented in combined sewer systems. These controls were identified in the EPA's *Combined Sewer Overflow (CSO) Control Policy; Notice* and *Combined Sewer Overflows Guidance for Nine Minimum Controls*. In the Notice, municipalities were required to implement the NMC before January 1, 1997. The NMC are listed on the following page. (EPA, *Guidance for Nine Minimum Controls,* 1995)

1. Proper operation and regular maintenance programs for the sewer system and CSO outfalls.
2. Maximum use of the collection system for storage.
3. Review and modification of pretreatment requirements to ensure that CSO impacts are minimized.
4. Maximization of flow to the publicly owned treatment facility POTW for treatment.
5. Elimination of CSOs during dry weather.
6. Control of solid and floatable materials in CSOs.
7. Pollution prevention programs to reduce contaminants in CSOs.
8. Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts.
9. Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls.

2.1.3 Long-Term Control Plan Requirements

Both EPA and MassDEP developed requirements for the contents of a CSO LTCP. The major component required for the plan is a Watershed Approach that involves analyzing impairments and mitigation efforts on a full watershed scale, instead of localized areas. In addition, EPA's *Combined Sewer Overflows Guidance for Long-Term Control Plan* lists nine (9) major aspects of a LTCP as shown below. (EPA, *Combined Sewer Overflows Guidance for Long-Term Control Plan*, 1995)

1. Conduct monitoring, modeling, and other tasks to create a strong background of the combined sewer system's performance.
2. Create an outlet for public participation to select appropriate CSO controls.
3. Identify environmentally and socially sensitive areas that are negatively impacted by CSOs.
4. Identify and evaluate various CSO control alternatives that will enable compliance with water quality standards.
5. Develop a cost analysis of the CSO control alternatives.
6. Update and revise the City's operation and maintenance plan to include the new CSO control alternatives.
7. Identify opportunities to maximize treatment capacity at the POTW.
8. Create a schedule to implement the CSO control alternatives.
9. Develop a post-construction monitoring plan to verify all CSO controls have been successfully implemented.

MassDEP requires sewer separation to be the primary method for removing CSOs from a combined sewer system. However, if sewer separation can be proven to cause significant economic impact on community, other CSO control alternatives can be pursued. They are identified in MassDEP's *Guidance for Abatement of Pollution from CSO Discharges*, and listed below:

1. EPA's Nine Minimum Controls
2. Storage Technologies
3. Treatment Technologies
4. Collection System Controls

In addition, MassDEP classifies requirements for CSO discharges according to the following waterbody classifications:

- Class B or SB: CSOs are eliminated from the system.
- Class B (CSO): CSOs are not eliminated but are compliant with water quality standards.
- Variance: CSO mitigation is not completed through a modification of water quality standards.
- Partial Use Designation: CSO mitigation is partially completed causing intermittent water quality impairments.
- Class C: CSO mitigation is not conducted, resulting in permanent water quality impairments.

To reclassify a waterbody to one of the above classifications and continue to allow CSO discharges, a municipality will need to show MassDEP that the CSO controls will result in "substantial and widespread social and economic impacts". (MassDEP, *Guidance for Abatement of Pollution from CSO Discharges*, 1997)

2.2 Fitchburg's NPDES Permit

The City's NPDES Permit was issued in 2010 and authorizes discharge from the EWWTF and 33 CSOs to the North Nashua River and other tributary waterbodies. The Permit sets discharge limits for treated wastewater leaving the EWWTF, and reporting requirements for compliance.

2.2.1 NPDES Permit Requirements for Flow

The City's NDPES Permit specifies a monthly average flow limit of 12.4 million gallons per day (MGD) can be discharged into the North Nashua River. According to the *POTW Optimization Evaluation of the Easterly Wastewater Treatment Facility* Report created by Wright-Pierce in 2012, the treatment facility receives flows during wet-weather events as high as 40 MGD. When flow rates exceed 15 MGD, the EWWTF activates a secondary treatment bypass system. The bypassed flow combines with the fully treated flow and the blended effluent is discharged into the North Nashua River. (Wright-Pierce, *POTW Optimization Evaluation of the Easterly Wastewater Treatment Facility*, 2012)

2.2.2 NPDES Permit Requirements for Phosphorus

The Attachment 9b of the Consent Decree (Interim Effluent Limits and Monitoring Requirements) requires that Fitchburg's interim phosphorus limit remains below 0.5 mg/L. The City has been successful at maintaining compliance with the interim phosphorus limit since the enforcement of the Consent Decree. According to paragraph 55a of the Consent Decree, the WMP must include a schedule of construction to meet the seasonal phosphorus concentration-based limit of 0.2 mg/L. (*United States, Commonwealth of Massachusetts v. City of Fitchburg*, 2012)

In 2007, MassDEP developed a Draft total maximum daily load (TMDL) for Phosphorous for the Nashua River. In addition, the TMDL included segments of the North Nashua River as an additional protection. Under the TMDL report, the EWWTF was issued a TMDL of 0.2 mg/L (or 20.7 lb/day) from April 1 to October 31. The remaining months of the year require testing for phosphorus and system optimization for phosphorus removal. This TMDL is considered a draft and has not been finalized for implementation. (MassDEP, *Draft Nashua River, Massachusetts Total Maximum Daily Load for the Nutrient Phosphorus*, 2007)

In addition, the 2012 *POTW Optimization Evaluation of the Easterly Wastewater Treatment Facility* Report recommends that upgrades to the treatment facility achieve a maximum concentration of 0.1 mg/L in case the NPDES Permit limit of 0.2 mg/L is lowered in the future. (Wright-Pierce, *POTW Optimization Evaluation of the Easterly Wastewater Treatment Facility*, 2012)

2.2.3 Combination Manhole Status

Fitchburg's NPDES permit requires that combination manholes showing signs of transference must be separated within two years of the transference date. Combination manholes that have shown signs of transference will be separated as part of a combination manhole separation program which will be developed in Spring/Summer 2019.

2.3 Water Quality Standards and Pollutants of Concern

Water Quality Standards for the North Nashua River and surrounding tributaries are governed by the Clean Water Act and 314 CMR 4.00 Massachusetts Surface Water Quality Standards. The North Nashua River is considered a Class B waterbody by MassDEP, indicating that the river is suitable for aquatic life and primary and secondary recreation. However, these uses are currently impaired because the state water quality standards for E. coli have been exceeded. As a result, the river is listed as a Category 5 waterbody in MassDEP's *Draft 2016 Integrated List of Waters*. This classification indicates that the North Nashua River is impaired and requires a TMDL. MassDEP identifies that the E. coli impairment results from illicit discharges and CSOs. In addition, water quality impairments in the North Nashua River have been identified through aquatic macroinvertebrate bioassessments and ambient bioassays. (MassDEP, *Massachusetts Year 2016 Integrated List of Waters*, 2017).

2.4 Summary

To achieve compliance with state and federal water quality standards, the focus of this WMP will be to provide CSO mitigation options through the CSO LTCP and provide recommendations for the EWWTF to achieve current and potential future NPDES Permit requirements.

3.0 SEWER SYSTEM EVALUATION SURVEY AND REHABILITATION PROJECTS

The City of Fitchburg is required to control infiltration and inflow (I/I) through 314 CMR 12.04 (2), *Operation, Maintenance and Pretreatment Standards for Wastewater Treatment Works and Indirect Dischargers*. In addition, the City intends to implement a SSES to identify I/I. The SSES program is currently underway, with two (2) investigation phases complete. This section of the WMP will identify sanitary sewer work completed to date through the SSES and other investigation/rehabilitation projects, and any additional recommended projects to further reduce I/I in the City's sanitary sewer system to help reduce total flows that are regulated under the City's NPDES Permit.

3.1 Historic Investigation Projects

Since 2008, the City has been actively performing investigation projects to identify sources of I/I. These projects are explained in more detail below.

3.1.1 City-Wide I/I Analysis

In 2011, the City completed a city-wide I/I analysis. The project included flow monitoring and the collection of rainfall data to determine areas in the wastewater collection system with high rates of I/I. The metering identified an estimated 10.2 MGD of wet-weather infiltration and 16.8 MGD of inflow. (Stantec Consulting Services, *Citywide Infiltration/Inflow Analysis*, 2011)

3.1.2 John Fitch Highway Investigations

In 2012, the City investigated sewers on John Fitch Highway. During this project, 7,725 LF of television inspections were completed along with 30 manhole inspections. The project also included 7,725 LF of smoke testing that identified three (3) illicit connections. In total, the investigation work identified 942,900 gallons per day (gpd) of peak I/I. Construction of sewer rehabilitation to mitigate I/I was completed in 2015. (Wright-Pierce, *Preliminary Engineering Report for John Fitch Highway Sewer Replacement*, 2012)

3.1.3 Hydraulic Model

In March 2018, MassDEP and EPA accepted the City's hydraulic model and *Hydraulic Model Report* required by the CD. The model was utilized to analyze the current sewer system under base flow conditions and predict the effectiveness of the system under multiple peak flow scenarios to simulate the impacts of different rain events. As part of the model, flow monitoring data was used for the model calibration. In addition, over 870 manhole inspections were conducted to gather the required pipe and manhole data for the model. (Wright-Pierce, *Hydraulic Model Report*, 2017)

3.1.4 SSES Scope of Work

In 2016, the City developed an *SSES Scope of Work* to prioritize phases of investigation and rehabilitation work based on an 11-month flow metering period conducted in 2015. The flow metering program identified an average base infiltration flow rate of 4.2 MGD, and an estimated 24.7 MGD of rainfall induced I/I during a one-year, one-hour storm. The *SSES Scope of Work* developed four phases of investigation based on observed I/I levels throughout the City. (Wright-Pierce, *SSES Scope of Work*, 2016)

3.1.5 SSES Phase I

Phase I of the SSES was completed in June 2018, and was conducted in asset areas 13, 15, 16, and portions of asset areas 1, 3, 8, and 11 (See Figure 1). In this project, 35,800 LF of television inspections and 566 manhole inspections were conducted to identify potential I/I sources. To identify inflow in the system, 130,000 LF of smoke testing was completed in the asset areas along with 31 dye tests, 184 house-to-house inspections, and 120 separate flow isolation locations. As a result of the inspections, 5.4 MGD of I/I during the one-year, six-hour design storm was identified. In addition, 10,210 LF of the sewer interceptor was inspected with CCTV, sonar, and laser. The interceptor inspections identified five (5) sewer segments with debris greater than 15% of the pipe diameter. (Wright-Pierce, *Phase I Sewer System Evaluation Survey*, 2018)

3.1.6 SSES Phase II

The City completed the Draft SSES Phase II Report in July 2018. The investigation phase of the project was completed in Spring 2018 and included asset areas 15, 16, 17, 21, and a portion of asset area 1 (See Figure 1). During the project, 399 manhole inspections, 56,520 LF of CCTV inspections, 28,150 LF of smoke testing, six (6) dye tests, 94 building inspections, and flow isolation at 25 locations. In total, 13.2 MGD of I/I during the one-year, six-hour design storm was identified. (Wright-Pierce, *Draft Phase 2 Sewer System Evaluation Survey*, 2018)

3.1.7 Capacity, Management, Operation, and Maintenance Program (CMOM)

Under Fitchburg's CMOM, 661,020 LF (88%) of the sewers have been televised and inspected along with 1,546 manhole inspections (42.9%) as of January 2019 by the City and subcontractors. The City is continuing to inspect and evaluate the system through various inspection and rehabilitation projects and intends to complete 100% of system investigations.

3.2 Historic Rehabilitation Projects

In addition to investigation projects, the City has been completing rehabilitation projects to remove sources of I/I. These projects are described below.

3.2.1 Jeffrey Street Extraneous Flow Removal

In 2012, the City completed construction of the Jeffrey Street Extraneous Flow Removal Project as required by the CD. This project included the installation of a perforated drain line adjacent to the sanitary sewer to drain excessively high groundwater in the area. The groundwater contributed to excessive infiltration in a sanitary manhole and required four residences to discharge basement sump pumps to the sanitary sewer. As part of the project, all four residences had their sump pump discharges relocated to the new drain and the defective manhole was replaced. The project removed an estimated 445,000 gpd from the sanitary system.

3.2.2 John Fitch Highway Investigations

As stated in section 3.1.2, the City investigated sewers on John Fitch Highway in 2012. Construction of sewer rehabilitation to mitigate the 942,900 gpd of I/I found during investigation was completed in 2015 (Wright-Pierce, *Preliminary Engineering Report for John Fitch Highway Sewer Replacement*, 2012).

3.2.3 Nashua River Manhole Rehabilitation

In February 2014, a trunk sewer manhole located within the North Nashua River was dislodged by ice near 83 Water Street and contributed between 10 and 15 MGD of inflow into the sewer system. The manhole was immediately repaired. In 2015, the City of Fitchburg repaired an additional dislodged manhole in the Nashua River near First and Railroad Street and stopped an estimated 7 MGD of inflow from entering the sewer system. The City successfully repaired and protected two remaining manholes in the Nashua River by the end of 2015 to proactively prevent any future river manhole issues.

3.2.4 Drury Street Easement Rehabilitation

In 2014, 300 LF of pipe was lined in the Drury Street Easement. The project also included the abandonment of an unnecessary manhole. As a result, an estimated 25,000 gpd of infiltration was removed.

3.3 Status of the City's SSES Program

The City has currently completed two of the four investigation phases in the SSES program. Phase IV of the program is the Sewer Interceptor Evaluation and was prioritized above Phase III due to the interceptor being regarded as a critical asset. In January 2019, the City executed an agreement with Weston & Sampson to conduct the SSES Phase IV investigations. As part of the project, approximately 24,000 LF of sewers will be investigated using CCTV, laser, sonar, and hydrogen sulfide (H_2S) monitoring. The project also includes approximately 6,500 LF of sewers to be investigated using CCTV, sonar, and H_2S monitoring. In addition, approximately 18,500 LF of smoke and dye testing/flooding, 148 manhole inspections, and 120 building inspections will be conducted along the interceptor. Inspections are scheduled to begin in Spring 2019. Phase III of the SSES program will commence after the completion of Phase IV. A map of the Phase III area is provided in Figure 2.

3.4 Capacity Limitations from Debris

Interceptor inspections conducted during Phase I of the SSES identified three siphons with significant debris build-up. In addition, two siphons tributary to the interceptor have been found to have significant debris build-up. As part of the City's continual efforts to maintain the system and improve interceptor capacity, the City intends to bid the heavy cleaning work required to remove the debris in 2019.

3.5 SSES Activities from Other Projects

In addition to the SSES Program, the City is investigating sanitary sewers in conjunction with the CSO 039, 048, and Clarendon Street Sewer Separation Project. Investigations include smoke and dye testing/flooding, CCTV inspections, building inspections, and manhole inspections. These sewers will undergo rehabilitation as part of the construction phase of the project. Additional smoke testing, CCTV inspections, building inspections, and manhole inspections are expected to be conducted in the tributary areas of CSO regulators as part of the CSO controls identified in the CSO LTCP.

4.0 HYDRAULIC MODEL AND CAPACITY ASSESSMENT

In 2016, a hydraulic model of the wastewater collection system was developed for the City of Fitchburg. The model was developed utilizing InfoSWMM modeling software, existing GIS data, and manhole inspection data. Pipes 12-inches in diameter and greater were included in the model. Model outputs included dry weather flow; flow during the one-year, 24-hour design storm; and flow during the five-year, 24-hour design storm. The model identified that during dry-weather, approximately 12.3% of the modeled pipes operate at over 50% capacity. Approximately 300 LF of the sewers in the model were observed to flow in a surcharged state. The model also included outputs for the three flow conditions under a 20-year estimated build-out condition. The 20-year build-out estimated that 13.2% of the modeled pipes would operate over 50% capacity during dry weather. (Wright-Pierce, *Hydraulic Model Report*, 2017)

In 2018, a draft Capacity Assessment was developed after updating the hydraulic model to include CSO regulator 076, adjacent 8-inch pipes to the regulator, and rehabilitation/separation work completed under the Beech and Hazel Sewer Separation Project. With the updated existing conditions in the model, 26 manholes were predicted to flood to grade during the one-year, 24-hour design storm. During the five-year, 24-hour design storm, the model predicted 41 manholes would flood to grade. (Wright-Pierce, *Capacity Assessment Report*, 2018)

The Capacity Assessment also included an analysis of dry and wet weather conditions if the following theoretical remediation projects were completed:

- Sewer separation upstream of CSO regulator 039
- Various small sewer separation projects
- Combination manhole separation
- Interceptor upsizing

With the incorporation of these remediation projects, 20 manholes were predicted to flood to grade during the one-year, 24-hour design storm and 30 manholes would flood to grade during the five-year, 24-hour design storm. In addition, the hydraulic model predicted that the proposed sewer system improvements would result in a 70% reduction of CSO discharge volumes (Wright-Pierce, *Capacity Assessment Report*, 2018).

4.1.1 CSO Abatement Efforts

The draft Capacity Assessment included sewer rehabilitation and construction conducted under the Beech and Hazel Sewer Separation Project, which was completed after the Hydraulic Model. Reductions in flow were distributed throughout the sewer separation project area to simulate the rehabilitation/separation work completed. The model estimated total flow reduction of 0.55 million gallons was removed during a five-year, 24-hour storm event.

As the City continues to pursue sewer separation projects, further reductions in total flow in the system during peak wet-weather events are anticipated to be observed. As separation projects are completed, the City intends to conduct flow monitoring during Post Construction Monitoring Programs to determine the full impact of sewer separation on combined meter basins. Flow metering data will be used to identify the success of separation projects and is intended to help recalibrate the Model to better represent the system post separation.

4.2 Water Quality Standards and the Hydraulic Model

Although the sewer system improvement projects recommended in the draft Capacity Assessment predicted significant improvements to the wastewater collection system, the remaining predicted discharges from CSO regulators in the draft Capacity Assessment will not meet water quality goals. For a Class B waterbody such as the North Nashua River, MassDEP requires CSO discharges to be eliminated completely (MassDEP, *Guidance for Abatement of Pollution from CSO Discharges*, 1997). Appendix D provides a CSO LTCP that identifies recommended CSO controls to remove the remaining CSO discharges.

5.0 WASTEWATER TREATMENT PROCESSES AND UPGRADES

The EWWTF collects all flow from the City, and partial flows from Westminster and Lunenburg. Under the City's current NPDES Permit, the EWWTF has an annual average monthly discharge flow limit of 12.4 MGD to the North Nashua River. The treatment facility has a peak daily design flow capacity of 12.4 MGD. During wet-weather events, when peak hourly flows exceeded 15 MGD, the EWWTF utilizes a secondary system bypass as permitted by the NPDES Permit to discharge wastewater to the North Nashua River. Fitchburg intends to complete multiple upgrades on the EWWTF based on recommendations provided in the *POTW Optimization Evaluation of the Easterly Wastewater Treatment Facility* Report. (Wright-Pierce, *POTW Optimization Evaluation of the Easterly Wastewater Treatment Facility*, 2012)

5.1 POTW Optimization Evaluation of the Easterly Wastewater Treatment Facility

The *POTW Optimization Evaluation of the Easterly Wastewater Treatment Facility* Report was completed in 2012. The recommendations made in the report were enforceable by the EPA under Paragraph 53 of the CD.

A major goal of the EWWTF upgrades is to achieve the required phosphorus limit of 0.2 mg/L. In addition, the phased projects aim to increase the capacity of the treatment facility. Capacity improvements are considered vital to meeting requirements set forth by the NPDES permit because of the secondary bypass system at the EWWTF. Bypassed flow through the secondary system bypass during wet-weather events and fully treated wastewater are combined into a blended effluent and discharged to the North Nashua River. Prior to system upgrades, flows exceeding the capacity of the treatment facility were not treated to the level necessary to meet water quality standards and resulted in NPDES permit violations. The *POTW Optimization Evaluation of the Easterly Wastewater Treatment Facility* Report identified in 2012 that the treatment facility received an average flow of 9.8 MGD, a maximum monthly flow of 21.9 MGD, and a peak hourly flow of 40 MGD. This peak hourly flow greatly exceeded the peak daily design flow capacity of 12.4 MGD.

As a result, the *POTW Optimization Evaluation of the Easterly Wastewater Treatment Facility* Report recommend a chemical enhanced primary treatment (CEPT) upgrade, secondary system upgrades (SSU), and a tertiary phosphorus removal project. As of March 2019, the CEPT upgrade has been completed (2013) and the SSU Project is currently under construction. Preliminary performance results of the SSU indicate significant improvements to phosphorus removal may be achieved through the completion of the SSU project. The City intends to monitor project results and provide updates regarding the schedule for the tertiary phosphorus removal project in the second submittal of the WMP.

5.1.1 Chemically Enhanced Primary Treatment

The CEPT upgrade is used as an interim measure to meet discharge requirements in the City's NPDES Permit. The process involves chemical treatment of influent during wet weather to improve the quality of primary treatment effluent entering the secondary system bypass. As a result of the CEPT Upgrade, the concentration of total suspended solids (TSS) in the blended effluent meets requirements under the NPDES Permit during the historic peak hourly flow rate of 40 MGD. Biological Oxygen Demand (BOD) discharge requirements would be met with the CEPT Upgrades for flow rates up to 22 MGD without the SSU Project, and 35 MGD after the implementation of the SSU. Total phosphorus levels are also expected to be reduced in the primary effluent as a result of the CEPT. Ammonia levels will not be affected. These predicted concentrations assume an interim secondary treatment flow limit of 14 MGD

for the month of May. (Wright-Pierce, *POTW Optimization Evaluation of the Easterly Wastewater Treatment Facility*, 2012)

5.1.2 Secondary System Upgrades

The SSU Project recommendations include the introduction of permanent parallel train improvements in order to greatly improve treatment level and capacity. The secondary improvements are expected to increase the peak hourly flow capacity to 32 MGD during the summer, 40 MGD in the winter, and 20 MGD during the month of May. In addition, ammonia concentrations in the blended effluent are expected to meet the NPDES Permit discharge limits for flows up to 35 MGD when both the CEPT and SSU Projects are complete. (Wright Pierce, *POTW Optimization Evaluation of the Easterly Wastewater Treatment Facility*, 2012). Construction for the SSU Project began in 2017 and is anticipated to be completed Fall 2019.

5.1.3 Tertiary Phosphorus Removal

The tertiary process recommended in the *POTW Optimization Evaluation of the Easterly Wastewater Treatment Facility* Report was designed to meet CD requirements for the interim phosphorus limits of 0.2 mg/L. The tertiary process is expected to both improve BOD and TSS compliance and be capable of meeting a potential phosphorus limit of 0.1 mg/L (Wright Pierce, *POTW Optimization Evaluation of the Easterly Wastewater Treatment Facility*, 2012). However, preliminary performance results of the SSU indicate significant improvements to phosphorus removal may be achieved by the SSU. The City intends to monitor phosphorus following the completion of the SSU to reassess the merits of the tertiary phosphorus removal project. If required, the City plans to pursue Tertiary Phosphorus Removal after the completion of sewer separation projects discussed in Section 7 of this report. If both the sewer separation projects and the Tertiary Phosphorus Removal Project are conducted during the same time period, there will be significant economic impact on the community. Details of the schedule are further discussed in Section 8 of this report and Appendix D: CSO Long-Term Control Plan.

5.2 Development of Industrial Pretreatment Technically-Based Limits

In 2018, The City developed an industrial pretreatment program that identified pollutants of concern were identified based on sampling data gathered during the project. Based on the results of the sampling, local discharge limits were recommended for significant industrial users discharging to the collection system for copper, mercury, BOD, TSS, and aluminum (Wright-Pierce, *Development of Industrial Pretreatment Technically-Based Local Limits*, 2018). The City plans to incorporate the recommendations of the report within one year following EPA approval of the local limits.

6.0 FLOW AND LOADS ANALYSIS

As required in their NPDES Permit, the City of Fitchburg supplies MassDEP with monthly discharge monitoring reports and quarterly toxicity reports for the EWWTF. These reports are used to confirm that the City is adhering to the requirements of the NPDES Permit. The discharge monitoring reports and toxicity reports from 2015 to 2018 are provided in Appendix C. In addition, the CD encourages the City to pursue green infrastructure and low impact development techniques to reduce inflow (*United States, Commonwealth of Massachusetts v. City of Fitchburg*, 2012).

6.1 Green Infrastructure/Low Impact Design

The City of Fitchburg has made efforts to incorporate green infrastructure and low impact development through collaboration with students of Worcester Polytechnic Institute (WPI) and Fitchburg Public Schools. The students of WPI developed a program called 'Stormwater Runoff Education and Environmental Stewardship in Fitchburg'. In this program, the students created a fifth grade Stormwater Education Program to comply with the Public Education and Outreach Minimum Control Measure outlined in EPA's 2016 MS4 General Permit. Stated in their report, the students recommended that the Fitchburg DPW develop on-site green infrastructure for McKay Arts Academy, Longsio Middle School, and Memorial High School, serving as outdoor learning laboratories. These outdoor learning laboratories demonstrated hands-on activities for students beyond the classroom. These activities included: building rain gardens, installing rain collection barrels, designing drainage swales, and teaching good housekeeping practices for stormwater infrastructure.

During the renovations to roads, green infrastructure strategies may be recommended for stormwater management. MassDEP outlines best management practices (BMPs) for stormwater management in *Volume 2 Chapter 2: Structural BMP Specifications for the Massachusetts Stormwater Handbook.* These practices include deep sump catch basins, vegetated filter strips, oil/grit separators, proprietary separators, and sediment forebays. In addition, future sewer separation projects will attempt to utilize green infrastructure and low impact development whenever feasible to promote the use of green infrastructure and low impact development in the City.

6.2 NPDES Permit and Water Quality Compliance

The current NPDES Permit and potential future requirements for NPDES Permits were assessed to determine the City's status of compliance in terms of the current and potential future limits. Each "chemical of concern" was reviewed to determine Fitchburg's compliance status based upon the 2015-2018 NPDES and Toxicological reports provided by the City and located in Appendix C. The Fitchburg Toxicity Report results for each chemical of concern are compared to the current 2010 NPDES permit Average Monthly Limit (AML), Daily Maximum Limit (DML) or to ambient water quality standards where there are not current chemical-specific permit limits.

Permit negotiation options not explicitly discussed in this section include: Permit compliance schedules, chemical-specific variances, and legally contesting specific permit limitations. Variances and compliance schedules are discussed in Section 5.3 and Appendix M of U.S. EPA's *Water Quality Standards Handbook*. These permit negotiation options were not evaluated for Fitchburg because they were not found to be applicable at this time.

6.2.1 Permit Limits

Permit limits are calculated by:

$$Permit\ Limit = [Water\ Quality\ Standard] \times [Dilution\ Factor]$$

The dilution factor is calculated using the North Nashua River's lowest observed mean river flow for 7 consecutive days, with a 10-year recurrence interval (7Q10), and the design flow of treatment facilities discharging to the waterbody. EPA developed multiple dilution factors during the creation of the NPDES Permit for various pollutants and chemicals of concern and are provided in Fitchburg's NPDES Permit Fact Sheet. (EPA, Fact Sheet: Draft NPDES Permit to Discharge to Waters of the United States, n.d.)

Hardness is an important parameter in terms of the toxicity of certain metals and is therefore factored into the calculations for water quality-based effluent limits. The hardness of the North Nashua River downstream of the treatment plant was determined to be 56 mg/L. This hardness value is used by the EPA to calculate the water quality-based effluent limits for hardness-based metals. Fitchburg's NPDES Permit fact sheet shows the basis for the determination of water quality criteria for Fitchburg.

6.2.2 Regulatory Tools

EPA recommends multiple regulatory tools to develop site-specific criteria for chemicals of concern. These tools can be utilized to investigate the presence of metals in the EWWTF effluent, and the ability of the North Nashua River to receive metal concentrations without exceeding water quality standards. The regulatory tools applicable to Fitchburg include Chemical Translator (CT), Water Effect Ratio (WER), and Biotic Ligand Model (BLM.)

Chemical Translator

Water Quality standards for most metals are derived as dissolved metals. However, permit limits are issued as total metals. Unless a special study is done, agencies often will conservatively assume these concentrations are the same. The CT is a conversion factor used to adjust permit limits. The CT is calculated as a ratio between the total metal limit specified in a NPDES Permit and the presence of dissolved metals in an effluent. This ratio is then used to develop a site-specific discharge limit for metals.

Site Specific Criteria - Water Effect Ratio (WER)

U.S. EPA's WER procedure is designed to quantify the toxicity of dissolved metal concentrations. This is done by conducting laboratory toxicity tests where test organisms are exposed to reagent grade metal in site water and comparing the results to tests where the organisms are exposed to reagent grade metal in pure laboratory water. The ratio of those two toxicity test results (Receiving Water / Lab Water) is the Water Effect Ratio value, which is then used as a multiplier in total recoverable permit limit calculations.

Biotic Ligand Model (BLM) for Copper

Weston & Sampson attended a public workshop on February 25th, 2019 discussing proposed changes to Massachusetts Surface Water Quality Standards for Aluminum and Copper. MassDEP is abandoning the previously adopted 2013 site-specific limits and will be referring back to the EPA recommended BLM approach. This approach is a metal bioavailability model that uses receiving water characteristics to develop site-specific water quality criteria. Input data for the BLM include temperature, pH, dissolved

organic carbon (DOC), major cations (calcium, magnesium, sodium, and potassium), major anions (sulfate and calcium), alkalinity, and sulfide. DOC is the most influential of these parameters.

6.2.3 Chemical of Concern Compliance Summaries

Copper

Table 6.1: Copper	
2010 Permit Limits (AML)	27 µg/L
2010 Permit Limits (DML)	39 µg/L
Mean	23.7 µg/L
Median	23.0 µg/L
Maximum	49 µg/L
Highest 5 Values	49, 39, 38, 36, 33 µg/L
Level of Concern	Potential Concern

As part of the NPDES Permit, a basic mass balance approach was performed by MassDEP for the North Branch of the Nashua River to determine the effluent acute and chronic limits (DML and AML) for copper. The mass balance approach calculated a DML of 39 µg/L and an AML of 27 µg/L, which are enforced by the 2010 NPDES Permit.

According to the City's NPDES Permit reporting, the City has maintained a mean copper discharge concentration of 23.7 µg/L. The City had one occurrence in that exceeded the DML, which was 49 µg/L in August 2015.

MassDEP will be relying on the EPA recommended BLM approach for copper limits in future NPDES Permits, which may lead to more stringent discharge limits. The outcome of a BLM study is a revised site-specific water quality standard that would then be multiplied by the site-specific dilution factor to calculate the permit limits for copper. It is anticipated that this will generally result in a lower copper limit. As a result, the City may not achieve compliance under current operational procedures. The City is recommended to utilize a BLM site-specific approach to adjust copper limits and argue an increase in hardness levels to greater than 56 mg/L.

Nickel (Potential Future Permit Limit)

Table 6.2: Nickel	
2010 Permit Limits (AML/DML)	No Limits in 2010 Permit
Potential Water Quality Based Limit (AML)	51 µg/L
Potential Water Quality Based Limit (DML)	459 µg/L
Mean	16 µg/L
Median	7 µg/L
Maximum	45 µg/L
Highest 5 Values	45, 39, 37, 31, 7 µg/L
Level of Concern	No Concern

Fitchburg's 2010 NPDES Permit did not contain an AML or DML for Nickel concentrations. However, Nickel may become a permit limit on the City's next NPDES Permit. EPA's National Recommended Water Quality Criteria for Nickel is an AML of 52 µg/L and a DML of 470 µg/L for Fresh Water conditions. These values are calculated using a hardness of 100 mg/L.

To determine the potential water quality-based limit for Fitchburg, the calculation was adjusted using a hardness of 56 mg/L. The results indicated that future NPDES Permit limits may include a Nickel AML of 51 µg/L and a DML of 459 µg/L when utilizing an EPA calculated dilution factor of 1.6. The formulas used can found in the EPA's *National Recommended Water Quality Criteria.*

Based on the City's NPDES Permit reporting, the City should be able to meet potential AML and DML limits for Nickel in the next NPDES Permit. Currently effluent from the EWWTF contains a mean Nickel concentration of 16 µg/L, which is below the potential future NPDES Permit AML of 51 µg/L. In addition, the highest five Nickel concentrations recorded by the City are below the potential future NPDES Permit DML of 459 µg/L.

Zinc

Table 6.3: Zinc	
2010 Permit Limits (AML)	117 µg/L
2010 Permit Limits (DML)	117 µg/L
Mean	48.8 µg/L
Median	45.5 µg/L
Maximum	160 µg/L
Highest 5 Values	160, 76, 75, 69, 60 µg/L
Level of Concern	Potential Concern

The City's 2010 NPDES Permit specified a zinc concentration limit of 117 µg/L for both the AML and DML. The City exceeded this limit once in January 2016. The City has a mean discharge concentration of 48.8 µg/L, which is below the 2010 Permit AML.

Limits for zinc were determined as a function of hardness in the 2010 NPDES Permit. If the City increases hardness to greater than 56 mg/L, the concentration limit in the next NPDES Permit may be increased as a result, potentially preventing any future discharges above the NPDES Permit limit.

Aluminum (Potential Future Limit DML)

Table 6.4: Aluminum	
2010 Permit Limits (AML)	AML= 139 µg/L
2010 Permit Limits (DML)	Report µg/L
Mean	<97.4 µg/L
Median	50 µg/L
Maximum	490 µg/L
Highest 5 Values	490, 430, 420, 360, 320 µg/L
Level of Concern	Potential Concern

The EPA has released the 2018 Final Aquatic Life Ambient Water Quality Criteria for Aluminum in Freshwater under Section 304 (a)(1) of the Clean Water Act. MassDEP is looking to adopt the updated 2018 EPA Standards using the Multiple Linear Regression (MLR) model. The proposed Massachusetts Water Quality Standards for the Nashua River Basin are 350 µg/L acute criterion and 200 µg/L chronic criterion.

As stated in the EPA's *Fact Sheet: Final Aquatic Life Ambient Water Quality Criteria for Aluminum in Freshwaters,* pH, DOC, and hardness have the greatest impact on aluminum's bioavailability. The City of Fitchburg records effluent and receiving water pH and hardness values in the quarterly 2018 Toxicological Reports. However, DOC has not been recorded in these sample sets. This receiving water data was utilized in the EPA Aluminum Criteria Calculator which accounts for various water chemistry scenarios to estimate the new aluminum permit limits. Potential aluminum criteria scenarios based on varying DOC values can be found in Table 6.5. Potential DML and AML values are developed for aluminum by multiplying the acute and chronic criterion by the dilution factor.

Table 6.5: Potential Aluminum Limits Using 2018 EPA Freshwater Water Quality Criteria Approach

Report	pH	Hardness (mg/L)	DOC (mg/L)	Acute Criterion (µg/L)	Chronic Criterion (µg/L)	Max. Daily Limit (µg/L)	Average Monthly Limit (µg/L)
March 2018	6.7	24	2.5	660	300	1,056	480
June 2018	7.3	42	2.5	1,500	580	2,400	928
September 2018	6.94	48	2.5	1,100	420	1,760	672
December 2018	6.62	22	2.5	580	270	928	432
March 2018	6.7	24	2.6	680	300	1,088	480
June 2018	7.3	42	2.6	1,500	580	2,400	928
September 2018	6.94	48	2.6	1,100	430	1,760	688
December 2018	6.62	22	2.6	590	280	944	448
March 2018	6.7	24	2.7	700	310	1,104	496
June 2018	7.3	42	2.7	1,600	590	2,400	944
September 2018	6.94	48	2.7	1,200	430	1,760	688
December 2018	6.62	22	2.7	610	280	960	448
March 2018	6.7	24	2.8	690	310	1,120	496
June 2018	7.3	42	2.8	1,500	590	2,560	944
September 2018	6.94	48	2.8	1,100	440	1,920	704
December 2018	6.62	22	2.8	600	280	976	448
March 2018	6.7	24	2.9	720	320	1,152	512
June 2018	7.3	42	2.9	1,600	600	2,560	960
September 2018	6.94	48	2.9	1,200	440	1,920	704
December 2018	6.62	22	2.9	620	290	992	464
March 2018	6.7	24	3.0	730	320	1,168	512
June 2018	7.3	42	3.0	1,600	600	2,560	960
September 2018	6.94	48	3.0	1,200	450	1,920	720
December 2018	6.62	22	3.0	640	290	1,024	464
Mean	6.89	34	2.75	1,001	404	1,601	647

The DOC values in Table 6.5 were taken from Table 19 of the *Draft Technical Support Document: Recommended Estimates for Missing Water Quality Parameters for Application in EPA's Biotic Ligand Model.* Fitchburg is located within Region 59, Northeastern Coastal zone for this analysis, which stated a DOC value of 2.7 mg/L. A range of DOC values from 2.5-3.0 mg/L were chosen to summarize potential aluminum criteria for Fitchburg.

An ancillary consideration is the two water treatment facilities that supply the City of Fitchburg: Regional Water Filtration Facility (RWFF) and Falulah Water Treatment Plant (FWTP). These facilities collect and manage their residuals from backwash of their clarifiers in different ways. The FWTP temporarily stores its residuals in basins, which then discharges through a gravity pipe down Rindge Road, John Fitch Highway, and eventually leading to the EWWTF. The residuals are fed into the sewer as the clarifiers are backwashed, approximately every five hours. The RWFF collects residuals using an industrial vacuum truck twice a year, which then is discharged at the Westerly Wastewater Treatment Facility (WWWTF), now serving as a pump station to the EWWTF. This slug discharge flows through the interceptor connecting from WWWTF to the EWWTF. The slug discharges from the RWFF are a potential cause for concern related to meeting the aluminum criteria because the residuals from backwashing contain aluminum. Industrial vacuum discharges from the RWFF have been found to coincide with dates of elevated concentrations of aluminum recorded at the EWWTF. Previous methods included the discharge of several tanker loads a day to the WWWTF for treatment. Once the City was aware of the elevated aluminum values caused by the slug, the method and quantity of discharge was changed to only one load per day. Since the change, elevated aluminum levels have subsided.

In 2012, a study was conducted analyzing alternatives to residuals handling at the RWFF. The options that were considered include: disposal of residuals directly to a sewer system, mechanical dewatering of residuals prior to offsite landfill disposal, and on-site sand drying beds for residuals dewatering prior to offsite landfill disposal. Operation and maintenance adjustments can also be considered for alleviating slug discharges to the sewer, including more frequent visits of the vacuum truck to transport the residuals. Additionally, a mass balance approach would provide a more conclusive understanding of the residuals entering the EWWTF.

The following options are available to optimize system performance and develop site-specific limits for aluminum:

1. Consider merits of a DOC data collection program to inform Reasonable Potential Analysis for aluminum, recognizing that such a program would introduce new data to the regulatory process perhaps earlier than necessary.
2. Utilizing a WER to develop site-specific criteria for aluminum.
3. Consider the use of metal salts, other than polyaluminum chloride, and evaluate the benefit for multi-point chemical addition.
4. Review stages and adoption of new MassDEP Water Quality Standards.
5. Investigate the potential for new handling or O&M procedures for residuals at the RWFF.

Lead

Table 6.6: Lead	
2010 Permit Limits (AML)	3 µg/L
2010 Permit Limits (DML)	62 µg/L
Potential Limit (chronic)	2 µg/L
Potential Limit (acute)	34 µg/L
Mean	<1.07 µg/L
Median	0.53 µg/L
Maximum	10 µg/L
Highest 5 Values	10, 7.1, 4.6, 3.0, 1.7 µg/L
Level of Concern	Potential Concern

EPA's National Recommended Water Quality Criteria indicates acute toxicity for lead is 65 µg/L and chronic toxicity for lead is 2.5 µg/L for freshwater conditions when utilizing an assumed hardness value of 100 mg/L. Utilizing a hardness value of 56 mg/L, and the EPA calculated dilution factor of 1.6, the potential future NPDES Permit limits for lead may equal a DML of 34 µg/L and an AML of 2 µg/L. The City has not had any recorded lead concentrations above the theoretical DML, and the mean concentration is below the theoretical AML.

Criteria adjustment could theoretically be achieved by WER methods. However, because results for lead are often poor as precipitation often occurs during the testing period, WER is not recommended for lead. Increasing the hardness level to above 56 mg/L may increase permit limits.

Cadmium

Table 6.7: Cadmium	
2010 Permit Limits (AML)	0.3 µg/L
2010 Permit Limits (DML)	2 µg/L
Potential Limits (chronic)	0.2 µg/L
Potential Limits (acute)	1.1 µg/L
Mean	<0.20 µg/L
Median	<0.20 µg/L
Maximum	<0.31 µg/L
Highest 5 Values	<0.31, 0.20, <0.20 µg/L
Level of Concern	No Concern

Potential Water Quality Based Limits for Cadmium may be found in the NPDES Permit Fact Sheet. EPA's National Recommended Water Quality Criteria indicates the acute toxicity for cadmium is 1.8 µg/L and the chronic toxicity is 0.72 µg/L in freshwater conditions when utilizing an assumed hardness value of 100 mg/L. When utilizing a hardness value of 56 mg/L for Fitchburg, the limits are calculated as 1.1 µg/L for the DML and 0.2 µg/L for the AML. The City of Fitchburg has not exceeded the 2010 NPDES Permit AML and DML. In addition, the City's maximum recorded concentration does not violate the potential DML and the mean concentration does not violate the potential AML of a future NPDES Permit.

Ammonia, as N

Table 6.8: Ammonia, as N			
	Summer	Winter	Month of May
2010 Permit Limits (AML)	1.0 mg/L	Report mg/L	5.0 mg/L
2010 Permit Limits (DML)	2.0 mg/L	Report mg/L	8.0 mg/L
Mean	0.25 mg/L	1.57 mg/L	0.35 mg/L
Median	0.23 mg/L	0.17 mg/L	0.18 mg/L
Maximum	4.45 mg/L	9.53 mg/L	2.08 mg/L
Highest 5 Values	4.45, 3.64, 2.85, 2.47, 2.36 mg/L	9.53, 8.85, 8.03, 7.37, 6.95 mg/L	2.08, 0.80, 0.52, 0.24 mg/L
Level of Concern	Potential Concern		No Concern

The AML and DML limits were carried forward from the 2002 NPDES permit and are based on the waste load allocation from 1981. The City has historically had violations of the DML in the NPDES Permit during the Summer but has continued to meet the AML. According to the 2012 *POTW Optimization Evaluation of the Easterly Wastewater Treatment Facility,* after the upgrades to the EWWTF are completed, the City is expecting to see reductions in Ammonia concentrations and the EWWTF is expected to provide adequate treatment during peak wet-weather flow events.

Currently, the City does not have NPDES Permit limits for Ammonia between November 1 and April 30 of each year. Instead, the City is required to only report Ammonia concentrations during these months. Data from Fitchburg's NPDES Permit Fact Sheet indicate that an AML of 16.7 mg/L and a DML of 33.4 mg/L may be used for winter limits in the next NPDES Permit. The City is currently meeting both the theoretical AML and DML during the winter months.

Total Phosphorus

Table 6.9: Total Phosphorus		
	Summer	Winter
2010 Permit Limits (AML)	0.2 mg/L	1.0 mg/L
2010 Permit Limits (DML)	Report mg/L	Report mg/L
Mean	0.48 mg/L	0.51 mg/L
Median	0.405 mg/L	0.70 mg/L
Maximum	2.03 mg/L	2.46 mg/L
Highest 5 Values	2.03, 1.73, 1.70, 1.34, 1.30 mg/L	2.46, 2.43, 1.41, 1.30, 1.18 mg/L
Level of Concern	Potential Concern	Potential Concern

City of Fitchburg currently adheres to an interim phosphorus limit that was adjusted from the 2010 NPDES Permit. The 2012 *POTW Optimization Evaluation of the Easterly Wastewater Treatment Facility* Report identifies the interim phosphorus limits as a rolling average of 0.5 mg/L and average monthly of 1.0 mg/L. These limits were set forth in the Consent Decree and the City is currently in compliance with these limits.

The Massachusetts Surface Water Quality Standards (314 CMR 4.00) do not contain numerical criteria for total phosphorus. However, MassDEP states that an effluent total phosphorus of 0.2 mg/L on a monthly average resembles "best practicable treatment to remove such nutrients" as indicated in 314 CMR 4.04. Following the completion of the SSU identified in Section 5 of this report, phosphorus concentrations will be monitored to determine the necessity of the Tertiary Phosphorus Removal Project to meet the NPDES permit limit of 0.2 mg/L.

In 2007, a draft TMDL was established since the segment of the North Nashua river was impaired for nutrients. There is a need to investigate the contribution of nonpoint sources of phosphorus into the North Nashua River, such as phosphorous resuspended from sediments. Currently there is some uncertainty about how the EPA may handle the upcoming permit.

Total Residual Chlorine

Table 6.10: Total Residual Chlorine	
2010 Permit Limits (AML)	18 µg/L
2010 Permit Limits (DML)	30 µg/L
Mean	<0.01 mg/L
Median	<0.01 mg/L
Maximum	1.04 mg/L
Highest Values	1.04, 0.25 mg/L
Level of Concern	Potential Concern

Permit limits are found by using the acute criteria of 19 µg/L and the chronic criteria of 11 µg/L from the *EPA National Recommended Water Quality Criteria*, and multiplying each by the dilution factor of 1.6 to achieve a maximum daily limit of 30 µg/L and a monthly average of 18 µg/L.

The City has had two occurrences of chlorine concentrations exceeding the DML but has consistently met the AML.

E. coli

Table 6.11: E. coli	
2010 Permit Limits (Geometric Mean)	126 CFU/100 mL
2010 Permit Limits (DML)	409 CFU/100 mL
Geometric Mean	9.7 CFU/100 mL
Median	8 CFU/100 mL
Maximum	14,200 CFU/100 mL
Highest 5 Values	14,200; 9,400; 8,800; 6,900; 5,500 CFU/100 mL
Level of Concern	Potential Concern

There are no acute or chronic limits for bacteria listed under the EPA's *National Recommended Water Quality Criteria*. Bacteria limits suggested for Class B waters specified by the Massachusetts Department of Public Health in 105 CMR 445.010 require that a geometric mean of E. coli samples taken in a six-month period may not exceed 126 colonies/100 mL and no single sample may exceed 235 colonies/100 mL (*Massachusetts Surface Water Quality Standards, 314 CMR 4.05 (3)(b)(4)*).

According to the City's NPDES Permit reporting, the EWWTF has been successfully adhering to the 2010 Permit Limits for the geometric mean sampling concentrations for E. coli. The City has had multiple samples that exceed the 2010 NPDES Permit DML, however the majority of these samples were taken on days that the secondary system bypass was activated. After the completion of EWWTF upgrades, the use of the secondary system bypass is expected to significantly decrease, ultimately reducing the total number of DML exceedances for E. coli.

Biochemical Oxygen Demand (BOD)

Table 6.12: Biochemical Oxygen Demand		
	Winter	Summer
2010 Permit Limits (AML)	20 mg/L	8 mg/L
2010 Permit Limits (DML)	35 mg/L	15 mg/L
Mean	13 mg/L	6.4 mg/L
Median	6 mg/L	4.5 mg/L
Maximum	162 mg/L	54 mg/L
Highest 5 Values	162, 160, 108, 89, 85 mg/L	54, 53, 47, 44, 42 mg/L
Level of Concern	Potential Concern	Potential Concern

There are no acute or chronic limits for BOD stated under the EPA's *National Recommended Water Quality Criteria*. Permit Limits were calculated using the effluent concentration and design flow. The City has been meeting the AML for BOD but have exceeded the DML. BOD concentrations are expected to meet permit requirements following the completion of the SSU Project at the EWWTF.

Dissolved Oxygen (DO)

Table 6.13: Dissolved Oxygen	
Permit Limits/WQ Standard	Minimum of 5 mg/L
Mean	8 mg/L
Median	7.4 mg/L
Maximum	48.0 mg/L
Minimum	4.5 mg/L
Highest 5 Values	48.0, 15.4, 12.6, 10.6, 10.3 mg/L
Level of Concern	Not a concern

The limit requiring a minimum of 5.0 mg/L is consistent with the Massachusetts Water Quality Standards (314 CMR 4.05(3)1) for warm water fisheries. The City has a mean DO concentration of 8 mg/L, which meets NPDES Permit Limits and Water Quality Standards. In addition, the upgrades to the EWWTF recommended in the 2012 *POTW Optimization Evaluation of the Easterly Wastewater Treatment Facility* Report and detailed in Section 5 of this report are expected to further improve DO concentrations.

6.3 Summary and Recommendations

The City is expected to achieve the effluent loading requirements in the current NPDES Permit and other loadings that may cause concern in future NPDES Permits after the completion of the EWWTF upgrades. Table 6.14 summarizes potential regulatory compliance options the City may utilize to meet more stringent NPDES Permit conditions in the future.

Table 6.14: Theoretical Regulatory Compliance Options							
	Hardness	CT	WER	BLM	MZ-DF	pH/Temp	Concern
Copper	X	X	X	X	X		Medium
Nickel	X	X	X		X		No Concern
Zinc	X	X	X		X		Low
Aluminum	X		X		X	X	Low
Lead	X	X	X		X		Low
Cadmium	X	X	X		X		Low
Ammonia					X	X	Low
Total Phosphorus					X		Medium
Total Residual Chlorine					X		Low

As shown in the table, the pollutants of most concern are total phosphorus and copper. According to the City's monthly discharge monitoring reports and semi-annual reports, the City has been able to maintain the required interim total phosphorus limit of 0.5 mg/L with the system partially offline during construction of the SSU Project. After completion of the SSU project, the City intends to re-evaluate the need for additional process improvements to meet phosphorus limits as required by the NPDES Permit. In addition, adjustments to hardness and utilizing a BLM should improve the EWWTF's capacity to reduce copper concentrations in treated effluent.

Wastewater flow is a concern in the City because of the use of the secondary system bypass during wet weather events. However, future sewer separation projects are expected to significantly reduce flow entering the EWWTF. In addition, the SSU Project upgrades to the EWWTF will provide treatment for wastewater up to a peak hourly flow of 20 MGD during the month of May, 32 MGD during the summer, and 40 MGD during the winter. Flows up to 35 MGD during extreme wet-weather events will meet NPDES Permit discharge limits for BOD, TSS, and ammonia when utilizing CEPT, SSU Project upgrades, and the secondary system bypass.

The planned upgrades for the EWWTF to improve removal efficiencies are expected to bring the City into compliance with current and potential future NPDES Permit limits, as well as to increase the capacity of the facility.

In advance of the next permit cycle, The City intends to perform the following tasks:

1. After completion of the SSU project, re-evaluate the need for additional process improvements for meeting phosphorus limits as required by the NPDES Permit.
2. Evaluate merits of hardness adjustment at the EWWTF to a value greater than the previously determined receiving water hardness concentration of 56 mg/L.
3. Consider merits of a DOC data collection program to inform Reasonable Potential Analysis for aluminum, recognizing that such a program would introduce new data to the regulatory process in advance of the next permit cycle.
4. Explore criteria adjustments using one of EPA's procedures, where applicable: Biotic Ligand Model, Chemical Translator, or Water Effect Ratio to recalculate permit limits.

7.0 CSO LONG-TERM CONTROL PLAN

Fitchburg's CD requires an implementation plan to achieve compliance with water quality goals and the NPDES Permit for the City's combined sewer system. To accomplish this goal, a CSO LTCP was developed following the MassDEP and EPA guidelines identified in Section 2. The LTCP is provided in Appendix D and follows the EPA and MassDEP guidance steps identified below:

1. Modeling and other tasks to develop a background of the combined sewer system.
2. Outlet for public participation.
3. Identification of environmentally sensitive areas.
4. Identify and evaluate various CSO control alternatives to enable compliance with water quality standards.
5. Cost analysis of CSO control alternatives.
6. Operation and maintenance plan for the new CSO control alternatives.
7. Maximization of treatment capacity at the EWWTF.
8. Implementation schedule for CSO controls.
9. Post-construction monitoring plan (PCMP).

7.1 Summary and Recommendations

MassDEP requires that sewer separation is the primary method of CSO control unless proven to have a "widespread social and economic impact" (MassDEP, *Guidelines for Abatement of Pollution from CSO Discharges*, 1997). After conducting the cost analysis according to EPA's *Economic Guidance for Water Quality Standards*, sewer separation of the combined system was not found to have a substantial impact on the City. However, a more in-depth analysis of the economic impacts of sewer separation conducted by the City indicated that substantial economic impacts will occur based on the City's current Capital Improvement Plan. As a result, the City plans to prioritize sewer separation projects, as they have the largest environmental benefit. In addition, the sewer separation projects will result in significant improvements to the wastewater collection system and will have the greatest benefit to the City's ratepayers. To reduce the substantial economic impact on residents, the City plans to conduct the Tertiary Phosphorus Removal Project, if determined to be necessary, after the conclusion of sewer separation. A schedule of the anticipated work is provided in Section 8 of this report.

The opinion of probable cost for sewer separation is $37,895,400. Table 7.1 lists the estimated investigation and construction costs for each separation project. In each project, the investigation phase includes CCTV inspection, manhole inspections, smoke/dye testing/flooding, and building inspections in the tributary areas to each regulator. The construction phase of the project includes new sanitary sewers in the combined sewer areas, new manholes, the replacement of 50% of existing catch basins, and the replacement of all combination manholes with new twin chamber separation manholes. The opinion of probable cost was adjusted for construction escalation according to the corresponding estimated start date using the 2018 Boston Engineering News Record (ENR) Construction Cost Index (CCI) 12-month data-set. It should be noted that the opinion of probable cost is representative of sewer separation projects and does not address additional projects that may be imposed by requirements from regulatory agencies and future NPDES permits.

Table 7.1: Sewer Separation Capital Costs			
Regulator	Investigation (Including Engineering/Contingency)	Construction (Including Engineering/Contingency)	Total
CSO 004	$694,900	$4,103,000	$4,797,900
CSO 010	$216,400	$4,620,600	$4,837,000
CSO 041	$0	$1,011,700	$1,011,700
CSO 045	$598,800	$11,946,400	$12,545,200
CSO 064	$1,880,700	$10,061,300	$11,942,000
CSO 076	$127,800	$755,500	$883,300
CSO 083	$83,500	$1,794,800	$1,878,300
			$37,895,400

While conducting the remaining sewer separation projects, the City intends to continue the implementation of EPA's NMC. To supplement ongoing efforts to comply with the NMC, the City will continue to optimize their wastewater collection system capacity by investigating the options available to adjust pump station discharges and water treatment plant backwash operations to mitigate discharges during wet weather events. The City also plans to implement a more aggressive catch basin cleaning program to achieve greater functionality during wet weather events. To help raise public awareness and improve communication between the City and downstream communities, the City is looking into developing a notification system to alert downstream communities during CSO discharge events.

8.0 IMPLEMENTATION SCHEDULE

Weston & Sampson proposes the following recommendations and implementation schedule to meet the following requirements of the CD for the WMP:

- An itemized schedule of construction of facilities needed to meet a seasonal phosphorus concentration limit of 0.2 mg/L and a seasonal total phosphorus mass-based limit of 20.7 lb./day.
- An itemized schedule for investigation, rehabilitation, and construction work required for the collection system to meet the CSO conditions in the NPDES Permit by the end of 2030.

8.1 Total Phosphorus Concentration Recommendations/Treatment Facility Upgrades

After completion of the EWWTF upgrades identified in Section 5 of this report, the EWWTF is expected to handle a seasonal concentration limit of 0.2 mg/L. In addition, after the completion of the future sewer separation projects, the total flow entering the EWWTF will be an estimated 19.4 MGD during the five-year, 24-hour design storm. The SSU Project will provide treatment for the EWWTF wastewater up to a peak hourly flow up to 20 MGD during the month of May, 32 MGD during the summer, and 40 MGD during the winter. These flow rates are not expected to be exceeded during the five-year, 24-hour design storm. If the treatment capacity of the EWWTF is exceeded during the month of May and in the summer during extreme wet-weather events, flows up to 35 MGD will meet NPDES Permit discharge limits for BOD, TSS, and ammonia when utilizing the improvements from CEPT and SSU Projects, and the secondary system bypass.

The City intends to continue moving forward with the EWWTF upgrades to meet the CD requirements. As discussed in Sections 5 and 7 of this report, the Tertiary Phosphorus Removal Project will be re-evaluated and if needed, be conducted after the conclusion of the proposed sewer separation projects. In addition, the City intends to perform the following tasks related to the EWWTF in advance of the next permit cycle:

1. After completion of the SSU project, re-evaluate the need for additional process improvements for meeting phosphorus limits as required by the NPDES Permit.
2. Evaluate merits of hardness adjustment at the EWWTF to a value greater than the previously determined receiving water hardness concentration of 56 mg/L.
3. Consider merits of a DOC data collection program to inform Reasonable Potential Analysis for aluminum, recognizing that such a program would introduce new data to the regulatory process in advance of the next permit cycle.
4. Explore criteria adjustments using one of EPA's procedures, where applicable: Biotic Ligand Model, Chemical Translator, or Water Effect Ratio to recalculate permit limits.

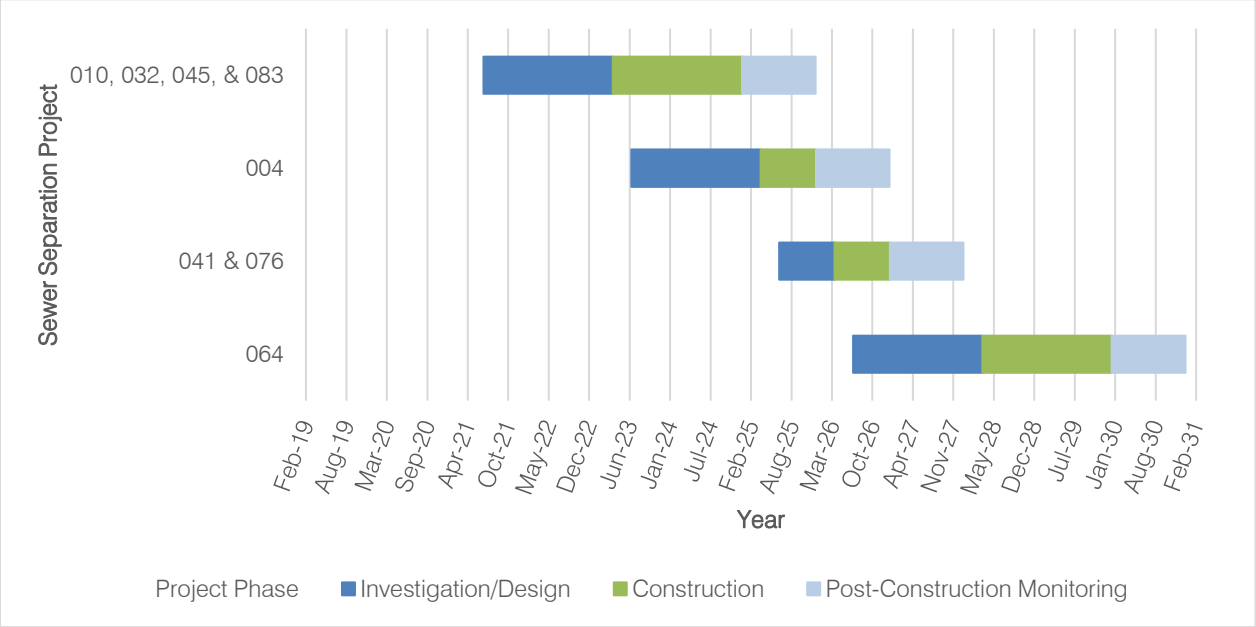
8.2 CSO Control Recommendations

As discussed in Section 7 and Appendix D: CSO Long-Term Control Plan, the City intends to pursue sewer separation for CSO control. To meet water quality standards prior to 2030, the City is pursuing an aggressive implementation schedule. The projects are recommended to follow the schedule identified in the Table 8.1. The project areas are depicted in Figure 3.

The sewer separation projects have been prioritized based on the number of historical overflow events, overflow volumes, and based on location of the regulators in the system. CSO 064 has been identified by the City as the largest regulator. Since 9 of the other 10 regulators are located upstream of CSO 064, sewer separation of the entire tributary area (including other regulator tributary areas) is required prior to regulator closure. As a result, this project has been identified as the final sewer separation project to be conducted. The projected project scheduling for the remaining sewer separation projects is provided in the table and figure below. Regulators 007, 039, and 048 are not included in the implementation schedule. These regulators are scheduled for closure during the construction phase of the CSO 039, 048, and Clarendon Street Sewer Separation Project expected to commence in 2020.

Table 8.1. Proposed Sewer Separation

CSO Separation Project	Investigation/Design	Construction	Post Construction Monitoring
010, 032, 045, & 083	July 2021 – March 2023	April 2023 – December 2024	January 2025 – December 2025
004	July 2023 – March 2025	April 2025 – December 2025	January 2026 – December 2026
041 & 076	July 2025 – March 2026	April 2026 – December 2026	January 2027 – December 2027
064	July 2026 – March 2028	April 2028 – December 2029	January 2030 – December 2030



After CSO 064, the regulator with the next largest contribution in overflow volume and events is CSO 045. Since CSO 032 and 083 are located upstream of CSO 045, closure of CSO 045 may not be feasible until all three project areas have been fully separated. As a result, these three areas have been combined into a single project and prioritized as the first sewer separation project to be conducted. The remaining projects are prioritized based on the severity of CSO volumes and occurrences.

The opinion of probable cost of combined sewer separation is $37,895,400. Rehabilitation costs of sanitary sewers inspected during the investigation phase of each project are not included in the total cost. This opinion of probable cost is representative of sewer separation projects and does not address additional projects that may be imposed by requirements from regulatory agencies and future NPDES permits. While conducting the sewer separation projects, the City will continue implementing the NMC until combined sewers no longer exist in the City.

8.3 Sanitary Sewer/Other Recommendations

Weston & Sampson recommends the continuation of the SSES Program by conducting the SSES Phase III project when funding is available. In addition, Weston & Sampson recommends the rehabilitation of sanitary sewers identified with excessive I/I and structural defects as a result of the SSES Program and combined sewer separation projects. After the conclusion of the SSES phases and the sewer separation projects, 100% of the wastewater collection system will have been investigated.

\\wse03.local\WSE\Projects\MA\Fitchburg MA\2170514 Wastewater On-Call Assistance\WMP\Wastewater Management Plan.docx

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FIGURES

FIGURE 1

CITY OF FITCHBURG, MASSACHUETTS
WASTEWATER MANAGEMENT PLAN

SEWER SYSTEM

MARCH 2019 SCALE: NOTED

Weston & Sampson

ASHBURNHAM
ASHBY
TOWNSEND
WESTMINSTER
LUNENBURG
LEOMINSTER
N
Stewart Road
Billings Road
Arm-how Farm Road
Ringe Road
Kyle Road
High Rock Road
Ashby West Road
Stoneybrook Road
Ashby State Road
Pearl Hill Road
Caswell Road
Scott Road
Richardson Road
Ashburnham Hill Road
Sheldon Road
Williams Road
McIntire Road
Stickney Road
Fisher Road
Roseland Drive
Crocker Drive
Wilkinson Way
John Fitch Highway
Flat Rock Road
Mechanic Street
Marshall Street
Blossom Street
Ridge Road
Marshall Road
Alpine Road
View Street
Prospect Street
Nichols Road
Elm Street
Arlington Street
Main Street
West Street
High Street
Mount Vernon Street
Pleasant Street
North Street
Highland Avenue
Pearl Street
Townsend Street
Lincoln Street
Klondike Avenue
Ashburnham Street
Belmont Road
Wallace Road
River Street
Kimball Street
Leighton Street
Boulder Drive
Lunenburg Street
Fairmount Street
Columbus Street
Laurel Street
Hazel Street
Charles Street
Passway
Sawyer
Boutelle Street
Summer Street
John Fitch Highway
Westminster Hill Road
Graham Street
Depot Street
Reingold Avenue
Hard Street
Chester Street
Madison Street
Clarendon Street
Beech Street
Pratt Road
Rollstone Street
Watson Street
Milk Street
Ellis Street
Heywood Street
Arden Mills Way
Central Avenue
Westminster Street
Industrial Road
Parson Circle
Construction Drive
Franklin Road
Oak Hill Road
Theresa Street
Electric Avenue
Laurel Avenue
Eastern Avenue
Belmont Street
Alpine Street
Canton Street
Bemis Road
Airport Road
Fabian Street
Belmont Street
Water Street
Abbott Avenue
Connors Street
South Street
Meadowbrook Lane
Crawford Street
Airport Road
Princeton Road
New ark Way
Sties Street
Cathy Street
Hollywood Road
Rollstone Road
Tibbett Circle
Mount Elam Road
Sadlebred Road
Bridle Cross Road
Tibbett Circle
Mellow Drive
Wanoosnoc Road
Olin Avenue
Route 2
Fifth Massachusetts Turnpike
Authority Drive
Old Princeton Road
Princeton Road
Fifth Massachusetts Turnpike
010
032
045
083
004
007
048
039
076
064
041
PS
2A
2
12
WESTERLY WASTEWATER TREATMENT FACILITY
EASTERLY WASTEWATER TREATMENT FACILITY

Legend

- Sewer Pump Stations
- Wastewater Treatment Facility
- **Sewer System**
- Building
- Standard MH
- Right of way
- Combination MH
- Hydrologic Connection
- Regulator MH
- Marsh/Bog
- Siphon
- Wooded marsh
- Sewer
- Open Water
- Combined
- SSES Phase III
- Force
- Town Border

1,500 0 1,500
Scale In Feet

FIGURE 2

CITY OF FITCHBURG, MASSACHUETTS
WASTEWATER MANAGEMENT PLAN

SSES PHASE III PROJECT AREA

MARCH 2019 SCALE: NOTED

Weston & Sampson

Legend

- Regulator Manhole
- Sewer Main
- Building
- Right of way
- Hydrologic Connection
- Marsh/Bog
- Wooded marsh
- Open Water
- SSES Phase III

Recommended Investigation/Separation Area

- CSO-004
- CSO-010
- CSO-032
- CSO-045
- CSO-076
- CSO-083
- CSO-064 (Remaining To Be Investigated)

LUNENBURG

LEOMINSTER

WESTMINSTER

SSES Phase III

CSO-032

CSO-045

CSO-010

CSO-083

CSO-076

CSO-004

SSES Phase III

SSES Phase III

N

1,250 0 1,250

Scale In Feet

FIGURE 3

CITY OF FITCHBURG, MASSACHUETTS
WASTEWATER MANAGEMENT PLAN

RECOMMENDED PROJECTS

MARCH 2019 SCALE: NOTED

Weston & Sampson SM

APPENDIX A

National Pollutant Discharge Elimination System Permit

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Clean Water Act as amended, (33 U.S.C. §§1251 et seq.; the "CWA"), and the Massachusetts Clean Waters Act, as amended, (M.G.L. Chap. 21, §§26-53),

City of Fitchburg
Wastewater Treatment Facilities Commission

is authorized to discharge from the facility located at:

Fitchburg East Wastewater Treatment Facility
24 Landies Lane
Fitchburg, MA 01420
and Combined Sewer Overflows listed in Attachment A

to receiving waters named:

North Nashua River (Outfall 063 and 18 CSOs), **Sand Brook** (1 CSO), **Birch Brook** (3 CSOs), **Baker Brook** (2 CSOs), **Punch Brook** (5 CSOs), **and unnamed tributaries** (4 CSOs) **in the Nashua River Watershed - MA81-03**

in accordance with effluent limitations, monitoring requirements and other conditions set forth herein.

This permit shall become effective on **September 1, 2010**

This permit and the authorization to discharge expire at midnight, five (5) years from the last day of the month preceding the effective date.

This permit supersedes the permit issued on September 13, 2002.

This permit consists of 20 pages in Part I including effluent limitations, monitoring requirements, Attachments A, B, C, & D, and 25 pages in Part II (Standard Conditions).

Signed this 22nd day of July, 2010

Director
Office of Ecosystem Protection
Environmental Protection Agency
Boston, MA

Director
Division of Watershed Management
Department of Environmental Protection
Commonwealth of Massachusetts
Boston, MA

PART I

A.1.During the period beginning the effective date and lasting through expiration, the permittee is authorized to discharge from outfall serial number **063,** treated effluent to the North Nashua River. Such discharge shall be limited and monitored by the permittee as specified below.

EFFLUENT CHARACTERISTIC	EFFLUENT LIMITS						MONITORING REQUIREMENTS	
	Mass Limits			Concentration Limits				
PARAMETER	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**MAXIMUM DAILY**	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE[3]**
FLOW[1]	***	***	***	Report MGD	***	Report MGD	CONTINUOUS	RECORDER
FLOW[2]	***	***	***	12.4 MGD	***	***	CONTINUOUS	RECORDER
BOD_5[4] (November 1 to April 30)	2070 lbs/Day	3100 lbs/Day	3620 lbs/Day	20 mg/l	30 mg/l	35 mg/l	1/DAY	24-HOUR COMPOSITE[5]
BOD_5[4] (May 1 to October 31)	830 lbs/Day	1240 lbs/Day	1550 lbs/Day	8 mg/l	12 mg/l	15 mg/l	1/DAY	24-HOUR COMPOSITE[5]
TSS[4] (November 1 to April 30)	3100 lbs/Day	4650 lbs/Day	5170 lbs/Day	30 mg/l	45 mg/l	50 mg/l	1/DAY	24-HOUR COMPOSITE[5]
TSS[4] (May 1 to October 31)	1030 lbs/Day	1550 lbs/Day	2070 lbs/Day	10 mg/l	15 mg/l	20 mg/l	1/DAY	24-HOUR COMPOSITE[5]
pH RANGE[6]	6.5 - 8.3 SU SEE PERMIT PAGE 7 PARAGRAPH I.A.2.b.						1/DAY	GRAB
DISSOLVED OXYGEN (May 1 to October 31)	***	***	***	5.0 mg/l minimum			1/DAY	GRAB
FECAL COLIFORM [6,7] (See Schedule)	***	***	***	200 cfu/100 ml	***	400 cfu/100 ml	1/DAY	GRAB
ESCHERICHIA COLI [6,7] (See Schedule)	***	***	***	126 cfu/100 ml	***	409 cfu/100ml	1/DAY	GRAB

Part I.A.1. continued

EFFLUENT CHARACTERISTIC	EFFLUENT LIMITS						MONITORING REQUIREMENTS	
	Mass Limits			Concentration Limits				
PARAMETER	AVERAGE MONTHLY	AVERAGE WEEKLY	MAXIMUM DAILY	AVERAGE MONTHLY	AVERAGE WEEKLY	MAXIMUM DAILY	MEASUREMENT FREQUENCY	SAMPLE TYPE[3]
TOTAL RESIDUAL CHLORINE [7, 8, 9, 10]	***	***	***	18 ug/l	***	30 ug/l	3/DAY	GRAB
TOTAL RESIDUAL CHLORINE [7, 8, 9, 10]	***	***	***	Report mg/l	***	Report mg/l	CONTINUOUS	Recorder
TOTAL PHOSPHORUS (November 1- March 31)	***	***	***	1.0 mg/l	***	Report mg/l	1/WEEK	24-HOUR COMPOSITE[5]
TOTAL PHOSPHORUS (April 1- October 31) [11]	20.7 lbs/day	***	Report mg/l	0.2 mg/l	***	Report mg/l	3/WEEK	24-HOUR COMPOSITE[5]
ORTHO PHOSPHORUS, DISSOLVED [11] (November 1- March 31)	***	***	***	Report mg/l	***	Report mg/l	1/WEEK	24-HOUR COMPOSITE[5]
TOTAL AMMONIA, as N (November 1 – April 30)	Report lbs/Day	***	Report lbs/Day	Report mg/l	***	Report mg/l	1/WEEK	24-HOUR COMPOSITE[5]
TOTAL AMMONIA, as N (May 1- May 31)	Report lbs/Day	***	Report lbs/Day	5.0 mg/l	5.0 mg/l	8.0 mg/l	2/WEEK	24-HOUR COMPOSITE[5]
TOTAL AMMONIA, as N (June 1- October 31)	Report lbs/Day	***	Report lbs/Day	1.0 mg/l	1.0 mg/l	2.0 mg/l	3/WEEK	24-HOUR COMPOSITE[5]

Part I.A.1. continued

EFFLUENT CHARACTERISTIC	EFFLUENT LIMITS						MONITORING REQUIREMENTS	
	Mass Limits			Concentration Limits				
PARAMETER	AVERAGE MONTHLY	AVERAGE WEEKLY	MAXIMUM DAILY	AVERAGE MONTHLY	AVERAGE WEEKLY	MAXIMUM DAILY	MEASUREMENT FREQUENCY	SAMPLE TYPE[3]
TOTAL ALUMINUM	***	***	***	139 ug/l	***	Report ug/l	1/MONTH	24-HOUR COMPOSITE[5]
TOTAL CADMIUM [12]	***	***	***	0.3 ug/l	***	2 ug/l	1/MONTH	24-HOUR COMPOSITE[5]
TOTAL COPPER	***	***	***	27 ug/l	***	39 ug/l	1/MONTH	24-HOUR COMPOSITE[5]
TOTAL LEAD [12]	***	***	***	3 ug/l	***	62 ug/l	1/MONTH	24-HOUR COMPOSITE[5]
TOTAL ZINC	***	***	***	117 ug/l	***	117 ug/l	1/MONTH	24-HOUR COMPOSITE[5]
WHOLE EFFLUENT TOXICITY [13, 14, 16, 17]	Acute $LC_{50} \geq 100\%$						4/YEAR	24-HOUR COMPOSITE[5]
WHOLE EFFLUENT TOXICITY [13, 15, 16, 17]	Chronic NOEC ≥ 62%						4/YEAR	24-HOUR COMPOSITE[5]

Sampling Location: Effluent samples shall be taken below the point that bypassed flows combine with the main flow and prior to discharge from Outfall 063.

Footnotes:

1. The monthly average and maximum daily flows for each month shall be reported. An attachment to the monthly DMRs containing the date, time of initiation, duration, and estimated total daily volume for all bypasses, as well as the total and maximum WWTF flow for each day that there was a bypass, shall be submitted each month. The permittee shall not accept septage during any calendar day in which a bypass of secondary treatment is anticipated.

2. This is an annual average limit, which shall be reported as a rolling average. The rolling average will be calculated as the arithmetic mean of the monthly average flow for the reporting month and the monthly average flows for the previous 11 months.

3. All required effluent samples shall be taken at the point specified on Page 4. All sampling shall be representative of the effluent that is discharged through Outfall 063 to the North Nashua River. A routine sampling program shall be developed in which samples are taken at the same location, same time and same day(s) of every month. Any deviations from the routine sampling program shall be documented in correspondence appended to the applicable discharge monitoring report that is submitted to EPA. In addition, all samples shall be analyzed using the analytical methods found in 40 CFR §136, or alternative methods approved by EPA in accordance with the procedures in 40 CFR §136.

4. Sampling required for influent and effluent. Influent samples shall be taken prior to the introduction of all recycle flows.

5. 24-hour composite samples will consist of at least twenty four (24) grab samples taken during one consecutive 24 hour period (e.g. 0700 Monday - 0700 Tuesday), either collected at equal intervals and combined proportional to flow or continuously collected proportionally to flow.

6. Required for State Certification.

7. Fecal coliform, *Escherichia coli* bacteria, and total residual chlorine limits and monitoring requirements are in effect year round. The average monthly limits for fecal coliform and *E.coli* are expressed as geometric means. Samples for fecal coliform bacteria and *E. coli* shall be taken at the same time as a total residual chlorine sample. An attachment to the monthly DMRs containing all individual sampling results for fecal coliform, *Escherichia coli* bacteria, and total residual chlorine, including the date and time of the sample and whether or not the facility was bypassing at the time of the sample, shall be submitted each month.

   The fecal coliform limits and monitoring requirements are in effect for one year after the effective date of this permit. One year from the effective date of this permit, the fecal coliform limits and monitoring requirements will end.

   The *E. coli* effluent limitations go into effect one year from the effective date of the permit. The monitoring and report requirements for *E. coli* go into effect on the effective date of this permit. The monitoring frequency for *E. coli* is 1/month during the first year after the effective date of the permit and 1/day thereafter.

8. The minimum level (ML) for total residual chlorine is defined as 20 ug/l. This value is the minimum level for chlorine using EPA approved methods found in the most currently approved edition of Standard Methods for the Examination of Water and Wastewater, Method 4500 CL-E and G.. One of these methods must be used to determine total residual chlorine. For effluent limitations less than 20

ug/l, compliance will be determined based on the ML. Sample results of less than 20 ug/l shall be reported as zero on the DMR.

9. The permittee shall collect and analyze a minimum of three grab samples per day from outfall 063 for determination of compliance with the monthly average and maximum daily limits. The permittee shall also report the monthly average and daily maximum discharge of TRC from outfall 063 using data collected by the continuous TRC analyzer. Four continuous recording charts (1/week), showing weekly data shall be submitted with the monthly DMRs. An attachment to the monthly DMRs containing the following information shall also be submitted each month:

    a. The average monthly, maximum daily and maximum instantaneous concentrations as measured by the continuous analyzer;

    b. A comparison between the results of the grab samples and the continuous analyzer reading, including the time of the grab samples;

    c. The total duration of time during the month that the continuous analyzer measurements were greater than the monthly average effluent limitation: and

    d. The total duration of time during the month that the continuous analyzer measurements were greater than the maximum daily effluent limitation.

10. Chlorination and dechlorination systems shall include an alarm system for indicating system interruptions or malfunctions. Any interruption or malfunction of the chlorine dosing system that may have resulted in levels of chlorine that were inadequate for achieving effective disinfection or interruptions or malfunctions of the dechlorination system that may have resulted in excessive levels of chlorine in the final effluent shall be reported with the monthly DMRs. The report shall include the date and time of the interruption or malfunction, the nature of the problem, and the estimated amount of time that the reduced levels of chlorine or dechlorination chemicals occurred.

11. The maximum daily concentration of orthophosphorus shall be the value from the same day the maximum daily total phosphorus value was measured.

12. The minimum level (ML) for total cadmium and total lead is defined as 0.5 ug/l. This value is the minimum reporting level for cadmium and lead using EPA approved methods found in the most currently approved edition of Standard Methods for the Examination of Water and Wastewater or USEPA Manual of Methods of Chemical Analysis of Water and Wastes. For effluent limitations less than 0.5 ug/l, compliance will be determined based on the ML. Sample results of less than 0.5 ug/l shall be reported as zero on the DMR.

13. The permittee shall conduct chronic (and modified acute) toxicity tests four (4) times per year using two species, the daphnid, Ceriodaphnia dubia and fathead minnow, Pimephales promelas. The chronic test may be used to calculate the acute LC_{50} at the 48 hour exposure interval. Toxicity test samples shall be collected during the second week of the months of March, June, September and December. The test results shall be submitted by the last day of the month following the completion of the test. The results are due by April 30, July 31, October 31 and January 31, respectively. The tests must be performed in accordance with test procedures and protocols specified in **Attachment B** of this permit.

14. The LC_{50} is the concentration of effluent which causes mortality to 50% of the test organisms. Therefore, a 100% limit means that a sample of 100% effluent (no dilution) shall cause no more than a

50% mortality rate.

15. C-NOEC (chronic-no observed effect concentration) is defined as the highest concentration of toxicant or effluent to which organisms are exposed in a life cycle or partial life cycle test which causes no adverse effect on growth, survival, or reproduction at a specific time of observation. The "62% or greater" limit is defined as a sample which is composed of 62% (or greater) effluent, the remainder being dilution water.

16. Synthetic, soft reconstituted water prepared in accordance with Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms (EPA/600/4-91/002) is authorized for use as dilution water in P. promelas tests. The permittee must continue to run the required sets of controls including chemistry (e.g. site water controls and lab water controls) when utilizing alternative dilution water.

17. If Ceriodaphnia dubia toxicity test(s) using receiving water as diluent show the receiving water to be toxic or unreliable, the permittee shall follow procedures outlined in **Attachment B** Toxicity Test Procedure and Protocol, Section IV, Dilution Water, in order to obtain permission to use an alternate dilution water or the permittee shall follow the Self-Implementing Alternative Dilution Water Guidance document which may be used to obtain automatic approval of an alternate dilution water, including the appropriate species for use with that water. This guidance is found in Attachment G of the NPDES Permit Program Instructions for the Discharge Monitoring Forms (DMRs) available on the EPA Region I website at http://www.epa.gov/region1/enforcementandassistance/dmr.html. If this Guidance document is revoked, the permittee shall revert to obtaining approval as outlined in **Attachment B**. Any modification or revocation to this guidance will be transmitted to the permittees as part of the annual DMR instruction package. However, at any time, the permittee may choose to contact EPA-New England directly using the approach outlined in **Attachment B**. The permittee must continue to run the required sets of controls including chemistry (e.g. site water controls and lab water controls) when utilizing alternative dilution water.

Part I.A.2.

a. The discharges shall not cause a violation of the water quality standards of the receiving waters.

b. The pH of the effluent shall not be less than 6.5 or greater than 8.3.

c. The discharges shall not cause objectionable discoloration of the receiving waters.

d. The effluent shall contain neither a visible oil sheen, foam, nor floating solids at any time.

e. The permittee's treatment facility shall maintain a minimum of 85 percent removal of both total suspended solids and biochemical oxygen demand. The percent removal shall be based on monthly average values.

f. If the annual average flow in any calendar year exceeds 80 percent of the facility's design flow, the permittee shall submit a report to MassDEP by March 31 of the following year describing its plans for further flow increases and describing how it will maintain compliance with the flow limit and all other effluent limitations and conditions.

g. The permittee shall minimize the use of chlorine while maintaining adequate bacterial control.

h. The results of sampling for any parameter in accordance with EPA approved methods above its required frequency must also be reported.

3. All POTWs must provide adequate notice to the Director of the following:

a. Any new introduction of pollutants into that POTW from an indirect discharger in a primary industry category discharging process water; and

b. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.

c. For purposes of this paragraph, adequate notice shall include information on:

(1) the quantity and quality of effluent introduced into the POTW; and

(2) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

4. Prohibitions Concerning Interference and Pass Through:

a. Pollutants introduced into POTWs by a non-domestic source (user) shall not pass through the POTW or interfere with the operation or performance of the works.

5. Toxics Control

a. The permittee shall not discharge any pollutant or combination of pollutants in toxic amounts.

b. Any toxic components of the effluent shall not result in any demonstrable harm to aquatic life or violate any state or federal water quality standard which has been or may be promulgated. Upon promulgation of any such standard, this permit may be revised or amended in accordance with such standards.

6. Numerical Effluent Limitations for Toxicants

EPA or MassDEP may use the results of the toxicity tests and chemical analyses conducted pursuant to this permit, as well as national water quality criteria developed pursuant to Section 304(a)(1) of the Clean Water Act (CWA), state water quality criteria, and any other appropriate information or data, to develop numerical effluent limitations for any pollutants, including but not limited to those pollutants listed in Appendix D of 40 CFR Part 122.

B. UNAUTHORIZED DISCHARGES

The permittee is authorized to discharge only in accordance with the terms and conditions of this permit and only from the outfalls listed in Part I.A.1. and Attachment A of this permit. Discharges of wastewater from any other point sources, including sanitary sewer overflows (SSOs) are not authorized by this permit and shall be reported in accordance with Section II. D.1.e. (1) of the General Requirements of this permit (Twenty-four hour reporting).

C. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

Operation and maintenance of the sewer system shall be in compliance with the General Requirements of Part II and the following terms and conditions:

1. Maintenance Staff

The permittee shall provide an adequate staff to carry out the operation, maintenance, repair, and testing functions required to ensure compliance with the terms and conditions of this permit.

2. Preventative Maintenance Program

The permittee shall maintain an ongoing preventative maintenance program to prevent overflows and bypasses caused by malfunctions or failures of the sewer system infrastructure. The program shall include an inspection program designed to identify all potential and actual unauthorized discharges.

3. Infiltration/Inflow Control Plan:

The permittee shall develop and implement a plan to control infiltration and inflow (I/I) to the separate sewer system. The plans shall be submitted to EPA and MassDEP **within twelve (12) months of the effective date of this permit** (see page 1 of this permit for the effective date) and shall describe the permittee's program for preventing infiltration/inflow related effluent limit violations, and all unauthorized discharges of wastewater, including overflows and by-passes due to excessive infiltration/inflow. The I/I plan requirements constitute an update of the previously required plan.

The plan shall include:

a. An ongoing program to identify and remove sources of infiltration and inflow. The program shall include the necessary funding level and the source(s) of funding;

b. An inflow identification and control program that focuses on the disconnection and redirection of illegal sump pumps and roof down spouts. Priority should be given to removal of public and private inflow sources that are upstream from, and potentially contribute to, known areas of sewer system backups and/or overflows;

c. Identification and prioritization of areas that will provide increased aquifer recharge as a result of reduction/elimination of infiltration and inflow to the system; and

d. An educational public outreach program for all aspects of I/I control, particularly private inflow.

4. Reporting Requirements:

A summary report of all actions taken to minimize I/I during the previous calendar year shall be submitted to EPA and the MassDEP annually, **by March 31**. The summary report shall, at a minimum, include:

a. A map and a description of inspection and maintenance activities conducted and corrective actions taken during the previous year.

b. Expenditures for any infiltration/inflow related maintenance activities and corrective

actions taken during the previous year.

c. A map with areas identified for I/I-related investigation/action in the coming year.

d. A calculation of the annual average I/I, the maximum month I/I for the reporting year.

e. A report of any infiltration/inflow related corrective actions taken as a result of unauthorized discharges reported pursuant to 314 CMR 3.19(20) and reported pursuant to the Unauthorized Discharges section of this permit.

5. Alternate Power Source

In order to maintain compliance with the terms and conditions of this permit, the permittee shall provide an alternative power source with which to sufficiently operate its treatment works (as defined at 40 CFR §122.2).

D. COMBINED SEWER OVERFLOWS (CSOs)

1. Effluent Limitations

During wet weather, the permittee is authorized to discharge storm water/wastewater from combined sewer outfalls listed in **Attachment A**, subject to the following effluent limitations:

a. The discharges shall receive treatment at a level providing Best Practicable Control Technology Currently Available (BPT), Best Conventional Pollutant Control Technology (BCT) to control and abate conventional pollutants and Best Available Technology Economically Achievable (BAT) to control and abate non-conventional and toxic pollutants. The EPA has made a Best Professional Judgment (BPJ) determination that BPT, BCT, and BAT for combined sewer overflow (CSO) control includes the implementation of Nine Minimum Controls (NMC) specified below and detailed further in Part I.D.2, "Nine Minimum Controls Minimum Implementation Levels" of this permit:

(1) Proper operation and regular maintenance programs for the sewer system and the combined sewer overflows;

(2) Maximum use of the collections system for storage;

(3) Review and modification of the pretreatment program to assure CSO impacts are minimized;

(4) Maximization of flow to the POTW for treatment;

(5) Prohibition of dry weather overflows from CSOs;

(6) Control of solid and floatable materials in CSOs;

(7) Pollution prevention programs that focus on contaminant reduction activities;

(8) Public notification to ensure that the public receives adequate notification of CSO occurrences and impacts;

(9) Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls.

b. **Within 6 months of the effective date of this permit**, the permittee shall submit to EPA updated documentation on its implementation of the Nine Minimum Controls. Implementation of the Nine Minimum Controls is required by the effective date of the permit. EPA and MassDEP consider that approvable documentation must include the minimum requirements set forth in Part I.D.2 of this permit and additional activities the permittee can reasonably undertake.

c. The discharges shall not cause or contribute to violations of federal or state Water Quality Standards.

2. Nine Minimum Controls Minimum Implementation Levels

a. The permittee must implement the nine minimum controls in accordance with the documentation provided to EPA and MassDEP or as subsequently modified to enhance the effectiveness of the controls. This implementation must include the following controls plus other controls the permittee can reasonably undertake as set forth in the documentation.

b. Each CSO structure/regulator, pumping station and/or tidegate shall be routinely inspected, at a minimum of once per month, to insure that they are in good working condition and adjusted to minimize combined sewer discharges and tidal surcharging (NMC # 1, 2 and 4). The following inspection results shall be recorded: the date and time of inspection, the general condition of the facility, and whether the facility is operating satisfactorily. If maintenance is necessary, the permittee shall record: the description of the necessary maintenance, the date the necessary maintenance was performed, and whether the observed problem was corrected. The permittee shall maintain all records of inspections for at least three years.

Annually, no later than January 15th, the permittee shall submit a certification to MassDEP and EPA which states that the previous calendar year's monthly inspections were conducted, results recorded, and records maintained.

MassDEP and EPA have the right to inspect any CSO related structure or outfall at any time without prior notification to the permittee.

c. Discharges to the combined system of septage, holding tank wastes, or other material which may cause a visible oil sheen or containing floatable material are prohibited during wet weather when CSO discharges may be active (NMC # 3, 6, and 7).

d. Dry weather overflows (DWOs) are prohibited (NMC # 5). All dry weather sanitary and/or industrial discharges from CSOs must be reported to EPA and MassDEP orally within 24 hours of the time the permittee becomes aware of the circumstances and a written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances (Paragraph D.1.e of Part II of this permit).

e. The permittee shall quantify and record all discharges from combined sewer outfalls (NMC # 9). Quantification may be through direct measurement or estimation. When estimating, the permittee shall make reasonable efforts, i.e. gauging or measurements, to verify the validity of the estimation technique. The following information must be recorded for each combined sewer outfall for each discharge event:

- Estimated duration (hours) of discharge;
- Estimated volume (gallons) of discharge;
- National Weather Service precipitation data from the nearest gage where precipitation is available at daily (24-hour) intervals and the nearest gage where precipitation is available at one-hour intervals. Cumulative precipitation per discharge event shall be calculated.

The permittee shall maintain all records of discharges for at least six years after the effective date of this permit.

Annually, no later than January 15th, the permittee shall submit a report containing the required discharge monitoring information for all combined sewer discharges during the previous calendar year.

f. The permittee shall install and maintain identification signs for all combined sewer outfall structures (NMC # 8). The signs must be located at or near the combined sewer outfall structures and easily readable by the public. These signs shall be a minimum of 12 x 18 inches in size, with white lettering against a green background, and shall contain the following information:

CITY OF FITCHBURG
WET WEATHER
SEWAGE DISCHARGE
OUTFALL (discharge serial number)

3. Nine Minimum Controls Reporting Requirement

Annually, no later than January 15th, the permittee shall submit a report summarizing activities during the previous calendar year relating to compliance with the nine minimum controls including the required information on the frequency, duration, and volume of discharges from each CSO.

E. COMBINATION MANHOLES

1. All discharges of separate sanitary sewage to storm water drains that discharge to waters of the United Sates are unauthorized discharges pursuant to Part I.B of this permit and are subject to the requirements of that Part.

2. For all combination manholes indicating evidence of the transference of sewage to a storm drain or transference of storm water to the sanitary sewer, based on monitoring results including, but not limited to, the results reported in Attachment C of the City of Fitchburg's comment letter dated September 21, 2009, the manhole shall be completely separated or otherwise modified within two years of the monitoring date in order to control the transfer of sewage and/or storm water.

3. For years three through five of the permit, the permittee shall monitor all combination manholes, except those that have been completely separated, once per year for storm events that equal or exceed two inches in a 24-hour period. The required inspections shall be conducted within 96 hours of the end of two separate and distinct storm events that exceed one inch in a 24-hour period.

The monitoring plan shall include the installation of secured tell-tale blocks on the weir wall, to

determine if sanitary wastewater transfers from the sanitary sewer to the storm drain or if storm water transfers from the storm drain to the sanitary sewer, in conjunction with a surcharge detection device suitable for determining the extent of surcharging conditions in the manhole.

For all combination manholes indicating evidence of the transference of sewage to a storm drain or transference of storm water to the sanitary sewer, the manhole shall be completely separated or otherwise modified within two years of the monitoring date in order to control the transfer of sewage and/or storm water.

4. The City shall create a log for recording information from all combination manhole inspections. The log shall include the following information at a minimum:

   a. combination manhole identification number;
   b. date and time of the inspection;
   c. date and time that the monitoring mechanism was set or reset; and
   d. the duration and intensity of the storm event that immediately preceded the inspection.
   e. a description of evidence indicating whether there has been a surcharge event resulting in transference of sewage to the storm drain or transference of storm water to the sanitary sewer. If surcharge conditions occurred it shall be assumed that transference of sewage to the storm drain **and** transference of storm water to the sanitary sewer has occurred.

5. Within twelve (12) months of the effective date of the permit, the permittee shall identify and assess all combination manholes in the Collection System, and shall submit a report providing the location and a description of each manhole (the "Combination Manhole Report") to EPA and MassDEP. For each combination manhole, the report shall include:

   a. the street address;
   b. a distinct identification number;
   c. a description or schematic of the control system within the manhole, including relative elevations of sewer and storm drain inverts, diameter of sewer and storm drain pipes, control structures separating pipes (weir walls, covers, etc);
   d. a determination of whether the storm sewer served by the combination manhole discharges to a surface water;
   e. a description and schematic of the sewer and storm drain entering and leaving the manhole, including proximity of the sewers and storm drains (i.e. over and under in a common trench vs. separate trench construction); and
   f. a large scale map or maps including a GIS layer of both the Collection System and the storm water drainage system indicating the location of each combination manhole with the identification number, any other sanitary and storm water connections (e.g. connections other than combination manholes installed to relieve surcharging in either system), water resource areas (i.e. rivers, lakes, wetlands, etc) in the vicinity of the combination manhole, and the location of the outfall of the storm drain served by the combination manhole. The map shall clearly depict the size and direction of flow of all sewers in the Collection System and storm water drainage system and shall distinguish between combined and separate sanitary sewers.

7. Within twenty-four (24) months of the effective date of this permit, and annually thereafter, the permittee shall submit to EPA and MassDEP a report presenting the results of the monitoring, including but not limited to the information in the log book and a description of remediation measures taken.

F. DEVELOPMENT OF LIMITATIONS FOR INDUSTRIAL USERS

1. Pollutants introduced into POTWs by a non-domestic source (user) shall not pass through the POTW or interfere with the operation or performance of the works.

2. The permittee shall develop and enforce specific effluent limits (local limits) for Industrial User(s), and all other users, as appropriate, which together with appropriate changes in the POTW facilities or operation, are necessary to ensure continued compliance with the POTW's NPDES permit or sludge use or disposal practices. Specific local limits shall not be developed and enforced without individual notice to persons or groups who have requested such notice and an opportunity to respond. Within **120 days of the effective date of this permit**, the permittee shall prepare and submit a written technical evaluation to the EPA analyzing the need to revise local limits. As part of this evaluation, the permittee shall assess how the POTW performs with respect to influent and effluent pollutants, water quality concerns, sludge quality, sludge processing concerns/inhibition, biomonitoring results, activated sludge inhibition, worker health and safety and collection system concerns. In preparing this evaluation, the permittee shall complete and submit the attached form **Attachment C** with technical evaluation to assist in determining whether existing local limits need to be revised. Justifications and conclusions should be based on actual plant data if available and should be included in the report. Should the evaluation reveal the need to revise local limits, the permittee shall complete the revisions within 120 days of notification by EPA and submit the revisions to EPA for approval. The permittee shall carry out the local limits revisions in accordance with EPA's Local Limits Development Guidance (EPA 833-R-04-002A, July 2004).

G. INDUSTRIAL PRETREATMENT PROGRAM

1. The permittee shall implement the Industrial Pretreatment Program in accordance with the legal authorities, policies, procedures, and financial provisions described in the permittee's approved Pretreatment Program, and the General Pretreatment Regulations, 40 CFR 403. At a minimum, the permittee must perform the following duties to properly implement the Industrial Pretreatment Program (IPP):

   a. Carry out inspection, surveillance, and monitoring procedures which will determine, independent of information supplied by the industrial user, whether the industrial user is in compliance with the Pretreatment Standards. At a minimum, all significant industrial users shall be sampled and inspected at the frequency established in the approved IPP but in no case less than once per year and maintain adequate records.

   b. Issue or renew necessary industrial user control mechanisms within 90 days of their expiration date or within 180 days after the industry has been determined to be a significant industrial user.

   c. Obtain appropriate remedies for noncompliance by any industrial user with any pretreatment standard and/or requirement.

   d. Maintain an adequate revenue structure for continued implementation of the Pretreatment Program.

2. In accordance with 40 CFR Part 403.12(i), the permittee shall provide the EPA and MassDEP with an annual report describing the permittee's pretreatment program activities for the twelve month period ending December 31. The annual report shall be consistent with the format described in **Attachment D** of this permit and shall be submitted no later than **March 1st** of each year.

3. The permittee must obtain approval from EPA prior to making any significant changes to the industrial pretreatment program in accordance with 40 CFR 403.18(c).

4. The permittee must assure that applicable National Categorical Pretreatment Standards are met by all categorical industrial users of the POTW. These standards are published in the Federal Regulations at 40 CFR 405 et. seq.

5. The permittee must modify its pretreatment program to conform to all changes in the Federal Regulations that pertain to the implementation and enforcement of the industrial pretreatment program. The permittee must provide EPA, in writing, within 180 days of this permit's effective date, proposed changes to the permittee's pretreatment program deemed necessary to assure conformity with current federal regulations. At a minimum, the permittee must address in its written submission, if applicable, the following areas: (1) Enforcement response plan; (2) revised sewer use ordinances; and (3) slug control evaluations. The permittee will implement these proposed changes pending EPA Region I's approval under 40 CFR 403.18. This submission is separate and distinct from any local limits analysis submission described above.

H. SLUDGE CONDITIONS

1. Standard Conditions

   a. The permittee shall comply with all existing federal and state laws and regulations that apply to sewage sludge use and disposal practices and the Clean Water Act section 405(d) technical standards.

   b. The permittee shall comply with the more stringent of either the state or federal requirements.

   c. No person shall fire sewage sludge in a sewage sludge incinerator except in compliance with the requirements of 40 CFR part 503 subpart E.

2. Pollutant Limitations

   a. Firing of sewage sludge shall not violate the requirements of the National Emission Standard for beryllium in 40 CFR part 61, subpart C - 10 grams per 24-hour period.

   b. Firing of sewage sludge shall not violate the requirements in the National Emission Standard for mercury in 40 CFR part 61, subpart E - 3200 grams per 24-hour period.

   c. The daily concentration of the metals in the sewage sludge fed to the incinerator shall not exceed the limits specified below (dry weight basis):

Metal	Maximum Daily
Arsenic	169 mg/kg
Cadmium	119 mg/kg
Chromium	1.0×10^4 mg/kg
Lead	4747 mg/kg

3. Operational Standards

   a. The exit gas from the sewage sludge incinerator stack shall be monitored continuously for

carbon monoxide.

b. The monthly average concentration of carbon monoxide in the exit gas from the sewage sludge incinerator, corrected for zero percent moisture and to seven percent oxygen, shall not exceed **100 ppm on a volumetric basis.**

c. The CO concentration shall be corrected to zero percent moisture using the correction factor below:

$$\text{Correction factor} = \frac{1}{(1-X)}$$

Where : X = decimal fraction of the percent moisture in the sewage sludge incinerator exit gas in hundredths.

d. The measured CO concentration shall be corrected to seven percent oxygen using the correction factor below:

$$\text{Correction factor} = \frac{14}{(21-Y)}$$

Where: Y = percent oxygen concentration in the sewage sludge incinerator stack exit gas (dry volume/dry volume).

e. The measured CO value shall be multiplied by the correction factors in items c and d. The corrected CO value shall be used to determine compliance with paragraph b.

4. Management Practices

a. An instrument that continuously measures and records the carbon monoxide concentration in the sewage sludge incinerator stack exit gas shall be installed, calibrated, operated and maintained for each incinerator.

b. An instrument that continuously measures and records the oxygen concentration in the sewage sludge incinerator stack exit gas shall be installed, calibrated, operated and maintained for each incinerator.

c. An instrument that continuously measures and records combustion temperatures shall be installed, calibrated operated and maintained for each incinerator.

d. Operation of the incinerator shall not cause the operating combustion temperature for the incinerator to exceed the performance test combustion temperature by more than 20 percent.

e. Any air pollution control devices shall be appropriate for the type of incinerator and operating parameters for the air pollution control device shall be adequate to indicate proper performance of the air pollution control device. For incinerators subject to the requirements of 40 CFR subpart O, operation of the air pollution control device shall not violate the air pollution control device requirements of that part.

f. Sewage sludge shall not be fired in an incinerator if it is likely to adversely affect a

threatened or endangered species listed under section 4 of the Endangered Species Act or its designated critical habitat.

g. The permittee shall notify the EPA and MassDEP if any continuous emission monitoring equipment is shut down or broken down for more that 72 hours while the incinerator continues to operate.

h. Notification shall include the following:

(1) The reason for the shut down or break down;
(2) Steps taken to restore the system;
(3) Expected length of the down time; and
(4) The expected length of the incinerator operation during the down time of the monitoring system.

i. Break downs or shut downs of less than 72 hours shall be recorded in the operations log along with an explanation of the event.

j. Copies of all manufacturer's instructions shall be kept on file and be available during inspections.

5. Monitoring Frequency

a. The frequency of monitoring for beryllium shall be as required in 40 CFR Part 61, Subpart C.

b. The frequency of monitoring for mercury shall be as required in 40 CFR Part 61, Subpart E.

c. The pollutants in paragraph 2c shall be monitored at the following frequency – **once per 60 days (6 times per year)**.

d. After the sewage sludge has been monitored for the pollutants in paragraph 2c for two years at the frequency specified above, the permittee may request a reduction in the monitoring frequency.

e. The operating parameters for the air pollution control devices shall be monitored at the following frequency - **1/day**.

f. The CO concentration in the exit gas, the oxygen concentration in the exit gas, information from the instrument used to determine moisture content, and combustion temperatures shall be monitored at the following frequency - **continuously**.

6. Sampling and Analysis

a. The sewage sludge shall be sampled at a location which is prior to entering the incinerator and provides a representative sample of the sewage sludge being incinerated.

b. The sewage sludge shall be analyzed using "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", EPA publication SW-846, Second Edition (1982) with Updates I (April 1984) and II (April 1985) and Third Edition (November 1986) with

Revision I (December 1987).

c. If emission testing is done for demonstration of NESHAPS, testing shall be in accordance with Method 101A in 40 CFR part 60, Appendix B, "Determination of Particulate and Gaseous Mercury Emissions from Sewage Sludge Incinerators".

d. Sewage sludge samples for mercury shall be sampled and analyzed using Method 105 in 40 CFR part 61, Appendix B, "Determination of Mercury in Wastewater Treatment Plant Sewage Sludge".

7. Record Keeping Requirements

a. The concentrations of the pollutants in paragraph 2c. Report the maximum value of each pollutant.

b. The CO concentration in the exit gas from the incinerator stack. Report the average monthly concentration.

c. Information that demonstrates compliance with the National Emission Standard for beryllium.

d. Information that demonstrates compliance with the National Emission Standard for mercury. If sludge sampling is used, include calculation for compliance demonstration.

e. The operating combustion temperature for the sewage sludge incinerator.

f. Values for the air pollution control devices operating parameters. Report the average monthly operating values.

g. The oxygen concentration and the information used to measure moisture content in the exit gas from the sewage sludge incinerator. Report the oxygen concentration and percent moisture results which were used to determine the CO values reported in paragraph 7b.

h. The sewage sludge feed rate to the incinerator. Record the average daily and average monthly feed rate.

i. The stack height of the incinerator.

j. The dispersion factor for the site where the incinerator is located.

k. The control efficiency for arsenic, lead, chromium, cadmium and nickel.

l. A calibration and maintenance log for the instruments used to measure the CO concentration and the oxygen concentration in the exit gas; the information need to determine moisture content in the exit gas, and the combustion temperatures.

8. Reporting

The permittee shall report the information in paragraphs 7 (a-g) **annually on February 19**.

I. MONITORING AND REPORTING

Reporting

Monitoring results obtained during each calendar month shall be summarized and reported on Discharge Monitoring Report Form(s) postmarked no later than the **15th day of the following month.**

Signed and dated originals of these, and all other reports required herein, shall be submitted to the Director and the State (with the exception of whole effluent toxicity test reports which should not be sent to the MassDEP Central Regional Office) at the following addresses:

Water Enforcement
OES4-SM
U.S. Environmental Protection Agency
5 Post Office Square, Suite 100
Boston, Massachusetts 02109-3912

Massachusetts Department of Environmental Protection
Central Regional Office
Bureau of Resource Protection
627 Main Street,
Worcester, Massachusetts 01608

Industrial Pretreatment Program Reports should be sent to:

Massachusetts Department of Environmental Protection
Bureau of Waste Prevention
Industrial Wastewater Program
1 Winter Street
Boston, MA 02108

Massachusetts Department of Environmental Protection
Bureau of Waste Prevention
627 Main Street
Worcester, MA 01608

Signed and dated Discharge Monitoring Report Forms and toxicity test reports required by this permit shall also be submitted to the State at:

Massachusetts Department of Environmental Protection
Division of Watershed Management
Surface Water Discharge Permit Program
627 Main Street, 2nd Floor
Worcester, Massachusetts 01608

J. STATE PERMIT CONDITIONS

This Discharge Permit is issued jointly by the U. S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) under Federal and State law, respectively. As such, all the terms and conditions of this permit are hereby incorporated into and constitute a discharge permit issued by the Commissioner of the MassDEP pursuant to M.G.L. Chap.

21, §43.

Each Agency shall have the independent right to enforce the terms and conditions of this permit. Any modification, suspension or revocation of this permit shall be effective only with respect to the Agency taking such action, and shall not affect the validity or status of this permit as issued by the other Agency, unless and until each Agency has concurred in writing with such modification, suspension or revocation. In the event any portion of this permit is declared, invalid, illegal or otherwise issued in violation of State law such permit shall remain in full force and effect under Federal law as an NPDES permit issued by the U.S. Environmental Protection Agency. In the event this permit is declared invalid, illegal or otherwise issued in violation of Federal law, this permit shall remain in full force and effect under State law as a permit issued by the Commonwealth of Massachusetts.

ATTACHMENT A

NPDES MA0100986

Combined Sewer Overflow Outfalls

City of Fitchburg

CSO Outfall #	Regulator Location	Receiving Water	Internal Regulator #	Base Flow to	CSO to
038	Daniels St. @ Fairmont St.	Nashua River @ Daniels St.			
	Pratt Rd. @ Madison St.		006	011	038
011	Clarendon St.@ Plymouth St.	Shares Outfall with 038			
	Clarendon St.@ St. Andrews St.		065	011	038
	377 Beech St.	Sand Brook @ Pratt Rd.	074	038	038
036	Laurel St. @ Putnum St.	Nashua River near Laurel St. Bridge			
	Pearl St. @ Milk St.		009	036	036
051	Water St. @ Centrino Memorial Bridge	Birch Brook			
076	Birch St. @ Heywood St.	Birch Brook @ Heywood St.			
	38 Birch Street		077	076	076
	Salem St. @ Birch St.		078	077	077
	50 Fairbanks St.		075	077	077
080	Ellis St. @ Kingsbury St.	Open ditch @ Kingsbury St. & Colburn St.			
017	Water Street @ Burnett St.	Birch Brook			
	55 Albee St. @ Burnett St.		018	017	017
	Hassett St. @ Burnett St.		081	017	017
016	509 Water St.	Nashua River near Birch Brook			
	Water St. near 016		016c	016b	017
	Water St. near 016		016a	016	016c
	Water St. near 016		016b	016	016
	Newton St. @ Water St.		15	016b	016a
064	Chamber behind 672 Water St.	Nashua River			
071	Leyte Rd. @ Normandy St.	Culverted brook ditch @ Water St. & Devlin Pass.			
079	Romano St. @ Belmont St.	Ditch @ Water St. & Canton St.			
041	Benson Rd. near Falulah St.	Abandoned Falulah Canel			
072	Pearl St. @ Townsend St.	Baker Brook @ Pearl St.			
	East St. @ Pearl St.		025	024	072
024	Boutelle St.@ Lunenburg St.	Baker Brook @ Lunenburg St.			
033	Summer St. grit chamber	Nashua River @ East Fitchburg Siphon		MTL	
023	Bemis Rd. Siphon	Shares Outfall with 033		033	
	Harrison Ave. off Boutelle St.		070	023	023
032	843 Main St. @ Post Office	Nashua River @ Circle St.			
030	Simmonds St. @ High St.	Nashua River near Rollstone St.			
045a	Main St. @ Putnum St. (a)	Punch Brook Culvert @ Boulder Dr. via Putnum St.			
045b	Main St. @ Putnum St. (b)	Punch Brook Culvert @ Boulder St. via Main St.			
053	41 Fox St.	Punch Brook Culvert @ Fox St.			
082	Oliver St. @ Police Staion	Punch Brook Culvert @ Oliver St.			
083	Main St. @ Prichard St.	Punch Brook Culvert @ Main St.			
004	Oakhill Rd. @ Cleghorn St.	Nashua River			
060	Kimball St. @ Cleghorn St.	Nashua River			
010	Main St. @ River St.	Nashua River			
031	Broad St. @ Rollstone St.	Nashua River			
007	Cushing St. Subway	Nashua River			
061	Cushing St. @ Boulder Dr.	Nashua River			
	Blossom St. @ Main St.		063	048	061
	Blossom St. @ Crescent St.		099	063	063
	Blossom St. @ Pearl St.		034	042	099
	Blossom St. 300' N of Ross St.		095	097	097
	Blossom St. 600' N of Ross St.		096	095	095
	Blossom St. @ Ross St.		097	098	098
	Blossom St. @ Ryefield Rd.		098	034	034
48	85 Water St. @ Crocker St.	Nashua River			
39	Water St. @ Walnut St.	Nashua River			
44	Nashua River near First & Railroad Sts.	Nashua River			
19	Nashua River				

ATTACHMENT B

FRESHWATER CHRONIC TOXICITY TEST PROCEDURE AND PROTOCOL

USEPA Region 1

I. GENERAL REQUIREMENTS

The permittee shall be responsible for the conduct of acceptable chronic (and modified acute) toxicity tests using three fresh samples collected during each test period. The following tests shall be performed as prescribed in Part 1 of the NPDES discharge permit in accordance with the appropriate test protocols described below. (Note: the permittee and testing laboratory should review the applicable permit to determine whether testing of one or both species is required).

- **Daphnid (Ceriodaphnia dubia) Survival and Reproduction Test.**
- **Fathead Minnow (Pimephales promelas) Larval Growth and Survival Test.**

Chronic and modified acute toxicity data shall be reported as outlined in Section VIII. The chronic fathead minnow and daphnid test data can be used to calculate an LC50 at the end of 48 hours of exposure when both acute (LC50) and chronic (C-NOEC) test endpoints are specified in the permit.

II. METHODS

Methods to follow are those recommended by EPA in: Short Term Methods For Estimating The Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, Fourth Edition. October 2002. United States Environmental Protection Agency. Office of Water, Washington, D.C., EPA 821-R-02-013. The methods are available on-line at http://www.epa.gov/waterscience/WET/ . Exceptions and clarification are stated herein.

III. SAMPLE COLLECTION AND USE

A total of three fresh samples of effluent and receiving water are required for initiation and subsequent renewals of a freshwater, chronic, toxicity test. The receiving water control sample must be collected immediately upstream of the permitted discharge's zone of influence. Fresh samples are recommended for use on test days 1, 3, and 5. However, provided a total of three samples are used for testing over the test period, an alternate sampling schedule is acceptable. The acceptable holding times until initial use of a sample are 24 and 36 hours for on-site and off-site testing, respectively. A written waiver is required from the regulating authority for any hold time extension. All test samples collected may be used for 24, 48 and 72 hour renewals after initial use. All samples held for use beyond the day of sampling shall be refrigerated and maintained at a temperature range of 0-6° C.

All samples submitted for chemical and physical analyses will be analyzed according to Section VI of this protocol.

Sampling guidance dictates that, where appropriate, aliquots for the analysis required in this protocol shall be split from the samples, containerized and immediately preserved, or analyzed as per 40 CFR Part 136. EPA approved test methods require that samples collected for metals analyses be preserved immediately after collection. Testing for the presence of total residual chlorine (TRC) must be analyzed immediately or as soon as possible, for all effluent samples, prior to WET testing. TRC analysis may be performed on-site or by the toxicity testing laboratory and the samples must be dechlorinated, as necessary, using sodium thiosulfate prior to sample use for toxicity testing.

If any of the renewal samples are of sufficient potency to cause lethality to 50 percent or more of the test organisms in any of the test treatments for either species or, if the test fails to meet its permit limits, then chemical analysis for total metals (originally required for the initial sample only in Section VI) will be required on the renewal sample(s) as well.

IV. DILUTION WATER

Samples of receiving water must be collected from a location in the receiving water body immediately upstream of the permitted discharge's zone of influence at a reasonably accessible location. Avoid collection near areas of obvious road or agricultural runoff, storm sewers or other point source discharges and areas where stagnant conditions exist. EPA strongly urges that screening for toxicity be performed prior to the set up of a full, definitive toxicity test any time there is a question about the test dilution water's ability to achieve test acceptability criteria (TAC) as indicated in Section V of this protocol. The test dilution water control response will be used in the statistical analysis of the toxicity test data. All other control(s) required to be run in the test will be reported as specified in the Discharge Monitoring Report (DMR) Instructions, Attachment F, page 2,Test Results & Permit Limits.

The test dilution water must be used to determine whether the test met the applicable TAC. When receiving water is used for test dilution, an additional control made up of standard laboratory water (0% effluent) is required. This control will be used to verify the health of the test organisms and evaluate to what extent, if any, the receiving water itself is responsible for any toxic response observed.

If dechlorination of a sample by the toxicity testing laboratory is necessary a "sodium thiosulfate" control, representing the concentration of sodium thiosulfate used to adequately dechlorinate the sample prior to toxicity testing, must be included in the test.

If the use of an alternate dilution water (ADW) is authorized, in addition to the ADW test control, the testing laboratory must, for the purpose of monitoring the receiving water, also run a receiving water control.

If the receiving water diluent is found to be, or suspected to be toxic or unreliable an ADW of known quality with hardness similar to that of the receiving water may be substituted. Substitution is species specific meaning that the decision to use ADW is made for each species and is based on the toxic response of that particular species. Substitution to an ADW is authorized in two cases. The first is the case where repeating a test due to toxicity in the site dilution water requires an **immediate decision** for ADW use be made by the permittee and

toxicity testing laboratory. The second is in the case where two of the most recent documented incidents of unacceptable site dilution water toxicity requires ADW use in future WET testing.

For the second case, written notification from the permittee requesting ADW use **and** written authorization from the permit issuing agency(s) is required **prior to** switching to a long-term use of ADW for the duration of the permit.

Written requests for use of ADW must be mailed with supporting documentation to the following addresses:

Director
Office of Ecosystem Protection (CAA)
U.S. Environmental Protection Agency-New England
One Congress St., Suite 1100
Boston, MA 02114-2023

and

Manager
Water Technical Unit (SEW)
U.S. Environmental Protection Agency
One Congress Street, Suite 1100
Boston, MA 02114-2023

Note: USEPA Region 1 retains the right to modify any part of the alternate dilution water policy stated in this protocol at any time. Any changes to this policy will be documented in the annual DMR posting.

See the most current annual DMR instructions which can be found on the EPA Region 1 website at http://www.epa.gov/region1/enforcementandassistance/dmr.html for further important details on alternate dilution water substitution requests.

V. TEST CONDITIONS AND TEST ACCEPTABILITY CRITERIA

Method specific test conditions and TAC are to be followed and adhered to as specified in the method guidance document, EPA 821-R-02-013. If a test does not meet TAC the test must be repeated with fresh samples within 30 days of the initial test completion date.

V.1. Use of Reference Toxicity Testing

Reference toxicity test results and applicable control charts must be included in the toxicity testing report.

If reference toxicity test results fall outside the control limits established by the laboratory for a specific test endpoint, a reason or reasons for this excursion must be evaluated, correction made and reference toxicity tests rerun as necessary.

If a test endpoint value exceeds the control limits at a frequency of more than one out of twenty then causes for the reference toxicity test failure must be examined and if problems are identified corrective action taken. The reference toxicity test must be repeated during the same month in which the exceedance occurred.

If two consecutive reference toxicity tests fall outside control limits, the possible cause(s) for the exceedance must be examined, corrective actions taken and a repeat of the reference toxicity test must take place immediately. Actions taken to resolve the problem must be reported.

V.1.a. Use of Concurrent Reference Toxicity Testing

In the case where concurrent reference toxicity testing is required due to a low frequency of testing with a particular method, if the reference toxicity test results fall slightly outside of laboratory established control limits, but the primary test met the TAC, the results of the primary test will be considered acceptable. However, if the results of the concurrent test fall well outside the established **upper** control limits i.e. ≥3 standard deviations for IC25s and LC50 values and ≥ two concentration intervals for NOECs or NOAECs, and even though the primary test meets TAC, the primary test will be considered unacceptable and must be repeated.

V.2. For the *C. dubia* test, the determination of TAC and formal statistical analyses must be performed using only the first three broods produced.

V.3. Test treatments must include 5 effluent concentrations and a dilution water control. An additional test treatment, at the permitted effluent concentration (% effluent), is required if it is not included in the dilution series.

VI. CHEMICAL ANALYSIS

As part of each toxicity test's daily renewal procedure, pH, specific conductance, dissolved oxygen (DO) and temperature must be measured at the beginning and end of each 24-hour period in each test treatment and the control(s).

The additional analysis that must be performed under this protocol is as specified and noted in the table below.

Parameter	Effluent	Receiving Water	ML (mg/l)
Hardness[1, 4]	x	x	0.5
Total Residual Chlorine (TRC)[2, 3, 4]	x		0.02
Alkalinity[4]	x	x	2.0
pH[4]	x	x	--
Specific Conductance[4]	x	x	--
Total Solids[6]	x		--
Total Dissolved Solids[6]	x		--
Ammonia[4]	x	x	0.1
Total Organic Carbon[6]	x	x	0.5
Total Metals[5]			
Cd	x	x	0.0005
Pb	x	x	0.0005
Cu	x	x	0.003
Zn	x	x	0.005
Ni	x	x	0.005
Al	x	x	0.02
Other as permit requires			

Notes:

1. Hardness may be determined by:
   - APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
     -Method 2340B (hardness by calculation)
     -Method 2340C (titration)
2. Total Residual Chlorine may be performed using any of the following methods provided the required minimum limit (ML) is met.
   - APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
     -Method 4500-CL E Low Level Amperometric Titration
     -Method 4500-CL G DPD Colorimetric Method
   - USEPA 1983. Manual of Methods Analysis of Water and Wastes
     -Method 330.5
3. Required to be performed on the sample used for WET testing prior to its use for toxicity testing
4. Analysis is to be performed on samples and/or receiving water, as designated in the table above, from all three sampling events.
5. Analysis is to be performed on the initial sample(s) only unless the situation arises as stated in Section III, paragraph 4
6. Analysis to be performed on initial samples only

VII. TOXICITY TEST DATA ANALYSIS AND REVIEW

A. Test Review

1. Concentration / Response Relationship

A concentration/response relationship evaluation is required for test endpoint determinations from both Hypothesis Testing and Point Estimate techniques. The test report is to include documentation of this evaluation in support of the endpoint values reported. The dose-response review must be performed as required in Section 10.2.6 of EPA-821-R-02-013. Guidance for this review can be found at http://www.epa.gov/waterscience/WET/guide/index.html . In most cases, the review will result in one of the following three conclusions: (1) Results are reliable and reportable; (2) Results are anomalous and require explanation; or (3) Results are inconclusive and a retest with fresh samples is required.

2. Test Variability (Test Sensitivity)

This review step is separate from the determination of whether a test meets or does not meet TAC. Within test variability is to be examined for the purpose of evaluating test sensitivity. This evaluation is to be performed for the sub-lethal hypothesis testing endpoints reproduction and growth as required by the permit. The test report is to include documentation of this evaluation to support that the endpoint values reported resulted from a toxicity test of adequate sensitivity. This evaluation must be performed as required in Section 10.2.8 of EPA-821-R-02-013.

To determine the adequacy of test sensitivity, USEPA requires the calculation of test percent minimum significant difference (PMSD) values. In cases where NOEC determinations are made based on a non-parametric technique, calculation of a test PMSD value, for the sole purpose of assessing test sensitivity, shall be calculated using a comparable parametric statistical analysis technique. The calculated test PMSD is then compared to the upper and lower PMSD bounds shown for freshwater tests in Section 10.2.8.3, p. 52, Table 6 of EPA-821-R-02-013. The comparison will yield one of the following determinations.

- The test PMSD exceeds the PMSD upper bound test variability criterion in Table 6, the test results are considered highly variable and the test may not be sensitive enough to determine the presence of toxicity at the permit limit concentration (PLC). If the test results indicate that the discharge is not toxic at the PLC, then the test is considered insufficiently sensitive and must be repeated within 30 days of the initial test completion using fresh samples. If the test results indicate that the discharge is toxic at the PLC, the test is considered acceptable and does not have to be repeated.

- The test PMSD falls below the PMSD lower bound test variability criterion in Table 6, the test is determined to be very sensitive. In order to determine which treatment(s) are statistically significant and which are not, for the purpose of reporting a NOEC, the relative percent difference (RPD) between the control and each treatment must be calculated and compared to the lower PMSD boundary. See *Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications Under the NPDES Program*, EPA 833-R-00-003, June 2002, Section 6.4.2. The following link: Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications Under the NPDES Program can be used to locate the USEPA website containing this document. If the RPD for a treatment falls below the PMSD lower bound, the difference is considered statistically insignificant. If the RPD for a treatment is greater that the PMSD lower bound, then the treatment is considered statistically significant.

- The test PMSD falls within the PMSD upper and lower bounds in Table 6, the sub-lethal test endpoint values shall be reported as is.

B. Statistical Analysis

1. General - Recommended Statistical Analysis Method

Refer to general data analysis flowchart, EPA 821-R-02-013, page 43

For discussion on Hypothesis Testing, refer to EPA 821-R-02-013, Section 9.6

For discussion on Point Estimation Techniques, refer to EPA 821-R-02-013, Section 9.7

2. *Pimephales promelas*

Refer to survival hypothesis testing analysis flowchart, EPA 821-R-02-013, page 79

Refer to survival point estimate techniques flowchart, EPA 821-R-02-013, page 80

Refer to growth data statistical analysis flowchart, EPA 821-R-02-013, page 92

3. *Ceriodaphnia dubia*

Refer to survival data testing flowchart, EPA 821-R-02-013, page 168

Refer to reproduction data testing flowchart, EPA 821-R-02-013, page 173

VIII. TOXICITY TEST REPORTING

A report of results must include the following:

- Test summary sheets (2007 DMR Attachment F) which includes:
  - Facility name
  - NPDES permit number
  - Outfall number
  - Sample type
  - Sampling method
  - Effluent TRC concentration
  - Dilution water used
  - Receiving water name and sampling location
  - Test type and species
  - Test start date
  - Effluent concentrations tested (%) and permit limit concentration
  - Applicable reference toxicity test date and whether acceptable or not
  - Age, age range and source of test organisms used for testing
  - Results of TAC review for all applicable controls
  - Test sensitivity evaluation results (test PMSD for growth and reproduction)
  - Permit limit and toxicity test results
  - Summary of test sensitivity and concentration response evaluation

In addition to the summary sheets the report must include:

- A brief description of sample collection procedures
- Chain of custody documentation including names of individuals collecting samples, times and dates of sample collection, sample locations, requested analysis and lab receipt with time and date received, lab receipt personnel and condition of samples upon receipt at the lab(s)
- Reference toxicity test control charts
- All sample chemical/physical data generated, including minimum limits (MLs) and analytical methods used
- All toxicity test raw data including daily ambient test conditions, toxicity test chemistry, sample dechlorination details as necessary, bench sheets and statistical analysis
- A discussion of any deviations from test conditions
- Any further discussion of reported test results, statistical analysis and concentration-response relationship and test sensitivity review per species per endpoint

Attachment C.

EPA - New England

Reassessment of Technically Based Industrial Discharge Limits

Under 40 CFR §122.21(j)(4), all Publicly Owned Treatment Works (POTWs) with approved Industrial Pretreatment Programs (IPPs) shall provide the following information to the Director: a written evaluation of the need to revise local industrial discharge limits under 40 CFR §403.5(c)(1).

Below is a form designed by the U.S. Environmental Protection Agency (EPA - New England) to assist POTWs with approved IPPs in evaluating whether their existing Technically Based Local Limits (TBLLs) need to be recalculated. The form allows the permittee and EPA to evaluate and compare pertinent information used in previous TBLLs calculations against present conditions at the POTW.

Please read direction below before filling out form.

ITEM I.

* In Column (1), list what your POTW's influent flow rate was when your existing TBLLs were calculated. In Column (2), list your POTW's present influent flow rate. Your current flow rate should be calculated using the POTW's average daily flow rate from the previous 12 months.

* In Column (1) list what your POTW's SIU flow rate was when your existing TBLLs were calculated. In Column (2), list your POTW's present SIU flow rate.

* In Column (1), list what dilution ratio and/or 7Q10 value was used in your old/expired NPDES permit. In Column (2), list what dilution ration and/or 7Q10 value is presently being used in your new/reissued NPDES permit.

  The 7Q10 value is the lowest seven day average flow rate, in the river, over a ten year period. The 7Q10 value and/or dilution ratio used by EPA in your new NPDES permit can be found in your NPDES permit "Fact Sheet."

* In Column (1), list the safety factor, if any, that was used

when your existing TBLLs were calculated.

* In Column (1), note how your bio-solids were managed when your existing TBLLs were calculated. In Column (2), note how your POTW is presently disposing of its biosolids and how your POTW will be disposing of its biosolids in the future.

ITEM II.

* List what your existing TBLLs are - as they appear in your current Sewer Use Ordinance (SUO).

ITEM III.

* Identify how your existing TBLLs are allocated out to your industrial community. Some pollutants may be allocated differently than others, if so please explain.

ITEM IV.

* Since your existing TBLLs were calculated, identify the following in detail:

  (1) if your POTW has experienced any upsets, inhibition, interference or pass-through as a result of an industrial discharge.

  (2) if your POTW is presently violating any of its current NPDES permit limitations - include toxicity.

ITEM V.

* Using current sampling data, list in Column (1) the average and maximum amount of pollutants (in pounds per day) received in the POTW's influent. Current sampling data is defined as data obtained over the last 24 month period.

  All influent data collected and analyzed must be in accordance with 40 CFR §136. Sampling data collected should be analyzed using the lowest possible detection method(s), e.g. graphite furnace.

* Based on your existing TBLLs, as presented in Item II., list in Column (2), for each pollutant the Maximum Allowable Headwork Loading (MAHL) values derived from an applicable

environmental criteria or standard, e.g. water quality, sludge, NPDES, inhibition, etc. For more information, please see p.,3-28 in EPA's *Guidance Manual on the Development and Implementation of Local Limits Under the Pretreatment Program*, 12/87.

Item VI.

* Using current sampling data, list in Column (1) the average and maximum amount of pollutants (in micrograms per liter) present your POTW's effluent. Current sampling data is defined as data obtained during the last 24 month period.

All effluent data collected and analyzed must be in accordance with 40 CFR §136. Sampling data collected should be analyzed using the lowest possible detection method(s), e.g. graphite furnace.

* List in Column (2A) what the Water Quality Standards (WQS) were (in micrograms per liter) when your TBLLs were calculated, please note what hardness value was used at that time. Hardness should be expressed in milligram per liter of Calcium Carbonate.

List in Column (2B) the current WQSs or "Chronic Gold Book" values for each pollutant multiplied by the dilution ratio used in your new/reissued NPDES permit. For example, with a dilution ratio of 25:1 at a hardness of 25 mg/l - Calcium Carbonate (copper's chronic WQS equals 6.54 ug/l) the chronic NPDES permit limit for copper would equal 156.25 ug/l.

ITEM VII.

* In Column (1), list all pollutants (in micrograms per liter) limited in your new/reissued NPDES permit. In Column (2), list all pollutants limited in your old/expired NPDES permit.

ITEM VIII.

* Using current sampling data, list in Column (1) the average and maximum amount of pollutants in your POTW's biosolids. Current data is defined as data obtained during the last 24 month period. Results are to be expressed as total dry weight.

All biosolids data collected and analyzed must be in accordance with 40 CFR §136.

In Column (2A), list current State and/or Federal sludge standards that your facility's biosolids must comply with. Also note how your POTW currently manages the disposal of its biosolids. If your POTW is planing on managing its biosolids differently, list in Column (2B) what your new biosolids criteria will be and method of disposal.

In general, please be sure the units reported are correct and all pertinent information is included in your evaluation. If you have any questions, please contact your pretreatment representative at EPA - New England.

REASSESSMENT OF TECHNICALLY BASED LOCAL LIMITS (TBLLs)

POTW Name & Address : _____

NPDES PERMIT # : _____

Date EPA approved current TBLLs : _____

Date EPA approved current Sewer Use Ordinance : _____

ITEM I.

In Column (1) list the conditions that existed when your current TBLLs were calculated. In Column (2), list current conditions or expected conditions at your POTW.		
	Column (1) EXISTING TBLLs	Column (2) PRESENT CONDITIONS
POTW Flow (MGD)		
Dilution Ratio or 7Q10 (from NPDES Permit)		
SIU Flow (MGD)		
Safety Factor		N/A
Biosolids Disposal Method(s)		

ITEM II.

EXISTING TBLLs			
POLLUTANT	NUMERICAL LIMIT (mg/l) or (lb/day)	POLLUTANT	NUMERICAL LIMIT (mg/l) or (lb/day)

ITEM III.

Note how your existing TBLLs, listed in Item II., are allocated to your Significant Industrial Users (SIUs), i.e. uniform concentration, contributory flow, mass proportioning, other. Please specify by circling.

ITEM IV.

Has your POTW experienced any upsets, inhibition, interference or pass-through from industrial sources since your existing TBLLs were calculated?

If yes, explain.

_____

_____

Has your POTW violated any of its NPDES permit limits and/or toxicity test requirements?

If yes, explain. _____

_____

ITEM V.

Using current POTW influent sampling data fill in Column (1). In Column (2), list your Maximum Allowable Headwork Loading (MAHL) values used to derive your TBLLs listed in Item II. In addition, please note the Environmental Criteria for which each MAHL value was established, i.e. water quality, sludge, NPDES etc.

Pollutant	Column (1) Influent Data Analyses Maximum (lb/day)	Average (lb/day)	Column (2) MAHL Values (lb/day)	Criteria
Arsenic				
Cadmium				
Chromium				
Copper				
Cyanide				
Lead				
Mercury				
Nickel				
Silver				
Zinc				
Other (List)				

ITEM VI.

Using current POTW effluent sampling data, fill in Column (1). In Column (2A) list what the Water Quality Standards (Gold Book Criteria) were at the time your existing TBLLs were developed. List in Column (2B) current Gold Book values multiplied by the dilution ratio used in your new/reissued NPDES permit.

Pollutant	Column (1) Effluent Data Analyses		Columns (2A) (2B) Water Quality Criteria (Gold Book)	
	Maximum (ug/l)	Average (ug/l)	From TBLLs (ug/l)	Today (ug/l)
Arsenic				
*Cadmium				
*Chromium				
*Copper				
Cyanide				
*Lead				
Mercury				
*Nickel				
Silver				
*Zinc				
Other (List)				

*Hardness Dependent (mg/l - CaCO3)

ITEM VII.

In Column (1), identify all pollutants limited in your new/reissued NPDES permit. In Column (2), identify all pollutants that were limited in your old/expired NPDES permit.

Column (1) NEW PERMIT		Column (2) OLD PERMIT	
Pollutants	Limitations (ug/l)	Pollutants	Limitations (ug/l)

ITEM VIII.

Using current POTW biosolids data, fill in Column (1). In Column (2A), list the biosolids criteria that was used at the time your existing TBLLs were calculated. If your POTW is planing on managing its biosolids differently, list in Column (2B) what your new biosolids criteria would be and method of disposal.

Pollutant	Column (1) Biosolids Data Analyses Average (mg/kg)	Columns (2A) Biosolids Criteria From TBLLs (mg/kg)	(2B) New (mg/kg)
Arsenic			
Cadmium			
Chromium			
Copper			
Cyanide			
Lead			
Mercury			
Nickel			
Silver			
Zinc			
Molybdenum			
Selenium			
Other (List)			

ATTACHMENT D

NPDES PERMIT REQUIREMENT
FOR
INDUSTRIAL PRETREATMENT ANNUAL REPORT

The information described below shall be included in the pretreatment program annual reports:

1. An updated list of all industrial users by category, as set forth in 40 C.F.R. 403.8(f)(2)(i), indicating compliance or noncompliance with the following:
   - baseline monitoring reporting requirements for newly promulgated industries
   - compliance status reporting requirements for newly promulgated industries
   - periodic (semi-annual) monitoring reporting requirements,
   - categorical standards, and
   - local limits;

2. A summary of compliance and enforcement activities during the preceding year, including the number of:
   - significant industrial users inspected by POTW (include inspection dates for each industrial user),
   - significant industrial users sampled by POTW (include sampling dates for each industrial user),
   - compliance schedules issued (include list of subject users),
   - written notices of violations issued (include list of subject users),
   - administrative orders issued (include list of subject users),
   - criminal or civil suits filed (include list of subject users) and,
   - penalties obtained (include list of subject users and penalty amounts);

3. A list of significantly violating industries required to be published in a local newspaper in accordance with 40 C.F.R. 403.8(f)(2)(vii);

4. A narrative description of program effectiveness including present and proposed changes to the program, such as funding, staffing, ordinances, regulations, rules and/or statutory authority;

5. A summary of all pollutant analytical results for influent, effluent, sludge and any toxicity or bioassay data from the wastewater treatment facility. The summary shall include a comparison of influent sampling results versus threshold inhibitory concentrations for the Wastewater Treatment System and effluent sampling results versus water quality standards. Such a comparison shall be based on the sampling program described in the paragraph below or any similar sampling program described in this Permit.

   At a minimum, annual sampling and analysis of the influent and effluent of the Wastewater Treatment Plant shall be conducted for the following pollutants:

   a.) Total Cadmium
   b.) Total Chromium
   c.) Total Copper
   d.) Total Lead
   e.) Total Mercury
   f.) Total Nickel
   g.) Total Silver
   h.) Total Zinc
   i.) Total Cyanide
   j.) Total Arsenic

   The sampling program shall consist of one 24-hour flow-proportioned composite and at least one grab sample that is representative of the flows received by the POTW. The composite shall consist of hourly flow-proportioned grab samples taken over a 24-hour period if the sample is collected manually or shall consist of a minimum of 48 samples collected at 30 minute intervals if an automated sampler is used. Cyanide shall be taken as a grab sample during the same period as the composite sample. Sampling and preservation shall be consistent with 40 CFR Part 136.

6. A detailed description of all interference and pass-through that occurred during the past year;

7. A thorough description of all investigations into interference and pass-through during the past year;

8. A description of monitoring, sewer inspections and evaluations which were done during the past year to detect interference and pass-through, specifying parameters and frequencies;

9. A description of actions being taken to reduce the incidence of significant violations by significant industrial users; and,

10. The date of the latest adoption of local limits and an indication as to whether or not the Town is under a State or Federal compliance schedule that includes steps to be taken to revise local limits.

APPENDIX B

Consent Decree

UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS

UNITED STATES OF AMERICA,	)	
Plaintiff,	)	
COMMONWEALTH OF MASSACHUSETTS,	)	CIVIL ACTION NO.
Plaintiff-Intervenor,	)	
v.	)	
CITY OF FITCHBURG, MASSACHUSETTS,	)	
Defendant.	)	

CONSENT DECREE

WHEREAS, the City of Fitchburg, Massachusetts (the "City" or "Fitchburg") discharges pollutants into navigable waters of the United States from a publicly owned treatment works ("POTW") treatment plant that it owns and operates on Lanides Lane in Fitchburg, Massachusetts pursuant to National Pollutant Discharge Elimination System ("NPDES") Permit No. MA0100986, which was reissued on September 1, 2010 (the "Permit");

WHEREAS, Fitchburg also discharges pollutants into navigable waters of the United States from combined sewer overflow ("CSO") discharge points;

WHEREAS, the plaintiff, the United States of America, on behalf of the United States Environmental Protection Agency ("EPA"), has filed a complaint simultaneously with this Consent Decree alleging that the City has violated the Permit and Section 301(a) of the Clean Water Act ("Act" or "CWA"), 33 U.S.C. § 1311(a);

WHEREAS, the Commonwealth of Massachusetts (the "Commonwealth"), on behalf of

the Massachusetts Department of Environmental Protection ("MassDEP"), has filed an assented-to motion to intervene as a plaintiff in the action brought by the United States and has filed a complaint that alleges that the City was, and is, in ongoing violation of Section 301 of the CWA, 33 U.S.C. § 1311, the Massachusetts Clean Waters Act, M.G.L. c. 21 § 26, *et seq*. ("Massachusetts Act"), and provisions of the Permit and State Permit No. MA0100986 issued by the MassDEP under the Massachusetts Act (said Federal and State permits having been jointly issued as a single permit);

WHEREAS, the City has implemented a number of projects and measures designed to reduce the frequency, volume and duration of discharges from its Combined Sewer System and bypasses of secondary treatment at the POTW Treatment Plant, but acknowledges that additional projects and measures must be implemented in order to achieve full compliance with the Permit;

WHEREAS, entry of this Consent Decree by the Court will resolve all claims in the complaint of the United States and the complaint of the Commonwealth, referred to herein collectively as the "Complaints";

WHEREAS, the United States, the Commonwealth, and the City (collectively, the "Parties"), agree, without admission of facts or law except as expressly stated herein, that settlement of this matter is in the public interest and that entry of this Consent Decree without further litigation is an appropriate resolution of the dispute, and the Parties consent to the entry of this Consent Decree; and

WHEREAS, settlement and entry of this Consent Decree does not constitute an admission of liability by the City.

NOW, THEREFORE, it is hereby ordered, adjudged, and decreed as follows:

I. STATEMENT OF CLAIM

1. The Complaints state claims upon which relief can be granted against the City pursuant to Section 309 of the CWA, 33 U.S.C. § 1319, and pursuant to Sections 43 and 46 of the Massachusetts Act, M.G.L. c. 21, §§ 43 and 46.

II. JURISDICTION AND VENUE

2. This Court has jurisdiction over the subject matter of this action pursuant to Section 309(b) of the CWA, 33 U.S.C. §1319(b), and 28 U.S.C. §§ 1331, 1345, and 1355, and under the doctrine of pendent jurisdiction. This Court has personal jurisdiction over the Parties to this Consent Decree. Venue properly lies in this district pursuant to Section 309(b) of the CWA, 33 U.S.C. § 1319(b), 28 U.S.C. §§ 1391(b) and (c), and 28 U.S.C. § 1395. The City waives all objections it might have raised to such jurisdiction or venue.

III. APPLICABILITY

3. The provisions of this Consent Decree shall apply to and be binding upon the City and its officers, directors, agents, employees acting in their official capacities, its successors, and assigns.

4. No transfer of any ownership interest in or any interest in the operation of the City's Sewer System, whether in compliance with this Paragraph or otherwise, shall relieve the City of its obligation to ensure that the terms of this Consent Decree are implemented. Any transfer involving ownership or operation of the Sewer System, or any portion thereof, to any other person or entity must be conditioned upon the transferee's agreement to be added as a party to the Consent Decree and to be jointly and severally liable with the Defendants to undertake the obligations required by all provisions of the Consent Decree. At least thirty (30) Days prior to

such transfer, the City shall provide a copy of this Consent Decree to the proposed transferee and shall simultaneously provide written notice of the prospective transfer, together with a copy of the above-referenced proposed written agreement, to EPA, the United States Attorney, the United States Department of Justice, MassDEP, and the Commonwealth in accordance with Section XV (Form of Notice). Any noncompliance with this Paragraph constitutes a violation of this Consent Decree.

5. The City shall provide a copy of this Consent Decree to all officers and agents whose duties might reasonably include compliance with any provisions of this Consent Decree. The City shall also provide a copy of this Consent Decree to all contractors and consultants retained to perform any obligation required by this Consent Decree on behalf of the City, and condition any such contract upon performance of the work in conformity with the terms of this Consent Decree. The City shall require that such contractors and consultants provide a copy of this Consent Decree to their subcontractors to the extent the subcontractors are performing work subject to this Consent Decree. Such contractors, consultants and subcontractors shall be deemed agents of the City for the purposes of this Consent Decree. In an action to enforce this Consent Decree, the City shall not assert as a defense against an action by EPA or the Commonwealth the failure by any of its officers, directors, employees, agents, servants, consultants, engineering firms, contractors, successors, and assigns to take actions necessary to comply with this Consent Decree.

IV. DEFINITIONS

6. Unless otherwise expressly provided herein, terms used in this Consent Decree which are defined in the CWA, regulations promulgated under the CWA, EPA's 1994 CSO Control Policy,

or in the MassDEP guidance document referenced in Paragraph 8.c, shall have the meaning ascribed to them in the CWA, the regulations promulgated thereunder, the CSO Control Policy, or the above referenced MassDEP guidance document. Whenever the terms listed below are used in this Consent Decree, the following definitions shall apply:

a. "Act" or "CWA" shall mean the Federal Water Pollution Control Act (commonly referred to as the Clean Water Act), as amended, 33 U.S.C. §§ 1251-1387.

b. "Approval by the EPA and the MassDEP," and "approved by the EPA and the MassDEP" shall mean the City's receipt of written approval from the EPA and/or MassDEP as required by this Consent Decree.

c. "Building/Private Property Backup" shall mean any release of wastewater into buildings or onto private property, except a release that is the result of blockages, flow conditions, or malfunctions of a building lateral or other piping/conveyance system that is not owned or operationally controlled by the City, or is the result of overland, surface flooding not emanating from the City's Sewer System.

d. "Combination Manholes" shall mean those manhole structures wherein are located a sanitary sewer and storm water sewer separated by a vertical masonry wall.

e. "Combined Sewer Overflow" or "CSO" shall mean any wet-weather overflow from a combined sewer in excess of the interceptor or regulator capacity that is discharged into a receiving water without going to the POTW Treatment Plant.

f. "Combined Sewer System" shall mean the pipelines in the City that are designed to convey wastewater and stormwater through a single pipe system to combined sewer overflow outfalls and/or the POTW Treatment Plant.

g. “Commonwealth” shall mean the Commonwealth of Massachusetts.

h. “Complaints” shall mean, collectively, the complaint filed by the United States and the complaint filed by the Commonwealth in this action.

i. “Consent Decree” shall mean this Consent Decree and all attachments hereto. In the event of conflict between this Consent Decree and any attachment, this Consent Decree shall control.

j. “Date of Entry” shall mean the date this Consent Decree is approved and signed by a United States District Court Judge for the District of Massachusetts.

k. “Date of Lodging” shall mean the Day this Consent Decree is filed for lodging with the Clerk of the Court for the United States District Court for the District of Massachusetts.

l. “Day” shall mean a calendar day. In computing any period of time under this Consent Decree, where the last Day would fall on a Saturday, Sunday, or Federal or Commonwealth holiday, the period shall run until the close of business of the next working Day.

m. “EPA” shall mean the United States Environmental Protection Agency and any successor departments or agencies of the United States.

n. “EPA’s 1994 CSO Control Policy” shall mean EPA’s April 19, 1994 CSO Control Policy, published at 59 Fed. Reg.18,688.

o. “Excessive Infiltration/Inflow” or “Excessive I/I” shall mean the Infiltration/Inflow (“I/I”) and Rainfall-Induced Infiltration that can be cost-effectively eliminated from the City’s Sewer System as determined by a cost effectiveness analysis that

compares the costs of eliminating the I/I with the total costs of transportation and treatment of the I/I (including capital costs of increasing sewage facilities capacity and treatment and the resulting operating costs).

p. “Infiltration” shall mean the water that enters the City=s Sewer System (including sewer service connections) from the ground through such means as defective pipes, pipe joints, connections or manholes. Infiltration does not include, and is distinguished from, Inflow.

q. “Infiltration/Inflow” shall mean, the total quantity of water present from both Infiltration and Inflow without distinguishing the source.

r. “Inflow” shall mean all water that enters the City’s Sewer System (including sewer service connections) from sources such as roof leaders, cellar drains, yard drains, area drains, foundation drains, drains from springs and swampy areas, manhole covers, cross connections between storm sewers and sanitary sewers, catch basins, storm waters, surface runoff, street wash waters, sump pump discharges or drainage. Inflow does not include, and is distinguished from, Infiltration.

s. “MassDEP” shall mean the Massachusetts Department of Environmental Protection and any successor departments or agencies of the Commonwealth.

t. “Minisystem” shall mean a subsystem of the Sewer System in which a key manhole located at the outlet of the subsystem can be used to measure the Infiltration/Inflow that occurs within the subsystem.

u. “Paragraph” shall mean a portion of this Consent Decree identified by an Arabic numeral or an upper or lower case letter.

v. “Parties” shall mean the United States, the Commonwealth of Massachusetts, and

the City of Fitchburg.

w. "Permit" shall mean National Pollutant Discharge Elimination System ("NPDES") Permit No. MA0100986 as reissued to the City on September 1, 2010.

x. "POTW Treatment Plant" shall mean the publicly owned treatment works wastewater treatment plant that the City of Fitchburg owns and operates on Lanides Lane in Fitchburg, Massachusetts.

y. "Rainfall-Induced Infiltration" shall mean Infiltration that enters the City's Sewer System and impacts the Sewer System flow rates similar to Inflow. Like Inflow, Rainfall-Induced Infiltration occurs as a result of rainfall. Rainfall-Induced Infiltration is the result of rainfall percolating through the soils into defects in sewer systems which generally lie near the surface.

z. "Sanitary Sewer Overflow" or "SSO" shall mean any overflow, spill, diversion, or release of wastewater from, or caused by, the City's Sewer System. This term shall include discharges to waters of the United States or the Commonwealth from the City's Sewer System, as well as any release of wastewater from the City's Sewer System to public or private property that does not reach waters of the United States or the Commonwealth, including Building/Private Property Backups.

aa. "Section" shall mean a portion of this Consent Decree identified by a Roman numeral.

bb. "Separate Storm Water Sewer System" shall mean the pipelines, conduits, pumping stations, force mains, and all other structures, devices, appurtenances, and facilities used for collecting and managing storm water that does not enter the Sewer System.

cc. "Sewer System" shall mean the pipelines, conduits, pumping stations, force mains, and all other structures, devices, appurtenances, and facilities used for collecting and conveying sanitary wastewaters (domestic, commercial and industrial wastewaters) and/or storm water through a single pipe system to CSO outfalls and/or the POTW Treatment Plant, but shall not include the Separate Storm Water Sewer System.

V. OBJECTIVES

7. It is the express intent of the Parties in executing this Consent Decree to require the City to perform all measures necessary to achieve and maintain compliance with the CWA, the Massachusetts Act, the Permit, and any applicable State and Federal regulations; to meet the objectives of the EPA's April 19, 1994 CSO Control Policy, 59 Fed. Reg. 18688 ("CSO Policy"); and to eliminate i) all SSOs from the Sewer System, ii) all prohibited bypasses at the POTW Treatment Plant, iii) all unauthorized discharges, and iv) all other violations of the Permit, the CWA and the Massachusetts Act.

8. Engineering designs and analyses required to be developed and performed pursuant to this Consent Decree shall be conducted using sound engineering practices, and, as applicable, consistent with:

a. EPA's Handbook: Sewer System Infrastructure Analysis and Rehabilitation, EPA/625/6-91/030, Oct. 1991;

b. EPA's Handbook for Sewer System Evaluation and Rehabilitation, EPA 430/9-75-021, Dec. 1975;

c. The MassDEP document entitled "Guidelines for Performing Infiltration/Inflow Analysis and Sewer System Evaluation Survey" revised January 1993; and

d. The currently effective edition of "TR 16: Guides for the Design of Wastewater Treatment Works."

VI. PENALTY FOR PAST VIOLATIONS

9. The City shall pay a civil penalty in the amount of one hundred forty-one thousand dollars ($141,000) ("Civil Penalty"), together with interest accruing from the Date of Entry, at the rate specified in 28 U.S.C. § 1961, one half to the United States and one half to the Commonwealth in satisfaction of the claims for civil penalties alleged in the Complaints through the Date of Lodging of the Consent Decree. Payment of the civil penalty shall be made within 30 Days after the Date of Entry of the Consent Decree.

10. The City shall make payment of seventy thousand five hundred dollars ($70,500) by FedWire Electronic Funds Transfer ("EFT") to the United States Department of Justice in accordance with written instructions to be provided to the City, following lodging of the Consent Decree by the United States Attorney's Office for the District of Massachusetts, Financial Litigation Unit, Boston, Massachusetts. The costs of such electronic funds transfer shall be the responsibility of the City. At the time of payment, the City shall send a copy of the EFT authorization form, the EFT transaction record, and a transmittal letter, which shall state that the payment is for the Civil Penalty owed pursuant to the Consent Decree in United States v. City of Fitchburg, Massachusetts, and shall reference the civil action number and DOJ case number 90-5-1-1-07874 to the EPA and the United States Department of Justice as specified in Section XV (Form of Notice) by email to acctsreceivable.CINWD@epa.gov, and by mail to:

EPA Cincinnati Finance Office
26 Martin Luther King Drive
Cincinnati, Ohio 45268.

If the City fails to tender payment within 30 Days after the Date of Entry of this Consent Decree, then interest shall accrue on the debt to the United States, from the Date of Entry of this Consent Decree, at the rate provided for in 28 U.S.C. § 1961.

11. Within 30 Days after receiving notice of entry of the Consent Decree, the City shall also pay a civil penalty to the Commonwealth in the form of a certified or cashier's check in the amount of seventy thousand five hundred dollars ($70,500), made payable to "Commonwealth of Massachusetts" and referencing this Consent Decree and the purpose of the payment (e.g., civil penalty, stipulated penalty), and mailed to: Commonwealth of Massachusetts, Office of the Attorney General, One Ashburton Place, Room 1813, Boston, Massachusetts, 02108, Attention: Louis Dundin, Assistant Attorney General, Environmental Protection Division. If the City fails to tender payment within 30 Days of entry of this Consent Decree, then interest shall accrue on the debt to the Commonwealth, from the date of entry of this Consent Decree, at the rate provided for in M.G.L. c. 231 § 6B and shall pay all expenses associated with collection by the Commonwealth of the unpaid amounts and interest for any period of nonpayment after the payment obligation becomes due, including reasonable attorneys' fees and costs of collection incurred by the Commonwealth.

VII. REMEDIAL MEASURES

A. SEWER SYSTEM

Sewer System Operation & Maintenance

12. EPA and the MassDEP have reviewed and conditionally approved the City's Sewer System Operation and Maintenance ("MOM") submittal (which is attached as Attachment 1) subject to the submission by October 31, 2012, of updated assessments of staffing levels,

equipment inventories, and preventative maintenance practices.

Long-Term Sewer System Preventive Maintenance Plan

13. EPA and the MassDEP have reviewed and approved the City's Long-Term Sewer System Preventative Maintenance Program Plan ("Preventative Maintenance Plan"), which is designed as a reference guide for the City's employees.

14. The approved Preventative Maintenance Plan (which is attached at Attachment 2) is incorporated and enforceable hereunder and shall be continuously implemented.

15. By October 31, 2012, the City shall submit to EPA and the MassDEP an assessment of the adequacy of the City's Sewer System maintenance staff, equipment and spare parts inventories.

MOM Corrective Action Plan

16. By October 31, 2012, the City shall submit to EPA and the MassDEP for review and approval a plan to correct any identified operation and maintenance-related deficiencies ("MOM Corrective Action Plan") that includes the following:

a. a list of any operation and maintenance-related deficiencies identified by the MOM Program Self Assessment;

b. a list of the operation and maintenance-related causes and contributing factors that led to the unauthorized discharges identified in the MOM Program Self-Assessment Checklist;

c. a description of the specific short- and long-term actions that the City is taking, or plans to take, in addition to those measures required by this Consent Decree, to address the deficiencies identified during the completion of the MOM Program Self-Assessment Checklist;

d. updated assessments of staffing levels, equipment inventories, and preventative

maintenance practices and

e. a schedule for the implementation of the MOM Corrective Action Plan.

17. The MOM Corrective Action Plan and schedules shall be incorporated and enforceable hereunder upon their approval or conditional approval by EPA and the MassDEP.

Priority Cleaning Plan

18. EPA and the MassDEP have reviewed and approved the City's Priority Cleaning Plan ("Priority Cleaning Plan").

19. The approved Priority Cleaning Plan and schedules (which are attached as Attachment 3) are incorporated and enforceable hereunder.

Routine Cleaning Plan

20. EPA and the MassDEP have reviewed and approved the City's Routine Cleaning Plan.

21. The approved Routine Cleaning Plan and schedules (which are attached as Attachment 4) are incorporated and enforceable hereunder.

Geographic Information System ("GIS") Map

22. EPA and the MassDEP have reviewed and approved the City's currently available geographic information system ("GIS") and other digital mapping of the City's Sewer System which will facilitate the City's operation and maintenance of its Sewer System and its compliance with the requirements of this Consent Decree. Annually, in February of each year, the City shall submit updated maps reflecting newly developed and/or discovered information, corrections, and modifications for review and approval by EPA and the MassDEP in conjunction with the Compliance Reports submitted pursuant to Paragraph 70 of this Consent Decree. Such mapping shall be designed to provide a comprehensive depiction of key infrastructure and

factors influencing the proper operation and maintenance of both systems and each update shall include progress toward achieving that design. Mapping themes shall include: sanitary and storm sewer infrastructure, prior investigation and study findings, cleaning and repair activities, capital projects, and water resource and topographic features. The scale and detail of the maps shall be appropriate to facilitate a clear understanding of the Sewer System by the City, EPA and the MassDEP. In addition, the mapping shall serve as a planning tool for the implementation of future Sewer System remedial measures; and shall delineate the extent of completed and planned investigations and corrections; and other related capital projects. To ensure legible mapping, information shall be grouped appropriately and represented thematically (e.g., by color coding) with legends or schedules where possible. Mapping shall be updated as necessary to reflect newly developed and discovered information, corrections or modifications. The following information and features, as updated and modified with approval, shall at a minimum be included in the mapping:

Base Map

- Municipal boundaries;
- Street names; and
- Private property delineations.

Infrastructure

- Municipal sanitary sewer system (including inter-municipal connections);
- Municipal combined sewer system;
- Municipal separate storm sewer system (including inter-municipal and private connections where available)
- Thematic representation of sewer material, size, and age;

- Sewer flow direction and flow type (e.g., pressure, vacuum, gravity);

- Select rim and invert elevations (for comparison with water table and vertical separation between systems);

- Aerial delineations of major separate storm sewer catchment areas, sanitary sewersheds, combined sewersheds, and areas served by on-site subsurface disposal systems;

- Common/twin-invert manholes or structures ("Combination Manholes") (i.e., structures serving or housing both separate storm and sanitary sewers);

- Sanitary and storm sewer alignments served by known or suspected underdrain systems;

- Sewer alignments with common trench construction and major crossings representing high potential for communication during high groundwater conditions;

- Pump stations (public and private), and other key sewer appurtenances;

- Sewersheds or sewer alignments experiencing inadequate level of service (with indication of reason(s));

- Location(s) of known sanitary sewer overflows ("SSOs") and combined sewer overflows ("CSOs") (with indication of cause(s); and

- Location of all catch basins, and their respective discharge locations (storm sewer, sanitary sewer, or combined sewer systems).

Water Resources and Topographic Features

- Water bodies and watercourses identified by name; and

- Topography

Extraneous Flow Investigations, Remediation, and Capital Projects completed on or after 2009

- Alignments, dates, and thematic representation of work completed (with legend) of past extraneous flow investigations (e.g. flow isolation, dye testing, CCTV, etc.);

- Locations of suspected, confirmed, and corrected illicit discharges (with dates and flow estimates) to the sanitary sewer system;

- Recent and planned sewer infrastructure cleaning and repair projects;

- Alignments and dates of past and planned Infiltration/Inflow ("I/I") investigations and sanitary sewer remediation work;
- Planned Sewer System and storm sewer system capital projects; and
- Proposed phasing of future extraneous flow reduction measures.

Combination Manholes

23. The City shall comply with Part E (Combination Manholes) of its September 1, 2010 NPDES permit and all subsequent re-issuances or modifications of that provision of the City's NPDES permit.

Extraneous Flow Projects and Investigations

Priority Extraneous Flow Reduction Projects

24. On June 29, 2011, the City submitted a Priority Extraneous Flow Reduction Projects Report, which included a list of cost-effective extraneous flow reduction projects, a general description of the projects and their locations, the estimated extraneous flow reductions that would be achieved by implementation of each of the projects, and the proposed implementation schedules. Attachment 5) includes specific descriptions and schematics of each of the projects. The projects and schedules are incorporated and enforceable hereunder.

25. By March 31, 2014, the City shall submit to EPA and the MassDEP for review and approval, a report that evaluates the feasibility of eliminating all remaining intermittent and continuous stream connections to the City's Sewer System that are not remedied by the projects identified in Paragraph 24 and that can be identified with equipment and materials available to the City and it contractors. The report shall delineate the conditions under which the streams discharge to the Sewer System, the estimated extraneous flow contributions to the Sewer System, and a recommendation for the removal of each stream discharge. The report shall include the

costs associated with each removal, and a schedule for each stream discharge that will be relocated. The report's recommendations including a full description of specific projects and schedules shall be incorporated and enforceable hereunder upon their approval or conditional approval by EPA and the MassDEP.

SSES Scope of Work

26. By December 31, 2015, the City shall submit to EPA and the MassDEP for review and approval, a Sewer System Evaluation Survey ("SSES") Scope of Work ("SOW") for the separate sanitary sewer system. For those mini-systems determined to contain excessive I/I, the SSES SOW shall include recommendations, and schedules for their implementation, for additional extraneous flow investigations necessary to identify and, where practicable, quantify both public and private sources of infiltration, Rainfall-Induced Infiltration, and Inflow. The SSES SOW shall be incorporated and enforceable hereunder upon its approval or conditional approval by EPA and the MassDEP.

SSES/SSES Report

27. The City shall conduct an SSES in accordance with the approved SSES SOW and shall submit to EPA and the MassDEP, for review and approval, an SSES Report that identifies all remaining sources of extraneous flow that are cost effective to remove and includes a comprehensive plan for their removal. It shall include, but need not be limited to, the following information for each mini-system investigated under the SSES.

<u>Infiltration/Inflow - Public Sources</u>

a. a listing of identified public sources of I/I;

b. a listing of the public sources that were deemed "Excessive";

c. a narrative description of the cost-effectiveness analyses that were used to determine which public sources of I/I are more cost-effective to remediate than to transport and treat, and the bases of the analyses;

d. proposals for rehabilitating or replacing components found to be structurally deficient or sources of Excessive I/I during the SSES and a schedule for implementing the recommended rehabilitation/replacement measures, including engineering design and construction; and

Infiltration/Inflow - Private Sources

e. Identification of each mini-system in which excessive Rainfall-Induced Infiltration or Inflow is determined to exist. For each mini-system in which excessive Rainfall-Induced Infiltration or Inflow is determined to exist, the SSES shall include, but need not be limited to, the following information:

i. a street map of the mini-system that delineates the location of properties discharging to Sewer System, the location of each property that was determined to be an actual, or potential source of extraneous flow to the Sewer System during any of the City's extraneous flow investigations. The map shall highlight those properties that have disconnected extraneous flows from the Sewer System as well as those properties the City has yet to inspect. The City shall supplement the map with:

ii. a description and address listing of all identified private sources of extraneous flow;

iii. an address listing of the sources that were remediated and the type of remedial measure that was implemented;

iv. the date the remedial measure was implemented;

v. the date that the property was re-inspected to verify that the extraneous flow remains redirected;

vi. the measures that the City plans to use in the future to verify the redirection of private sources of extraneous flow, and a schedule for their implementation;

vii. the measures that the City plans to implement to require other confirmed or potential private sources of extraneous flow to redirect the extraneous flow and a schedule for their implementation; and

viii. a determination of whether it is cost-effective to remediate or redirect identified private sources of extraneous Rainfall-Induced Infiltration and Inflow or to modify the Sewer System to convey the extraneous flow to the City's POTW Treatment Plant. The analysis shall include, but need not be limited to:

1) recommendations regarding the disposition of each identified source of private extraneous flow;

2) an assessment of whether conditions permit redirection of the identified sources to the ground and the range of costs associated with this type of remedial measure;

3) an assessment of the availability of storm sewers and storm sewer capacity and/or whether the Separate Storm Water Sewer System can be extended to receive the identified extraneous flow sources and the range of costs associated with this type of remedial measure;

4) an assessment of the cost of conveyance of extraneous flows to the

City’s POTW without exacerbating downstream overflows;

5) an assessment of cost apportionment, between the City and users, as well as potential incentives for the removal of private sources of extraneous flow;

6) the framework of a City-wide public education plan to promote the elimination of private sources of Rainfall-Induced Infiltration and Inflow and a schedule for the plan's implementation;

7) an evaluation of whether changes in the City's ordinances or by-laws are necessary to implement or facilitate the planned remedial measures. If the City determines that changes in the City's ordinances or by-laws, or in the ordinance(s) of other entities that contribute wastewater to the City's Sewer System are necessary to implement or facilitate the planned remedial measures, the City shall submit a proposed schedule for implementing said ordinances or by-laws and shall:

(a) notify the other entities that contribute wastewater to the City's Sewer System in writing of the changes requested to their ordinances; and

(b) make changes to inter-municipal agreements to require necessary ordinance changes; and

8) a schedule to implement the private extraneous source reduction recommendations of the SSES.

SSES Report Implementation Schedule

28. The SSES recommendations and implementation schedules shall be incorporated and enforceable hereunder upon their approval or conditional approval by EPA and the MassDEP.

Combined Sewer System

29. On April 19, 2011, the City modified CSO regulator 023 to restrict overflows from that location, and convey all flows from upstream of that point to the downstream section of the Sewer System, and convey those flows, to the Sewer System's maximum capacity to the POTW Treatment Plant.

30. By December 31, 2014, the City shall advise EPA whether it is able to permanently close Regulator 023.

31. On February 28, 2012, the City advised EPA and the MassDEP that it had installed continuous monitoring devices (level indicators and high level alarms) to quantify and record the discharges from those CSO locations that were not previously continuously monitored.

32. The City has certified to EPA and the MassDEP that it is inspecting its CSO outfalls in accordance with the Part I.D.2.b of NPDES Permit No. MA0100986. The City shall annually submit for review and approval the inspection certification required by its NPDES Permit to EPA and the MassDEP by February 28th of each year.

33. The City has certified to EPA and the MassDEP that it is quantifying and recording discharges from each of its CSO outfalls and recording hourly precipitation, and cumulative precipitation during CSO discharge events in accordance with the Part I.D.2.e of NPDES Permit No. MA0100986. The City shall submit to EPA and the MassDEP a spreadsheet, organized chronologically, listing the duration of each discharge, the calculated or estimated volume of each discharge, and the cumulative precipitation that occurred during each discharge Day for the preceding calendar year. If quantification of the discharges is not made through direct measurement, the City shall provide the basis of any estimates that are submitted. The City shall

annually submit the above certification and spreadsheet for the previous calendar year to EPA and the MassDEP by February 28th of each year.

34. By February 28th, 2013, and annually thereafter, the City shall provide an itemized list of weir adjustments or other regulator changes that the City has implemented during the prior calendar year. The list must include a description of the changes that were made, the location of the regulator and the date that the changes were made. The listing shall be organized chronologically, and sorted by CSO regulator, highlighting those regulators that are part of the CSO outfall structure.

35. On February 28, 2012, the City described to EPA and the MassDEP the measures that it has implemented to determine whether any of its CSO outfalls discharge during dry-weather. By February 28th of each year, the City shall certify whether, and to what extent, if any, dry-weather discharges from its CSO outfalls have occurred during the previous calendar year.

36. The City shall complete the sewer separation projects described in Attachment 6) (CSO Separation Projects 2B and 3C) in accordance with the following schedule:

a. Having awarded construction contracts by February 29, 2012, place the constructed facilities in operation by December 31, 2013.

b. By December 31, 2014, submit a report to EPA and the MassDEP assessing the effectiveness of the sewer separation projects implemented pursuant to this Paragraph that includes a listing of the public and private Inflow sources that were redirected to the Separate Storm Water Sewer System and a schedule for closure of the affected CSO regulators. If the City determines that the CSO regulator(s) cannot be permanently closed, the City shall submit a schedule for the conduct of additional rehabilitation/replacement measures necessary to close

the affected regulators including, but not limited, to the identification and redirection of the remaining public and private sources of Inflow.

37. The City shall complete the sewer separation projects described in Attachment 7) (CSO Separation Project 4D) in accordance with the following schedule:

a. Having by December 6, 2011, awarded a design contract, by June 30, 2013, award the construction contract.

b. By December 31, 2014, place the constructed facilities in operation.

c. By December 31, 2015, submit a report to EPA and the MassDEP assessing the effectiveness of the sewer separation projects implemented pursuant to this Paragraph that includes a listing of the public and private Inflow sources that were redirected to the Separate Storm Water Sewer System and a schedule for closure of the affected CSO regulators. If the City determines that the CSO regulator(s) cannot be permanently closed, the City shall submit a schedule for the conduct of additional rehabilitation/replacement measures necessary to close the affected regulators including, but not limited, to the identification and redirection of the remaining public and private sources of Inflow.

38. By December 31, 2012, the City shall submit to EPA and the MassDEP for review and approval a post-construction monitoring plan ("PCMP"). The PCMP shall include a monitoring protocol to assess how effective CSO controls constructed pursuant to this Consent Decree are in terms of capturing and treating storm water and protecting receiving waters from CSO impacts. The PCMP shall include a schedule for: a) assessing the impacts of varying precipitation amounts on the discharge characteristics and ambient water quality; and, b) submitting a post-construction monitoring report ("PCMR") to EPA and the MassDEP, which shall be submitted

no later than December 31, 2016. The PCMR shall: compare actual frequency of CSO discharges after completion of combined sewer separation projects 1A, 2B, 3C and 4D to the frequency of CSO discharges predicted by the Hydraulic Model updated pursuant to Paragraph 41, using actual rainfall records as model input; identify the expected frequency of CSOs remaining in a typical year after full implementation of sewer separation projects 1A, 2B, 3C and 4D; characterize the impacts of the expected remaining CSOs in a typical year; and, identify a full range of alternatives for eliminating the environmental impacts from any remaining CSOs.

Emergency Response Plan

39. EPA and the MassDEP have reviewed and approved the City's Emergency Response Plan.

40. The approved Emergency Response Plan (which is attached as Attachment 8) shall continuously be implemented.

Hydraulic Model

41. By December 31, 2016, the City shall update its hydraulic model ("Model") of its Sewer System to include all areas tributary to the POTW Treatment Plant and shall submit a report ("Modeling Report") of the City's Sewer System using a hydraulic modeling software package to EPA and the MassDEP for review and approval. This Model shall evaluate those portions of the Sewer System that surcharge or overflow, including contiguous interceptor sewers 12-inch and greater (unless modeling of smaller diameter sewers is necessary for adequate model calibration/verification). The physical characteristics of each CSO regulator shall be verified and documented.

42. The City shall use the Model to:

a. Assess the hydraulic capacity of each Minisystem that is tributary to, or that contributes to, a capacity-related surcharge, SSO or CSO;

b. Assist in the identification of the appropriate remedial measures to address all capacity limitations identified in the Sewer System;

c. Provide a detailed understanding of both the sanitary sewer system's and combined sewer system's response to seasonal groundwater conditions and wet-weather events; and

d. Evaluate the impacts and prioritize proposed sewer separation projects, remedial measures, and the planned removal of extraneous flows on the volume and frequency of Sewer System surcharges, SSOs and CSOs, and the peak flow delivered to the POTW Treatment Plant.

43. The City shall configure the Model to accurately represent, in accordance with currently accepted engineering practice, each of the City's mini-systems that are tributary to, or that contribute to a Sewer System surcharge, SSO or CSO. The City may model its Sewer System in different levels of detail and with different types of models, as necessary, to identify the causes of all known surcharges or overflows and to assess proposed remedial measures to eliminate those surcharges and overflows. The City shall also identify critical antecedent and seasonal Sewer System flow conditions that contribute to the capacity-related overflows.

44. The City shall configure the Model using adequate, accurate, and sufficiently current physical data (including, but not limited to invert and ground elevations, pipe diameters, slopes, pipe run lengths, Manning roughness factors, manhole sizes and configurations, and pumping station performance factors) for its Sewer System. In particular, the City shall sufficiently field

verify physical data to allow calibration and verification of the Model.

45. The City shall calibrate and verify the Model using appropriate rainfall data, actual hydrographs and Sewer System and CSO outfall monitoring flow data, including, but not limited to the data generated by the additional meters that will be installed pursuant to Paragraph 31 of this Consent Decree. The City shall use at least three separate data sets for calibration and verification. As part of the calibration process, the City shall either use existing sensitivity analyses for the selected Model, or carry out its own sensitivity analyses, to maximize calibration effectiveness.

46. The Modeling Report submitted pursuant to Paragraph 41 shall specifically include the following:

a. A description of the Model;

b. Specific attributes, characteristics, and limitations of the Model;

c. Identification of all input parameters, constants, assumed values, and expected outputs;

d. Digitized map(s) and schematics that identify and characterize the portions (including the specific gravity sewer lines) of the Sewer System that shall be included in the Model;

e. A schematic of each regulator;

f. Identification of input data to be used;

g. Configuration of the Model;

h. Procedures and protocols for performance of sensitivity analyses (such as how the Model responds to changes in input parameters and variables);

i. Procedures for calibrating the Model to account for values representative of the Sewer System's actual system data (e.g., flow data); and

j. procedures for verifying the Model's performance using additional, independent actual Sewer System and POTW Treatment Plant flow data.

Capacity Assessment

47. Within 180 Days of approval or conditional approval by EPA and the MassDEP of the updated Hydraulic Model, the City shall submit a professional engineering evaluation of the conveyance capacity of all Minisystems that are tributary to, or contribute to, any Sewer System surcharges, SSOs and CSOs ("Capacity Assessment") to EPA and the MassDEP for review and approval. The Capacity Assessment shall utilize the Model developed pursuant to Paragraph 41 and shall include an evaluation of all interceptor sewers, pumping stations, force mains and siphons, known areas of Sewer System surcharges, SSOs and CSOs. It shall also address any other portions of the Sewer System that must be assessed so as to allow for a technically-sound evaluation of the causes of all capacity-related surcharges, SSOs and CSOs. It shall also:

a. Identify the hydraulic capacities of the portions of the Sewer System upstream and downstream of all Sewer System surcharges, SSOs and CSOs, and compare those capacities to existing and future projected wet-weather flows. The Capacity Assessment shall identify, within the aforementioned portions of the City's Sewer System, i) those portions of the Sewer System that have caused, or are expected to cause or contribute to, capacity-related Sewer System surcharges, SSOs and CSOs under existing and future peak wet-weather flows, ii) the impacts of capacity-related surcharges, and iii) the frequency and volume of overflow, including Private Property/Building Backup;

b. Consider local rainfall data, critical antecedent in-system flow conditions, and the impact of an appropriate range of rainfall events, based on return frequency and duration, and an appropriate continuous period of rainfall records on peak wet-weather flows within those portions of the City's Sewer System that are tributary to, or contribute to, capacity-related surcharges and overflows;

c. Characterize Sewer System performance by identifying, for each condition considered, each pipe segment operating in surcharge and overflow condition, each manhole or structure at which an SSO or CSO might be expected to occur; and

d. Evaluate the City's ability to comply with its NPDES Permit, and eliminate its capacity-related surcharges, SSOs and CSOs based on the Sewer System work performed and POTW Treatment Plant and Sewer System rehabilitation and remedial measures planned for the future. Long-term model simulations are preferred for evaluating abatement alternatives. Unless otherwise approved by EPA and the MassDEP, a five-year period with historical hourly rainfall that represents a variety of weather conditions (average wet, dry) shall be used to characterize the level of CSO control (annual volume and number of annual activations).

B. POTW TREATMENT PLANT

Phosphorus Upgrades

48. By May 31, 2012, the City shall award the construction contract for the implementation of the WWTF measures outlined in Attachment 9.

49. By May 31, 2013, the City shall complete construction of the WWTF measures outlined in Attachment 9.

Long-Term Preventive Maintenance Plan

50. EPA and the MassDEP reviewed and approved the City’s Long-Term POTW Treatment

Plant Preventative Maintenance Program Plan ("Preventative Maintenance Plan") subject to conditions set forth in an approval letter dated April 26, 2012.

51. The conditionally approved Preventative Maintenance Plan (which is attached as Attachment 10) is incorporated and enforceable hereunder and shall continuously be implemented.

POTW Treatment Plant Optimization Evaluation Report

52. EPA and the MassDEP have reviewed and approved the City's POTW Optimization Evaluation Report submitted on January 31, 2012.

53. The approved POTW Optimization Evaluation Report's recommended capital improvement plan and implementation schedule, including power source upgrade milestones, (which are attached as Attachment 11) are incorporated and enforceable hereunder except as modified by Paragraph 55.a. of this Consent Decree.

Wet-Weather Operations

54. Pending the implementation of wet weather chemically-enhanced primary treatment in accordance with Paragraph 49 of this Consent Decree and the recommendations of the POTW Treatment Plant Optimization Evaluation Report (including the secondary system improvement project outlined therein) approved pursuant to Paragraph 52, or until the installation of septage storage capacity as approved by EPA and the MassDEP, the City shall not introduce septage or high-strength side streams not associated with plant operations into any portion of the process train that bypasses the secondary treatment system when secondary treatment is being bypassed or when a secondary treatment system bypass is likely to occur within two (2) hours.

C. WASTEWATER MANAGEMENT PLAN

55. By July 1, 2018, the City shall submit to EPA and the MassDEP for review and approval a Wastewater Management Plan ("WMP") that reflects all relevant information collected as a result of implementation of this Consent Decree. The WMP shall:

a. Include an itemized schedule for the construction of facilities necessary to meet the seasonal (April 1-October 31) total phosphorus concentration-based limit of 0.2 mg/l, found in Part I.A.1 of the Permit, at page 3; and the seasonal (April 1-October 31) total phosphorus mass-based limit of 20.7 lb/day, found in Part I.A.1 of the Permit, at page 3 (the "Total Phosphorus Permit Limits") as expeditiously as practicable within the City's financial capacity and consistent with sound engineering practice and normal construction practices..

b. Include an itemized schedule for commencement and completion of proposed additional investigations, remedial measures, and capital improvements to the City's wastewater collection and treatment infrastructure, necessary to meet the CSO conditions in the Permit by no later than December 31, 2030, including compliance with conditions based on water quality standards established and revised under 40 C.F.R. Part 131 in accordance with the guidance set forth in (i) Coordinating CSO Long-Term Planning with Water Quality Standards Reviews, EPA-833-R-01-002, July 31, 2001, and (ii) MassDEP Guidance for Abatement of Pollution from CSO Discharges (August 11, 1997), as one or both may be amended in the future.

c. In proposing its WMP schedule, the City shall consider: i) the extent to which each proposed project will decrease pollutant loading to the receiving water and the impact on the impairment of uses; ii) the cost and cost-effectiveness of each proposed project; and iii) the

schedules for completing the projects. The WMP and the schedules incorporated therein shall be enforceable hereunder upon the WMP's approval or conditional approval by EPA and the MassDEP.

d. The WMP shall include the results of any water quality standards review, including a use attainability analysis if such an analysis is conducted. If a standards review is in progress but has not been completed, the WMP shall describe the status of the standards review and include a schedule for completing the review, including any use attainability analysis.

e. In developing the WMP, the City is encouraged to consider evaluating potential Best Management Practices, including the use of all appropriate "green infrastructure" and "low impact development" techniques currently available to reduce Inflow.

f. The WMP shall be incorporated and enforceable hereunder upon its approval or conditional approval by EPA and the MassDEP

56. On or before December 31, 2020 and December 31, 2023, the City shall submit to EPA and MassDEP for review and approval an updated WMP report that shall include, at a minimum, a description of all infrastructure improvements and programs that have been implemented during the previous period to comply with the conditions of this Consent Decree and to meet the limits and other conditions of the Permit, the cost of such efforts to date, a description of efforts planned for the next 3-year period, and an assessment of the abatement anticipated to be achieved related to such efforts.

D. ILLICIT CONNECTIONS

57. By June 30, 2012, the City shall submit to EPA and the MassDEP for review and

approval an amendment to its February 17, 2011 letter report documenting the findings and the actions taken by the City in response to its dry-weather and wet-weather monitoring submitted to EPA on November 29, 2007, and December 31, 2008, respectively. The IDDE Report shall include, but shall not be limited to, the following information:

a. A list of illicit connections identified to date;

b. The estimated flow from each connection;

c. The specific actions taken by the City to remove each connection;

d. The date each connection was removed;

e. The cost of removing each connection;

f. A map or figure indicating the location of each illicit connection;

g. For those identified illicit connections that have yet to be redirected from the City's Separate Storm Water Sewer System, the City shall provide a schedule for their redirection; and

h. The measures taken to verify that each identified illicit connection is removed.

E. INTERIM PHOSPHORUS LIMITS

58. From the effective date of this Consent Decree until the date the WWTF improvements outlined in Attachment 9 are fully operational, or if EPA determines that the City has not complied with the POTW Treatment Plant schedule milestones set forth in Paragraphs 48 and 49 of this Consent Decree, the City shall comply with the interim effluent limitations and monitoring requirements contained in Attachment 9a of this Consent Decree. Upon both (i) the completion of the tasks required by Paragraphs 48 and 49 of this Consent Decree; and (ii) when the WWTF improvements outlined in Attachment 9 are fully operational, the City shall comply

with the interim effluent limitations and monitoring requirements contained in Attachment 9b of this Consent Decree.

VIII. SUPPLEMENTAL ENVIRONMENTAL PROJECT

59. The City shall implement a Supplemental Environmental Project consisting of stream bank stabilization for Falulah Brook ("SEP") for a portion of the stream bank in Fitchburg's Coolidge Park. The SEP will result in the restoration of approximately 300 linear feet of the stream bank.

60. The City is responsible for the satisfactory completion of the SEP in accordance with the requirements of this Decree. "Satisfactory completion" means fulfilling the requirements described in Attachment 12. The City may use contractors or consultants in planning and implementing the SEP.

61. The City certifies the truth and accuracy of each of the following:

a. That all cost information provided to EPA in connection with EPA's approval of the SEP is complete and accurate and that the City in good faith estimates that the cost to implement the SEP is at least $100,000;

b. That, as of the date of executing this Consent Decree, the City is not required to perform or develop the SEP by any federal, state, or local law or regulation and is not required to perform or develop the SEP by agreement, grant, or as injunctive relief awarded in any other action in any forum;

c. That the SEP is not a project that the City was planning or intending to construct, perform, or implement other than in settlement of the claims resolved in this Consent Decree;

d. That the City has not received and will not receive credit for the SEP in any other

enforcement action; and

e. That the City will not receive any reimbursement for any portion of the SEP from any other person.

62. SEP Completion Report

a. Within 30 Days after the date set for completion of the SEP, the City shall submit a SEP Completion Report to the United States, EPA, and the MassDEP in accordance with Section XV of this Consent Decree (Form of Notice). The SEP Completion Report shall contain the following information:

i. a detailed description of the SEP as implemented;

ii. a description of any problems encountered in completing the SEP and the solutions thereto;

iii. an itemized list of all eligible SEP costs expended;

iv. certification that the SEP has been fully implemented pursuant to the provisions of this Consent Decree; and

v. a description of the environmental and public health benefits resulting from implementation of the SEP (with a quantification of the benefits and pollutant reductions, if feasible).

63. EPA may, in its sole discretion, require information in addition to that described in the preceding Paragraph in order to evaluate the SEP Completion Report.

64. After receiving the SEP Completion Report, the United States shall notify the City whether or not the City has satisfactorily completed the SEP. If the City has not completed the SEP in accordance with this Consent Decree, stipulated penalties may be assessed under Section

XI of this Consent Decree (Stipulated Penalties).

65. Disputes concerning the satisfactory performance of the SEP and the amount of eligible SEP costs may be resolved under Section XIII of this Consent Decree (Dispute Resolution). No other disputes arising under this Section shall be subject to Dispute Resolution.

66. Each submission required under this Section shall be signed by an official with knowledge of the SEP and shall bear the certification language set forth in Paragraph 104.

67. Any public statement, oral or written, in print, film, or other media, made by the City making reference to the SEP under this Decree shall include the following language: "This project was undertaken in connection with the settlement of an enforcement action, United States v. the City of Fitchburg, Massachusetts, taken on behalf of the U.S. Environmental Protection Agency under the Clean Water Act."

68. The City certifies that it is not a party to any open federal financial assistance transaction that is funding or could be used to fund the same activity as the SEP. The City further certifies that, to the best of its knowledge and belief after reasonable inquiry, there is no such open federal financial transaction that is funding or could be used to fund the same activity as the SEP, nor has the same activity been described in an unsuccessful federal financial assistance transaction proposal submitted to EPA within two years of the date of this settlement (unless the project was barred from funding as statutorily ineligible). For the purposes of this certification, the term "open federal financial assistance transaction" refers to a grant, cooperative agreement, loan, federally-guaranteed loan guarantee or other mechanism for providing federal financial assistance whose performance period has not yet expired.

IX. REPORTING

69. As soon as practicable, but no later than twenty-four (24) hours after learning of any SSO, discharge of sanitary flows to a storm drain, discharge from a combined sewer during dry weather, or Building/Private Property Backup, the City shall provide an oral report to EPA by calling Michael Fedak at (617) 918-1766 and to MassDEP by calling Robert Kimball during regular business hours, at (508) 767-2722. If the City learns of such event at any time other than normal business hours, the City shall also notify EPA at the above phone number and MassDEP's Emergency Response Unit by calling (888) 304-1133. The oral report shall identify the location, estimated volume and receiving water(s), if any, of such event. The City, shall also, within five (5) Days of learning of such event, send a facsimile report to EPA, to the attention of Michael Fedak, at (617) 918-0766 and to MassDEP, to the attention of Robert Kimball at (508) 849-4035. The facsimile reports shall be submitted in the form attached as Attachment 13 and shall include the following information:

a. The date, time and location of the event, including a description of the Sewer System component from which the release occurred (e.g., manhole, constructed overflow pipe, crack in pipe);

b. The circumstances that led to the event;

c. The estimated volume of the wastewater released;

d. Whether the released flows reached a wetland or surface water and, if so, the identity of the receiving waters and the estimated volume of the flows that reached those waters;

e. Steps taken (or the steps to be taken) to mitigate the impact(s) of the event,

including treatment of any of the discharge, and when those steps were (or will be) taken;

f. If any of the flow was treated, the volume of the flow treated and the volume of treated flow that reached receiving waters;

g. The steps taken (or the steps to be taken) to eliminate and prevent reoccurrence of the event and when those steps were (or will be) taken;

h. A description of the cleanup efforts taken or intended to be taken; and

i. The date of the last overflow event at the same location.

EPA and the MassDEP will advise the City in writing in the event of any change in personnel to whom oral and facsimile reports should be made.

70. By February 28, 2013, and every six months by each February 28th and August 31st thereafter until completion of all the Remedial Measures in Section VII, the City shall report to EPA and MassDEP on its compliance with Section VII during the preceding six-month period (February 1st through July 31st, and August 1st through January 31st). Each progress report submitted under this Paragraph shall:

a. Describe activities undertaken during the reporting period directed at achieving compliance with this Consent Decree;

b. Describe the expected activities to be taken during the next reporting period in order to achieve compliance with this Consent Decree; and

c. Identify any noncompliance with this Consent Decree=s requirements, including any schedules set forth or incorporated herein. If noncompliance is reported, notification should include the following information:

i. A description of the noncompliance;

ii. A description of any actions taken or proposed by the City to comply with any missed schedule milestones;

iii. A description of any factors that might explain or mitigate the noncompliance; and

iv. An approximate date by which the City will perform the required action.

d. A statement on the frequency and volume of CSOs that occurred during the reporting period.

71. By January 31, 2013, and annually thereafter, the City shall submit to EPA and the MassDEP a Compliance Report that shall include, at a minimum, the following items:

a. A list of SSO and dry-weather CSO events that occurred during the Reporting Period, including all releases with a reasonable potential to reach surfaces waters such as releases to streets or areas with storm drain catch basins; a list of Building/Private Property Backups during the Reporting Period; and a list of citizen reports of SSO and dry-weather CSO events or Building/Private Property Backups during the Reporting Period. The three separate tabular listings of all such events shall be organized chronologically and shall include the following:

i. The date and times each event was discovered/reported and was stopped;

ii. The location by address;

iii. The final disposition of the wastewater from each such event, including whether it discharged to the ground, the street, or surface water (Note: In all instances, the name of the water body, street, or intersecting streets nearest each event shall be provided, and if the release occurred to the ground or street, the name of the nearest downgradient stormwater catch

basin and the name of the receiving water of the separate stormwater sewer system shall be noted);

iv. The source of notification (e.g., property owner, general public, field crew, police);

v. The cause(s) of the event (including, but not limited to, vandalism, sediments, roots, grease, mechanical, electrical and structural failures, and capacity issues);

vi. A determination of whether the event was caused blockages or hydraulic limitations within the publicly-owned portion of the Sewer System;

vii. The measures taken to stop the event;

viii. The estimated gallons of wastewater released, the estimated gallons of wastewater that reached a surface water, and the bases for these estimates; and

ix. The date of the last release of wastewater that occurred at the event location.

x. A GIS map or figure, consistent with the requirements of Paragraph 22, indicating the location of each event.

b. A brief explanation of how the City expects to meet its water quality-based CSO compliance obligations.

72. The reporting requirements set forth in this Section do not relieve the City of its obligation to submit any other reports or information as required by State, Federal or local laws, regulations, or ordinances.

X. REVIEW AND APPROVAL

73. After review of any plan, schedule, report, or other item that is required to be submitted for approval by EPA and the MassDEP pursuant to this Consent Decree, EPA and the MassDEP shall in writing:

a. approve, in whole or in part, the submission;

b. approve, in whole or in part, the submission upon specified conditions; or

c. disapprove, in whole or in part, the submission.

74. In the event of approval pursuant to Paragraph 73.a, the City shall take all actions required to implement such plan, schedule, report, or other item, as approved. In the event of approval in part pursuant to Paragraph 73.a, or approval upon specified conditions pursuant to Paragraph 73.b, upon written direction of EPA and MassDEP, the City shall take all actions required by the approved plan or schedule, report or other item that EPA and MassDEP determine are technically severable from any disapproved portions, subject to the City's right to dispute only the specified conditions or non-approved portions pursuant to Section XIII (Dispute Resolution).

75. Upon receipt of a written notice of disapproval pursuant to Paragraph 73.c, the City shall, within thirty (30) Days or such other time as the City, the MassDEP and EPA agree in writing, correct the deficiencies and resubmit the plan, schedule, report, or other item, or portion thereof, for approval. Any stipulated penalties applicable to the original submission shall accrue during the thirty (30) Day period or other specified period, but shall not be payable unless the resubmission is untimely and/or disapproved as provided in Paragraph 73; provided that, if the original submission was disapproved by EPA and the MassDEP in whole, stipulated penalties

applicable to the original submission shall be due and payable upon demand notwithstanding any subsequent resubmission.

76. In the event that a resubmitted plan, report or other item, or portion thereof, is disapproved by EPA and the MassDEP, the Plaintiffs may again require the City to correct the deficiencies in accordance with the preceding Paragraphs.

77. If upon resubmission, a plan, report, or item, or portion thereof, is disapproved by EPA and the MassDEP, the City shall be bound by the Plaintiffs' decision unless the City invokes the dispute resolution procedures set forth in Section XIII (Dispute Resolution) within ten (10) Days of receipt of EPA's and the MassDEP's last written position. If EPA's and the MassDEP's disapproval is upheld after dispute resolution, stipulated penalties shall accrue for the violation from the date of the disapproval of the original submission.

78. All plans, reports, and other items required to be submitted to EPA and the MassDEP under this Consent Decree shall, upon approval by EPA and the MassDEP, be enforceable under this Consent Decree. In the event EPA and the MassDEP approves a portion of a plan, report, or other item required to be submitted under this Consent Decree, the approved portion shall be enforceable under this Consent Decree.

79. In the event a dispute arises among the Parties regarding EPA's and the MassDEP's approval upon specified conditions or disapproval in part or in whole of any plans, reports, and other items required to be submitted to EPA and the MassDEP under this Consent Decree, the position of EPA and the MassDEP shall govern unless the City invokes the dispute resolution procedures set forth in Section XIII (Dispute Resolution) within 30 Days of receipt of EPA's and the MassDEP's written position.

XI. STIPULATED PENALTIES

80. The City shall pay stipulated penalties to the United States and the MassDEP for violations or noncompliance with the requirements of this Consent Decree, as set forth below, unless excused under Section XII (Force Majeure). A violation or noncompliance includes failing to perform an obligation required by the terms of this Consent Decree, including any work plan or schedule approved under this Consent Decree, according to all applicable requirements of this Consent Decree and within the specified time schedules or by the date(s) established by or approved under this Consent Decree:

a. Late Payment of Civil Penalty. If the City fails to pay the Civil Penalty required to be paid under Section VI (Civil Penalty) when due, the City shall pay a stipulated penalty as follows:

Penalty Per Violation Per Day	Period of Noncompliance
$ 750	1st through 10th Day
$ 1,000	11th through 20th Day
$ 2,500	21st Day and beyond.

b. Reporting Requirements. For every Day that the City fails to timely submit a report required by Paragraphs 69, 70 or 71 of this Consent Decree or fails to provide the certification required by Paragraph 104, the City shall pay a stipulated penalty as follows:

Penalty Per Violation Per Day	Period of Noncompliance
$ 500	1st through 14th Day
$ 750	15th through 30th Day
$ 1,000	31st Day and beyond.

c. Unpermitted Discharges. For each Day that an SSO or dry-weather CSO occurs, the City shall pay a stipulated penalty of $5,000. Notwithstanding the foregoing, the City shall

not be liable for such a stipulated penalty if all of the following conditions are met: (i) the City stopped the SSO or dry-weather CSO as soon as reasonably practicable; (ii) the City is in full compliance with the schedules and other requirements set forth pursuant to Section VII (Remedial Measures) of this Consent Decree related to the particular facility from which the overflow occurred; and (iii) the City has complied with all reporting requirements related to the SSO or dry-weather CSO discharges, including but not limited to those set forth in Paragraph 71 of this Consent Decree.

d. Remedial Measures. For every Day that the City fails timely to meet the requirements of Section VII (Remedial Measures) of this Consent Decree, including but not limited to, submitting an approvable plan, schedule, report, or other item, other than a report required by Paragraphs 69 thru 71, or fails to implement remedial requirements in a plan, schedule, report, or other item approved by EPA and the MassDEP, the City shall pay a stipulated penalty as follows:

Penalty Per Violation Per Day	Period of Noncompliance
$ 750	1st through 14th Day
$ 1,000	15th through 30th Day
$ 2,500	31st Day and beyond.

81. Stipulated penalties shall automatically begin to accrue on the Day after performance is due or on the Day a violation occurs and shall continue to accrue each Day until performance is satisfactorily completed or until the violation or noncompliance ceases. Stipulated penalties shall accrue simultaneously for separate violations of or instances of noncompliance with this Consent Decree.

82. Following the United States' or the MassDEP=s determination that the City has failed to comply with a requirement of this Consent Decree, the United States or the MassDEP may give the City written notification of the same and describe the noncompliance. The United States or the MassDEP may send the City a written demand for the payment of the stipulated penalties. However, the stipulated penalties shall accrue as provided in the preceding Paragraph regardless of whether the United States or the MassDEP has notified the City of a violation of or noncompliance with the requirements of this Consent Decree, or demanded payment of stipulated penalties.

83. The City shall pay stipulated penalties as specified in this Section by delivering the payments to the United States and the Commonwealth within thirty (30) Days of the date of a demand for payment of stipulated penalties, in accordance with the instructions set forth below:

a. The City shall pay stipulated penalties, fifty percent to the United States and fifty percent to the Commonwealth of Massachusetts in the manner set forth and with the confirmation notices required by Paragraphs 10 and 11, except that the transmittal letters shall state that the payment is for stipulated penalties and shall state for which violation(s) or noncompliance the penalties are being paid.

b. In the event the City fails to pay stipulated penalties according to the terms of this Consent Decree, such penalty (or portion thereof) shall be subject to interest at the statutory judgment rate set forth at 28 U.S.C. § 1961, accruing as of the date payment became due. Nothing in this Paragraph shall be construed to limit the United States or the Commonwealth from seeking any remedy otherwise provided by law for failure of the City to pay any stipulated penalties.

84. Stipulated penalties shall continue to accrue as provided in Paragraph 81, during any dispute resolution, but need not be paid until the following:

a. If the dispute is resolved by agreement or a decision of the United States that is not appealed to the Court, the City shall pay accrued penalties determined to be owed, together with interest accruing at the rate specified in 28 U.S.C. § 1961, to the United States and the Commonwealth within thirty (30) Days of the effective date of the agreement or the receipt of the United States' decision or order.

b. If the dispute is appealed to the Court and the United States prevails in whole or in part, the City shall pay all accrued penalties, together with interest, within thirty (30) Days of receiving the Court's decision or order, except as provided in Subparagraph c below

c. If any Party appeals the District Court's decision, the City shall pay all accrued penalties determined to be owed, together with interest, within fifteen (15) Days of receiving the final appellate court decision.

85. The stipulated penalties set forth above shall be in addition to any other remedies, sanctions, or penalties which may be available by reason of the City's failure to comply with the requirements of this Consent Decree. The United States and the Commonwealth expressly reserve any and all legal and equitable remedies, including contempt sanctions, which may be available to enforce the provisions of this Consent Decree.

XII. FORCE MAJEURE

86. "Force Majeure," for purposes of this Consent Decree, is defined as any event arising from causes entirely beyond the control of the City or of any entity controlled by the City, including its engineers, consultants, contractors and subcontractors, that delays or prevents the

timely performance of any obligation under this Consent Decree notwithstanding the City's best efforts to fulfill the obligation. The requirement that the City exercise "best efforts" includes using best efforts to anticipate any potential Force Majeure event and best efforts to address the effects of any such event (a) as it is occurring and (b) after it has occurred to prevent or minimize any resulting delay to the greatest extent possible. "Force Majeure" does not include the City's financial inability to perform any obligation under this Consent Decree. Stipulated Penalties shall not be due for the number of Days of noncompliance caused by a Force Majeure event as defined in this Section, provided that the City complies with the terms of this Section.

87. If any event occurs that may delay or prevent the performance of any obligation under this Consent Decree, whether or not caused by a Force Majeure event, the City shall notify EPA and the MassDEP within seventy-two (72) hours after the City first knew or should have known that the event might cause a delay. Within ten (10) working Days thereafter, the City shall submit for review and approval by EPA, at the addresses specified in Section XV (Form of Notice), a written explanation of the cause(s) of any actual or expected delay or noncompliance, the anticipated duration of any delay, the measure(s) taken and to be taken by the City to prevent or minimize the delay, a proposed schedule for the implementation of such measures, and a statement as to whether, in the opinion of the City, such event may cause or contribute to an endangerment to public health, welfare, or the environment. Notwithstanding the foregoing, the City shall notify EPA and MassDEP orally within twenty-four (24) hours of becoming aware of any event that presents an imminent threat to the public health or welfare or the environment and provide written notice to EPA and MassDEP within seventy-two (72) hours of discovery of such event. The City shall be deemed to know of any circumstances of which the City, any entity

controlled by the City, or the City's contractors knew or should have known. Failure to provide timely and complete notice in accordance with this Paragraph shall constitute a waiver of any claim of Force Majeure with respect to the event in question.

88. If EPA agrees that a delay or anticipated delay is attributable to Force Majeure, the time for performance of the obligations under this Consent Decree that are affected by the Force Majeure event shall be extended by EPA, after a reasonable opportunity for review and comment by MassDEP, for a period of time as may be necessary to allow performance of such obligations. EPA will notify the City in writing of the length of the extension, if any, for performance of the obligations affected by the Force Majeure event.

89. If EPA does not agree the delay or anticipated delay is attributable to Force Majeure, or on the number of Days of noncompliance caused by such event, EPA will notify the City in writing of its decision. The City may then elect to initiate the dispute resolution process set forth in Section XIII (Dispute Resolution). In any dispute resolution proceeding, the City shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a Force Majeure event, that the duration of the delay or the extension sought was or will be warranted under the circumstances, that "best efforts" were exercised to avoid and mitigate the effects of the delay, and that the City complied with the requirements of Paragraphs 86 and 87, above. If the City carries this burden, the delay at issue shall be deemed not to be a violation by the City of the affected obligation(s) of this Consent Decree identified to EPA and the Court.

90. Delay in performance of any obligation under this Consent Decree shall not automatically justify or excuse delay in complying with any subsequent obligation or requirement of this Consent Decree.

91. Failure of the City to obtain any Commonwealth or federal grants or loans shall not be considered a Force Majeure event under this Consent Decree.

XIII. DISPUTE RESOLUTION

92. Unless otherwise expressly provided for in this Consent Decree, the dispute resolution procedures set forth in this Section shall be the exclusive mechanism to resolve disputes arising under or with respect to this Consent Decree. The City's failure to seek resolution of a dispute under this Section shall preclude the City from raising any such undisputed issue as a defense to an action by the United States or the Commonwealth to enforce any obligation of the City arising under this Consent Decree. The procedures set forth in this Section shall not apply to actions by the United States or the Commonwealth to enforce obligations that the City has not disputed in accordance with this Section.

93. Informal Dispute Resolution. Any dispute subject to dispute resolution under this Consent Decree shall first be the subject of informal negotiations. The dispute shall be considered to have arisen when the City sends the United States and the Commonwealth a written Notice of Dispute. Such Notice of Dispute shall state clearly the matter in dispute, and shall be accompanied by a Statement of Position that shall include, but need not be limited to, any factual data, analysis, or opinion supporting that position and any supporting documentation relied upon by the City. The period of informal negotiations shall not exceed thirty (30) Days from the date the dispute arises, unless that period is modified by written agreement between the

Parties. EPA shall maintain an administrative record of the dispute, which shall contain all statements of the Parties, including supporting documentation, submitted pursuant to this Section.

94. In the event that the City elects to invoke dispute resolution according to this Section, the City shall do so by giving the United States and the Commonwealth written notice of the existence of the dispute within ten (10) Days after receipt of a notice of disapproval, approval with conditions or modification, a Force Majeure determination by EPA, or a written demand for payment of stipulated penalties. If the City fails to give such notice, it shall be deemed to have waived any right to invoke dispute resolution regarding such dispute, and the position advanced by the United States and/or the Commonwealth as appropriate shall be considered binding.

95. If the Parties cannot resolve a dispute by informal negotiations, then the position advanced by the United States or the United States and the Commonwealth as appropriate shall be considered binding unless, within thirty (30) Days after the conclusion of the informal negotiation period, the City seeks judicial review of the dispute by filing with the Court and serving on the United States and the Commonwealth, in accordance with Section XV (Form of Notice), a motion requesting judicial resolution of the dispute. Any such motion shall contain a written statement of the City's position on the matter in dispute, including any supporting factual data, analysis, opinion, or documentation, and shall set forth the relief requested and any schedule within which the dispute must be resolved for orderly implementation of the Consent Decree.

96. The United States and the Commonwealth shall respond to the City's motion within the time period allowed by the Federal Rules of Civil Procedure and the Local Rules of this Court.

The City may file a reply memorandum, to the extent permitted by the Federal Rules of Civil Procedure and the Local Rules.

97. Standard of Review.

a. Disputes Concerning Matters Accorded Record Review. Except as otherwise provided in this Consent Decree, any dispute brought under this Section pertaining to the adequacy or appropriateness of plans, procedures to implement plans, schedules, or any other items requiring approval by EPA and MassDEP under this Consent Decree; the adequacy of the performance of work undertaken pursuant to this Consent Decree; and all other disputes that are accorded review on the administrative record under applicable principles of administrative law, the City shall have the burden of demonstrating, based upon the administrative record, that the United States' and the Commonwealth's positions are arbitrary and capricious or otherwise not in accordance with law.

b. Other Disputes. Except as otherwise provided in this Consent Decree, in any other dispute brought under this Section, the City shall bear the burden of demonstrating that its position complies with this Consent Decree, furthers the objectives of this Consent Decree more positively than the position advanced by the United States and the Commonwealth, and that the City is entitled to relief under applicable principles of law

98. The invocation of dispute resolution procedures under this Section shall not, by itself, extend, postpone, or affect in any way any obligation of the City under this Consent Decree, unless and until final resolution of the dispute so provides. Stipulated penalties with respect to the disputed matter shall continue to accrue from the first Day of noncompliance, but payment shall be stayed pending resolution of the dispute as provided in Paragraph 84. If the City does

not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section XI (Stipulated Penalties).

XIV. RIGHT OF ENTRY AND DOCUMENT RETENTION

99. EPA and MassDEP and their contractors, consultants, and attorneys shall have authority to enter any property and/or facility owned or controlled by the City, at all reasonable times, upon proper identification, for the purposes of: (a) monitoring the progress of activity required by this Consent Decree; (b) verifying any data or information submitted to EPA or MassDEP under this Consent Decree; (c) assessing the City's compliance with this Consent Decree; (d) obtaining samples and, upon request, splits of any samples taken by the City or its representatives, contractors, or consultants; and (e) obtaining documentary evidence, including photographs and similar data. Upon request, EPA and MassDEP shall provide the City splits of any samples taken by EPA or MassDEP.

100. Until five years after the termination of this Consent Decree, the City shall retain all non-identical copies of all documents, records, or other information (including documents, records, or other information in electronic form) generated by the City, and all data collected and all reports generated by the City's contractors (including data and reports in electronic form), that relate in any manner to the City's performance of its obligations under this Consent Decree. This information retention requirement shall apply regardless of any contrary corporate or institutional policies or procedures. At any time during this information-retention period, upon request by the United States or the Commonwealth, the City shall provide copies of any documents, records, or other information required to be maintained under this Paragraph.

101. At the conclusion of the information-retention period provided in the preceding Paragraph, the City shall notify the United States and the Commonwealth at least ninety (90) Days prior to the destruction of any documents, records, or other information subject to the requirements of the preceding Paragraph and, upon request by the United States or the Commonwealth, the City shall deliver any such documents, records, or other information to EPA and the MassDEP. The City may assert that certain documents, records, or other information is privileged under the attorney-client privilege or any other privilege recognized by federal law. If the City asserts such a privilege, it shall provide the following: (a) the title of the document, record, or information; (b) the date of the document, record, or information; (c) the name and title of each author of the document, record, or information; (d) the name and title of each addressee and recipient; (e) a description of the subject of the document, record, or information; and (f) the privilege asserted by the City. However, no documents, records, data, reports or other information created or generated pursuant to the requirements of this Consent Decree shall be withheld on grounds of privilege.

102. This Consent Decree in no way limits or affects any right of entry and inspection, or any right to obtain information, held by the United States or the Commonwealth pursuant to applicable federal or Commonwealth laws, regulations, or permits, nor does it limit or affect any duty or obligation of the City to maintain documents, records, or other information imposed by applicable federal or Commonwealth laws, regulations, or permits.

XV. FORM OF NOTICE

103. Submissions required by this Consent Decree shall be made electronically, in writing by certified mail with return receipt, or by any reliable commercial delivery service that provides

written verification of delivery to the following respective addressees, unless written notice is given that another individual has been designated to receive the submissions. Any submission required by this Consent Decree must be received by EPA and/or the MassDEP, as appropriate, upon the due date stated in this Consent Decree.

As to the Department of Justice

Chief, Environment Enforcement Section
Environment and Natural Resources Division
United States Department of Justice
P.O. Box 7611, Ben Franklin Station
Washington, D.C. 20044
(202) 514-5268

As to the United States Attorney

Anton P. Giedt
Assistant U.S. Attorney
John Joseph Moakley U.S. Courthouse
1 Courthouse Way, Suite 9200
Boston, MA 02210

As to the EPA

Reports and plans required to be submitted by the City to EPA shall be submitted to Michael Fedak, with a copy of the transmittal letter only to Michael Wagner. The City shall provide complete copies to both Michael Fedak and Michael Wagner of all other submissions required to be made by the City to EPA pursuant to this Consent Decree.

Michael Fedak
Environmental Engineer
U.S. EPA
Mail Code: OES04-3
5 Post Office Square
Boston, MA 02109-3912

Michael Wagner
Enforcement Counsel
U.S. EPA
Mail Code: OES04-3

5 Post Office Square
Boston, MA 02109-3912

As to the MassDEP

Robert Kimball
Massachusetts Department of
Environmental Protection
Central Regional Office
627 Main Street
Worcester, MA 01608

As to the Commonwealth

Louis Dundin
Assistant Attorney General
Massachusetts Office of the
Attorney General
One Ashburton Place
Boston, MA 02108

As to the City of Fitchburg, Massachusetts

Lenny Laakso
Commissioner
Department of Public Works
City of Fitchburg
718 Main Street
Fitchburg, MA 01420

Joseph Jordan
Deputy Commissioner
Fitchburg Wastewater Treatment Facilities
718 Main Street
Fitchburg, MA 01420

John B. Barrett
City Solicitor
City of Fitchburg
718 Main Street
Fitchburg, MA 01420

104. All written notices, reports and all other submissions required by this Consent Decree shall contain the following certification by a duly authorized representative of the City:

> 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.

XVI. EFFECT OF SETTLEMENT

105. This Consent Decree resolves the civil claims of the United States and the Commonwealth for the violations alleged in the Complaints filed in this action through the Date of Lodging.

106. This Consent Decree is neither a permit nor a modification of any existing permit under any federal, Commonwealth, or local law or regulation. The City is responsible for achieving and maintaining complete compliance with all applicable federal, Commonwealth, and local laws and regulations, and permits, and the City's compliance with this Consent Decree shall be no defense to any action commenced pursuant to any such laws, regulations, or permits, except as set forth herein. The United States and the Commonwealth do not, by their consent to the entry of this Consent Decree, warrant or aver in any manner that the City's compliance with any aspect of this Consent Decree will result in compliance with provisions of the CWA or with any other provisions of federal, Commonwealth, or local laws, regulations or permits. This Consent Decree shall not be construed to constitute EPA and/or MassDEP approval of any equipment or technology installed by the City under the terms of this Consent Decree.

107. This Consent Decree does not limit any rights or remedies available to the United States or the Commonwealth for any violation by the City of the CWA, the Massachusetts Act, and associated regulations or permit conditions other than those claims alleged in the Complaints through the Date of Lodging. This Consent Decree does not limit any rights or remedies available to the United States or the Commonwealth for any criminal violations. The United States and the Commonwealth expressly reserve all rights and remedies, legal and equitable, available to each of them for all violations of the CWA, the Massachusetts Act, or other applicable law where such violations are not alleged in their respective Complaints, and reserve all rights and remedies, legal and equitable, available to enforce the provisions of this Consent Decree. Nothing herein shall be construed to limit the power of the United States or the Commonwealth, consistent with their respective authorities, to undertake any action against any person, in response to conditions which may present an imminent and substantial endangerment to the public's health or welfare, or the environment.

108. In any subsequent administrative or judicial proceeding initiated by the United States or the Commonwealth for injunctive relief, civil penalties, or other appropriate relief relating to the City's Sewer System, or the City's violations of federal or Commonwealth law, the City shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim preclusion, claim-splitting, or other defenses based upon any contention that the claims raised by the United States or the Commonwealth in the subsequent proceeding were or should have been brought in the instant case, except with respect to claims that have been specifically resolved pursuant to Paragraph 105 of this Section.

109. This Consent Decree does not resolve any claims for contingent liability under Section 309(e) of the Clean Water Act, 33 U.S.C. § 1319(e). The United States specifically reserves any such claims against the Commonwealth, and the Commonwealth specifically reserves all defenses to any such claims.

110. This Consent Decree does not limit or affect the rights of the City, the United States, or the Commonwealth against any third parties, not party to this Consent Decree, nor does it limit the rights of third parties, not party to this Consent Decree, against the City, except as otherwise provided by law.

111. This Consent Decree shall not be construed to create rights in, or grant any cause of action to, any third party not party to this Consent Decree

XVII. COSTS

112. Each Party shall bear its own expenses, costs and attorney's fees in this action. The City shall be responsible for all documented expenses, costs and attorney's fees incurred by the United States and the Commonwealth in collecting any penalties due and payable under Sections VI (Civil Penalty) and XI (Stipulated Penalties) of this Consent Decree. In no event shall the United States or the Commonwealth be responsible for any expenses, costs or attorney's fees incurred by the City.

XVIII. EFFECTIVE DATE

113. The Effective Date of this Consent Decree shall be the date upon which this Consent Decree is entered by the Court or a motion to enter the Consent Decree is granted, whichever occurs first, as recorded on the Court's docket; provided, however, that the City hereby agrees that it shall be bound to perform duties scheduled to occur prior to the Effective Date. In the

event the United States withdraws or withholds consent to this Consent Decree before entry, or the Court declines to enter the Consent Decree, then the preceding requirement to perform duties scheduled to occur before the Effective Date shall terminate.

XIX. RETENTION OF JURISDICTION

114. The Court shall retain jurisdiction to modify and enforce the terms and conditions of this Consent Decree and to resolve disputes arising hereunder as may be necessary or appropriate for the construction or execution of this Consent Decree and to assess any stipulated penalties that may have accrued during the term of the Consent Decree.

XX. MODIFICATION

115. The terms of this Consent Decree, including any attachments, may be modified only by a subsequent written agreement signed by all the Parties, except that, without otherwise altering the obligations of the Consent Decree, (a) the Parties may by written agreement modify the schedules specified in this Consent Decree, and (b) EPA and the MassDEP may approve submissions upon specified conditions. Any other modification to the terms of this Consent Decree shall be effective only upon approval of the Court. Any disputes concerning modification of this Consent Decree shall be resolved pursuant to Section XIII (Dispute Resolution), provided, however, that, instead of the burden of proof provided by Paragraph 97, the Party seeking the modification bears the burden of demonstrating that it is entitled to the requested modification in accordance with Federal Rule of Civil Procedure 60(b).

XXI. FUNDING

116. Performance of the terms of this Consent Decree by the City is not conditioned on the receipt of any Federal or State grant funds or loans. In addition, performance is not excused by the lack of any Federal or State grant funds or loans.

XXII. SEVERABILITY PROVISION

117. The provisions of this Consent Decree shall be severable, and should any provisions be declared by a court of competent jurisdiction to be unenforceable, the remaining provisions shall remain in full force and effect.

XXIII. TERMINATION

118. After the City has paid all outstanding penalties, and has completed all remedial measures and reports required under Sections VII and VIII of this Consent Decree, the City may serve upon the United States and the Commonwealth a Request for Termination, stating that the City has satisfied those requirements, together with all applicable supporting documentation.

119. Following receipt by the United States and the Commonwealth of the City's Request for Termination, the Parties shall confer informally concerning the Request and any disagreement that the Parties may have as to whether the City has satisfied the requirements for termination of this Consent Decree. If the United States and the Commonwealth agree that this Consent Decree may be terminated, the Parties shall submit, for the Court's approval, a joint stipulation terminating the Consent Decree.

120. If the United States and the Commonwealth do not agree that the City has paid all outstanding penalties and completed all remedial measures required under Section VII, and therefore, that this Consent Decree may be terminated, the City may invoke dispute resolution

under Section XIII (Dispute Resolution). However, the City shall not seek dispute resolution of any dispute regarding termination until sixty (60) Days after service of its Request for Termination.

XXIV. FINAL JUDGMENT

121. Entry of this Consent Decree constitutes Final Judgment under Rule 54 of the Federal Rules of Civil Procedure.

XXV. WAIVER OF SERVICE OF SUMMONS AND COMPLAINT

122. The City hereby acknowledges receipt of the Complaints and waives service of the summonses pursuant to Rule 4 of the Federal Rules of Civil Procedure.

XXVI. PUBLIC COMMENT

123. The City consents to the entry of this Consent Decree without further notice. Final approval of this Consent Decree is subject to the public notice requirements of 28 C.F.R.§ 50.7. After reviewing the public comments, if any, the United States shall advise the Court by motion whether it supports entry of the Consent Decree.

Judgment is hereby entered in accordance with the foregoing Consent Decree this _____ day of _____ .

_____

UNITED STATES DISTRICT JUDGE

The following parties hereby consent to the entry of this Consent Decree:

For Plaintiff UNITED STATES OF AMERICA

_____ _____

Ignacia S. Moreno DATE
Assistant Attorney General
Environment & Natural Resources Division
United States Department of Justice

_____ _____

Brian Donohue DATE
Senior Attorney
Environmental Enforcement Section
Environment & Natural Resources Division
United States Department of Justice
P.O. Box 7611, Ben Franklin Station
Washington, D.C. 20044
(202) 514-

Carmen M. Ortiz
United States Attorney
District of Massachusetts

_____ _____

Anton P. Giedt DATE
Assistant U.S. Attorney
John J. Moakley Courthouse
1 Courthouse Way, Suite 9200
Boston, MA 02210
(627) 748-3309 (Voice)
(627) 748-3967 (Fax)
anton.giedt@usdoj.gov

For the UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

_____ _____

Cynthia Giles Date
Assistant Administrator
United States Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

_____ _____

Susan Studlien, Director Date
Office of Environmental Stewardship
United States Environmental Protection Agency,
Region I
One Congress Street
Boston, MA 02114

For the COMMONWEALTH OF MASSACHUSETTS

Martha Coakley
Attorney General
One Ashburton Place
Boston, MA 02108

_____ _____

Louis Dundin
Assistant Attorney General
Environmental Protection Division
Office of the Attorney General
One Ashburton Place
Boston, MA 02108
617-963-2433

For Defendant City of Fitchburg, MASSACHUSETTS

_____ _____

Date

APPENDIX C

Historic Flow and Loads Data

Appendix C: NPDES Reporting Data for the Easterly Wastewater Treatment Facility

Flow Data: January through December 2015

		FLOW DATA								INFLUENT DATA								PRIMARY EFFLUENT DATA								
									Merchant																	
		Final flow	Max Flow	Min. Flow	Rain	SE Q	Bypass Q	Septage	Sludge	Amb. Temp	Inf. Temp	Inf. pH	Inf. BOD	Inf. TSS	Inf. BOD	Inf. TSS	Inf. PO4	Pri. Eff. pH	Pri Eff SS	Pri. Eff. TSS	Pri. Eff. VSS	Pri. Eff. BOD	Pri. TSS	Pri. Eff. BOD	Pri. Eff. NH3	Pri. Eff. PO4
		MGD	MGD	MGD	in.	MGD	MGD	gal.	gal.	°F	°C	SU	mg/l	mg/l	lbs.	lbs.	mg/l	SU	ml/l	mg/l	mg/l	mg/l	lbs.	lbs.	mg/l	mg/l
Jan-15	Min.	7.2	12.3	0.0	0.0		0.000	157				7.57	39	106	4,804	6,719		7.35	0.5	47	26	45	4249	4882		
	Max.	19.2	36.6	13.9	1.3		3.665	42,621				7.91	523	1050	37,032	73,734		7.70	10.5	233	200	210	18282	17005		
	Total	352.2	516.4	245.2	4.9		9.164	280,405																		
	Average	11.4	16.7	8.2	0.2		0.296	15,578				7.75	248	468	20769	39246		7.54	3.5	113	90	115	10265	9979		
Feb-15	Min.	5.5	10.7	4.2	0.0		0.000	1,046				6.98	48	154	4,748	16,812		7.22	0.1	44	24	6	5266	693		
	Max.	15.3	25.6	13.0	0.7		1.721	34,613				7.86	405	492	45,384	59,703		7.80	60.0	893	700	356	102405	40824		
	Total	371.4	522.7	310.1	3.7		7.683	163,893																		
	Average	13.3	18.7	11.1	0.1		0.274	8,626				7.63	178	266	18851	28632		7.51	7.4	172	141	113	18515	11878		
Mar-15	Min.	6.1	10.3	4.6	0.0		0.000	1,239		15.0	6.9	7.20	45	195	4,558	19,387		7.24	0.7	82	66	42	6716	5724		
	Max.	19.7	22.9	14.7	0.7		2.140	24,673		46.0	10.6	7.84	372	702	31,197	50,580		7.82	58.0	779	626	375	47492	22706		
	Total	319.7	461.7	239.4	2.1		4.199	327,390																		
	Average	10.3	14.9	7.7	0.1		0.135	12,592		30.70	9.14	7.62	239	398	19315	31911		7.44	5.8	157	129	145	12145	11502		
Apr-15	Min.	9.9	12.6	6.9	0.0		0.000	1,564		3.9	8.5	6.80	102	172	12,537	16,084		7.26	1.5	73	49	48	7969	5763		
	Max.	19.7	27.2	14.1	1.5		5.360	65,210		61.0	11.9	7.89	446	593	47,277	55,011		7.62	22.0	272	232	194	28583	20386		
	Total	403.6	515.7	304.6	3.1		24.456	705,908																		
	Average	13.5	17.2	10.2	0.1		0.815	29,413		41.80	9.94	7.60	228	331	24801	36119		7.44	5.1	122	98	109	13360	11820		
May-15	Min.	5.7	7.5	2.5	0.0		0.000	310		49.0	11.9	6.67	90	308	7,829	16,902		6.45	1.4	118	90	99	8025	7601		
	Max.	10.4	28.2	7.7	0.5		0.613	92,019		85.0	18.2	7.74	975	1422	57,473	99,792		7.64	45.0	802	632	360	58871	26241		
	Total	239.9	374.8	138.7	1.3		0.773	1,415,947																		
	Average	7.7	12.1	4.5	0.0		0.025	50,570		67.23	14.81	7.56	376	715	23434	46011		7.36	12.8	276	214	230	17627	14522		
Jun-15	Min.	5.7	9.7	0.0	0.0		0.000	3,038		46.0	14.7	7.40	87	309	5,768	18,305		6.90	1.5	113	88	90	7387	5967		
	Max.	14.4	30.3	7.9	2.1		1.496	88,872		84.0	20.1	7.77	1065	1746	62,352	102,684		7.58	35.0	543	461	290	30568	16326		
	Total	245.0	411.9	139.4	8.0		3.964	1,111,218																		
	Average	8.2	13.7	4.6	0.3		0.132	44,449		68.58	18.05	7.62	365	942	23681	60666		7.33	8.0	187	140	182	12472	12075		
Jul-15	Min.	5.3	7.3	2.8	0.0		0.000	2,871		63.0	17.3	7.40	122	692	6,960	33,358		7.00	1.5	97	100	140	6056	7706		
	Max.	9.8	28.1	6.5	0.8		0.558	139,079		91.0	22.0	7.75	1140	2443	64,998	134,472		7.50	40.0	826	612	396	46293	22985		
	Total	212.4	361.7	123.0	2.7		0.904	1,272,700																		
	Average	6.9	11.7	4.0	0.1		0.029	42,423		79.03	20.04	7.58	625	1455	35096	81618		7.18	7.5	248	203	255	14046	14504		
Aug-15	Min.	4.5	6.6	0.0	0.0		0.000	475		55.0	19.8	7.32	189	333	9,316	12,692		6.76	2.5	125	92	137	5105	5222		
	Max.	8.2	31.2	3.9	0.9		0.270	66,669		85.0	23.9	7.90	1320	1796	56,695	85,977		7.58	150.0	3304	2476	1095	157892	52328		
	Total	172.0	317.1	79.5	2.3		0.598	715,556																		
	Average	5.5	10.9	2.7	0.1		0.019	26,502		76.03	21.85	7.61	468	936	21567	43341		7.29	20.1	445	363	286	20866	13430		
Sep-15	Min.	4.0	5.9	0.0	0.0		0.000	3,106		58.0	21.3	7.36	99	185	4,929	22,804		7.18	1.2	75	67	108	4199	5593		
	Max.	14.8	38.1	4.0	1.8		2.589	74,472		88.0	24.8	7.88	1110	1674	53,907	72,928		7.69	305.0	812	690	555	38637	22819		
	Total	173.9	374.8	66.0	5.3		3.872	1,000,957																		
	Average	5.8	12.5	2.2	0.2		0.129	37,072		72.78	22.91	7.60	504	1036	22685	46980		7.44	21.2	272	228	239	12622	11157		
Oct-15	Min.	4.6	8.1	1.5	0.0		0.000	1,681		31.0	15.0	7.24	156	366	6,791	15,522		7.02	0.1	88	67	96	3611	4572		
	Max.	9.8	27.6	4.8	1.8		0.245	98,670		71.0	22.1	7.80	720	1168	39,331	58,934		7.70	75.0	1614	1320	675	70131	29330		
	Total	183.9	319.0	88.7	2.1		0.245	1,337,464																		
	Average	5.9	10.3	2.9	0.1		0.008	49,536		53.23	20.23	7.50	353	677	17593	33510		7.39	14.6	315	281	249	15701	12318		
Nov-15	Min.	5.0	8.4	1.9	0.0		0.000	3,455		25.0	15.3	7.34	126	363	5,885	17,771		7.14	2.5	64	51	92	2920	4297		
	Max.	7.9	27.1	4.1	1.1		0.411	76,081		73.0	19.0	7.79	960	1277	50,520	67,203		7.62	50.0	815	682	1035	51726	65689		
	Total	179.0	321.4	86.4	2.6		0.411	1,236,184																		
	Average	6.0	10.7	2.9	0.1		0.014	45,785		47.73	17.42	7.55	382	635	19243	31713		7.39	12.1	287	255	264	14729	13507		
Dec-15	Min.	2.8	7.8	1.1	0.0		0.000	2,483		27.0	11.1	7.44	101	248	5,694	14,560		7.20	0.9	75	56	75	2611	4210		
	Max.	12.8	28.3	5.5	1.4		0.675	64,852		56.0	16.8	7.72	780	788	43,921	45,682		7.71	25.0	686	620	615	37188	33339		
	Total	211.6	379.4	106.2	5.0		0.675	1,033,614																		
	Average	6.8	12.2	3.4	0.2		0.022	35,642		41.84	14.47	7.61	412	535	23167	29545		7.49	5.3	188	169	204	10489	11250		

Appendix C: NPDES Reporting Data for the Easterly Wastewater Treatment Facility
Flow Data: January through December 2015

		FINAL EFFLUENT DATA																			PERCENT REMOVAL		FIRST STAGE EFFLUENT			
		Fin pH Grab	fin.SS	Fin. TSS	Fin. VSS	Fin. BOD	Fin. TSS	Fin. BOD	E. Coli.	Final temp.	Final DO	Final turb.	Final Cl2	Final Cl2	Final Cl2	Cl2 AVG.	Final PO4	Final PO4	Final NH3	Final NH3	(PO4)-3	BOD	TSS	pH	BOD	TSS	VSS
		SU	ML/L	mg/l	mg/l	mg/l	lbs.	lbs.	CFU/100ml	Deg. C	mg/l	NTU	mg/l	mg/l	mg/l		mg/l	lbs.	mg/l	lbs.	mg/l	% REM	% REM	SU	mg/l	mg/l	mg/l
Jan-15	Min.	6.7	<0.00	3	3	3	227	157	0	0.0	7.9	1			<0.01		0.35	27	0.14	10	0.02	40.00	49.21	7.2	2.0	3.6	
	Max.	7.1	18	124	90	108	19815	11529	860	10.0	9.7	107			0.01		2.46	393	1.88	300	0.09	99.21	99.38	7.7	13.7	31.4	
	Total																											
	Average	6.9	<0.85	24	19	14	2745	1608	6	4.7	8.9	8			<0.01		1.23	151	0.91	114	0.05	89.72	90.63	7.4	3.3	8.3	
Feb-15	Min.	6.6	0.01	8	5	5	653	516	0			1			<0.01		0.47	57	1.85	225	0.03	9.50	-53.78	7.0	3.0	4.1	
	Max.	7.3	50	366	282	162	41971	18577	6900			263			<0.01		2.43	249	6.95	712	0.05	98.40	97.56	7.6	57.6	145.0	
	Total																											
	Average	6.9	<3.19	63	51	31	7115	3396	12			21			<0.01		1.27	142	3.45	384	0.04	81.66	75.95	7.3	11.7	20.8	
Mar-15	Min.	6.8	0.00	1	1	3	97	264	0	7.6	7.3	1			<0.01		0.22	18	4.80	246	0.02	77.42	79.08	7.3	2.6	5.6	
	Max.	7.3	1.50	105	77	84	9032	5203	2000	9.6	10.3	16			<0.01		0.81	99	9.53	744	0.05	98.97	99.75	7.8	8.4	13.6	
	Total																											
	Average	7.0	<0.13	19	14	18	1677	1522	4	8.5	9.1	4			<0.01		0.48	45	6.51	535	0.04	92.61	94.84	7.5	4.9	8.9	
Apr-15	Min.	6.7	0.01	4	3	4	313	363	0	8.0	7.0	1			<0.01		0.05	5	2.05	179		79.53	82.97	7.3	2.0	4.6	
	Max.	7.2	0.40	55	32	39	6610	5205	915	12.2	9.9	20			<0.01		0.46	68	4.60	542		98.89	98.81	8.0	6.7	9.8	
	Total																											
	Average	7.0	<0.11	13	9	12	1607	1511	9	10.1	8.4	3			<0.01		0.18	23	3.50	400		93.68	95.51	7.6	3.8	6.9	
May-15	Min.	6.8	0.00	5	4	3	268	148	0	12.6	5.9	1			<0.01		0.19	10	0.10	5		86.15	92.00	7.4	2.3	5.0	
	Max.	7.2	0.50	105	78	54	7986	4107	132	20.1	9.1	8			<0.01		0.62	34	0.52	29		99.54	99.33	7.8	43.2	124.0	
	Total																											
	Average	7.0	<0.10	12	9	7	814	466	3	16.3	7.9	3			<0.01		0.30	18	0.20	12		97.86	98.36	7.6	6.3	13.4	
Jun-15	Min.	6.6	0.00	4	3	2	251	141	0	15.0	5.8	1			<0.01		0.16	9	0.13	7		89.55	89.58	7.4	1.9	4.2	2.6
	Max.	7.2	1.00	32	22	19	2866	1915	470	21.2	7.9	17			<0.01		0.53	63	1.10	132		99.51	99.65	7.8	9.9	14.4	10.4
	Total																											
	Average	6.9	<0.15	10	7	5	770	408	4	19.2	6.9	4			<0.01		0.37	29	0.40	35		97.82	98.30	7.6	4.1	8.3	6.2
Jul-15	Min.	6.8	0.00	5	3	2	250	107	0	19.1	6.2	1			<0.01		0.23	11	0.13	7		96.00	98.20	7.3	2.0	4.2	2.2
	Max.	7.7	0.30	29	23	13	1596	809	137	23.3	7.3	5			<0.01		0.59	36	1.51	96		99.70	99.76	7.7	37.2	103.0	79.0
	Total																											
	Average	7.0	<0.11	9	6	5	530	315	7	21.6	6.7	2			<0.01		0.43	23	0.34	19		98.82	99.31	7.5	8.2	14.9	11.6
Aug-15	Min.	6.8	0.00	5	3	2	196	86	0	22.2	5.6	1			<0.01		0.33	13	0.01	0		97.17	96.17	7.2	41.0	83.0	57.0
	Max.	7.2	0.30	19	15	12	1327	675	630	25.2	6.9	3			<0.01		1.30	88	0.87	49		99.72	99.69	7.7	216.0	1028.5	772.0
	Total																											
	Average	7.0	<0.14	8	5	4	392	194	19	24.0	6.4	2			<0.01		0.71	33	0.20	10		98.99	98.88	7.5	132.9	243.3	180.7
Sep-15	Min.	6.7	0.00	3	2	2	104	78	0	21.6	5.4	1			<0.01		0.34	14	0.09	3		84.75	83.46	7.3	60.0	39.0	28.0
	Max.	7.3	0.40	31	23	22	3772	2650	4000	25.2	7.1	12			<0.01		1.15	51	0.48	20		99.80	99.79	7.7	219.0	868.0	846.0
	Total																											
	Average	7.0	<0.12	8	5	4	433	249	14	23.7	6.6	2			<0.01		0.63	27	0.18	8		98.62	98.79	7.5	131.0	166.0	140.6
Oct-15	Min.	6.6	0.00	5	3	2	206	96	0	17.9	5.9	1			<0.01		0.16	7	0.09	4		96.35	97.07	7.2	46.0	43.0	34.0
	Max.	7.3	0.50	18	14	11	1249	784	48	22.3	8.5	6			<0.01		0.34	17	0.23	10		99.47	99.50	7.7	390.0	812.0	602.0
	Total																											
	Average	6.9	<0.12	9	6	4	447	219	8	20.1	7.2	2			<0.01		0.26	12	0.12	5		98.67	98.55	7.5	131.0	175.7	133.7
Nov-15	Min.	6.8	0.00	5	3	2	204	115	1	14.9	6.6	1			<0.01		0.28	12	0.11	5	0.08	97.00	94.96	7.2	21.6	60.0	55.0
	Max.	7.2	0.50	37	30	23	1926	1200	34	19.5	8.1	5			<0.01		0.55	25	0.19	10	0.21	99.44	99.25	7.7	216.0	760.0	628.0
	Total																											
	Average	7.0	<0.11	11	8	5	545	267	6	17.2	7.6	2			<0.01		0.40	19	0.15	7	0.12	98.63	98.19	7.4	115.7	153.8	136.9
Dec-15	Min.	6.7	<0.01	5	4	3	169	96	0	0.5	7.2	1			<0.01		0.28	17	0.08	5	0.14	90.59	80.57	7.4	42.0	31.0	27.0
	Max.	7.2	0.20	126	105	38	8649	2621	23	15.8	9.2	4			<0.01		0.58	29	0.18	10	0.21	99.56	99.26	7.7	195.0	252.4	224.2
	Total																											
	Average	6.9	<0.10	13	10	6	776	364	3	13.9	8.0	2			<0.01		0.44	24	0.13	7	0.17	98.25	97.60	7.5	96.4	84.3	75.7

Appendix C: NPDES Reporting Data for the Easterly Wastewater Treatment Facility
Flow Data: January through December 2015

		SECOND STAGE EFFLUENT				METALS					1ST STAGE AERATION															
											MLSS	MLSS	MLVSS	MLVSS	RSSS	RSSS	DO	DO	RAS	RAS			Wasted	Wasted	Wasted	Wasted	SVI	SVI
		pH	BOD	TSS	VSS	ZINC	ALUMINUM	LEAD	COPPER	CADMIUM	SIDE 1	SIDE 2	SIDE 1	SIDE 2	SIDE 1	SIDE 2	SIDE 1	SIDE 2	SIDE 1	SIDE 2	Side1	Side 2	Side 1	Side 1	Side 2	Side 2	Side 1	Side 2
		SU	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	gal/day	gal/day	lbs	lbs	lbs	gal	lbs	gal	ml/gm	ml/gm
Jan-15	Min.	7.0	2.3	8.4	4.4	43.0	52	0.53	23.0	<0.20	3920	4700	2950	3580	5420	9120	9.1	9.2	1654560	1837440	27380	32828	842	16419	0	0	54	59.5
	Max.	7.5	177.0	807.0	618.0	43.0	52	0.53	23.0	<0.20	8670	9440	6350	7090	13400	14570	10	10	2620800	3168000	60558	65936	3147	30307	6976	63511	90.9	131.9
	Total																		74,302,560	89,979,840	1,238,746	1,620,600	41,732	477,442	66,632	694,787		
	Average	7.2	25.2	82.3	69.8	43.0	52	0.53	23.0	<0.20	5,721	7,485	4,416	5,578	10,338	11,575	10	10	2,396,857	2,902,575	39,960	52,277	2,196	25,129	2,665	27,791	72	88
Feb-15	Min.	7.0	6.8	6.6	5.4	51.0	230	1.70	25.0	<0.20	4,720	1,410	2,400	1,160	1,240	1,530	10	9	2,073,600	2,347,200	32,968	9,848	1,587	17,033	501	6,775	64	63
	Max.	7.7	210.0	509.0	419.0	51.0	230	1.70	25.0	<0.20	8,560	7,380	6,680	5,870	14,120	13,570	10	10	2,736,000	3,038,400	59,789	51,547	11,174	129,685	10,711	106,756	99	107
	Total																		69,220,800	81,014,400	1,194,673	1,063,568	119,600	1,252,544	59,020	657,363		
	Average	7.3	37.5	86.0	78.1	51.0	230	1.70	25.0	<0.20	6,109	5,438	4,768	4,241	10,966	9,331	10	10	2,472,171	2,893,371	42,667	37,985	5,980	62,627	4,540	50,566	81	86
Mar-15	Min.	7.2	5.4	4.6	3.2	35.0	77	0.79	22.0	<0.20	3,810	5,070	2,930	4,000	4,230	5,390	6	6	2,376,000	2,779,200	26,612	35,413	4,104	53,347	811	17,730	68	48
	Max.	7.7	168.0	273.0	221.0	35.0	77	0.79	22.0	<0.20	7,530	7,860	6,060	6,310	13,100	11,730	10	10	2,548,800	2,908,800	52,595	54,900	10,581	106,855	11,242	143,825	113	136
	Total																		76,651,200	88,214,400	1,101,074	1,491,876	41,928	492,944	159,088	1,918,904		
	Average	7.5	27.6	30.6	24.7	35.0	77	0.79	22.0	<0.20	5,085	6,890	3,940	5,356	6,934	9,845	9	10	2,472,619	2,845,626	35,519	48,125	5,241	61,618	5,486	66,169	82	97
Apr-15	Min.	7.3	4.6	-11.4	2.0	46.0	<50	1.50	22.0	<0.20	4,840	2,120	3,850	770	6,850	3,060	8	7	2,016,000	2,476,800	33,806	14,808	306	5,027	0	0	69	68
	Max.	8.0	39.0	64.0	54.0	46.0	170	1.50	22.0	<0.20	8,710	6,050	7,110	4,590	17,420	12,900	10	10	2,851,200	3,110,400	60,837	42,258	11,156	118,375	5,806	54,414	102	97
	Total																		65,361,600	80,020,800	1,232,598	984,429	81,995	950,449	40,300	502,960		
	Average	7.5	9.1	10.8	8.4	46.0	<110	1.50	22.0	<0.20	6,085	4,698	4,748	3,638	10,859	8,250	10	10	2,253,848	2,667,360	42,503	32,814	3,727	43,202	2,371	29,586	84	81
May-15	Min.	7.3	2.8	6.4	4.0	40.0	<50	<0.50	20.0	<0.20	5,290	4,190	4,160	3,280	5,570	5,670	5	0	2,145,600	1,800,000	36,949	29,266	870	16,892	1,262	16,609	52	68
	Max.	7.8	7.8	31.7	21.9	40.0	<50	<0.50	20.0	<0.20	9,060	8,000	7,570	6,450	19,820	11,310	8	10	3,038,400	2,822,400	63,282	55,878	5,751	62,863	5,422	65,138	101	107
	Total																		75,052,800	70,430,400	1,449,687	1,156,185	102,446	1,137,743	58,716	732,735		
	Average	7.5	5.5	14.0	9.7	40.0	<50	<0.50	20.0	<0.20	6,695	6,131	5,323	4,903	10,489	9,583	7	7	2,421,058	2,515,371	46,764	42,822	3,533	39,233	2,936	36,637	77	84
Jun-15	Min.	7.0	3.6	10.2	6.6	49.0	>50	1.30	24.0	<0.20	5,070	3,870	3,710	2,320	10,340	4,830	3	0	2,088,000	0	35,413	27,031	1,185	16,750	0	0	46	41
	Max.	7.6	16.4	48.8	35.8	49.0	240	1.30	24.0	<0.20	10,240	4,920	7,880	3,740	15,120	17,550	9	8	4,089,600	3,198,240	71,524	34,365	11,048	106,240	3,917	36,128	86	57
	Total																		91,454,400	32,991,840	1,604,607	360,204	131,007	1,226,965	7,411	62,855		
	Average	7.3	6.3	17.2	12.6	49.0	>145	1.30	24.0	<0.20	7,658	4,298	5,862	3,064	12,783	8,206	6	4	3,048,480	1,649,592	53,487	30,017	4,517	42,309	1,853	12,571	65	49
Jul-15	Min.	7.1	4.2	15.2	11.0	50.0	53	<0.50	19.0	<0.20	3,730	3,130	2,750	2,090	3,670	4,440	4	3	1,944,000	2,318,400	26,053	21,862	1,903	3,207	880	24,098	46	44
	Max.	7.8	30.0	48.4	38.2	50.0	53	<0.50	38.0	<0.20	8,090	9,200	5,950	7,600	13,400	13,260	8	7	3,110,400	3,153,600	56,507	64,260	11,164	73,140	7,821	71,584	65	137
	Total																		72,115,200	79,401,600	1,391,784	1,352,178	83,941	883,859	77,343	871,935		
	Average	7.4	10.0	27.8	20.9	50.0	53	<0.50	28.5	<0.20	6,428	6,245	4,583	4,582	10,147	9,379	6	6	2,326,297	2,561,342	44,896	43,619	4,197	42,089	3,683	41,521	56	61
Aug-15	Min.	7.1	2.0	5.4	3.4	70.0	66	1.30	30.0	<0.20	5,420	6,030	3,590	4,130	5,280	6,520	2	2	2,102,400	2,448,000	37,857	42,118	1,745	18,923	1,543	20,723	42	47
	Max.	7.6	7.2	26.8	20.8	70.0	150	1.30	49.0	<0.20	8,480	10,030	6,580	7,370	16,080	13,080	6	6	2,462,400	3,153,600	59,231	70,057	8,127	72,621	17,958	102,731	63	80
	Total																		69,710,400	86,976,000	1,553,406	1,692,125	106,095	1,090,407	136,182	1,399,746		
	Average	7.3	3.8	11.5	7.5	70.0	108	1.30	39.5	<0.20	7,174	7,815	5,139	5,620	10,374	10,205	5	5	2,248,723	2,805,677	50,110	54,585	4,823	49,564	5,238	53,836	54	61
Sep-15	Min.	7.1	2.0	5.6	3.8	31.0	50	0.50	23.0	0.20	1,280	1,340	990	1,040	1,070	1,160	3	5	1,008,000	1,684,800	8,940	9,360	634	13,454	935	11,040	40	45
	Max.	7.6	7.6	16.9	13.0	31.0	50	0.50	23.0	0.20	8,300	8,420	6,110	6,270	14,500	11,320	8	7	2,376,000	2,563,200	57,973	58,812	5,786	72,923	12,209	95,982	73	79
	Total																		59,446,080	70,272,000	970,530	1,285,823	37,768	628,452	91,812	1,046,321		
	Average	7.3	3.9	10.7	7.7	31.0	50	0.50	23.0	0.20	4,632	6,136	3,452	4,463	5,853	8,837	7	6	1,981,536	2,342,400	32,351	42,861	3,433	57,132	4,832	55,070	60	61
Oct-15	Min.	7.0	2.0	5.8	4.4	46.0	61	<0.50	23.0	<0.20	1,620	1,010	1,220	870	890	1,530	3	4	1,051,200	0	11,315	7,055	947	14,546	1,196	13,464	47	22
	Max.	7.6	9.1	75.6	18.8	46.0	61	<0.50	23.0	<0.20	9,540	8,040	7,550	6,330	14,460	13,650	9	10	2,044,800	2,232,000	66,635	56,157	4,125	36,376	6,013	67,806	75	96
	Total																		49,435,200	55,065,600	1,243,981	1,096,395	39,650	429,477	38,697	437,161		
	Average	7.3	4.7	17.7	10.7	46.0	61	<0.50	23.0	<0.20	5,745	5,232	4,469	4,078	9,469	8,646	7	6	1,594,684	1,835,520	40,128	36,547	2,832	30,677	2,977	33,628	59	60
Nov-15	Min.	7.1	2.0	14.0	9.4	46.0	74	0.53	21.0	<0.20	5,260	780	130	760	6,990	1,000	6	6	1,526,400	1,929,600	36,740	5,448	735	8,389	721	8,115	51	50
	Max.	7.6	19.2	1190.6	71.0	46.0	74	0.53	21.0	<0.20	9,280	9,690	7,450	7,540	15,960	14,830	10	10	2,865,600	2,851,200	64,818	67,682	8,022	91,656	6,514	71,810	71	78
	Total																		64,584,000	69,811,200	1,674,661	1,548,097	61,951	633,636	64,362	644,376		
	Average	7.3	8.4	70.8	25.5	46.0	74	0.53	21.0	<0.20	7,992	7,643	6,123	6,062	11,451	11,775	8	7	2,152,800	2,407,283	55,822	53,383	3,872	39,602	3,576	35,799	59	61
Dec-15	Min.	7.1	2.9	9.0	6.8	49.0	85	0.60	19.0	<0.20	4,280	7,540	3,450	6,070	6,870	9,410	7	4	2,131,200	1,843,200	29,895	52,665	1,278	12,190	1,331	13,850	52	59
	Max.	7.6	60.0	246.5	202.0	49.0	85	0.60	28.0	<0.20	8,160	9,950	6,440	8,200	13,380	17,860	10	10	2,620,800	2,793,600	56,996	69,498	16,193	70,969	12,929	121,591	87	96
	Total																		75,398,400	82,641,600	1,490,334	1,912,284	73,639	732,884	127,795	1,220,114		
	Average	7.3	8.6	24.5	20.5	49.0	85	0.60	23.5	<0.20	6,883	8,832	5,540	7,028	10,009	12,845	9	7	2,432,206	2,665,858	48,075	61,687	4,091	40,716	5,325	50,838	71	76

Appendix C: NPDES Reporting Data for the Easterly Wastewater Treatment Facility
Flow Data: January through December 2015

		2nd STAGE AERATION																	
		MLSS	MLSS	MLVSS	MLVSS	RSSS	RSSS	DO	DO	RAS	RAS			Wasted	Wasted	Wasted	Wasted	SVI	SVI
		SIDE 1	SIDE 2	SIDE 1	SIDE2	SIDE 1	SIDE 2	SIDE 1	SIDE 2	SIDE 1	SIDE 2	Side1	Side 2	Side 1	Side 1	Side 2	Side 2	SVI Side 1	SVI Side 2
		mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	gal/day	gal/day	lbs	lbs	lbs	gal	lbs	gal	ml/gm	ml/gm
Jan-15	Min.	3710	3720	2870	2930	8070	5480	7.5	7.9	1810080	1837440	38290	38393	1136	16770	0	0	35	37.1
	Max.	7120	10180	6360	7760	14200	15040	10	10	2462400	2880000	73484	105065	4623	42587	3018	35310	145.6	137.7
	Total									64,414,080	72,011,520	1,726,969	1,739,251	69,825	687,820	44,671	518,422		
	Average	5,398	5,436	4,153	4,269	12,249	9,960	9	9	2,077,874	2,322,952	55,709	56,105	2,793	27,513	2,031	23,565	89	90
Feb-15	Min.	220	2,990	200	1,340	50	7,240	10	9	0	2,260,800	2,271	30,859	357	6,756	1,440	16,845	62	66
	Max.	4,270	5,770	3,650	4,340	13,350	11,650	10	10	2,232,000	2,692,800	44,070	59,551	7,682	84,418	8,850	99,000	159	132
	Total									38,721,600	69,480,000	660,322	1,216,094	40,804	446,963	71,853	849,955		
	Average	3,199	4,208	2,529	3,322	9,391	10,129	10	10	1,760,073	2,481,429	33,016	43,432	3,400	37,247	4,227	49,997	86	88
Mar-15	Min.	2,800	3,350	2,220	2,670	4,530	4,320	6	5	0	2,462,400	28,898	34,575	392	6,258	684	10,797	76	82
	Max.	5,790	4,860	4,470	3,860	11,480	9,010	10	10	3,096,000	2,880,000	59,757	50,159	6,529	92,138	17,139	90,513	178	165
	Total									85,104,000	81,057,600	1,065,207	1,310,011	79,202	1,230,104	71,754	965,883		
	Average	3,686	4,095	2,933	3,233	7,817	7,150	9	9	2,745,290	2,614,761	38,043	42,258	3,444	53,483	3,262	43,904	124	132
Apr-15	Min.	2,870	3,100	1,860	2,030	7,450	5,720	8	7	1,944,000	1,742,400	29,621	31,994	1,559	16,700	932	12,000	83	82
	Max.	6,330	8,250	4,720	7,440	14,020	12,140	10	10	2,851,200	2,606,400	65,330	85,146	13,146	139,064	5,367	64,966	146	136
	Total									71,150,400	59,731,200	1,348,921	1,434,893	67,598	789,867	46,100	534,453		
	Average	4,357	4,634	3,372	3,647	10,031	9,345	9	8	2,371,680	1,991,040	44,964	47,830	3,755	43,882	2,881	33,403	116	113
May-15	Min.	5,110	3,290	4,050	2,330	9,660	4,880	5	4	1,728,000	1,785,600	52,739	33,955	1,409	16,792	1,633	16,733	75	67
	Max.	9,980	7,680	8,960	5,820	12,480	12,110	8	9	2,620,800	2,606,400	103,001	79,263	5,722	64,138	4,249	42,815	137	137
	Total									70,012,800	60,969,600	2,061,258	1,597,856	76,656	866,941	21,282	242,140		
	Average	6,443	4,994	4,986	3,816	10,746	7,483	7	8	2,258,477	1,966,761	66,492	51,544	3,484	39,406	2,660	30,268	112	107
Jun-15	Min.	3,640	3,520	2,960	880	6,710	5,670	5	5	2,116,800	1,742,400	37,568	36,329	2,107	16,583	788	10,117	52	47
	Max.	7,420	12,910	5,810	10,970	17,730	17,510	8	9	3,009,600	2,448,000	76,580	133,241	5,225	50,747	8,356	89,917	109	110
	Total									79,634,880	65,275,200	1,986,643	1,851,441	108,500	1,140,361	100,109	1,106,788		
	Average	6,416	5,980	4,837	4,457	11,404	9,666	6	7	2,654,496	2,175,840	66,221	61,715	4,019	42,236	4,004	44,272	81	79
Jul-15	Min.	5,890	2,030	3,660	1,690	7,180	5,410	0	3	0	1,497,600	60,789	20,951	1,209	11,752	763	11,341	37	48
	Max.	7,300	6,930	5,490	5,360	14,220	14,090	9	9	2,462,400	3,499,200	75,341	71,523	14,616	71,317	6,227	50,654	64	76
	Total									47,250,720	70,142,400	1,360,585	1,577,630	74,602	661,344	51,606	589,389		
	Average	6,592	4,931	4,630	3,608	10,822	9,070	6	7	1,750,027	2,262,658	68,029	50,891	4,388	38,903	2,716	31,020	56	61
Aug-15	Min.	2,270	2,320	1,710	750	2,590	2,010	6	5	1,540,800	1,180,800	23,428	23,944	1,024	11,750	549	11,775	48	31
	Max.	6,750	7,360	5,010	5,580	13,200	10,320	10	10	3,052,800	2,361,600	69,665	75,961	7,485	72,624	5,972	51,000	93	68
	Total									75,643,200	58,939,200	1,607,147	1,264,497	29,397	324,921	19,035	244,340		
	Average	5,191	3,952	3,730	2,666	10,373	5,947	7	7	2,440,103	1,901,265	53,572	40,790	2,672	29,538	1,586	20,362	60	59
Sep-15	Min.	4,390	2,570	2,960	1,850	7,170	6,660	6	6	1,641,600	1,224,000	45,308	26,524	916	11,676	777	11,752	40	54
	Max.	6,200	5,030	4,620	3,710	13,920	13,310	8	8	2,160,000	1,771,200	63,989	51,913	9,233	87,035	8,822	86,047	70	81
	Total									60,465,600	44,815,680	1,625,105	1,314,038	54,496	619,718	57,478	628,640		
	Average	5,249	4,244	3,808	3,024	9,338	8,544	7	7	2,015,520	1,493,856	54,170	43,801	2,725	30,986	3,193	34,924	61	64
Oct-15	Min.	4,140	3,110	1,290	2,450	8,950	8,350	5	6	1,368,000	1,094,400	42,728	32,098	529	6,509	1,120	13,235	49	46
	Max.	7,640	6,110	5,870	4,770	15,710	14,620	8	10	1,828,800	1,454,400	78,851	63,060	6,646	64,338	6,262	64,341	67	71
	Total									50,117,760	39,499,200	1,858,978	1,471,122	74,751	722,430	62,834	633,535		
	Average	5,810	4,598	4,377	3,539	11,599	10,855	8	8	1,616,702	1,274,168	59,967	47,456	3,250	31,410	3,142	31,677	60	61
Nov-15	Min.	1,970	2,830	1,650	2,370	3,600	10,000	7	6	1,512,000	878,400	20,332	29,208	0	0	0	0	49	52
	Max.	6,740	6,610	5,180	5,440	19,320	17,400	10	10	1,872,000	1,929,600	69,562	68,220	3,461	36,741	9,731	71,188	71	69
	Total									46,094,400	37,152,000	1,432,831	1,597,240	31,445	352,266	88,074	694,025		
	Average	4,958	5,159	3,931	4,127	9,468	15,179	8	8	1,646,229	1,238,400	51,173	53,241	2,419	27,097	3,829	30,175	58	57
Dec-15	Min.	5,380	3,150	4,160	2,580	8,490	11,600	7	5	1,512,000	1,238,400	55,526	32,510	999	11,860	1,268	11,918	47	53
	Max.	7,240	6,430	5,680	5,250	13,710	15,810	10	10	2,376,000	2,030,400	74,722	66,362	5,541	56,045	9,830	71,087	90	84
	Total									63,547,200	52,617,600	2,019,460	1,638,728	22,277	241,425	53,664	439,122		
	Average	6,312	5,122	4,904	4,156	10,155	13,386	9	8	2,049,910	1,697,342	65,144	52,862	2,475	26,825	3,833	31,366	65	67

Appendix C: NPDES Reporting Data for the Easterly Wastewater Treatment Facility

Flow Data: January through December 2016

		FLOW DATA								INFLUENT DATA								PRIMARY EFFLUENT DATA								
									Merchant																	
		Final flow	Max Flow	Min. Flow	Rain	SE Q	Bypass Q	Septage	Sludge	Amb. Temp	Inf. Temp	Inf. pH	Inf. BOD	Inf. TSS	Inf. BOD	Inf. TSS	Inf. PO4	Pri. Eff. pH	Pri. Eff SS	Pri. Eff. TSS	Pri. Eff. VSS	Pri. Eff. BOD	Pri. TSS	Pri. Eff. BOD	Pri. Eff. NH3	Pri. Eff. PO4
		MGD	MGD	MGD	In.	MGD	MGD	gal.	gal.	°F	°C	SU	mg/l	mg/l	lbs.	lbs.	mg/l	SU	ml/l	mg/l	mg/l	mg/l	lbs.	lbs.	mg/l	mg/l
Jan-16	Min.	5.9	9.8	3.1	0.0		0.000	3,085		18.0	8.8	7.10	120	209	7,796	13,578		7.11	0.6	72	50	93	4171	7147		
	Max.	13.5	36.7	6.6	0.8		2.020	33,923		48.0	14.3	7.80	491	860	25,675	44,971		7.80	35.0	1107	545	429	56779	22397		
	Total	224.6	384.2	133.1	1.4		2.042	406,970																		
	Average	7.2	12.4	4.3	0.0		0.066	15,653		27.97	11.94	7.56	294	450	17211	26471		7.58	4.0	158	116	176	8958	10259		
Feb-16	Min.	6.0	10.1	3.2	0.0		0.000	2,967		-11.0	8.0	6.70	99	212	7,683	14,838		6.66	0.9	80	64	81	5345	5787		
	Max.	22.7	37.1	11.7	1.0		4.267	28,173		52.0	11.8	7.76	366	750	29,116	65,990		7.73	15.0	313	237	494	16263	28057		
	Total	252.8	414.4	157.7	3.3		6.805	356,863																		
	Average	8.7	14.3	5.4	0.1		0.243	15,516		26.95	10.40	7.50	254	418	17760	29594		7.46	3.2	133	110	146	8998	9790		
Mar-16	Min.	6.0	10.8	0.0	0.0		0.000	1,209		20.0	8.1	7.25	75	156	5,432	9,223		7.25	0.8	68	55	69	5062	4805		
	Max.	12.4	22.4	8.1	0.7		0.359	48,391		77.0	11.5	7.74	407	552	29,649	44,135		7.70	23.0	220	191	1230	17829	115302		
	Total	292.3	449.9	187.1	3.2		0.549	495,270																		
	Average	9.4	14.5	6.0	0.1		0.018	17,688		38.65	10.38	7.54	230	325	18089	25572		7.48	4.4	118	100	160	9324	13139		
Apr-16	Min.	6.7	9.9	3.1	0.0		0.000	570		21.0	11.1	6.60	93	130	6,205	7,785		7.23	0.5	78	-6111	84	5881	5817		
	Max.	11.8	20.9	7.3	0.8		0.051	57,903		70.0	13.7	7.74	474	635	30,912	36,689		7.67	36.0	422	362	338	23510	20648		
	Total	246.3	374.6	148.5	1.9		0.051	771,027																		
	Average	8.2	12.5	5.0	0.1		0.002	27,537		44.47	12.17	7.59	260	331	17529	22263		7.52	6.1	149	-347	169	9709	11335		
May-16	Min.	5.5	8.1	0.0	0.0		0.000	5,347		39.0	13.0	7.50	188	384	9,313	19,023		7.30	2.0	123	97	114	7332	5648		
	Max.	7.9	23.9	8.6	0.5		0.080	68,738		88.0	17.2	7.86	945	1160	51,071	70,526		7.76	35.0	635	513	570	32656	28047		
	Total	202.3	380.1	105.1	2.4		0.080	1,054,051																		
	Average	6.5	12.3	3.4	0.1		0.003	37,645		60.68	14.81	7.66	432	673	23869	36774		7.53	9.4	250	206	253	13516	13848		
Jun-16	Min.	4.3	6.8	1.3	0.0		0.000	2,548		58.0	16.4	6.70	153	580	6,313	24,514		6.68	2.7	144	121	174	5837	6719		
	Max.	7.9	27.5	3.0	0.8		0.233	67,510		81.0	20.0	7.87	1050	2342	40,656	101,177		7.76	53.0	1840	1489	444	79490	18274		
	Total	150.1	289.2	65.0	1.1		0.233	917,988																		
	Average	5.0	9.6	2.2	0.0		0.008	34,000		71.67	18.07	7.66	450	1014	18560	41834		7.46	10.8	337	278	277	14075	11510		
Jul-19	Min.	3.9	6.7	1.4	0.0		0.000	4,291		65.0	19.4	6.70	189	502	6,400	16,914		6.99	2.0	147	117	162	4953	6350		
	Max.	5.6	28.4	3.8	0.5		0.174	52,406		94.0	22.6	7.99	1095	2928	39,360	109,155		7.72	60.0	1538	1176	690	56438	25320		
	Total	137.9	294.4	52.4	2.0		0.174	659,449																		
	Average	4.4	9.5	1.7	0.1		0.006	26,378		79.45	20.91	7.69	701	1304	25723	48770		7.47	11.2	338	287	315	12567	11664		
Aug-16	Min.	4.2	6.6	0.8	0.0		0.000	2,503		58.0	21.8	6.65	179	437	6,449	15,708		7.18	2.7	154	116	123	6294	6161		
	Max.	8.0	34.6	3.8	2.0		1.278	88,752		90.0	23.6	7.86	900	1852	36,787	76,173		7.83	65.0	1298	1008	555	87036	34197		
	Total	153.1	326.2	58.4	5.0		2.810	977,528																		
	Average	4.9	10.5	1.9	0.2		0.091	31,533		76.42	22.65	7.66	502	1115	20240	45274		7.51	15.1	409	320	300	17627	12480		
Sep-16	Min.	4.1	6.7	0.0	0.0		0.000	3,869		40.0	21.4	6.95	135	940	5,546	35,891		7.22	1.0	121	96	141	4349	5151		
	Max.	6.7	30.2	2.3	0.5		1.578	85,960		82.0	23.4	7.90	1245	2378	50,671	83,297		8.29	25.0	1224	540	630	49612	23907		
	Total	140.7	329.7	48.5	2.1		1.855	1,019,454																		
	Average	4.7	11.0	1.6	0.1		0.062	36,409		65.90	22.63	7.72	611	1409	23806	54479		7.54	7.8	303	236	324	11809	12584		
Oct-16	Min.	4.2	7.9	0.0	0.0		0.000	5,960		33.0	16.3	7.62	197	390	8,669	24,323		7.45	1.1	119	93	119	6395	6133		
	Max.	10.4	38.1	3.7	2.6		8.728	71,443		74.0	21.9	7.96	1215	2106	54,719	77,282		7.96	45.0	600	474	446	28733	18138		
	Total	175.3	376.0	61.9	5.3		11.168	1,198,273																		
	Average	5.7	12.1	2.0	0.2		0.360	44,380		50.58	20.15	7.75	544	1113	23880	48266		7.73	12.2	296	240	289	13168	12714		
Nov-16	Min.	5.0	9.4	0.0	0.0		0.000	3,722		28.0	14.6	6.75	131	258	5,780	16,344		6.60	1.0	110	88	158	6137	6971		
	Max.	9.4	28.5	4.9	1.5		0.647	96,527		64.0	18.9	7.99	810	1054	36,276	53,665		7.91	28.0	828	678	510	64774	39897		
	Total	181.9	361.8	76.5	3.9		1.138	1,245,382																		
	Average	6.1	12.1	2.6	0.1		0.038	44,478		44.41	17.26	7.78	366	502	18528	25268		7.67	6.1	246	190	270	12725	13794		
Dec-16	Min.	5.3	1.7	0.0	0.0		0.000	2,966		8.0	11.8	6.66	164	156	7,194	8,444		6.65	0.6	83	62	113	4702	5344		
	Max.	15.6	28.4	5.5	0.5		0.225	75,036		55.0	15.1	7.90	660	526	41,740	37,305		7.88	26.0	600	479	396	38381	25331		
	Total	228.8	399.7	128.4	1.9		0.225	824,770																		
	Average	7.4	12.9	4.1	0.1		0.007	30,547		30.87	13.54	7.57	346	344	21023	21217		7.62	3.9	154	119	209	9430	12694		

Appendix C: NPDES Reporting Data for the Easterly Wastewater Treatment Facility
Flow Data: January through December 2016

		FINAL EFFLUENT DATA																			PERCENT REMOVAL		FIRST STAGE EFFLUENT			
		Fin pH Grab	fin.SS	Fin. TSS	Fin. VSS	Fin. BOD	Fin. TSS	Fin. BOD	E. Coli.	Final temp.	Final DO	Final turb.	Final Cl2	Final Cl2	Final Cl2	Cl2 AVG.	Final PO4	Final PO4	Final NH3	Final NH3	(PO4)-3	BOD	TSS	pH	BOD	TSS	VSS
		SU	ML/L	mg/l	mg/l	mg/l	lbs.	lbs.	CFU/100ml	Deg. C	mg/l	NTU	mg/l	mg/l	mg/l		mg/l	lbs.	mg/l	lbs.	mg/l	% REM	% REM	SU	mg/l	mg/l	mg/l
Jan-16	Min.	6.7	0.00	-6	1	4	-297	190	0	10.0	7.8	1			<0.01		0.38	21	0.11	5	0.08	71.41	50.26	7.1	45.0	33.0	23.0
	Max.	7.2	0.80	191	144	61	21568	6877	87	12.8	10.1	8			<0.01		0.53	40	1.63	143	0.18	99.04	101.44	7.7	147.0	225.0	195.0
	Total																										
	Average	6.9	<0.14	16	13	8	1295	593	4	11.2	9.0	3			<0.01		0.45	29	0.51	41	0.13	96.75	96.15	7.5	89.0	79.5	65.8
Feb-16	Min.	6.6	0.00	5.6	1	4	360	229	0	8.3	7.7	1			<0.01		0.30	20	0.12	6	0.05	71.78	74.85	6.6	44.0	20.0	21.2
	Max.	7.3	34.00	177	138	76	15574	6678	2000	11.7	9.8	201			<0.01		0.56	30	0.38	21	0.14	98.65	98.87	7.7	96.0	162.0	123.0
	Total																										
	Average	6.9	<1.27	19.7	14	10	1826	866	10	10.0	9.1	10			<0.01		0.43	26	0.21	14	0.09	95.62	95.50	7.4	70.0	63.3	52.0
Mar-16	Min.	6.5	0.00	3	2	2	181	160	0	9.3	4.6	2			<0.01		0.18	13	0.11	8	0.04	83.56	64.35	7.2	39.0	37.0	25.0
	Max.	7.2	9.50	80	60	31	7499	2897	800	11.7	9.9	47			<0.01		1.41	132	0.33	31	0.05	98.97	99.20	7.7	108.0	177.0	140.0
	Total																										
	Average	6.8	<0.49	13	9	6	1005	499	9	10.7	8.6	5			<0.01		0.52	46	0.22	18	0.05	96.88	95.00	7.4	68.5	71.7	59.0
Apr-16	Min.	6.8	0.00	5	3	3	349	209	0	11.0	7.6	2			<0.01		0.12	8	0.10	7		81.97	72.88	7.1	39.6	38.0	29.0
	Max.	7.1	0.20	96	69	41	9480	4058	15	14.2	9.5	4			<0.01		0.30	17	0.40	28		99.19	98.83	7.7	180.0	184.0	164.0
	Total																										
	Average	6.9	<0.09	12	9	6	887	469	3	12.7	8.6	3			<0.01		0.19	13	0.17	11		97.08	96.15	7.5	95.4	81.2	70.6
May-16	Min.	6.6	<0.01	1	4	2	45	99	0	14.0	6.1	1			<0.01		0.25	12	0.10	5		98.46	97.65	7.3	45.0	65.0	51.0
	Max.	7.0	0.20	15	12	7	987	377	42	19.2	8.5	4			<0.01		0.37	20	0.24	14		99.57	99.77	7.8	192.0	498.0	267.0
	Total																										
	Average	6.8	<0.09	8	6	4	434	227	4	16.2	7.5	2			<0.01		0.30	16	0.17	9		98.99	98.79	7.6	127.7	129.1	94.9
Jun-16	Min.	6.5	0.00	7	5	2	262	85	0	18.4	5.3	2			<0.01		0.30	15	0.14	6		96.59	97.63	6.7	73.0	68.0	52.0
	Max.	7.1	0.50	22	18	13	1470	860	200	22.9	7.5	5			<0.01		1.10	41	0.58	38		99.58	99.59	7.8	237.0	914.0	746.0
	Total																										
	Average	6.8	<0.10	11	8	5	464	201	2	20.3	6.6	3			<0.01		0.72	30	0.24	11		98.73	98.80	7.6	127.6	168.5	135.7
Jul-19	Min.	6.5	0.00	5	6	2	153	84	0	21.7	5.2	2			<0.01		0.47	18	0.13	5		96.99	98.32	7.0	2.4	8.0	6.6
	Max.	7.2	0.40	22	18	17	1041	773	25	24.6	7.0	5			<0.01		1.04	38	0.24	9		99.71	99.66	7.9	219.0	693.0	464.0
	Total																										
	Average	6.9	<0.13	10	8	4	385	164	2	23.4	6.2	3			<0.01		0.78	28	0.17	6		99.30	99.14	7.6	60.1	105.3	91.9
Aug-16	Min.	6.8	0.00	5	3	2	180	71	0	14.5	5.7	1			<0.01		0.43	19	0.13	5		77.33	88.24	6.7	2.0	2.0	2.0
	Max.	7.6	0.50	64	48	41	3304	2099	45	25.7	6.9	81			<0.01		1.20	44	1.60	59		99.59	99.71	8.0	7.3	49.0	18.0
	Total																										
	Average	7.1	<0.11	12	8	7	514	297	13	24.4	6.4	5			<0.01		0.84	34	0.29	11		98.03	98.66	7.7	3.3	11.9	6.6
Sep-16	Min.	7.0	0.00	6	4	3	205	103	3	21.9	5.1	1			<0.01		0.60	21	0.12	5		86.74	97.92	7.7	2.0	4.4	2.6
	Max.	7.5	0.70	29	23	22	1344	1072	630	25.1	6.6	10			<0.01		0.91	51	0.35	13		99.70	99.71	8.2	6.0	36.0	29.2
	Total																										
	Average	7.3	<0.11	10	7	6	400	263	32	23.7	6.0	3			<0.01		0.77	31	0.20	8		98.52	99.26	7.9	2.9	10.8	6.8
Oct-16	Min.	6.8	0.00	6	4	3	240	107	4	16.5	5.1	1			<0.01		0.20	10	0.05	3		85.81	86.88	7.6	2.0	4.2	3.0
	Max.	7.4	0.30	79	79	37	6878	3187	1900	22.4	8.4	6			<0.01		0.75	38	0.76	27		99.68	99.61	8.0	8.9	20.4	21.0
	Total																										
	Average	7.1	<0.09	11	9	6	604	313	32	20.0	7.1	3			<0.01		0.49	21	0.21	9		98.50	98.68	7.8	3.4	10.0	7.5
Nov-16	Min.	6.8	0.00	4	3	3	194	122	0	14.0	6.2	2			<0.01		0.29	14	0.11	5	0.16	90.95	52.40	7.6	2.3	2.8	3.4
	Max.	7.4	0.20	123	91	28	9514	2138	40	18.4	9.2	6			<0.01		0.91	71	1.09	85	0.41	99.47	99.32	8.3	6.7	15.0	12.6
	Total																										
	Average	7.2	<0.10	12	9	6	728	339	11	16.4	7.6	3			<0.01		0.51	31	0.32	22	0.27	98.21	96.78	7.8	3.6	9.5	6.6
Dec-16	Min.	6.6	0.00	6	4	3	346	172	0	11.0	7.2	2			<0.01		0.25	14	0.08	4	0.10	95.21	86.51	7.1	2.0	7.2	4.0
	Max.	7.3	0.30	59	43	16	4713	1290	39	14.1	9.3	6			<0.01		0.40	23	0.42	27	0.24	99.30	98.78	8.1	9.3	19.4	12.6
	Total																										
	Average	7.0	<0.12	11	8	5	680	334	9	12.5	8.7	3			<0.01		0.31	18	0.21	13	0.17	98.29	96.81	7.6	4.1	10.6	7.5

Appendix C: NPDES Reporting Data for the Easterly Wastewater Treatment Facility

Flow Data: January through December 2016

		SECOND STAGE EFFLUENT				METALS					1ST STAGE AERATION															
											MLSS	MLSS	MLVSS	MLVSS	RSSS	RSSS	DO	DO	RAS	RAS			Wasted	Wasted	Wasted	Wasted	SVI	SVI
		pH	BOD	TSS	VSS	ZINC	ALUMINUM	LEAD	COPPER	CADMIUM	SIDE 1	SIDE 2	SIDE 1	SIDE 2	SIDE 1	SIDE 2	SIDE 1	SIDE 2	SIDE 1	SIDE 2	Side1	Side 2	Side 1	Side 1	Side 2	Side 2	Side 1	Side 2
		SU	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	gal/day	gal/day	lbs	lbs	lbs	gal	lbs	gal	ml/gm	ml/gm
Jan-16	Min.	7.1	2.4	9.8	7.6	43.0	51	0.80	21.0	0.20	4,430	90	3,890	460	9,270	240	6	5	2,232,000	2,102,400	30,942	629	1,151	16,153	68	5,185	70	61
	Max.	7.7	117.0	397.0	324.0	160.0	51	7.10	39.0	0.20	9,320	10,590	7,510	6,540	13,210	12,960	10	10	3,196,800	3,888,000	65,098	73,969	7,519	72,249	20,266	72,601	109	667
	Total																		83,851,200	94,003,200	1,588,331	1,182,729	73,926	800,788	56,629	596,829		
	Average	7.3	12.7	34.2	29.4	101.5	51	3.95	30.0	0.20	7,335	5,462	6,008	4,445	11,149	7,564	9	10	2,704,877	3,133,440	51,236	38,153	3,696	40,039	3,775	39,789	89	109
Feb-16	Min.	7.0	4.0	5.6	6.0	43.0	< 50	0.69	26.0	< .20	3,550	5,350	2,820	4,240	7,760	8,040	8	1	2,606,400	2,707,200	24,796	37,368	1,168	18,040	1,294	18,020	51	88
	Max.	7.5	114.0	398.0	324.0	43.0	< 50	0.69	26.0	< .20	7,810	7,420	6,430	6,140	13,370	10,880	10	10	2,995,200	3,153,600	54,551	51,827	6,901	71,108	6,778	71,662	122	143
	Total					43	< 50	0.69	26	< .20									78,811,200	89,294,400	1,309,781	1,279,674	79,337	944,330	85,250	1,113,636		
	Average	7.2	14.3	38.5	31.2	43.0	< 50	0.69	26.0	< .20	6,466	6,318	5,266	5,138	10,285	9,245	10	8	2,717,628	3,079,117	45,165	44,127	3,606	42,924	3,279	42,832	96	118
Mar-16	Min.	6.8	2.9	9.2	5.4	39.0	<50	1.50	23.0	<0.20	3,630	3,730	3,060	3,120	8,140	7,360	8	7	2,577,600	1,785,600	25,355	26,053	1,899	23,380	2,550	38,028	74	59
	Max.	7.4	55.2	140.0	107.0	39.0	170	1.50	23.0	<0.20	7,680	6,440	6,330	5,260	10,950	10,710	10	10	2,952,000	3,168,000	53,643	44,982	6,173	74,033	6,097	72,724	123	153
	Total																		86,765,760	94,795,200	1,275,625	1,216,044	69,355	837,132	58,814	863,387		
	Average	7.1	9.7	22.9	17.2	39.0	<110	1.50	23.0	<0.20	5,891	5,616	4,905	4,596	10,150	8,326	9	9	2,798,895	3,057,910	41,149	39,227	4,954	59,795	4,201	61,671	101	121
Apr-16	Min.	7.0	3.7	7.4	3.8	49.0	<50	<0.50	20.0	<0.20	5,640	4,500	4,630	3,420	6,280	4,950	4	3	2,606,400	1,828,800	39,394	31,431	1,530	16,434	1,400	20,907	60	63
	Max.	8.1	67.2	161.0	119.0	49.0	<50	<0.50	20.0	<0.20	9,390	7,170	7,450	5,880	12,850	12,450	9	9	2,980,800	3,312,000	65,587	50,081	61,112	218,267	24,422	107,936	117	132
	Total																		83,388,960	79,358,400	1,539,580	1,243,913	224,031	1,627,957	108,246	1,234,308		
	Average	7.3	7.3	15.2	11.5	49.0	<50	<0.50	20.0	<0.20	7,347	5,936	5,932	4,713	11,259	8,742	7	8	2,779,632	2,645,280	51,319	41,464	10,183	73,998	5,412	61,715	91	96
May-16	Min.	7.0	3.4	10.0	7.8	75.0	<50	<0.50	25.0	<0.20	3,820	5,330	3,110	4,260	3,000	5,290	4	3	2,592,000	2,692,800	26,682	37,229	783	5,693	1,257	14,478	38	51
	Max.	8.1	10.0	197.2	193.0	75.0	<50	<0.50	25.0	<0.20	9,170	8,450	7,380	6,770	11,920	11,350	9	8	2,980,800	3,211,200	64,050	59,021	17,486	183,842	16,629	187,650	78	92
	Total																		87,120,000	94,020,480	1,464,073	1,541,393	107,639	1,344,169	117,625	1,406,590		
	Average	7.4	5.6	21.4	18.0	75.0	<50	<0.50	25.0	<0.20	6,762	7,119	5,427	5,692	9,139	9,695	6	5	2,810,323	3,032,919	47,228	49,722	3,844	48,006	4,056	48,503	61	66
Jun-16	Min.	7.1	6.3	18.6	13.8	40.0	<50	<0.50	31.0	<0.31	3,430	3,960	2,710	3,200	3,610	5,070	3	1	1,382,400	2,304,000	23,958	27,660	316	3,668	461	4,652	27	38
	Max.	7.6	16.5	45.6	35.0	40.0	<50	<0.50	38.0	<0.31	7,030	9,180	5,680	7,030	15,360	12,640	9	7	2,793,600	2,908,800	49,103	64,120	5,254	50,791	26,067	72,699	54	59
	Total																		56,952,000	76,809,600	1,053,650	1,507,239	39,344	468,751	86,331	751,880		
	Average	7.3	9.9	31.8	23.9	40.0	<50	<0.50	34.5	<0.31	5,388	7,441	4,234	5,719	7,630	9,928	6	5	2,034,000	2,648,607	37,630	51,974	3,026	36,058	4,544	39,573	45	47
Jul-19	Min.	7.0	2.2	9.4	9.4	62.0	<50	<0.50	29.0	<0.20	4,600	5,780	3,220	4,390	2,070	7,120	3	4	1,598,400	2,246,400	32,130	40,372	1,105	14,405	2,168	28,746	40	34
	Max.	8.1	11.9	50.2	37.0	62.0	<50	<0.50	29.0	<0.20	7,270	9,160	5,720	7,530	10,040	12,180	7	6	3,528,000	3,427,200	50,779	63,980	5,343	73,983	7,201	88,207	72	60
	Total																		91,641,600	97,862,400	1,321,237	1,656,085	73,770	1,061,097	108,922	1,316,545		
	Average	7.4	6.4	28.8	21.6	62.0	<50	<0.50	29.0	<0.20	6,102	7,648	4,734	5,772	7,619	9,256	5	5	2,956,181	3,156,852	42,621	53,422	3,207	46,135	4,189	50,636	47	46
Aug-16	Min.	6.9	2.3	8.2	2.8	69.0	<50	<0.50	24.0	<0.20	5,450	7,320	4,120	5,310	6,220	6,450	2	0	2,635,200	3,254,400	38,067	51,128	1,392	13,440	2,740	35,949	30	37
	Max.	7.8	17.0	38.0	30.8	69.0	<50	<0.50	29.0	<0.20	11,410	8,010	8,580	5,890	14,880	8,500	560	7	3,441,600	3,369,600	79,696	55,948	11,672	106,120	2,873	36,981	86	59
	Total																		98,619,840	13,305,600	1,911,097	210,870	92,677	945,356	8,376	109,254		
	Average	7.4	8.1	24.5	17.4	69.0	<50	<0.50	26.5	<0.20	8,826	7,548	6,529	5,473	11,308	7,758	22	4	3,181,285	3,326,400	61,648	52,718	3,707	37,814	2,792	36,418	59	48
Sep-16	Min.	7.4	4.8	8.8	12.8	76.0	<0	<0.50	26.0	<0.20	7,490		5,280		7,820		4		1,800,000		52,316		655	10,676			49	
	Max.	8.3	21.3	62.6	47.0	76.0	<0	<0.50	26.0	<0.20	9,590		7,020		15,070		8		2,822,400		66,984		6,000	61,668			81	
	Total																		68,198,400		1,770,143		45,539	471,288				
	Average	7.7	11.2	30.3	23.2	76.0	<0	<0.50	26.0	<0.20	8,448		6,058		10,519		7		2,273,280		59,005		3,795	39,274			68	
Oct-16	Min.	6.8	2.4	9.4	5.0	69.0	<0	<0.50	22.0	<0.20	3,930	3,330	2,310	2,270	4,520	8,960	4	6	720,000	2,275,200	27,450	23,259	0	0	1,032	11,780	26	49
	Max.	7.8	12.0	39.2	26.8	69.0	<0	<0.50	22.0	<0.20	9,380	9,970	7,660	7,210	14,100	12,330	8	10	2,433,600	2,606,400	65,517	69,638	5,817	56,206	4,563	45,750	73	152
	Total																		67,232,160	49,593,600	1,496,410	1,151,718	29,013	310,861	39,493	420,613		
	Average	7.4	5.1	18.6	13.4	69.0	<0	<0.50	22.0	<0.20	6,911	8,245	5,270	5,989	10,198	10,950	6	8	2,168,779	2,479,680	48,271	57,586	1,813	19,429	2,194	23,367	61	79
Nov-16	Min.	7.4	2.8	6.6	5.4	38.0	50	<0.50	16.0	<0.20	7,710	3,890	5,830	2,850	11,420	8,770	3	5	2,160,000	2,520,000	53,852	27,171	1,183	10,679	387	5,028	46	57
	Max.	8.1	52.8	266.0	199.8	38.0	50	<0.50	16.0	<0.20	10,340	9,430	7,940	6,980	16,000	12,090	10	10	2,779,200	2,894,400	72,222	65,866	6,499	59,138	13,120	43,424	66	88
	Total																		75,542,400	81,472,320	1,858,780	1,765,954	91,463	785,761	47,051	404,300		
	Average	7.7	6.5	30.5	22.8	38.0	50	<0.50	16.0	<0.20	8,871	8,428	6,876	6,185	13,759	10,364	6	9	2,518,080	2,715,744	61,959	58,865	4,355	37,417	3,619	31,100	57	77
Dec-16	Min.	7.2	3.0	15.0	11.6	42.0	65	<0.50	21.0	<0.20	3,230	7,490	2,620	5,410	10,710	7,720	5	7	2,232,000	2,707,200	22,561	52,316	1,267	14,460	0	0	39	55
	Max.	7.8	23.2	124.0	90.0	42.0	65	<0.50	21.0	<0.20	10,950	9,530	8,660	9,080	17,850	13,480	10	10	2,894,400	2,995,200	76,483	66,565	22,185	49,220	6,888	54,847	85	94
	Total																		78,667,200	86,760,000	1,831,190	1,745,841	118,071	797,812	32,615	346,597		
	Average	7.5	5.8	25.3	18.8	42.0	65	<0.50	21.0	<0.20	8,457	8,332	6,633	6,288	14,298	10,360	7	10	2,537,652	2,892,000	59,071	58,195	4,920	33,242	2,330	24,757	60	78

Appendix C: NPDES Reporting Data for the Easterly Wastewater Treatment Facility

Flow Data: January through December 2016

		2nd STAGE AERATION																	
		MLSS	MLSS	MLVSS	MLVSS	RSSS	RSSS	DO	DO	RAS	RAS			Wasted	Wasted	Wasted	Wasted	SVI	SVI
		SIDE 1	SIDE 2	SIDE 1	SIDE2	SIDE 1	SIDE 2	SIDE 1	SIDE 2	SIDE 1	SIDE 2	Side1	Side 2	Side 1	Side 1	Side 2	Side 2	SVI Side 1	SVI Side 2
		mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	gal/day	gal/day	lbs	lbs	lbs	gal	lbs	gal	ml/gm	ml/gm
Jan-16	Min.	5,100	3,010	4,250	2,590	6,690	11,280	9	8	2,102,400	1,713,600	52,636	31,065	466	5,867	585	5,725	53	68
	Max.	7,030	5,850	5,760	4,600	12,880	13,530	10	10	2,289,600	2,217,600	72,555	60,376	8,844	93,877	9,860	86,382	105	152
	Total									67,953,600	58,795,200	1,963,520	1,459,867	58,812	700,075	76,504	724,403		
	Average	6,137	4,563	4,913	3,851	9,710	12,519	10	10	2,192,052	1,896,619	63,339	47,092	3,267	38,893	4,250	40,245	87	90
Feb-16	Min.	5,330	2,230	4,220	1,770	7,620	9,040	10	9	2,131,200	1,742,400	55,010	23,015	258	4,009	418	3,973	68	79
	Max.	6,390	5,310	5,280	4,320	10,680	13,650	10	10	2,707,200	2,304,000	65,950	54,803	3,833	43,576	6,121	65,652	116	129
	Total									69,566,400	57,528,000	1,733,476	1,250,666	32,898	408,290	50,663	525,834		
	Average	5,792	4,179	4,561	3,448	9,239	11,434	10	10	2,398,841	1,983,724	59,775	43,126	2,350	29,164	2,815	29,213	90	101
Mar-16	Min.	4,360	2,510	3,330	2,270	3,740	3,770	9	8	2,534,400	2,073,600	44,998	25,905	2,660	33,791	3,458	43,197	62	45
	Max.	5,920	9,080	4,910	6,810	10,290	10,650	100	10	2,865,600	2,419,200	61,099	93,712	6,728	79,246	7,374	87,407	154	125
	Total									84,204,000	70,084,800	1,599,509	1,289,163	95,416	1,238,755	94,696	1,161,076		
	Average	4,999	4,029	3,997	3,345	8,901	9,611	13	10	2,716,258	2,260,800	51,597	41,586	4,544	58,988	4,984	61,109	87	98
Apr-16	Min.	3,770	3,590	2,910	2,150	7,210	7,130	8	7	2,550,240	2,044,800	38,909	37,051	2,176	35,265	2,107	29,023	64	68
	Max.	5,460	5,130	4,430	4,080	10,520	11,420	10	10	2,880,000	2,462,400	56,351	52,945	7,872	108,112	8,254	107,890	99	108
	Total									81,646,560	67,924,800	1,384,219	1,308,670	56,080	758,249	58,663	756,516		
	Average	4,471	4,227	3,550	3,412	8,397	8,895	9	8	2,721,552	2,264,160	46,141	43,622	4,006	54,161	4,190	54,037	83	91
May-16	Min.	4,330	3,370	3,250	2,710	4,200	6,770	6	6	2,376,000	1,958,400	44,689	34,781	1,119	13,550	340	5,229	45	49
	Max.	6,660	5,740	5,120	4,320	10,120	11,160	8	8	2,620,800	2,160,000	68,736	59,241	4,702	62,879	22,264	63,309	88	95
	Total									76,795,200	63,432,000	1,713,555	1,385,149	59,952	786,304	83,847	824,009		
	Average	5,356	4,329	4,224	3,437	8,323	8,956	7	7	2,477,265	2,046,194	55,276	44,682	2,855	37,443	3,646	35,826	64	74
Jun-16	Min.	4,760	4,440	3,700	3,410	7,970	8,570	1	5	1,972,800	1,526,400	49,127	45,824	1,242	11,705	1,188	11,708	39	45
	Max.	8,090	7,090	6,220	5,450	11,880	11,910	7	7	2,750,400	2,203,200	83,495	73,174	8,649	77,400	7,970	84,955	84	74
	Total									72,172,800	59,212,800	2,105,850	1,691,470	66,349	677,782	76,590	841,204		
	Average	6,801	5,463	5,193	4,233	9,900	10,022	6	6	2,405,760	1,973,760	70,195	56,382	3,492	35,673	3,330	36,574	48	55
Jul-19	Min.	4,570	4,470	2,500	3,360	5,310	6,760	6	6	1,972,800	1,411,200	47,166	46,134	566	6,553	520	6,550	33	37
	Max.	9,100	7,960	6,370	6,020	10,780	10,680	7	7	2,880,000	2,534,400	93,919	82,153	4,816	56,616	4,742	56,616	70	53
	Total									80,467,200	67,380,480	2,013,681	1,814,596	37,347	463,605	42,855	552,757		
	Average	6,294	5,672	4,698	4,281	8,340	8,142	6	7	2,595,716	2,173,564	64,957	58,535	2,490	30,907	2,678	34,547	46	45
Aug-16	Min.	5,600	5,680	4,010	4,090	6,510	7,720	5	4	2,606,400	2,100,960	57,796	58,622	0	0	0	0	40	39
	Max.	9,590	11,230	6,930	8,510	15,270	16,940	7	8	2,894,400	2,635,200	98,976	115,902	4,848	53,903	6,632	60,217	80	67
	Total									85,132,800	73,308,960	2,452,932	2,579,876	50,450	569,209	66,241	641,039		
	Average	7,667	8,064	5,540	5,838	10,376	11,338	6	6	2,746,219	2,364,805	79,127	83,222	3,153	35,576	3,312	32,052	50	52
Sep-16	Min.	7,080	7,470	5,190	5,300	7,870	9,650	3	3	2,390,400	2,088,000	73,071	77,096	1,272	14,439	2,786	22,500	38	41
	Max.	10,000	11,150	8,620	8,350	13,520	21,040	7	7	2,952,000	2,707,200	103,208	115,076	6,268	58,047	9,433	71,859	61	68
	Total									83,520,000	67,939,200	2,556,142	2,927,688	35,605	370,148	124,571	963,134		
	Average	8,256	9,456	6,237	7,151	10,631	14,651	6	5	2,784,000	2,264,640	85,205	97,590	3,237	33,650	5,190	40,131	51	53
Oct-16	Min.	6,180	7,110	4,540	5,240	7,230	8,970	6	7	2,592,000	2,030,400	63,782	73,381	1,203	12,045	217	2,415	42	46
	Max.	10,180	10,010	8,980	7,340	13,970	16,230	9	10	3,110,400	2,491,200	105,065	103,311	4,583	47,659	4,514	47,899	68	74
	Total									86,328,000	69,206,400	2,754,504	2,679,060	83,585	831,284	66,348	681,251		
	Average	8,609	8,374	6,634	6,378	11,395	11,678	8	8	2,784,774	2,232,465	88,855	86,421	2,882	28,665	2,552	26,202	58	60
Nov-16	Min.	4,550	6,180	3,430	4,000	5,460	9,930	8	7	2,707,200	1,944,000	46,959	63,782	345	5,690	620	5,714	40	48
	Max.	8,440	11,370	6,600	8,460	15,440	16,130	10	10	3,081,600	2,304,000	87,107	117,347	3,591	45,728	6,787	45,252	85	112
	Total									85,881,600	64,180,800	1,845,759	2,896,932	13,053	166,049	62,591	506,661		
	Average	5,961	9,356	4,527	6,977	8,124	13,639	9	8	2,862,720	2,139,360	61,525	96,564	1,865	23,721	3,477	28,148	52	65
Dec-16	Min.	5,240	5,730	3,540	4,340	7,820	8,780	8	8	2,736,000	2,014,560	54,081	59,138	1,035	12,005	771	6,266	37	45
	Max.	9,500	10,950	7,090	9,290	16,020	17,060	10	10	3,096,000	2,433,600	98,047	113,012	3,218	36,160	8,641	69,516	67	88
	Total									89,886,240	69,727,680	2,049,703	3,077,543	11,779	144,290	81,105	669,044		
	Average	6,406	9,619	4,818	7,247	9,499	14,032	10	9	2,899,556	2,249,280	66,119	99,276	2,356	28,858	4,269	35,213	55	70

Appendix C: NPDES Reporting Data for the Easterly Wastewater Treatment Facility

Flow Data: January through December 2017

		FLOW DATA								INFLUENT DATA								PRIMARY EFFLUENT DATA								
		Final flow	Max Flow	Min. Flow	Rain	SE Q	Bypass Q	Septage	Merchant Sludge	Amb. Temp	Inf. Temp	Inf. pH	Inf. BOD	Inf. TSS	Inf. BOD	Inf. TSS	Inf. PO4	Pri. Eff. pH	Pri. Eff SS	Pri. Eff. TSS	Pri. Eff. VSS	Pri. Eff. BOD	Pri. TSS	Pri. Eff. BOD	Pri. Eff. NH3	Pri. Eff. PO4
		MGD	MGD	MGD	in.	MGD	MGD	gal.	gal.	°F	°C	SU	mg/l	mg/l	lbs.	lbs.	mg/l	SU	ml/l	mg/l	mg/l	mg/l	lbs.	lbs.	mg/l	mg/l
Jan-17	Min.	7.1	11.8	4.1	0.0		0.000	2,122		6.0	8.2	6.85	99	113	6,869	6,814		7.26	0.7	74	54	84	4777	5960		
	Max.	14.8	26.7	8.3	0.9		0.692	54,446		55.0	11.9	8.02	510	420	36,664	30,508		7.82	8.0	276	240	264	17374	22986		
	Total	284.3	434.8	189.9	2.8		0.692	414,155																		
	Average	9.2	14.0	6.1	0.1		0.022	15,929		28.26	10.71	7.67	248	264	18900	20074		7.66	2.8	120	97	157	9058	11870		
Feb-17	Min.	6.4	10.7	3.9	0.0		0.000	388		10.0	9.4	6.60	57	204	7,530	14,880		7.44	0.9	62	42	39	3304	5152		
	Max.	15.8	26.2	12.4	0.8		4.199	38,271		62.0	11.0	7.92	407	442	38,146	33,026		7.79	12.0	205	158	258	17708	14483		
	Total	239.5	367.4	166.1	2.4		8.566	264,708																		
	Average	8.6	13.1	5.9	0.1		0.306	12,605		27.43	10.21	7.69	260	312	17456	21424		7.63	3.6	128	98	144	8919	9613		
Mar-17	Min.	6.4	10.4	2.6	0.0		0.000	2,060		4.0	8.4	7.38	60	188	4,883	10,506		7.42	0.8	66	48	51	4723	5334		
	Max.	14.9	25.9	10.2	1.3		3.370	42,935		50.0	11.3	7.89	408	605	38,410	48,439		7.80	40.0	812	635	411	58104	29410		
	Total	269.8	414.6	176.0	3.3		12.520	290,117																		
	Average	8.7	13.4	5.7	0.1		0.404	13,187		27.87	10.18	7.71	242	311	17231	22043		7.64	9.9	229	195	194	15464	13339		
Apr-17	Min.	9.7	11.7	6.0	0.0		0.000	3,560		35.0	7.9	6.68	72	108	7,059	19,893		6.70	0.4	43	-61	60	6634	5229		
	Max.	27.2	37.1	23.0	1.0		17.753	74,322		72.0	12.1	7.70	447	776	36,087	76,562		7.70	17.0	318	264	236	28083	24273		
	Total	436.0	546.5	306.0	4.7		104.765	527,477																		
	Average	14.5	18.2	10.2	0.2		3.492	32,967		47.31	10.23	7.44	218	351	23410	36323		7.44	4.0	114	86	113	12312	12630		
May-17	Min.	8.5	10.8	5.5	0.0		0.000	10,173		42.0	10.8	6.92	60	102	6,795	11,901		7.05	0.8	81	62	69	6614	6900		
	Max.	21.2	34.5	11.4	1.8		4.898	125,763		79.0	14.8	7.65	414	792	38,913	69,020		7.69	13.0	247	205	195	26777	21939		
	Total	350.8	514.5	226.4	6.3		18.574	1,051,508																		
	Average	11.3	16.6	7.3	0.2		0.599	43,813		54.61	13.15	7.44	263	520	23555	46891		7.49	4.1	141	112	134	13240	12306		
Jun-17	Min.	6.6	9.4	0.0	0.0		0.000	2,817		46.0	13.9	7.22	66	296	5,133	16,244		7.08	1.1	70	58	78	5439	6726		
	Max.	16.8	26.6	11.7	0.9		7.410	76,576		83.0	18.1	7.74	510	1230	43,715	80,835		7.61	22.0	280	240	288	17602	16069		
	Total	274.1	434.5	162.3	3.9		24.529	984,663																		
	Average	9.1	14.5	5.4	0.1		0.818	37,872		66.70	15.87	7.51	324	689	24215	50651		7.45	4.9	144	115	157	10561	11412		
Jul-17	Min.	5.2	7.3	0.0	0.0		0.000	3,075		55.0	17.8	6.56	156	290	8,223	13,373		6.83	1.0	87	98	140	3802	7403		
	Max.	9.2	28.3	3.7	1.6		1.487	83,942		85.0	21.1	7.65	666	810	42,491	51,679		7.56	24.0	519	410	470	27572	23911		
	Total	192.2	347.1	89.6	3.9		2.299	1,046,457																		
	Average	6.2	11.2	2.9	0.1		0.074	37,373		71.17	19.44	7.41	329	505	17246	26584		7.29	10.0	267	210	247	13923	12861		
Aug-17	Min.	5.0	7.8	0.0	0.0		0.000	10,091		51.0	19.7	7.04	90	180	6,328	7,855		7.05	3.9	154	112	131	8580	6621		
	Max.	8.4	34.1	5.2	1.0		1.416	88,968		73.0	21.9	7.63	425	834	25,981	43,603		7.57	75.0	1506	1122	525	80259	27979		
	Total	183.1	381.7	79.1	3.6		4.380	1,230,344																		
	Average	5.9	12.3	2.6	0.1		0.141	45,568		63.03	20.74	7.34	291	397	14204	19896		7.35	20.1	472	363	307	23204	14970		
Sep-17	Min.	4.7	7.9	1.4	0.0		0.000	476		45.0	19.4	0.00	134	206	6,674	8,934		6.93	2.0	122	95	0	5481	0		
	Max.	7.8	34.6	5.1	2.8		6.092	84,742		75.0	21.8	8.81	600	458	25,620	28,883		7.64	40.0	935	708	456	54117	20001		
	Total	171.1	342.9	83.5	4.5		7.113	1,160,034																		
	Average	5.7	11.4	2.8	0.2		0.237	41,430		60.67	20.34	7.22	289	316	13411	14957		7.33	9.7	314	251	260	15129	12134		
Oct-17	Min.	4.3	8.5	0.0	0.0		0.000	441		37.0	12.4	6.70	72	118	5,224	8,799		6.92	0.5	51	42	54	7022	4830		
	Max.	29.2	38.6	16.0	3.0		12.160	94,596		65.0	20.4	8.63	435	720	26,733	36,249		7.75	120.0	2320	1760	930	83587	41961		
	Total	229.2	463.9	100.2	9.2		33.939	1,256,770																		
	Average	7.4	15.0	3.2	0.3		1.095	48,337		50.61	19.14	7.50	275	398	14125	21009		7.41	13.1	409	334	288	18897	13816		
Nov-17	Min.	6.8	11.2	3.4	0.0		0.000	3,254		20.0	13.7	6.60	132	150	7,750	14,669		6.92	0.7	68	54	75	6165	6106		
	Max.	13.6	18.7	9.4	0.5		0.013	117,046		73.0	18.2	7.62	641	560	41,217	33,767		7.61	20.0	510	438	419	29519	24252		
	Total	247.0	400.2	147.6	1.3		0.013	1,421,055																		
	Average	8.2	13.3	4.9	0.0		0.000	49,002		39.57	16.22	7.46	267	344	18002	22900		7.47	4.4	179	143	184	11980	12288		
Dec-17	Min.	5.9	11.4	3.2	0.0		0.000	2,233		0.0	11.2	7.32	84	198	5,366	10,486		7.31	1.2	20	16	93	1029	5941		
	Max.	9.2	26.0	7.1	0.7		0.384	86,875		48.0	15.7	7.72	443	706	32,274	53,993		7.78	18.0	469	184	289	27771	19731		
	Total	205.5	407.4	118.4	1.5		0.384	868,090																		
	Average	6.6	13.1	3.8	0.0		0.012	36,170		25.84	13.44	7.52	297	360	16397	20240		7.55	3.8	164	120	195	9111	10795		

Appendix C: NPDES Reporting Data for the Easterly Wastewater Treatment Facility
Flow Data: January through December 2017

		FINAL EFFLUENT DATA																		PERCENT REMOVAL		FIRST STAGE EFFLUENT			
		Fin pH Grab	fin.SS	Fin. TSS	Fin. VSS	Fin. BOD	Fin. TSS	Fin. BOD	E. Coli.	Final temp.	Final DO	Final turb.	Final Cl2	Final Cl2	Final Cl2	Cl2 AVG.	Final PO4	Final PO4	Final NH3	Final NH3	(PO4)-3	BOD	TSS	pH	BOD	TSS	VSS
		SU	ML/L	mg/l	mg/l	mg/l	lbs.	lbs.	CFU/100ml	Deg. C	mg/l	NTU	mg/l	mg/l	mg/l		mg/l	lbs.	mg/l	lbs.	mg/l	% REM	% REM	SU	mg/l	mg/l	mg/l
Jan-17	Min.	6.6	0.00	8	4	4	504	229	2	9.2	7.7	2			<0.01		0.20	14	0.08	6	0.05	92.19	78.14	7.4	2.9	8.0	5.0
	Max.	7.1	0.30	63	46	28	5922	2597	50	11.7	9.5	6			0.01		1.18	110	0.42	39	0.19	99.22	97.55	8.0	9.0	14.0	10.4
	Total																										
	Average	6.9	<0.11	12	8	6	928	454	11	10.6	8.9	4			<0.01		0.45	37	0.17	13	0.09	97.50	95.34	7.6	4.1	10.4	7.3
Feb-17	Min.	6.5	0.00	7	4	5	429	273	0	9.2	6.4	2			<0.01		0.23	19	0.10	5	0.08	35.79	30.95	7.4	2.0	5.8	3.4
	Max.	7.3	0.30	174	129	66	15977	6060	2800	10.8	9.6	14			0.25		0.40	22	1.62	153	0.12	98.69	97.65	7.7	9.5	29.4	28.6
	Total																										
	Average	7.0	<0.13	21	15	11	1768	991	12	10.1	8.8	5			<0.01		0.32	21	0.73	61	0.10	92.70	92.50	7.6	4.6	12.2	8.8
Mar-17	Min.	6.7	0.00	3	3	4	177	210	1	8.9	5.1	2			<0.01		0.11	6	0.17	10	0.07	36.51	4.64	7.4	2.0	4.4	2.2
	Max.	7.6	0.70	349	271	160	26021	13304	183	11.4	9.2	19			0.01		1.04	108	7.37	483	0.23	98.70	98.47	8.2	6.0	18.4	15.0
	Total																										
	Average	7.0	<0.16	51	39	27	4148	2246	9	10.1	8.3	5			<0.01		0.43	38	3.01	237	0.14	87.11	85.12	7.7	3.4	8.9	6.0
Apr-17	Min.	6.5	0.00	6	3	4	464	283	0	7.5	5.5	2			<0.01		0.10	8	0.45	37		36.28	53.26	7.3	2.0	6.0	3.6
	Max.	7.1	1.80	110	76	72	14344	11662	5500	13.5	10.6	35			<0.01		1.70	213	4.61	1017		99.22	98.92	8.0	5.3	1179.2	7.4
	Total																										
	Average	6.8	<0.22	26	17	20	3662	3043	24	10.8	8.0	8			<0.01		0.59	80	2.26	380		85.30	88.30	7.6	2.9	47.9	5.3
May-17	Min.	6.6	<0.00	6	2	2	520	152	0	1.0	5.9	2			<0.01		0.12	10	0.10	7		53.10	58.63	0.0	2.0	6.2	3.2
	Max.	7.2	6.00	52	39	41	8062	7214	353	15.3	15.4	47			<0.01		0.84	95	2.08	234		99.10	99.06	8.1	5.3	29.2	14.4
	Total																										
	Average	6.7	<0.40	16	9	11	1699	1194	6	13.5	7.5	5			<0.01		0.24	26	0.63	67		92.98	95.15	7.2	2.9	9.9	6.1
Jun-17	Min.	6.5	0.00	0	2	2	24	126	0	14.2	5.1	2			<0.01		0.09	7	0.18	13		85.00	87.95	7.4	2.0	-28.4	1.8
	Max.	7.1	0.20	41	29	47	5773	6557	32	20.1	8.3	10			<0.01		0.83	116	4.45	623		99.47	99.95	8.0	2.5	11.6	9.8
	Total																										
	Average	6.8	<0.10	10	6	6	813	588	3	17.2	6.6	3			<0.01		0.33	28	0.82	87		97.48	98.31	7.6	2.1	6.8	4.5
Jul-17	Min.	6.6	0.00	5	3	3	236	135	0	20.0	5.5	2			<0.01		0.42	21	0.14	7		86.03	80.54	7.3	2.0	5.0	2.8
	Max.	7.0	0.20	123	90	53	9407	4051	116	22.0	6.7	5			1.04		2.03	156	2.47	190		99.31	98.91	7.8	12.5	51.4	28.0
	Total																										
	Average	6.8	<0.10	14	9	7	800	394	6	21.0	6.2	3			<0.02		0.64	37	0.60	36		97.86	97.40	7.5	3.4	13.6	9.1
Aug-17	Min.	6.5	0.05	6	2	3	257	151	0	21.2	4.5	2			0.00		0.00	0.24	11	0.12	5	79.00	82.63	7.2	2.0	6.2	1.4
	Max.	7.1	0.50	61	46	42	2941	2706	470	23.2	6.7	8			5.00		5.00	1.15	56	1.85	99	99.00	99.14	7.8	7.5	107.0	6.6
	Total																										
	Average	6.8	<0.13	14	9	8	716	448	9	22.1	6.0	3			4.78		4.78	0.41	20	0.45	24	96.34	96.20	7.6	2.7	17.3	4.1
Sep-17	Min.	6.6	0.00	7	4	3	295	134	0	20.3	5.4	2			0.00	0.00	0.18	10	0.08	4		82.75	89.73				
	Max.	7.1	0.40	45	33	53	2668	2426	116	22.6	6.5	8			0.00	0.00	0.82	53	2.85	183		98.79	97.86				
	Total																										
	Average	6.9	<0.12	13	9	8	630	403	9	21.7	6.0	4			0.00	0.00	0.38	19	0.43	24		97.26	96.18				
Oct-17	Min.	6.5	0.00	6	4	4	231	165	0	10.4	5.3	2			0.00	0.00	0.44	18	0.13	5		38.89	43.73	7.3	2.1	5.8	2.6
	Max.	7.3	2.66	72	43	44	16192	10730	9400	21.9	48.0	55			0.00	0.00	1.34	195	3.64	888		98.39	98.69	7.9	153.0	26.0	20.8
	Total																										
	Average	6.8	<0.24	19	12	13	1755	1164	31	19.7	8.0	8			0.00	0.00	0.67	48	1.37	141		92.64	92.93	7.6	17.5	13.2	10.1
Nov-17	Min.	6.6	0.00	5	4	3	377	176	0	14.4	6.1	1			0.00	0.00	0.17	12	0.10	7	0.05	93.07	92.80	6.9	2.0	3.6	1.2
	Max.	7.1	0.20	20	13	10	1467	733	8800	18.3	7.9	6			0.00	0.00	0.30	18	0.40	23	0.09	99.39	98.36	8.2	10.8	173.0	14.0
	Total																										
	Average	6.9	<0.10	10	6	6	690	382	15	16.1	7.1	3			0.00	0.00	0.22	15	0.20	13	0.07	97.63	96.84	7.7	3.0	15.4	5.0
Dec-17	Min.	6.5	0.00	2	2	3	87	178	0	10.2	7.1	1			0.00	0.00	0.21	11	0.07	4	0.08	88.46	84.72	7.3	2.0	5.2	3.2
	Max.	7.1	0.30	66	52	36	3688	2012	42	14.8	12.6	6			0.00	0.00	0.39	20	0.17	9	0.23	99.12	99.49	8.2	20.0	87.6	85.6
	Total																										
	Average	6.8	<0.10	14	11	7	765	385	5	12.8	8.0	3			0.00	0.00	0.26	14	0.13	7	0.13	97.32	96.04	7.6	5.8	13.6	11.9

Appendix C: NPDES Reporting Data for the Easterly Wastewater Treatment Facility
Flow Data: January through December 2017

		SECOND STAGE EFFLUENT				METALS					1ST STAGE AERATION															
											MLSS	MLSS	MLVSS	MLVSS	RSSS	RSSS	DO	DO	RAS	RAS			Wasted	Wasted	Wasted	Wasted	SVI	SVI
		pH	BOD	TSS	VSS	ZINC	ALUMINUM	LEAD	COPPER	CADMIUM	SIDE 1	SIDE 2	SIDE 1	SIDE 2	SIDE 1	SIDE 2	SIDE 1	SIDE 2	SIDE 1	SIDE 2	Side1	Side 2	Side 1	Side 1	Side 2	Side 2	Side 1	Side 2
		SU	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	gal/day	gal/day	lbs	lbs	lbs	gal	lbs	gal	ml/gm	ml/gm
Jan-17	Min.	7.4	3.1	17.4	12.2	40.0	50	0.50	17.0	0.20	7,030	7,220	5,480	5,610	10,690	10,260	6	7	2,246,400	2,779,200	49,103	50,430	877	10,000	1,775	16,440	46	48
	Max.	8.0	18.2	86.4	64.0	40.0	50	0.50	17.0	0.20	9,800	9,890	7,360	7,700	17,190	17,220	10	10	2,548,800	2,980,800	68,451	69,079	50,890	428,805	4,739	50,547	99	92
	Total																		75,268,800	89,092,800	1,744,441	1,835,943	155,488	1,315,783	37,339	368,892		
	Average	7.6	8.3	31.1	23.3	40.0	50	0.50	17.0	0.20	8,056	8,479	6,305	6,477	14,601	11,437	9	10	2,428,026	2,873,961	56,272	59,224	6,479	54,824	3,734	36,889	60	77
Feb-17	Min.	7.3	2.7	18.6	12.2	39.0	71	1.00	18.0	<0.20	7,260	7,770	5,810	5,890	13,200	10,430	6	9	2,145,600	2,376,000	50,709	54,272	0	0	0	0	50	50
	Max.	7.8	138.0	353.0	270.0	39.0	71	1.00	18.0	<0.20	10,740	10,720	8,580	8,240	18,320	12,280	10	10	2,505,600	2,980,800	75,016	74,877	7,785	68,729	3,452	35,929	75	87
	Total																		66,340,800	79,113,600	1,763,161	1,747,168	67,730	567,260	9,473	107,360		
	Average	7.7	17.6	53.4	42.0	39.0	71	1.00	18.0	<0.20	9,015	8,934	7,142	6,884	14,993	11,228	8	10	2,369,314	2,825,486	62,970	62,399	4,515	37,817	2,368	26,840	61	77
Mar-17	Min.	7.3	7.5	18.0	12.8	42.0	<50	0.66	19.0	<0.20	8,140	6,540	6,110	6,350	7,340	4,190	0	0	2,044,800	590,400	56,856	45,680	1,564	24,435	2,757	29,571	48	55
	Max.	8.3	462.0	1027.0	821.0	42.0	<50	0.66	19.0	<0.20	10,470	11,370	8,600	8,190	13,840	15,820	10	10	22,507,200	2,937,600	73,130	79,417	7,861	82,213	7,105	82,870	81	84
	Total																		89,121,600	20,880,000	1,963,205	568,210	73,300	744,842	29,079	316,855		
	Average	7.7	54.3	163.4	130.7	42.0	<50	0.66	19.0	<0.20	9,067	9,039	7,070	7,081	12,127	10,219	9	9	2,874,890	2,088,000	63,329	63,134	3,858	39,202	4,154	45,265	66	75
Apr-17	Min.	7.1	7.1	7.4	5.2	58.0	140	4.60	24.0	<0.20	7,710		5,510		11,520		1	0	2,073,600		53,852		3,024	27,172			50	
	Max.	7.9	123.0	323.0	251.0	58.0	420	4.60	24.0	<0.20	10,340		7,870		16,640		10	10	2,361,600		72,222		8,285	71,316			81	
	Total																		65,707,200		1,785,445		70,673	641,228				
	Average	7.4	26.4	60.6	48.5	58.0	280	4.60	24.0	<0.20	8,521		6,461		13,377		9	3	2,190,240		59,515		4,712	42,749			66	
May-17	Min.	6.8	2.8	7.0	3.4	28.0	<50	<0.50	16.0	<0.20	7,890		5,750		11,800		8		1,915,200		55,110		291	2,743			48	
	Max.	7.9	44.4	163.8	42.0	28.0	<50	<0.50	16.0	<0.20	9,900		7,480		15,300		10		2,952,000		69,149		8,571	76,410			79	
	Total																		70,084,800		1,869,330		61,925	554,493				
	Average	7.2	7.6	20.6	10.9	28.0	<50	<0.50	16.0	<0.20	8,633		6,450		13,271		9		2,260,800		60,301		3,870	34,656			64	
Jun-17	Min.	6.9	3.6	7.0	6.0	30.0	72	0.67	13.0	<0.20	8,170		5,740		11,290		4		2,131,200	0	57,065		209	1,871	0	0	47	
	Max.	7.8	24.6	51.8	38.4	30.0	72	0.67	13.0	<0.20	9,190		6,860		15,170		10		2,390,400	0	64,190		6,826	63,989	0	0	70	
	Total																		68,587,200	0	1,743,461		80,002	762,625	0	0		
	Average	7.3	6.3	14.8	10.1	30.0	72	0.67	13.0	<0.20	8,607		6,328		12,557		7		2,286,240	0	60,119		2,759	26,297	0	0	59	
Jul-17	Min.	6.8	4.3	12.6	8.2	41.0	54	<0.50	25.0	<0.20	2,740		2,080		2,430		3		1,180,800		19,138		156	4,376			41	
	Max.	7.9	15.3	46.8	36.4	41.0	54	<0.50	25.0	<0.20	9,160		6,500		17,860		8		2,491,200		63,980		7,769	72,270			68	
	Total																		60,249,600		1,695,829		58,523	608,509				
	Average	7.1	7.7	22.0	16.5	41.0	54	<0.50	25.0	<0.20	7,832		5,544		10,879		6		1,943,535		54,704		2,926	30,425			56	
Aug-17	Min.	6.9	3.3	14.4	8.2	38.0	<50	0.82	19.0	<0.20	6,790		5,320		8,980		4	0	1,454,400		47,426		2,854	28,711			39	
	Max.	7.8	15.8	38.6	24.2	38.0	<50	0.82	19.0	<0.20	10,580		7,670		18,520		7	4	2,347,200		73,899		11,692	100,963			68	
	Total																		37,094,400		1,154,719		76,873	698,162				
	Average	7.2	6.9	21.0	14.1	38.0	<50	0.82	19.0	<0.20	8,701		6,331		13,112		6	2	1,952,337		60,775		6,988	63,469			59	
Sep-17	Min.	6.6	4.1	-3.2	4.6	46.0	50	0.50	31.0	0.20																		
	Max.	7.6	13.5	26.2	19.8	46.0	50	0.50	38.0	0.20																		
	Total																											
	Average	7.0	6.4	17.9	12.9	46.0	50	0.50	34.5	0.20																		
Oct-17	Min.	6.5	3.8	10.4	3.0	55.0	<50	0.55	27.0	<0.20		850		680		600		1		612,000		5,937			1,069	10,346		42
	Max.	7.5	12.8	34.4	25.0	55.0	490	0.55	33.0	<0.20		7,800		6,090		12,010		9		3,225,600		54,481			5,741	57,414		57
	Total																			33,269,760		849,554			34,035	403,385		
	Average	7.0	7.0	19.8	13.7	55.0	<120	0.55	30.0	<0.20		6,082		4,667		8,909		5		1,663,488		42,478			3,094	36,671		49
Nov-17	Min.	6.8	3.7	10.8	6.8	31.0	50	0.51	15.0	<0.20		5,080		3,960		6,920		8	0	1,208,160		35,483			2,748	35,926		34
	Max.	8.1	13.8	79.0	17.4	31.0	120	0.51	15.0	<0.20		8,730		6,290		11,050		10	0	14,198,400		60,977			4,566	54,156		69
	Total																		0	57,898,080		1,399,467			18,791	247,914		
	Average	7.2	7.3	19.1	12.2	31.0	59	0.51	15.0	<0.20		6,679		4,974		8,885		9	0	1,929,936		46,649			3,758	49,583		47
Dec-17	Min.	6.5	4.1	12.4	9.0	44.0	<50	<0.50	19.0	<0.20		800		600		810		9		820,800		5,588			3,613	45,129		41
	Max.	8.0	71.7	220.0	177.0	44.0	<50	<0.50	19.0	<0.20		7,930		6,060		12,240		10		3,637,440		55,389			5,075	52,743		78
	Total																			57,227,040		1,409,801			26,398	308,292		
	Average	7.1	9.6	26.0	20.8	44.0	<50	<0.50	19.0	<0.20		6,511		5,027		10,046		9		1,846,034		45,477			4,400	51,382		52

Appendix C: NPDES Reporting Data for the Easterly Wastewater Treatment Facility

Flow Data: January through December 2017

		2nd STAGE AERATION																	
		MLSS	MLSS	MLVSS	MLVSS	RSSS	RSSS	DO	DO	RAS	RAS			Wasted	Wasted	Wasted	Wasted	SVI	SVI
		SIDE 1	SIDE 2	SIDE 1	SIDE2	SIDE 1	SIDE 2	SIDE 1	SIDE 2	SIDE 1	SIDE 2	Side1	Side 2	Side 1	Side 1	Side 2	Side 2	SVI Side 1	SVI Side 2
		mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	gal/day	gal/day	lbs	lbs	lbs	gal	lbs	gal	ml/gm	ml/gm
Jan-17	Min.	5,380	6,170	3,540	4,540	8,250	9,130	9	9	2,145,600	1,843,200	55,526	63,679	1,114	13,370	765	7,140	47	51
	Max.	7,670	10,770	5,910	8,150	16,650	17,840	10	10	3,081,600	2,894,400	79,160	111,154	4,512	43,445	8,990	67,491	116	90
	Total									89,251,200	63,720,000	1,995,207	2,753,269	21,364	235,975	94,304	759,388		
	Average	6,236	8,605	4,820	6,598	10,285	15,265	10	10	2,879,071	2,055,484	64,362	88,815	2,671	29,497	3,929	31,641	67	74
Feb-17	Min.	5,740	4,580	4,470	3,690	7,750	10,470	9	8	2,707,200	1,843,200	59,241	47,269	3,788	35,979	1,361	11,250	56	66
	Max.	8,110	10,310	6,500	8,470	16,090	17,500	10	10	3,456,000	2,419,200	83,701	106,407	3,959	36,659	23,588	104,007	86	93
	Total									82,872,000	55,981,440	1,922,551	2,375,940	15,386	144,801	118,559	811,213		
	Average	6,653	8,222	5,185	6,310	10,215	14,669	10	10	2,959,714	1,999,337	68,663	84,855	3,847	36,200	5,155	35,270	70	78
Mar-17	Min.	5,780	3,910	3,250	3,600	11,490	1,660	7	7	1,944,000	1,728,000	59,654	40,354	-5,362	12,000	0	0	53	56
	Max.	9,050	10,540	7,620	8,410	15,570	15,670	10	10	2,980,800	3,211,200	93,403	108,781	9,874	76,410	5,947	50,699	113	128
	Total									63,705,600	60,984,000	2,010,070	2,041,547	68,351	649,606	40,656	354,717		
	Average	6,956	6,381	5,653	5,068	13,876	13,057	10	10	2,359,467	1,967,226	71,788	65,856	4,021	38,212	3,696	32,247	84	86
Apr-17	Min.	5,640	4,110	4,270	3,290	12,300	10,920	6	6	2,620,800	1,987,200	58,209	42,418	2,613	21,456	2,429	21,453	56	50
	Max.	8,780	8,810	6,770	7,670	15,300	14,320	10	10	2,980,800	2,404,800	90,616	90,926	7,037	62,803	6,033	61,935	98	114
	Total									84,729,600	65,707,200	2,241,667	1,731,616	96,774	882,483	58,154	562,120		
	Average	7,240	5,593	5,618	4,439	13,368	12,412	9	9	2,824,320	2,190,240	74,722	57,721	4,208	38,369	4,154	40,151	78	83
May-17	Min.	4,020	4,310	3,300	3,350	10,820	11,900	6	7	2,534,400	1,929,600	41,489	44,482	1,191	9,562	1,334	11,739	61	53
	Max.	8,320	7,610	6,350	5,970	17,010	14,500	9	10	2,966,400	2,419,200	85,869	78,541	10,863	89,335	8,569	75,055	157	112
	Total									87,192,000	66,585,600	2,322,893	1,789,206	98,670	847,362	61,089	562,249		
	Average	7,260	5,592	5,572	4,420	14,093	13,204	7	8	2,812,645	2,147,923	74,932	57,716	4,699	40,351	3,818	35,141	86	89
Jun-17	Min.	7,810	3,710	4,290	2,950	13,150	10,860	3	2	2,448,000	1,828,800	80,605	38,290	494	4,140	477	4,583	54	59
	Max.	10,600	8,460	7,940	6,500	15,700	14,910	9	10	3,009,600	2,520,000	109,400	87,314	7,729	60,136	6,722	60,063	91	101
	Total									83,059,200	64,671,840	2,713,529	1,785,800	75,295	641,069	70,622	643,772		
	Average	9,066	5,967	6,725	4,603	14,386	12,828	6	6	2,768,640	2,155,728	93,570	61,579	3,137	26,711	2,616	23,843	78	77
Jul-17	Min.	6,860	7,100	4,910	5,290	10,500	9,390	2	0	1,872,000	1,857,600	70,800	73,277	647	5,915	304	3,187	41	51
	Max.	12,260	8,960	10,040	6,800	15,270	15,130	6	6	3,225,600	2,498,400	126,532	92,474	10,228	100,920	7,674	68,564	76	79
	Total									83,988,000	66,787,200	2,581,426	2,614,453	131,216	1,166,505	73,033	674,355		
	Average	8,068	8,172	6,002	6,075	13,359	12,473	4	4	2,709,290	2,154,426	83,272	84,337	5,249	46,660	3,175	29,320	62	65
Aug-17	Min.	5,380	4,780	2,910	1,940	7,530	9,350	3	3	0	116,640	55,526	49,333	2,142	21,065	1,567	18,067	43	43
	Max.	8,870	9,630	6,590	7,400	17,640	18,230	7	7	3,456,000	2,044,800	91,545	99,389	8,461	71,316	10,386	101,239	69	67
	Total									66,470,400	44,256,960	2,243,317	2,329,702	91,174	829,420	101,041	822,028		
	Average	7,012	7,784	5,133	5,600	12,296	14,359	5	5	2,144,206	1,526,102	72,365	80,335	5,065	46,079	5,613	45,668	53	54
Sep-17	Min.	7,190	6,150	5,340	3,720	13,990	8,820	2	2	1,382,400	1,425,600	74,206	63,473	2,257	17,070	572	5,147	36	27
	Max.	11,340	11,330	9,320	8,320	24,870	20,560	7	7	2,167,200	2,181,600	117,037	116,934	10,954	84,168	7,074	69,293	52	58
	Total									47,527,200	55,336,320	2,913,032	2,796,923	121,209	869,060	82,949	631,215		
	Average	9,408	9,033	7,090	6,585	17,400	14,846	5	5	1,760,267	1,844,544	97,101	93,231	5,050	36,211	3,950	30,058	43	46
Oct-17	Min.	5,420	1,880	3,300	1,450	810	340	1	4	1,715,040	0	55,938	19,403	2,414	14,850	1,486	14,087	32	30
	Max.	12,230	9,480	8,920	7,130	20,400	17,880	9	9	2,232,000	2,304,000	126,223	97,841	10,886	81,166	4,622	43,111	74	53
	Total									60,985,440	62,501,760	3,122,852	2,335,689	157,615	1,082,874	30,449	295,124		
	Average	9,761	7,300	7,186	5,305	16,742	11,222	6	7	2,032,848	2,016,186	100,737	75,345	5,838	40,106	3,383	32,792	42	41
Nov-17	Min.	8,130	5,190	4,820	3,870	12,120	12,680	5	5	1,843,200	2,028,960	83,908	53,565	4,766	36,216	4,864	36,062	36	47
	Max.	13,320	9,870	11,900	6,470	16,560	16,520	9	10	2,361,600	2,316,960	137,472	101,866	9,752	71,717	9,921	71,966	58	74
	Total									62,870,400	64,778,400	2,913,033	2,104,403	84,069	713,206	92,664	740,079		
	Average	9,408	6,797	6,906	5,152	13,854	14,714	7	8	2,095,680	2,159,280	97,101	70,147	5,605	47,547	6,178	49,339	49	58
Dec-17	Min.	6,900	5,740	4,300	4,390	7,790	12,650	6	6	2,085,120	1,944,000	71,213	59,241	3,641	35,335	4,085	34,985	43	47
	Max.	9,820	10,240	7,080	9,500	14,850	16,900	9	10	2,607,840	2,322,720	101,350	105,684	5,878	45,241	11,300	84,069	94	80
	Total									73,225,440	67,428,000	2,607,332	2,816,221	73,663	647,073	106,615	866,405		
	Average	8,149	8,802	6,195	6,898	13,269	14,745	7	8	2,362,111	2,175,097	84,107	90,846	4,604	40,442	5,611	45,600	54	65

Appendix C: NPDES Reporting Data for the Easterly Wastewater Treatment Facility

Flow Data: January through June 2018

		FLOW DATA								INFLUENT DATA								PRIMARY EFFLUENT DATA								
		Final flow	Max Flow	Min. Flow	Rain	SE Q	Bypass Q	Septage	Merchant Sludge	Amb. Temp	Inf. Temp	Inf. pH	Inf. BOD	Inf. TSS	Inf. BOD	Inf. TSS	Inf. PO4	Pri. Eff. pH	Pri. Eff SS	Pri. Eff. TSS	Pri. Eff. VSS	Pri. Eff. BOD	Pri. TSS	Pri. Eff. BOD	Pri. Eff. NH3	Pri. Eff. PO4
		MGD	MGD	MGD	In.	MGD	MGD	gal.	gal.	°F	°C	SU	mg/l	mg/l	lbs.	lbs.	mg/l	SU	ml/l	mg/l	mg/l	mg/l	lbs.	lbs.	mg/l	mg/l
Jan-18	Min.	5.7	9.2	0.0	0.0		0.000	8,000		-1.0	7.1	6.90	39	144	2,683	12,027		7.34	0.5	76	46	45	5805	3096		
	Max.	18.1	35.1	10.9	0.8		8.437	38,947		60.0	11.8	7.79	333	524	22,141	29,809		7.85	15.0	286	246	258	16428	13189		
	Total	256.4	424.2	160.3	2.0		13.212	429,814																		
	Average	8.3	13.7	5.2	0.1		0.426	23,879		21.81	10.23	7.57	208	305	13922	20260		7.60	2.8	138	107	138	9034	8915		
Feb-18	Min.	7.1	10.3	4.6	0.0		0.000	921		10.0	7.8	6.68	90	148	6,853	11,319		7.25	0.4	80	57	60	7323	4569		
	Max.	20.6	36.5	9.8	0.8		6.651	31,483		57.0	10.8	7.73	339	604	21,685	54,454		7.79	5.0	151	107	158	19719	15154		
	Total	291.0	425.5	193.3	2.5		25.854	207,713																		
	Average	10.4	15.2	6.9	0.1		0.923	11,540		29.43	9.30	7.50	199	285	16827	24172		7.61	2.1	111	82	111	9464	9521		
Mar-18	Min.	8.7	11.9	0.0	0.0		0.000	1,053		12.0	8.2	6.90	84	132	7,881	13,609		7.21	0.5	58	45	39	8247	5818		
	Max.	18.5	33.1	11.7	1.6		8.380	33,743		60.0	10.4	7.77	360	438	30,444	41,095		7.84	101.0	1028	808	360	93194	32636		
	Total	340.7	474.9	230.3	4.6		29.442	302,282																		
	Average	11.0	15.3	7.4	0.1		0.950	13,740		31.71	9.41	7.38	185	241	16424	21592		7.53	17.2	264	190	169	23031	14720		
Apr-18	Min.	8.8	7.2	0.0	0.0		0.000	3,313		30.0	8.8	7.05	66	116	7,112	15,823		7.23	0.4	41	44	9	4285	1429		
	Max.	22.3	37.5	16.0	2.6		13.200	84,503		64.0	11.7	7.79	446	524	48,616	45,362		7.88	20.0	302	240	276	32576	26619		
	Total	377.3	543.9	240.3	5.3		64.781	669,183																		
	Average	12.6	18.1	8.0	0.2		2.159	31,866		41.20	10.08	7.47	198	246	19920	24810		7.60	4.5	134	105	138	13540	13764		
May-18	Min.	6.8	9.5	2.5	0.0		0.000	2,504		47.0	10.9	6.68	84	224	5,547	17,134		6.70	0.4	81	64	87	6287	6225		
	Max.	11.2	30.0	6.7	0.6		0.127	106,570		71.0	15.7	7.71	405	546	24,408	42,664		7.84	42.0	680	544	390	43101	24466		
	Total	263.5	404.0	142.0	1.6		0.240	1,417,332																		
	Average	8.5	13.0	4.6	0.1		0.008	47,244		59.13	13.71	7.51	253	378	17702	26402		7.58	8.7	236	207	204	16065	14083		
Jun-18	Min.	5.4	7.6	0.0	0.0		0.000	3,684		48.0	15.5	6.59	117	272	6,411	15,792		7.42	2.0	124	98	119	6747	6198		
	Max.	12.0	34.1	4.8	1.9		1.612	96,749		73.0	18.4	7.84	428	670	27,631	49,899		7.89	19.0	526	386	401	26960	21190		
	Total	200.0	364.5	74.0	4.9		3.972	1,226,342																		
	Average	6.7	12.1	2.6	0.2		0.132	45,420		62.47	17.10	7.60	313	502	17240	27784		7.73	7.3	242	187	232	13182	12739		
Jul-18	Min.	5.0	7.9	2.1	0.0		0.000	3,889		51.0	18.2	7.01	113	198	4,731	10,486		6.95	1.1	148	113	134	6280	5610		
	Max.	8.9	27.2	3.4	1.2		0.773	90,650		92.0	21.4	7.71	1065	870	53,826	41,805		7.67	10.0	356	301	408	21946	23359		
	Total	187.6	362.3	76.3	3.1		2.229	1,193,457																		
	Average	6.1	11.7	2.6	0.1		0.072	39,782		70.45	19.98	7.49	367	508	18623	25412		7.42	4.8	220	177	282	11144	14268		
Aug-18	Min.	5.9	8.4	0.0	0.0		0.000	1,985		56.0	20.4	6.58	69	163	4,517	10,671		7.02	1.1	116	92	116	6902	8446		
	Max.	15.1	33.6	7.8	2.3		1.803	95,047		81.0	22.4	7.71	495	3048	26,516	153,793		7.77	15.0	348	278	393	29375	22359		
	Total	260.5	484.7	124.5	10.1		3.726	1,196,877																		
	Average	8.4	15.6	4.0	0.3		0.120	41,272		69.26	21.22	7.54	276	507	18353	32610		7.44	5.1	207	163	238	14084	15563		
Sep-18	Min.	5.9	9.4	0.0	0.0		0.000	2,390		49.0	19.3	6.65	54	202	5,560	20,076		6.77	1.9	101	77	60	8197	6775		
	Max.	27.7	38.1	10.8	2.8		4.987	96,432		73.0	22.8	7.63	399	726	29,826	51,767		7.70	22.0	474	379	429	29664	25500		
	Total	284.1	503.8	142.9	8.4		9.140	974,333																		
	Average	9.5	16.8	4.8	0.3		0.305	38,973		59.90	20.95	7.33	245	406	17469	28775		7.28	7.3	245	186	225	17409	15475		
Oct-18	Min.	7.4	11.0	0.1	0.0		0.000	537		25.0	15.8	6.66	60	200	5,269	17,300		6.80	3.0	152	117	107	11954	9397		
	Max.	12.5	36.6	10.9	1.5		1.705	143,406		65.0	19.5	7.83	375	810	36,123	78,025		7.80	80.0	1580	1224	630	102255	40773		
	Total	299.4	464.9	157.2	4.4		3.660	1,938,533																		
	Average	9.7	16.6	5.8	0.1		0.118	64,618		46.10	18.25	7.43	242	402	19278	32378		7.42	13.6	330	261	219	25739	17295		
Nov-18	Min.	10.3	16.3	6.3	0.0		0.000	1,451		7.0	11.3	6.54	63	84	7,703	13,752		7.03	0.1	66	48	51	8722	7476		
	Max.	29.5	36.9	16.9	2.0		14.273	109,006		55.0	34.0	7.86	245	282	29,873	34,694		7.83	9.5	254	200	194	27348	20888		
	Total	496.7	677.9	335.7	10.4		85.449	670,787																		
	Average	16.6	22.6	11.6	0.3		2.848	41,924		35.10	14.58	7.54	136	174	17965	22833		7.54	3.9	126	104	103	16481	13603		
Dec-18	Min.	8.8	12.3	5.7	0.0		0.000	1,435		15.0	9.9	6.54	54	106	5,379	9,000		0.59	0.1	66	40	63	6198	6724		
	Max.	19.3	30.4	14.2	1.4		6.049	105,526		52.0	12.7	7.68	525	636	38,531	56,861		7.81	10.0	6320	221	252	732652	19399		
	Total	358.2	536.4	258.5	4.4		14.348	1,128,992																		
	Average	11.6	17.3	8.3	0.1		0.463	43,423		31.94	11.47	7.50	189	244	16842	22572		7.28	1.6	318	92	130	34214	11744		

Appendix C: NPDES Reporting Data for the Easterly Wastewater Treatment Facility
Flow Data: January through June 2018

		FINAL EFFLUENT DATA																			PERCENT REMOVAL		FIRST STAGE EFFLUENT			
		Fin pH Grab	fin.SS	Fin. TSS	Fin. VSS	Fin. BOD	Fin. TSS	Fin. BOD	E. Coli.	Final temp.	Final DO	Final turb.	Final Cl2	Final Cl2	Final Cl2	Cl2 AVG.	Final PO4	Final PO4	Final NH3	Final NH3	PO4)-3	BOD	TSS	pH	BOD	TSS	VSS
		SU	ML/L	mg/l	mg/l	mg/l	lbs.	lbs.	CFU/100ml	Deg. C	mg/l	NTU	mg/l	mg/l	mg/l		mg/l	lbs.	mg/l	lbs.	mg/l	% REM	% REM	SU	mg/l	mg/l	mg/l
Jan-18	Min.	6.6	0.00	6	3	4	296	214	0	8.6	7.4	1			0.00	0.00	0.19	13	0.10	5	0.09	71.43	71.67	7.3	3.1	8.2	4.4
	Max.	7.0	1.00	48	34	42	7170	6326	3500	10.9	9.4	17			0.00	0.00	0.30	29	0.13	12	0.20	98.31	98.74	8.1	21.5	23.4	19.8
	Total																											
	Average	6.8	<0.12	13	8	9	1019	748	6	9.7	8.5	4			0.00	0.00	0.25	17	0.12	8	0.12	94.49	95.10	7.6	6.1	11.8	8.1
Feb-18	Min.	6.5	0.00	6	4	3	474	292	0	7.3	7.5	2			0.00	0.00	0.18	15	0.14	12	0.05	57.06	59.07	7.4	2.0	5.8	3.2
	Max.	7.3	0.10	70	43	60	12072	7510	590	10.1	9.2	15			520.00	173.33	0.71	75	5.33	564	0.25	98.58	97.57	8.2	6.3	16.0	8.8
	Total																											
	Average	6.8	<0.09	19	14	17	1915	1738	11	9.4	8.5	5			6.19	6.19	0.46	48	2.15	232	0.17	89.45	92.05	7.7	3.7	10.1	6.3
Mar-18	Min.	6.5	0.00	7	4	5	639	400	0	8.4	4.8	3			0.00	0.00	0.16	13	0.18	15	0.11	51.43	5.24	6.8	2.0	6.0	4.2
	Max.	7.2	17.00	204	151	85	18080	7234	2867	10.5	9.1	78			0.00	0.00	1.09	99	8.03	728	0.28	97.33	96.76	8.1	87.6	348.0	264.0
	Total																											
	Average	6.8	<0.90	47	29	29	4316	2707	43	9.6	7.9	10			0.00	0.00	0.69	65	5.08	467	0.17	81.20	79.61	7.5	7.8	21.4	17.0
Apr-18	Min.	6.6	0.00	5	3	5	564	419	0	8.2	5.6	2			0.00	0.00	0.14	14	0.12	11		47.69	-4.31	7.1	2.8	4.8	3.0
	Max.	7.5	10.00	137	88	89	22524	14101	14200	12.1	9.1	68			0.00	0.00	1.73	285	8.85	883		97.11	98.09	8.2	60.0	71.0	66.0
	Total																											
	Average	6.9	<0.81	36	28	32	4230	3512	19	10.4	7.0	13			0.00	0.00	0.85	98	4.35	481		80.64	82.52	7.5	12.2	13.5	10.8
May-18	Min.	6.6	0.00	1	2	3	95	191	0	11.9	6.2	1			0.00	0.00	0.13	11	0.12	7		92.62	95.63	7.3	2.5	4.6	3.6
	Max.	7.2	0.60	15	8	9	1065	653	900	16.9	7.6	9			0.00	0.00	0.30	22	0.80	67		98.67	99.46	7.8	19.4	20.6	9.4
	Total																											
	Average	6.9	<0.11	8	5	5	599	392	2	14.7	7.0	3			0.00	0.00	0.22	15	0.40	30		97.59	97.64	7.6	5.9	9.1	6.1
Jun-18	Min.	6.9	0.00	6	3	2	309	113	0	15.5	5.7	2			0.00	0.00	0.26	13	0.22	11		91.57	93.01	7.5	2.3	3.4	2.4
	Max.	7.5	0.20	24	13	18	1908	1777	13	20.0	6.8	15			0.00	0.00	0.67	49	2.36	121		99.15	98.67	8.4	13.8	59.0	32.0
	Total																											
	Average	7.1	<0.10	10	6	6	585	339	2	18.1	6.4	4			0.00	0.00	0.46	26	0.47	25		97.89	97.81	7.8	4.4	10.0	6.4
Jul-18	Min.	6.8	0.00	2	1	2	119	104	0	19.3	5.0	2			0.00	0.00	0.33	17	0.13	7		91.67	93.67	7.0	2.5	4.6	4.4
	Max.	10.0	0.10	28	18	27	2053	2009	200	22.6	6.7	9			0.00	0.00	1.00	74	2.25	167		99.66	99.56	8.3	8.8	16.2	13.0
	Total																											
	Average	7.1	<0.09	10	7	6	533	318	4	21.1	6.1	4			0.00	0.00	0.58	31	0.47	28		98.16	97.89	7.6	5.5	10.8	8.3
Aug-18	Min.	6.8	0.00	6	2	2	327	146	0	20.9	5.0	1			0.00	0.00	0.09	6	0.19	13		87.69	78.17	7.0	2.0	7.0	2.6
	Max.	7.3	0.20	61	76	36	6940	3119	9200	23.0	6.8	8			0.00	0.00	1.00	126	1.24	156		99.41	99.73	8.3	8.6	57.0	36.0
	Total																											
	Average	7.0	<0.10	15	12	6	1202	503	7	21.9	6.0	4			0.00	0.00	0.32	27	0.48	39		97.30	95.74	7.7	3.8	12.5	8.2
Sep-18	Min.	6.6	0.00	8	4	3	577	204	0	19.3	4.8	1			0.00	0.00	0.19	14	0.15	11		64.72	10.32	6.5	3.2	7.6	5.6
	Max.	7.3	1.00	278	202	76	32482	8903	580	23.5	7.0	31			0.00	0.00	2.61	305	3.73	862		98.45	97.87	8.3	16.7	29.0	21.6
	Total																											
	Average	7.0	<0.13	26	19	11	2613	1111	22	21.4	6.0	8			0.00	0.00	0.72	67	1.11	125		94.14	92.33	7.4	7.2	17.1	12.1
Oct-18	Min.	6.7	<0.10	3	5	5	217	378	1	15.1	5.3	3			0.00	0.00	0.13	11	0.16	14		55.29	51.10	6.7	3.1	4.8	4.4
	Max.	7.4	5.50	98	78	46	9453	4408	340	20.1	7.8	10			0.00	0.00	0.42	40	13.80	893		98.61	98.96	8.3	31.8	51.0	34.0
	Total																											
	Average	7.0	<0.28	16	13	13	1366	1050	24	18.2	6.9	5			0.00	0.00	0.25	20	4.07	298		93.65	95.11	7.4	6.8	12.1	9.1
Nov-18	Min.	6.5	0.00	10	6	5	878	528	7	10.7	6.2	3			0.00	0.00	0.27	32	0.68	80	0.04	34.78	35.08	7.1	2.9	4.6	1.4
	Max.	7.6	1.30	165	129	45	20258	11060	11500	16.6	8.2	18			0.00	0.00	0.68	93	4.31	584	0.11	97.62	96.38	8.2	43.2	292.0	225.8
	Total																											
	Average	6.9	<0.20	32	24	21	4525	3172	70	13.7	7.5	8			0.00	0.00	0.48	63	1.98	261	0.07	81.59	79.77	7.4	11.1	25.1	20.4
Dec-18	Min.	6.5	0.00	2	-2	5	225	406	0	10.3	5.8	1			0.00	0.00	0.15	13	0.13	11	0.02	22.22	52.29	6.8	2.0	-0.8	2.4
	Max.	7.0	4.00	67	42	360	9382	52062	1730	12.6	8.1	27			0.00	0.00	0.37	54	2.19	317	0.09	98.84	98.74	8.1	36.6	156.2	44.6
	Total																											
	Average	6.8	<0.21	14	9	22	1460	2741	10	11.6	7.1	4			0.00	0.00	0.22	24	0.81	102	0.04	91.55	93.09	7.3	9.0	18.2	11.1

Appendix C: NPDES Reporting Data for the Easterly Wastewater Treatment Facility
Flow Data: January through June 2018

		SECOND STAGE EFFLUENT				METALS					1ST STAGE AERATION															
											MLSS	MLSS	MLVSS	MLVSS	RSSS	RSSS	DO	DO	RAS	RAS			Wasted	Wasted	Wasted	Wasted	SVI	SVI
		pH	BOD	TSS	VSS	ZINC	ALUMINUM	LEAD	COPPER	CADMIUM	SIDE 1	SIDE 2	SIDE 1	SIDE 2	SIDE 1	SIDE 2	SIDE 1	SIDE 2	SIDE 1	SIDE 2	Side1	Side 2	Side 1	Side 1	Side 2	Side 2	Side 1	Side 2
		SU	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	gal/day	gal/day	lbs	lbs	lbs	gal	lbs	gal	ml/gm	ml/gm
Jan-18	Min.	6.8	3.7	8.0	5.2	58.0	<50	<0.50	21.0	<0.20		1,690		1,380		1,460		8	489,600		11,804			3,944	43,243		48
	Max.	7.9	12.0	24.4	16.6	58.0	<50	<0.50	36.0	<0.20		9,570		7,540		15,520		10	3,633,120		66,844			4,825	45,320		76
	Total																		33,259,680		1,713,150			22,736	223,752		
	Average	7.2	6.2	16.0	11.1	58.0	<50	<0.50	28.5	<0.20		7,912		6,235		11,971		10	1,072,893		55,263			4,547	44,750		57
Feb-18	Min.	6.8	2.7	7.8	4.0	40.0	<50	<0.50	18.0	<0.20		7,840		6,190		13,510		6	465,120		54,760			1,560	13,065		52
	Max.	7.9	19.7	23.8	15.4	40.0	<50	<0.50	18.0	<0.20		9,590		7,580		15,560		10	3,657,600		66,984			5,592	46,105		67
	Total																		23,431,680		1,750,797			39,265	324,754		
	Average	7.3	6.8	15.4	9.9	40.0	<50	<0.50	18.0	<0.20		8,952		7,074		14,496		10	836,846		62,528			4,908	40,594		59
Mar-18	Min.	6.9	3.1	10.6	6.4	33.0	52	<0.20	22.0	<0.20	2,010	970	1,530	740	8,920	1,000	3	6	0	570,240	14,039	6,775	4,850	50,041	1,241	14,131	52	47
	Max.	8.1	78.0	117.8	95.8	33.0	52	<0.20	22.0	<0.20	8,480	11,640	6,710	9,780	15,130	14,490	8	10	3,735,360	3,499,200	59,231	81,302	6,350	54,381	7,539	80,927	105	102
	Total																		33,096,960	54,781,920	861,497	1,602,234	31,946	320,994	76,791	730,171		
	Average	7.3	27.3	34.2	26.5	33.0	52	<0.20	22.0	<0.20	6,492	7,400	5,258	5,965	11,164	12,181	5	9	1,838,720	1,767,159	45,342	51,685	5,324	53,499	5,119	48,678	78	71
Apr-18	Min.	7.0	6.6	8.4	3.8	52.0	110	0.93	21.0	<0.20	4,260	4,540	3,580	3,720	7,020	8,560	1	1	2,364,480	2,388,960	29,755	31,711	854	10,283	624	8,106	74	61
	Max.	8.1	86.4	152.0	116.0	52.0	110	0.93	21.0	<0.20	8,250	11,010	6,800	8,670	12,050	11,780	10	10	3,368,160	2,927,520	57,624	76,902	14,432	75,463	6,886	79,241	119	115
	Total																		81,610,560	82,249,920	1,254,668	1,339,117	130,772	1,381,995	101,152	1,239,627		
	Average	7.4	25.1	27.4	21.5	52.0	110	0.93	21.0	<0.20	5,988	6,391	4,981	5,197	10,156	10,094	4	7	2,720,352	2,741,664	41,822	44,637	5,030	53,154	4,398	51,651	93	93
May-18	Min.	7.2	5.0	6.8	4.6	41.0	<50	<0.50	18.0	<0.20	4,790	4,590	3,950	3,380	7,940	8,430	1	1	1,565,280	2,160,000	33,457	32,060	356	4,080	663	7,346	70	75
	Max.	7.5	17.0	27.8	21.2	41.0	<50	<0.50	18.0	<0.20	6,900	7,250	5,760	5,920	13,490	11,330	8	10	2,995,200	3,083,040	48,195	50,639	9,846	114,509	32,809	120,954	115	120
	Total																		81,224,640	84,077,280	1,280,585	1,330,173	95,689	1,085,156	120,391	1,112,473		
	Average	7.3	9.2	17.6	12.5	41.0	<50	<0.50	18.0	<0.20	5,914	6,143	4,851	4,987	9,920	9,974	6	7	2,620,150	2,712,170	41,309	42,909	4,784	54,258	5,234	48,368	92	97
Jun-18	Min.	7.2	6.0	15.2	10.6	50.0	56	<0.50	26.0	<0.20	2,950	2,830	2,510	2,630	3,980	2,180	1	0	1,254,240	1,084,320	20,605	19,767	357	4,200	3,250	36,995	61	63
	Max.	8.2	45.3	106.0	76.0	50.0	56	<0.50	26.0	<0.20	8,000	8,100	6,200	7,000	14,080	12,900	8	10	3,009,600	2,952,000	55,878	56,576	11,166	123,425	9,531	90,482	102	100
	Total																		68,955,840	64,722,240	1,311,387	1,365,937	91,369	1,065,641	87,317	932,601		
	Average	7.5	18.7	54.2	40.7	50.0	56	<0.50	26.0	<0.20	6,258	6,519	4,964	5,306	10,111	10,502	6	6	2,377,788	2,231,801	43,713	45,531	4,568	53,282	5,136	54,859	77	80
Jul-18	Min.					60.0	<50	<0.50	23.0	<0.20	5,280	4,780	4,170	4,010	8,610	8,870	3	3	1,224,000	1,280,160	36,879	33,387	368	3,600	2,277	23,666	40	44
	Max.					60.0	<50	<0.50	23.0	<0.20	7,670	7,550	6,140	5,950	13,640	14,340	9	6	14,155,200	1,908,000	53,573	52,735	7,139	99,415	9,850	86,978	71	70
	Total																		59862240.00	45,408,960	1416645.00	1470009.00	75715.00	790894.00	98716.00	931952.00		
	Average					60.0	<50	<0.50	23.0	<0.20	6543.00	6789.00	5134.00	5275.00	11469.00	12092.00	5.00	5.00	1931040.00	1,464,805	45698.00	47420.00	3985.00	41626.00	4701.00	44379.00	52.00	54
Aug-18	Min.					36.0	<50	<0.50	16.0	<0.20	3,590	2,720	2,510	2,100	7,990	5,930	2	2	901,440	312,480	25,075	18,999	1,760	18,005	2,514	26,751	32	39
	Max.					36.0	<50	<0.50	16.0	<0.20	7,260	6,510	5,690	4,990	17,110	14,000	7	6	1,828,800	1,771,200	50,709	45,471	23,290	43,287	23,794	70,638	50	60
	Total																		43,999,200	44,907,840	1,247,964	1,128,247	85,390	712,046	108,049	805,746		
	Average					36.0	<50	<0.50	16.0	<0.20	5,764	5,211	4,320	3,955	11,004	11,086	5	5	1,419,329	1,448,640	40,257	36,395	4,744	39,558	5,687	42,408	44	46
Sep-18	Min.					39.0	110	0.75	26.0	<0.20	4,140	3,860	3,080	2,930	9,440	8,650	4	0	1,368,000	1,339,200	28,917	26,961	388	4,937	0	0	36	36
	Max.					39.0	110	0.75	26.0	<0.20	8,420	7,420	6,500	5,690	15,290	14,780	8	8	2,232,000	2,812,320	58,812	51,827	5,067	44,139	5,206	43,912	57	60
	Total																		53,028,000	52,223,040	1,325,008	1,243,914	48,231	479,875	56,111	524,572		
	Average					39.0	110	0.75	26.0	<0.20	6,323	5,936	4,790	4,515	11,641	12,504	6	6	1,767,600	1,740,768	44,167	41,464	4,019	39,990	4,008	37,469	47	49
Oct-18	Min.	6.8	14.3	17.4	14.0	49.0	60	0.56	23.0	<0.20	1,000	910	960	890	2,990	1,040	3	4	1,317,600	1,206,720	6,985	6,356	4,042	40,474	1,186	10,243	30	21
	Max.	8.3	48.6	283.2	223.0	49.0	60	0.56	23.0	<0.20	11,450	14,090	9,000	13,020	15,430	15,240	9	9	1,825,920	1,746,720	79,975	98,415	5,292	49,980	27,357	50,036	70	61
	Total																		47,697,120	46,215,360	1,324,170	1,341,423	63,592	606,685	87,363	578,920		
	Average	7.2	30.4	47.2	38.7	49.0	60	0.56	23.0	<0.20	6,115	6,195	4,785	4,897	11,750	12,176	7	7	1,538,617	1,490,818	42,715	43,272	4,542	43,335	6,240	41,351	52	52
Nov-18	Min.	6.6	3.8	10.4	6.4	58.0	87	2.40	15.0	<0.20	2,490	2,420	1,830	2,010	10,170	3,630	3	3	1,224,000	1,104,480	17,392	16,903	1,951	17,071	916	15,060	49	47
	Max.	8.1	43.2	205.0	163.0	58.0	430	2.40	33.0	<0.20	6,240	6,340	4,490	5,010	16,970	16,770	10	10	1,571,040	1,601,280	43,585	44,283	10,939	86,375	6,316	49,955	87	67
	Total																		43,080,480	43,960,320	886,222	954,323	52,093	425,529	59,185	564,000		
	Average	7.2	11.7	37.2	31.4	58.0	259	2.40	24.0	<0.20	4,229	4,554	3,349	3,639	14,195	12,851	8	8	1,436,016	1,465,344	29,541	31,811	5,209	42,553	3,946	37,600	55	55
Dec-18	Min.	6.7	3.4	8.0	9.2	37.0	130	0.57	19.0	<0.20	3,550	3,760	2,780	2,970	12,970	12,550	3	6	1,334,880	1,457,280	24,796	26,263	3,361	28,545	2,827	23,463	50	45
	Max.	8.1	52.2	393.4	370.4	37.0	130	0.57	19.0	<0.20	8,050	8,020	6,440	6,270	16,240	15,140	8	9	3,551,040	3,235,680	56,227	56,018	9,611	79,260	7,501	68,444	81	102
	Total																		78,850,080	79,254,720	1,390,665	1,407,567	68,625	577,647	78,753	690,074		
	Average	7.1	12.6	52.4	41.7	37.0	130	0.57	19.0	<0.20	6,423	6,501	5,198	5,236	14,330	13,675	6	7	2,543,551	2,556,604	44,860	45,405	5,279	44,434	4,922	43,130	67	68

		2nd STAGE AERATION																	
		MLSS	MLSS	MLVSS	MLVSS	RSSS	RSSS	DO	DO	RAS	RAS			Wasted	Wasted	Wasted	Wasted	SVI	SVI
		SIDE 1	SIDE 2	SIDE 1	SIDE2	SIDE 1	SIDE 2	SIDE 1	SIDE 2	SIDE 1	SIDE 2	Side1	Side 2	Side 1	Side 1	Side 2	Side 2	SVI Side 1	SVI Side 2
		mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	gal/day	gal/day	lbs	lbs	lbs	gal	lbs	gal	ml/gm	ml/gm
Jan-18	Min.	5,500	6,400	3,520	5,150	7,190	11,480	7	6	2,347,200	2,049,120	56,764	66,053	3,549	34,575	3,448	35,872	44	38
	Max.	8,900	12,420	6,940	10,250	17,580	15,860	10	10	2,592,000	2,463,840	91,855	128,184	5,460	45,859	6,072	46,414	72	82
	Total									76,285,440	69,402,240	2,242,800	2,895,384	81,787	709,000	89,993	757,995		
	Average	7,010	9,050	5,483	7,073	13,052	14,039	9	9	2,460,821	2,238,782	72,348	93,399	4,544	39,389	4,736	39,894	60	62
Feb-18	Min.	4,870	5,900	3,950	4,780	8,000	14,160	7	8	2,448,000	1,998,720	50,262	60,892	2,867	29,039	4,101	30,615	57	60
	Max.	6,810	10,010	5,370	8,090	13,400	17,510	10	10	2,638,080	2,328,480	70,284	103,311	18,843	45,221	15,350	116,449	82	89
	Total									71,079,840	60,768,000	1,655,760	2,387,086	58,195	425,335	129,042	975,095		
	Average	5,730	8,260	4,593	6,489	11,481	15,650	10	10	2,538,566	2,170,286	59,134	85,253	5,290	38,667	5,866	44,323	68	73
Mar-18	Min.	5,070	1,610	4,100	1,290	10,130	2,760	9	6	2,213,280	2,053,440	52,326	16,616	3,771	35,929	3,744	34,631	70	57
	Max.	7,370	7,200	5,780	5,850	14,690	14,460	10	10	2,589,120	2,606,400	76,064	74,309	4,974	40,630	8,746	81,038	94	116
	Total									39,395,520	68,160,960	1,033,623	1,552,652	38,256	346,109	58,679	573,391		
	Average	6,259	4,853	4,991	4,051	12,795	11,030	10	9	2,462,220	2,198,741	64,601	50,086	4,251	38,457	4,890	47,783	83	83
Apr-18	Min.		2,430		2,380		7,100		3		2,448,000		25,079						77
	Max.		6,500		5,630		11,400		10		5,256,000		67,085						169
	Total										80,755,200		1,329,929						
	Average		4,443		3,670		8,732		7		2,784,662		45,860						123
May-18	Min.		4,160		3,340		8,970		2		2,160,000		42,934			1,213	12,764		75
	Max.		7,170		5,410		12,480		6		4,896,000		74,000			6,731	72,000		139
	Total										82,468,800		1,856,392			56,117	639,131		
	Average		5,802		4,584		10,809		5		2,660,284		59,884			3,507	39,946		105
Jun-18	Min.		6,430		4,970		9,200		1		1,872,000		66,362			1,396	12,600		55
	Max.		8,370		7,150		14,280		8		2,880,000		86,385			11,087	99,724		97
	Total										68,565,600		2,194,911			75,801	680,964		
	Average		7,333		5,741		12,219		5		2,364,331		75,687			6,317	56,747		70
Jul-18	Min.		6,670		4,730		9,760		5		1,584,000		68,839			541	5,475		46
	Max.		9,670		7,370		16,400		7		2,880,000		99,802			7,169	71,434		73
	Total										69,595,200		2310505.00			83716.00	814476.00		
	Average		7222.00		5492.00		11606.00		6.00		2,319,840		74532.00			3805.00	37022.00		60
Aug-18	Min.		4,850		3,610		10,320	0	2		1,584,000		50,056			2,523	27,660		45
	Max.		8,440		6,400		15,980	0	6		2,664,000		87,107			7,730	69,333		65
	Total										74,822,400		2,227,633			88,614	760,743		
	Average		6,963		5,228		13,792	0	4		2,413,626		71,859			6,330	54,339		55
Sep-18	Min.		3,960		3,100		3,930		3	0	2,160,000		40,870			3,291	28,223		36
	Max.		8,760		6,790		19,210		6	0	2,592,000		90,410			8,247	57,982		57
	Total									0	73,440,000		2,122,049			90,293	768,900		
	Average		6,854		5,193		14,118		5	0	2,448,000		70,735			6,450	54,921		47
Oct-18	Min.	4,650	4,620	2,290	3,530	10,630	15,420	5	6	1,306,080	2,016,000	47,991	47,682	4,248	34,107		0	57	51
	Max.	7,340	6,220	5,780	4,770	18,440	16,750	10	7	2,592,000	2,592,000	81,839	64,195	8,609	57,985		0	99	55
	Total									59,967,360	9,360,000	1,752,444	217,871	115,255	847,461		0		
	Average	5,944	5,278	4,673	4,035	15,802	15,898	7	6	2,221,013	2,340,000	64,905	54,468	7,203	52,966		0	69	53
Nov-18	Min.	870		70		2,800		2		1,900,800		10,057		1,184	9,957			62	
	Max.	7,730		6,060		17,820		10		3,787,200		89,353		9,764	86,532			118	
	Total									88,712,640		1,943,225		108,409	898,423				
	Average	5,604		4,446		13,732		9		2,957,088		64,774		5,162	42,782			84	
Dec-18	Min.	3,830		3,050		10,050		0		2,759,040	0	44,272		1,853	22,958			71	
	Max.	6,970		5,780		12,650		10		3,509,280	0	80,568		8,655	86,015			146	
	Total									92,092,320	0	2,170,940		74,754	772,888				
	Average	6,058		4,874		11,702		8		2,970,720	0	70,030		4,672	48,306			105	

Appendix C: NPDES Reporting Data for the Easterly Wastewater Treatment Facility

Quarterly Toxicological Report

March of 2015 Toxicological Report			
Acute Toxicity	Acute Toxicity	Chronic	Chronic
Ceriodaphnia dubia	Pimephales promelas	Ceriodaphnia dubia	Pimephales promelas
Meets Permit/Protocol	Meets Permit/Protocol	Meets Permit/Protocol	Meets Permit/Protocol

Summary of Reference Toxicant Data						
Date	Endpoint		Value	Historic Mean/Central Tendency	Acceptable Range	Reference Toxicant
C. dubia						
2/18/2015	Survival	LC-50	11.7	26.4	5.6-47.1	SDS (mg/L)
2/18/2015	Survival	C-NOEC	7.5a	30	15.0-60.0	Copper (ug/L)
2/18/2015	Reproduction	C-NOEC	7.5a	30	15.0-60.0	Copper (ug/L)
2/18/2015	Reproduction	MSDp	20	32.1	15.1-49.1	Copper (ug/L)
P. promelas						
2/19/2015	Survival	LC-50	25.1	29.8	20.6-38.9	SDS (mg/L)
3/7/2015	Survival	C-NOEC	10	20	10.0-30.0	SDS (mg/L)
3/7/2015	Growth	C-NOEC	10	20	10.0-30.0	SDS (mg/L)
3/7/2015	Growth	MSDp	24.7	32.2	1.3-63.1	SDS (mg/L)

Initial Water Quality and Analytical Data Summary				
Parameter	Units	Effluent	Receiving Water	Site-Specific Lab Water
Specific Conductance	umhos/cm	971	341	120
pH	SU	7.37	6.68	7.66
Total Residual Chlorine	mg/L	<0.02	-	-
Alkalinity	mg/L	13	12	30
Hardness	mg/L	97	32	54
Total Solids	mg/L	510	-	-
Total Dissolved Solids	mg/L	615	-	-
Total Organic Carbon	mg/L	8.3	2.8	0.4
Ammonia	mg/L	8.7	0.11	<0.1
Aluminum, total	mg/L	0.049	0.11	<0.02
Cadmium, total	mg/L	<0.0005	<0.0005	<0.0005
Calcium, total	mg/L	19	8.8	9.9
Copper, total	mg/L	0.014	<0.002	<0.002
Lead, total	mg/L	<0.0005	0.001	<0.0005
Magnesium, total	mg/L	10	1.6	6.4
Nickel, total	mg/L	0.003	<0.002	<0.002
Zinc, total	mg/L	0.031	0.014	<0.002

Effluent Start Water			
Parameter	Result	Quant Limit	Units
Total Solids	510	10	mg/L
Total Dissolved Solids	615	5	mg/L
Alkalinity as CaCO3	13	2	mg/L
Total Organic Carbon	8.3	0.4	mg/L
Ammonia-N	8.7	0.1	mg/L as N
Hardness as CaCO3	97	0.3	mg/L
Aluminum, total	0.049	0.02	mg/L
Cadmium, total	ND	0.0005	mg/L
Calcium, total	19	0.05	mg/L
Copper, total	0.014	0.002	mg/L
Lead, total	ND	0.0005	mg/L
Magnesium, total	10	0.05	mg/L
Nickel, total	0.003	0.002	mg/L
Zinc, total	0.031	0.002	mg/L

Effluent First Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	140	10	mg/L
Ammonia-N	9.4	0.1	mg/L as N
Hardness as CaCO3	110	0.3	mg/L

Effluent Second Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	110	10	mg/L
Ammonia-N	12	0.1	mg/L as N
Hardness as CaCO3	99	0.3	mg/L

Receiving Water Start			
Alkalinity as CaCO3	12	2	mg/L
Total Organic Carbon	2.8	0.4	mg/L
Ammonia-N	0.11	0.1	mg/L as N
Hardness as CaCO3	32	0.3	mg/L
Aluminum, total	0.11	0.02	mg/L
Cadmium, total	ND	0.0005	mg/L
Calcium, total	8.8	0.05	mg/L
Copper, total	ND	0.002	mg/L
Lead, total	0.001	0.0005	mg/L
Magnesium, total	1.6	0.05	mg/L
Nickel, total	ND	0.002	mg/L
Zinc, total	0.014	0.002	mg/L

Receiving Water First Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	15	2	mg/L
Ammonia-N	0.12	0.1	mg/L as N
Hardness as CaCO3	33	0.3	mg/L

Receiving Water Second Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	14	2	mg/L
Ammonia-N	0.15	0.1	mg/L as N
Hardness as CaCO3	30	0.3	mg/L

SSR W-918 03/10/15			
Alkalinity as CaCO3	30	2	mg/L
Total Organic Carbon	0.4	0.4	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	54	0.3	mg/L
Aluminum, total	ND	0.02	mg/L
Cadmium, total	ND	0.0005	mg/L
Calcium, total	9.9	0.05	mg/L
Chromium, total	ND	0.002	mg/L
Copper, total	ND	0.002	mg/L
Lead, total	ND	0.0005	mg/L
Magnesium, total	6.4	0.05	mg/L
Nickel, total	ND	0.002	mg/L
Selenium, total	0.004	0.002	mg/L
Zinc, total	ND	0.002	mg/L

SSR W-918 03/10/15			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	21	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	32	0.3	mg/L

SSR W-918 03/10/15			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	25	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	31	0.3	mg/L

Organism History and Water Chemistry Record						
Species	Hatch Date	Age	Food	Temperature (Celsius)	Total Hardness (as CaCO3)	pH
P. promelas	3/8/2015	1 day	Artemia sp.	23	118 mg/L	8.05
	Began Feeding	Life Stage		Salinity Conductivity	Total Alkalinity (as CaCO3)	
	3/9/2015	Larvae		--	85 mg/L	

June 2015 Toxicological Report			
Acute Toxicity	Acute Toxicity	Chronic	Chronic
Ceriodaphnia dubia	Pimephales promelas	Ceriodaphnia dubia	Pimephales promelas
Meets Permit/Protocol	Meets Permit/Protocol	Meets Permit/Protocol	Meets Permit/Protocol

Summary of Reference Toxicant Data						
Date	Endpoint		Value	Historic Mean/Central Tendency	Acceptable Range	Reference Toxicant
C. dubia						
6/24/2015	Survival	LC-50	18.8	26.5	7.5-45.6	SDS (mg/L)
6/23/2015	Survival	C-NOEC	30	30	15.0-60.0	Copper (ug/L)
6/23/2015	Reproduction	C-NOEC	30	30	15.0-60.0	Copper (ug/L)
6/23/2015	Reproduction	MSDp	31.4	30.8	12.1-49.5	Copper (ug/L)
P. promelas						
6/24/2015	Survival	LC-50	33.2	30.7	21.9-39.6	SDS (mg/L)
6/23/2015	Survival	C-NOEC	30	20	10.0-30.0	SDS (mg/L)
6/23/2015	Growth	C-NOEC	30	20	10.0-30.0	SDS (mg/L)
6/23/2015	Growth	MSDp	21.5	31.6	2.2-60.9	SDS (mg/L)

Initial Water Quality and Analytical Data Summary				
Parameter	Units	Effluent	Receiving Water	Site-Specific Lab Water
Specific Conductance	umhos/cm	776	319	112
pH	SU	7.01	6.67	7.6
Total Residual Chlorine	mg/L	<0.02	-	-
Alkalinity	mg/L	26	10	18
Hardness	mg/L	96	37	30
Total Solids	mg/L	460	-	-
Total Dissolved Solids	mg/L	470a	-	-
Total Organic Carbon	mg/L	8.9	4.3	1.6
Ammonia	mg/L	0.13	0.22	0.12
Aluminum, total	mg/L	0.073	0.23	<0.02
Cadmium, total	mg/L	<0.0005	<0.0005	<0.0005
Calcium, total	mg/L	20	11	5.6
Copper, total	mg/L	0.014	0.005	0.004
Lead, total	mg/L	0.003	0.003	<0.0005
Magnesium, total	mg/L	11	1.7	3.7
Nickel, total	mg/L	0.004	<0.002	<0.002
Zinc, total	mg/L	0.045	0.032	0.004

Effluent Start Water			
Parameter	Result	Quant Limit	Units
Total Solids	460	10	mg/L
Total Dissolved Solids	470 R1	5	mg/L
Alkalinity as CaCO3	26	2	mg/L
Total Organic Carbon	8.9	0.4	mg/L
Ammonia-N	0.13	0.1	mg/L as N
Hardness as CaCO3	96	0.3	mg/L
Aluminum, total	0.073	0.02	mg/L
Cadmium, total	ND	0.0005	mg/L
Calcium, total	20	0.05	mg/L
Copper, total	0.014	0.002	mg/L
Lead, total	0.003	0.0005	mg/L
Magnesium, total	11	0.05	mg/L
Nickel, total	0.004	0.002	mg/L
Zinc, total	0.045	0.002	mg/L

Effluent First Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	49	2	mg/L
Ammonia-N	0.17	0.1	mg/L as N
Hardness as CaCO3	92	0.3	mg/L

Effluent Second Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	51	2	mg/L
Ammonia-N	0.28	0.1	mg/L as N
Hardness as CaCO3	96	0.3	mg/L

Receiving Water Start			
Alkalinity as CaCO3	10	2	mg/L
Total Organic Carbon	4.3	0.4	mg/L
Ammonia-N	0.22	0.1	mg/L as N
Hardness as CaCO3	37	0.3	mg/L
Aluminum, total	0.23	0.02	mg/L
Cadmium, total	ND	0.0005	mg/L
Calcium, total	11	0.05	mg/L
Copper, total	0.005	0.002	mg/L
Lead, total	0.003	0.0005	mg/L
Magnesium, total	1.7	0.05	mg/L
Nickel, total	ND	0.002	mg/L
Zinc, total	0.032	0.002	mg/L

Receiving Water First Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	18	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	35	0.3	mg/L

Receiving Water Second Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	11	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	41	0.3	mg/L

SSR W-918 03/10/15			
Alkalinity as CaCO3	18	2	mg/L
Total Organic Carbon	1.6	0.4	mg/L
Ammonia-N	0.12	0.1	mg/L as N
Hardness as CaCO3	30	0.3	mg/L
Aluminum, total	ND	0.02	mg/L
Cadmium, total	ND	0.0005	mg/L
Calcium, total	5.6	0.05	mg/L
Chromium, total	ND	0.002	mg/L
Copper, total	0.004	0.002	mg/L
Lead, total	ND	0.0005	mg/L
Magnesium, total	3.7	0.05	mg/L
Nickel, total	ND	0.002	mg/L
Selenium, total	0.003	0.002	mg/L
Zinc, total	0.004	0.002	mg/L

SSR W-918 03/10/15			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	17	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	30	0.3	mg/L

SSR W-918 03/10/15			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	20	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	31	0.3	mg/L

Organism History and Water Chemistry Record						
Species	Hatch Date	Age	Food	Temperature (Celsius)	Total Hardness (as CaCO3)	pH
P. promelas	6/14/2015	1 day	Artemia sp.	23	125 mg/L	7.59
	Began Feeding	Life Stage		Salinity Conductivity	Total Alkalinity (as CaCO3)	
	6/15/2015	Larvae		--	95 mg/L	

Appendix C: NPDES Reporting Data for the Easterly Wastewater Treatment Facility

Quarterly Toxicological Report

September 2015 Toxicological Report			
Acute Toxicity	Acute Toxicity	Chronic	Chronic
Ceriodaphnia dubia	Pimephales promelas	Ceriodaphnia dubia	Pimephales promelas
Meets Permit/Protocol	Meets Permit/Protocol	Meets Permit/Protocol	Meets Permit/Protocol

Summary of Reference Toxicant Data						
Date	Endpoint		Value	Historic Mean/Central Tendency	Acceptable Range	Reference Toxicant
C. dubia						
8/26/2015	Survival	LC-50	16.5	26	7.0-45.0	SDS (mg/L)
8/25/2015	Survival	C-NOEC	30	30	15.0-60.0	Copper (ug/L)
8/25/2015	Reproduction	C-NOEC	30	30	15.0-60.0	Copper (ug/L)
8/25/2015	Reproduction	MSDp	20.5	30.5	12.0-49.0	Copper (ug/L)
P. promelas						
9/29/2015	Survival	LC-50	32.7	31.5	22.7-40.2	SDS (mg/L)
9/29/2015	Survival	C-NOEC	20	20	10.0-30.0	SDS (mg/L)
9/29/2015	Growth	C-NOEC	10	20	10.0-30.0	SDS (mg/L)
9/29/2015	Growth	MSDp	25.2	30.7	2.0-59.3	SDS (mg/L)

Initial Water Quality and Analytical Data Summary				
Parameter	Units	Effluent	Receiving Water	Site-Specific Lab Water
Specific Conductance	umhos/cm	785	251	118
pH	SU	6.98	6.8	7.7
Total Residual Chlorine	mg/L	<0.02	-	-
Alkalinity	mg/L	59	20	23
Hardness	mg/L	100	31	32
Total Solids	mg/L	510	-	-
Total Dissolved Solids	mg/L	500	-	-
Total Organic Carbon	mg/L	8.2	3.4	0.9
Ammonia	mg/L	0.55	<0.1	<0.1
Aluminum, total	mg/L	0.061	0.26	<0.02
Cadmium, total	mg/L	<0.0005	<0.0005	<0.0005
Calcium, total	mg/L	21	9.6	6.4
Copper, total	mg/L	0.019	0.005	<0.002
Lead, total	mg/L	0.0008	0.007	<0.0005
Magnesium, total	mg/L	11	1.4	3.5
Nickel, total	mg/L	0.004	<0.002	<0.002
Zinc, total	mg/L	0.037	0.02	<0.002

Effluent Start Water			
Parameter	Result	Quant Limit	Units
Total Solids	510	10	mg/L
Total Dissolved Solids	500	5	mg/L
Alkalinity as CaCO3	59	2	mg/L
Total Organic Carbon	8.2	0.4	mg/L
Ammonia-N	0.55	0.1	mg/L as N
Hardness as CaCO3	100	0.3	mg/L
Aluminum, total	0.061	0.02	mg/L
Cadmium, total	ND	0.0005	mg/L
Calcium, total	21	0.05	mg/L
Copper, total	0.019	0.002	mg/L
Lead, total	0.0008	0.0005	mg/L
Magnesium, total	11	0.05	mg/L
Nickel, total	0.004	0.002	mg/L
Zinc, total	0.037	0.002	mg/L

Effluent First Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	67	2	mg/L
Ammonia-N	0.16	0.1	mg/L as N
Hardness as CaCO3	97	0.3	mg/L

Effluent Second Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	88	2	mg/L
Ammonia-N	0.29	0.1	mg/L as N
Hardness as CaCO3	98	0.3	mg/L

Receiving Water Start			
Alkalinity as CaCO3	20	2	mg/L
Total Organic Carbon	3.4	0.4	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	31	0.3	mg/L
Aluminum, total	0.26	0.02	mg/L
Cadmium, total	ND	0.0005	mg/L
Calcium, total	9.6	0.05	mg/L
Copper, total	0.005	0.002	mg/L
Lead, total	0.007	0.0005	mg/L
Magnesium, total	1.4	0.05	mg/L
Nickel, total	ND	0.002	mg/L
Zinc, total	0.02	0.002	mg/L

Receiving Water First Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	17	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	44	0.3	mg/L

Receiving Water Second Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	30	2	mg/L
Ammonia-N	0.18	0.1	mg/L as N
Hardness as CaCO3	41	0.3	mg/L

SSR W-918 03/10/15			
Total solids	68	10	mg/L
Total suspended solids	ND	1	mg/L
Total dissolved solids	80	5	mg/L
Alkalinity as CaCO3	18	2	mg/L
Total Organic Carbon	1.6	0.4	mg/L
Ammonia-N	0.12	0.1	mg/L as N
Hardness as CaCO3	30	0.3	mg/L
Aluminum, total	ND	0.02	mg/L
Cadmium, total	ND	0.0005	mg/L
Calcium, total	5.6	0.05	mg/L
Chromium, total	ND	0.002	mg/L
Copper, total	0.004	0.002	mg/L
Lead, total	ND	0.0005	mg/L
Magnesium, total	3.7	0.05	mg/L
Nickel, total	ND	0.002	mg/L
Selenium, total	0.003	0.002	mg/L
Zinc, total	0.004	0.002	mg/L

SSR W-918 03/10/15			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	24	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	32	0.3	mg/L

SSR W-918 03/10/15			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	24	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	32	0.3	mg/L

Organism History and Water Chemistry Record						
Species	Hatch Date	Age	Food	Temperature (Celsius)	Total Hardness (as CaCO3)	pH
P. promelas	9/13/2015	1 day	Artemia sp.	25	125 mg/L	7.61
	Began Feeding	Life Stage		Salinity Conductivity	Total Alkalinity (as CaCO3)	
	9/14/2015	Larvae		--	100 mg/L	

December 2015 and January 2016 Toxicological Report			
Acute Toxicity	Acute Toxicity	Chronic	Chronic
Ceriodaphnia dubia	Pimephales promelas	Ceriodaphnia dubia	Pimephales promelas
Meets Permit/Protocol	Meets Permit/Protocol	Meets Permit/Protocol	Meets Permit/Protocol

Summary of Reference Toxicant Data						
Date	Endpoint		Value	Historic Mean/Central Tendency	Acceptable Range	Reference Toxicant
C. dubia						
12/2/2015	Survival	LC-50	17.1	22.9	3.2-42.7	SDS (mg/L)
12/1/2015	Survival	C-NOEC	30	30	15.0-60.0	Copper (ug/L)
12/1/2015	Reproduction	C-NOEC	15	15	7.5-30.0	Copper (ug/L)
12/1/2015	Reproduction	MSDp	33.4	32	12.7-51.2	Copper (ug/L)
P. promelas						
12/2/2015	Survival	LC-50	34.7	31.1	21.8-40.5	SDS (mg/L)
12/1/2015	Survival	C-NOEC	20	20	10.0-30.0	SDS (mg/L)
12/1/2015	Growth	C-NOEC	20	10	5.0-20.0	SDS (mg/L)
12/1/2015	Growth	MSDp	18.9	29.8	1.6-58.0	SDS (mg/L)

Initial Water Quality and Analytical Data Summary C. dubia. January 2016			
Parameter	Units	Effluent	Receiving Water
Specific Conductance	umhos/cm	652	199
pH	SU	6.91	6.76
Total Residual Chlorine	mg/L	<0.02	-
Alkalinity	mg/L	69	7
Hardness	mg/L	85	21
Total Solids	mg/L	500	-
Total Dissolved Solids	mg/L	280	-
Total Organic Carbon	mg/L	17	5.9
Ammonia	mg/L	2.4	<0.1
Aluminum, total	mg/L	1.3	0.24
Cadmium, total	mg/L	<0.0005	<0.0005
Calcium, total	mg/L	19	6
Copper, total	mg/L	0.072	0.002
Lead, total	mg/L	0.01	0.002
Magnesium, total	mg/L	8.3	1.2
Nickel, total	mg/L	0.009	<0.002
Zinc, total	mg/L	0.13	0.016

Initial Water Quality and Analytical Data Summary P. promelas. December 2015				
Parameter	Units	Effluent	Receiving Water	Site-Specific Lab Water
Specific Conductance	umhos/cm	755	346	136
pH	SU	7.12	6.7	7.53
Total Residual Chlorine	mg/L	<0.02	-	-
Alkalinity	mg/L	79	18	20
Hardness	mg/L	93	40	33
Total Solids	mg/L	450	-	-
Total Dissolved Solids	mg/L	580	-	-
Total Organic Carbon	mg/L	9.3	3.8	1.3
Ammonia	mg/L	0.1	<0.1	<0.1
Aluminum, total	mg/L	0.049	0.27	<0.02
Cadmium, total	mg/L	<0.0005	<0.0005	<0.0005
Calcium, total	mg/L	19	12	6.4
Copper, total	mg/L	0.018	<0.002	<0.002
Lead, total	mg/L	<0.0005	0.0005	<0.0005
Magnesium, total	mg/L	9.7	1.9	3.8
Nickel, total	mg/L	0.004	<0.002	<0.002
Zinc, total	mg/L	0.043	0.009	0.005

Effluent Start Water 2016			
Parameter	Result	Quant Limit	Units
Total Solids	500	10	mg/L
Total Dissolved Solids	280	5	mg/L
Alkalinity as CaCO3	69	2	mg/L
Total Organic Carbon	17	0.4	mg/L
Ammonia-N	2.4	0.1	mg/L as N
Hardness as CaCO3	85	0.3	mg/L
Aluminum, total	1.3	0.02	mg/L
Cadmium, total	ND	0.0005	mg/L
Calcium, total	19	0.05	mg/L
Copper, total	0.072	0.002	mg/L
Lead, total	0.01	0.0005	mg/L
Magnesium, total	8.3	0.05	mg/L
Nickel, total	0.009	0.002	mg/L
Zinc, total	0.13	0.002	mg/L

Effluent First Renewal 2016			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	75	2	mg/L
Ammonia-N	0.15	0.1	mg/L as N
Hardness as CaCO3	110	0.3	mg/L

Effluent Second Renewal 2016			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	66	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	110	0.3	mg/L

Receiving Water Start 2016			
Alkalinity as CaCO3	7	2	mg/L
Total Organic Carbon	5.9	0.4	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	21	0.3	mg/L
Aluminum, total	0.24	0.02	mg/L
Cadmium, total	ND	0.0005	mg/L
Calcium, total	6	0.05	mg/L
Copper, total	0.002	0.002	mg/L
Lead, total	0.002	0.0005	mg/L
Magnesium, total	1.2	0.05	mg/L
Nickel, total	ND	0.002	mg/L
Zinc, total	0.016	0.002	mg/L

Receiving Water First Renewal 2016			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	12	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	26	0.3	mg/L

Receiving Water Second Renewal 2016			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	9.3	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	33	0.3	mg/L

Effluent Start Water 2015			
Parameter	Result	Quant Limit	Units
Total Solids	450	10	mg/L
Total Dissolved Solids	580	5	mg/L
Alkalinity as CaCO3	79	2	mg/L
Total Organic Carbon	9.3	0.4	mg/L
Ammonia-N	0.1	0.1	mg/L as N
Hardness as CaCO3	93	0.3	mg/L
Aluminum, total	0.049	0.02	mg/L
Cadmium, total	ND	0.0005	mg/L
Calcium, total	19	0.05	mg/L
Copper, total	0.018	0.002	mg/L
Lead, total	ND	0.0005	mg/L
Magnesium, total	9.7	0.05	mg/L
Nickel, total	0.004	0.002	mg/L
Zinc, total	0.043	0.002	mg/L

December and January 2016 Toxicological Report Effluent First Renewal 2015			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	43	2	mg/L
Ammonia-N	0.1	0.1	mg/L as N
Hardness as CaCO3	81	0.3	mg/L

Effluent Second Renewal 2015			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	47	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	89	0.3	mg/L

Receiving Water Start 2015			
Alkalinity as CaCO3	18	2	mg/L
Total Organic Carbon	3.8	0.4	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	40	0.3	mg/L
Aluminum, total	0.027	0.02	mg/L
Cadmium, total	ND	0.0005	mg/L
Calcium, total	12	0.05	mg/L
Copper, total	ND	0.002	mg/L
Lead, total	0.0005	0.0005	mg/L
Magnesium, total	1.9	0.05	mg/L
Nickel, total	ND	0.002	mg/L
Zinc, total	0.009	0.002	mg/L

Receiving Water First Renewal 2015			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	15	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	33	0.3	mg/L

Receiving Water Second Renewal 2015			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	14	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	29	0.3	mg/L

SSR W-918 03/10/15			
Total solids	120	10	mg/L
Total suspended solids	ND	1	mg/L
Total dissolved solids	160 J6	5	mg/L
Alkalinity as CaCO3	20	2	mg/L
Total Organic Carbon	1.3	0.4	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	33	0.3	mg/L
Aluminum, total	ND	0.02	mg/L
Cadmium, total	ND	0.0005	mg/L
Calcium, total	6.4	0.05	mg/L
Chromium, total	ND	0.002	mg/L
Copper, total	ND	0.002	mg/L
Iron, total	ND	0.01	mg/L
Lead, total	ND	0.0005	mg/L
Magnesium, total	3.8	0.05	mg/L
Nickel, total	ND	0.002	mg/L
Selenium, total	0.004	0.002	mg/L
Zinc, total	0.005	0.002	mg/L

SSR W-918 03/10/15			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	19	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	33	0.3	mg/L

SSR W-918 03/10/15			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	20	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	35	0.3	mg/L

Organism History and Water Chemistry Record						
Species	Hatch Date	Age	Food	Temperature (Celsius)	Total Hardness (as CaCO3)	pH
P. promelas	12/13/2015	1 day	Artemia sp.	22	120 mg/L	7.2
	Began Feeding	Life Stage		Salinity Conductivity	Total Alkalinity (as CaCO3)	
	12/14/2015	Larvae		--	80 mg/L	

March 2016 Toxicological Report			
Acute Toxicity	Acute Toxicity	Chronic	Chronic
Ceriodaphnia dubia	Pimephales promelas	Ceriodaphnia dubia	Pimephales promelas
Meets Permit/Protocol	Meets Permit/Protocol	Meets Permit/Protocol	Meets Permit/Protocol

Summary of Reference Toxicant Data						
Date	Endpoint		Value	Historic Mean/Central Tendency	Acceptable Range	Reference Toxicant
C. dubia						
3/23/2016	Survival	LC-50	17.5	20.3	3.8-36.9	SDS (mg/L)
3/23/2016	Survival	C-NOEC	30	30	15.0-60.0	Copper (ug/L)
3/23/2016	Reproduction	C-NOEC	30	15	7.5-30.0	Copper (ug/L)
3/23/2016	Reproduction	MSDp	28.8	31.8	13.3-50.4	Copper (ug/L)
P. promelas						
3/23/2016	Survival	LC-50	32.7	31.7	22.4-41.0	SDS (mg/L)
3/22/2016	Survival	C-NOEC	30	20	10.0-30.0	SDS (mg/L)
3/22/2016	Growth	C-NOEC	30	10	5.0-20.0	SDS (mg/L)
3/22/2016	Growth	MSDp	32.6	29.4	0.8-58.0	SDS (mg/L)

Initial Water Quality and Analytical Data Summary				
Parameter	Units	Effluent	Receiving Water	Site-Specific Lab Water
Specific Conductance	umhos/cm	806	228	124
pH	SU	6.81	6.71	7.71
Total Residual Chlorine	mg/L	<0.02	-	-
Alkalinity	mg/L	43	9.2	22
Hardness	mg/L	90	24	29
Total Solids	mg/L	520	-	-
Total Dissolved Solids	mg/L	460	-	-
Total Organic Carbon	mg/L	8.4	3.1	1.2
Ammonia	mg/L	<0.1	<0.1	<0.1
Aluminum, total	mg/L	0.034	0.086	<0.02
Cadmium, total	mg/L	<0.0005	<0.0005	<0.0005
Calcium, total	mg/L	21	7	6.4
Copper, total	mg/L	0.011	<0.002	<0.002
Lead, total	mg/L	<0.0005	0.0008	<0.0005
Magnesium, total	mg/L	6.8	1.2	3.7
Nickel, total	mg/L	0.004	<0.002	<0.002
Zinc, total	mg/L	0.039	0.011	0.003

Effluent Start Water			
Parameter	Result	Quant Limit	Units
Total Solids	520	10	mg/L
Total Dissolved Solids	460	10	mg/L
Alkalinity as CaCO3	43	2	mg/L
Total Organic Carbon	8.4	0.4	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	90	0.3	mg/L
Aluminum, total	0.034	0.02	mg/L
Cadmium, total	ND	0.0005	mg/L
Calcium, total	21	0.05	mg/L
Copper, total	0.011	0.002	mg/L
Lead, total	ND	0.0005	mg/L
Magnesium, total	6.8	0.05	mg/L
Nickel, total	0.004	0.002	mg/L
Zinc, total	0.039	0.002	mg/L

Effluent First Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	42	2	mg/L
Ammonia-N	0.28	0.1	mg/L as N
Hardness as CaCO3	71	0.3	mg/L

Effluent Second Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	53	2	mg/L
Ammonia-N	0.12	0.1	mg/L as N
Hardness as CaCO3	77	0.3	mg/L

Receiving Water Start			
Alkalinity as CaCO3	9.2	2	mg/L
Total Organic Carbon	3.1	0.4	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	24	0.3	mg/L
Aluminum, total	0.086	0.02	mg/L
Cadmium, total	ND	0.0005	mg/L
Calcium, total	7	0.05	mg/L
Copper, total	ND	0.002	mg/L
Lead, total	0.0008	0.0005	mg/L
Magnesium, total	1.2	0.05	mg/L
Nickel, total	ND	0.002	mg/L
Zinc, total	0.011	0.002	mg/L

Receiving Water First Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	6.7	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	16	0.3	mg/L

Receiving Water Second Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	7.1	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	17	0.3	mg/L

SSR W-918 03/10/15			
Total solids	120	10	mg/L
Total suspended solids	ND	1	mg/L
Total dissolved solids	120	5	mg/L
Alkalinity as CaCO3	22	2	mg/L
Total Organic Carbon	1.6	0.4	mg/L
Ammonia-N	0.12	0.1	mg/L as N
Hardness as CaCO3	30	0.3	mg/L
Aluminum, total	ND	0.02	mg/L
Cadmium, total	ND	0.0005	mg/L
Calcium, total	5.6	0.05	mg/L
Chromium, total	ND	0.002	mg/L
Copper, total	0.004	0.002	mg/L
Lead, total	ND	0.0005	mg/L
Magnesium, total	3.7	0.05	mg/L
Nickel, total	ND	0.002	mg/L
Selenium, total	0.003	0.002	mg/L
Zinc, total	0.004	0.002	mg/L

SSR W-918 03/10/15			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	24	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	32	0.3	mg/L

SSR W-918 03/10/15			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	24	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	32	0.3	mg/L

Organism History and Water Chemistry Record						
Species	Hatch Date	Age	Food	Temperature (Celsius)	Total Hardness (as CaCO3)	pH
P. promelas	3/13/2016	1 day	Artemia sp.	24	116 mg/L	8
	Began Feeding	Life Stage		Salinity Conductivity	Total Alkalinity (as CaCO3)	
	3/14/2016	Larvae		--	90 mg/L	

Appendix C: NPDES Reporting Data for the Easterly Wastewater Treatment Facility

Quarterly Toxicological Report

June 2016 Toxicological Report			
Acute Toxicity	Acute Toxicity	Chronic	Chronic
Ceriodaphnia dubia	Pimephales promelas	Ceriodaphnia dubia	Pimephales promelas
Meets Permit/Protocol	Meets Permit/Protocol	Meets Permit/Protocol	Meets Permit/Protocol

Summary of Reference Toxicant Data					
Date	Endpoint		Value	Historic Mean/Central Tendency	Acceptable Range	Reference Toxicant
C. dubia						
5/18/2016	Survival	LC-50	40.7	21.8	2.4-41.22	SDS (mg/L)
5/18/2016	Survival	C-NOEC	30	30	15.0-60.0	Copper (ug/L)
5/18/2016	Reproduction	C-NOEC	30	15	7.5-30.0	Copper (ug/L)
5/18/2016	Reproduction	MSDp	15.1	31.6	12.6-50.7	Copper (ug/L)
P. promelas						
5/18/2016	Survival	LC-50	36.2	32.2	23.0-41.3	SDS (mg/L)
6/2/2016	Survival	C-NOEC	20	20	10.0-30.0	SDS (mg/L)
6/2/2016	Growth	C-NOEC	20	10	5.0-20.0	SDS (mg/L)
6/2/2016	Growth	MSDp	32.9	29.3	1.2-57.3	SDS (mg/L)

Initial Water Quality and Analytical Data Summary				
Parameter	Units	Effluent	Receiving Water	Site-Specific Lab Water
Specific Conductance	umhos/cm	886	332	114
pH	SU	6.78	6.87	7.49
Total Residual Chlorine	mg/L	<0.02	-	-
Alkalinity	mg/L	27	21	23
Hardness	mg/L	99	39	31
Total Solids	mg/L	580	-	-
Total Dissolved Solids	mg/L	570	-	-
Total Organic Carbon	mg/L	9.7	3.2	1.1
Ammonia	mg/L	0.13	<0.1	<0.1
Aluminum, total	mg/L	0.058	0.049	<0.02
Cadmium, total	mg/L	<0.0005	<0.0005	<0.0005
Calcium, total	mg/L	22	12	5.6
Copper, total	mg/L	0.024	0.002	0.0009
Lead, total	mg/L	0.006	0.001	<0.0005
Magnesium, total	mg/L	10	1.9	3.6
Nickel, total	mg/L	0.006	<0.002	<0.002
Zinc, total	mg/L	0.06	0.018	<0.002

Effluent Start Water			
Parameter	Result	Quant Limit	Units
Total Solids	580	10	mg/L
Total Dissolved Solids	570	5	mg/L
Alkalinity as CaCO3	27	2	mg/L
Total Organic Carbon	9.7	0.4	mg/L
Ammonia-N	0.13	0.1	mg/L as N
Hardness as CaCO3	99	0.3	mg/L
Aluminum, total	0.058	0.02	mg/L
Cadmium, total	ND	0.0005	mg/L
Calcium, total	22	0.05	mg/L
Copper, total	0.024	0.002	mg/L
Lead, total	0.0006	0.0005	mg/L
Magnesium, total	10	0.05	mg/L
Nickel, total	0.006	0.002	mg/L
Zinc, total	0.06	0.002	mg/L

Effluent First Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	22	2	mg/L
Ammonia-N	0.12	0.1	mg/L as N
Hardness as CaCO3	95	0.3	mg/L

Effluent Second Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	38	2	mg/L
Ammonia-N	0.17	0.1	mg/L as N
Hardness as CaCO3	94	0.3	mg/L

Receiving Water Start			
Alkalinity as CaCO3	21	2	mg/L
Total Organic Carbon	3.2	0.4	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	39	0.3	mg/L
Aluminum, total	0.049	0.02	mg/L
Cadmium, total	ND	0.0005	mg/L
Calcium, total	12	0.05	mg/L
Copper, total	0.002	0.0005	mg/L
Lead, total	0.001	0.0005	mg/L
Magnesium, total	1.9	0.05	mg/L
Nickel, total	ND	0.002	mg/L
Zinc, total	0.018	0.002	mg/L

Receiving Water First Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	15	2	mg/L
Ammonia-N	0.11	0.1	mg/L as N
Hardness as CaCO3	42	0.3	mg/L

Receiving Water Second Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	24	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	46	0.3	mg/L

SSR W-918 03/10/15			
Alkalinity as CaCO3	23	2	mg/L
Total Organic Carbon	1.1	0.4	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	31	0.3	mg/L
Aluminum, total	ND	0.02	mg/L
Cadmium, total	ND	0.0005	mg/L
Calcium, total	5.6	0.05	mg/L
Chromium, total	ND	0.002	mg/L
Copper, total	0.0009	0.0005	mg/L
Iron, total	ND	0.01	mg/L
Lead, total	ND	0.0005	mg/L
Magnesium, total	3.6	0.05	mg/L
Nickel, total	ND	0.002	mg/L
Selenium, total	0.003	0.002	mg/L
Zinc, total	ND	0.002	mg/L

SSR W-918 03/10/15			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	24	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	32	0.3	mg/L

SSR W-918 03/10/15			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	24	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	32	0.3	mg/L

Organism History and Water Chemistry Record						
Species	Hatch Date	Age	Food	Temperature (Celsius)	Total Hardness (as CaCO3)	pH
P. promelas	6/13/2016		Artemia sp.		120 mg/L	7.4
	Began Feeding	Life Stage		Salinity Conductivity	Total Alkalinity (as CaCO3)	
				--	140 mg/L	

September 2016 Toxicological Report			
Acute Toxicity	Acute Toxicity	Chronic	Chronic
Ceriodaphnia dubia	Pimephales promelas	Ceriodaphnia dubia	Pimephales promelas
Meets Permit/Protocol	Meets Permit/Protocol	Meets Permit/Protocol	Meets Permit/Protocol

Summary of Reference Toxicant Data						
Date	Endpoint		Value	Historic Mean/Central Tendency	Acceptable Range	Reference Toxicant
C. dubia						
9/27/2016	Survival	LC-50	19.7	22.6	2.4-42.9	SDS (mg/L)
9/27/2016	Survival	C-NOEC	15	30	15.0-60.0	Copper (ug/L)
9/27/2016	Reproduction	C-NOEC	15	30	15.0-60.0	Copper (ug/L)
9/27/2016	Reproduction	MSDp	39	31.7	13.1-50.3	Copper (ug/L)
P. promelas						
8/30/2016	Survival	LC-50	39.4	32.6	24.0-41.1	SDS (mg/L)
9/28/2016	Survival	C-NOEC	20	20	10.0-30.0	SDS (mg/L)
9/28/2016	Growth	C-NOEC	10	10	5.0-20.0	SDS (mg/L)
9/28/2016	Growth	MSDp	27.7	28.6	1.0-56.3	SDS (mg/L)

Initial Water Quality and Analytical Data Summary				
Parameter	Units	Effluent	Receiving Water	Site-Specific Lab Water
Specific Conductance	umhos/cm	936	438	130
pH	SU	7.07	7.21	7.51
Total Residual Chlorine	mg/L	<0.02	-	-
Alkalinity	mg/L	110	31	29
Hardness	mg/L	120	55	36
Total Solids	mg/L	540	-	68
Total Dissolved Solids	mg/L	550	-	67
Total Organic Carbon	mg/L	13.5	2.6	1.3
Ammonia	mg/L	0.31	<0.1	<0.1
Aluminum, total	mg/L	0.083	0.022	<0.02
Cadmium, total	mg/L	<0.0005	<0.0005	<0.0005
Calcium, total	mg/L	22.6	16.7	6.89
Copper, total	mg/L	0.018	0.0018	0.0013
Lead, total	mg/L	0.001	0.0006	<0.0005
Magnesium, total	mg/L	14.3	2.45	4.04
Nickel, total	mg/L	0.007	<0.002	<0.002
Zinc, total	mg/L	0.05	0.01	<0.002

Effluent Start Water			
Parameter	Result	Quant Limit	Units
Total Solids	540	10	mg/L
Total Dissolved Solids	550	10	mg/L
Alkalinity as CaCO3	110	10	mg/L
Total Organic Carbon	13.5	0.4	mg/L
Ammonia-N	0.31	0.1	mg/L as N
Hardness as CaCO3	120	0.3	mg/L
Aluminum, total	0.083	0.02	mg/L
Cadmium, total	ND	0.0005	mg/L
Calcium, total	22.6	0.05	mg/L
Copper, total	0.018	0.0005	mg/L
Lead, total	0.001	0.0005	mg/L
Magnesium, total	14.3	0.05	mg/L
Nickel, total	0.007	0.002	mg/L
Zinc, total	0.05	0.002	mg/L

Effluent First Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	110	10	mg/L
Ammonia-N	0.21	0.1	mg/L as N
Hardness as CaCO3	120	0.3	mg/L

Effluent Second Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	110	10	mg/L
Ammonia-N	0.26	0.1	mg/L as N
Hardness as CaCO3	120	0.3	mg/L

Receiving Water Start			
Alkalinity as CaCO3	31	2	mg/L
Total Organic Carbon	2.6	0.4	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	55	0.3	mg/L
Aluminum, total	0.022	0.02	mg/L
Cadmium, total	ND	0.0005	mg/L
Calcium, total	16.7	0.05	mg/L
Copper, total	0.0018	0.0005	mg/L
Lead, total	0.0006	0.0005	mg/L
Magnesium, total	2.45	0.05	mg/L
Nickel, total	ND	0.002	mg/L
Zinc, total	0.01	0.002	mg/L

Receiving Water First Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	32	2	mg/L
Ammonia-N	0.11	0.1	mg/L as N
Hardness as CaCO3	54	0.3	mg/L

Receiving Water Second Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	8.7	2	mg/L
Ammonia-N	0.11	0.1	mg/L as N
Hardness as CaCO3	55	0.3	mg/L

SSR W-918 03/10/15			
Total Solids	68	10	mg/L
Total Suspended Solids	ND	1	mg/L
Total Dissolved Solids	67	10	mg/L
Alkalinity as CaCO3	29	2	mg/L
Total Organic Carbon	1.3	0.4	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	36	0.3	mg/L
Aluminum, total	ND	0.02	mg/L
Cadmium, total	ND	0.0005	mg/L
Calcium, total	6.89	0.05	mg/L
Chromium, total	ND	0.002	mg/L
Copper, total	0.0013	0.0005	mg/L
Iron, total	ND	0.01	mg/L
Lead, total	ND	0.0005	mg/L
Magnesium, total	4.04	0.05	mg/L
Nickel, total	ND	0.002	mg/L
Selenium, total	0.003	0.002	mg/L
Zinc, total	ND	0.002	mg/L

SSR W-918 03/10/15			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	29	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	36	0.3	mg/L

SSR W-918 03/10/15			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	29	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	36	0.3	mg/L

Organism History and Water Chemistry Record						
Species	Hatch Date	Age	Food	Temperature (Celsius)	Total Hardness (as CaCO3)	pH
P. promelas	9/11/2016	1 day	Artemia sp.	25	118 mg/L	8.11
	Began Feeding	Life Stage		Salinity Conductivity	Total Alkalinity (as CaCO3)	
	9/12/2016	Larvae		--	85 mg/L	

December 2016 Toxicological Report			
Acute Toxicity	Acute Toxicity	Chronic	Chronic
Ceriodaphnia dubia	Pimephales promelas	Ceriodaphnia dubia	Pimephales promelas
Meets Permit/Protocol	Meets Permit/Protocol	Meets Permit/Protocol	Meets Permit/Protocol

Summary of Reference Toxicant Data						
Date	Endpoint		Value	Historic Mean/Central Tendency	Acceptable Range	Reference Toxicant
C. dubia						
9/27/2016	Survival	LC-50	20.4	20.8	0.7-40.8	SDS (mg/L)
9/27/2016	Survival	C-NOEC	60	30	15.0-60.0	Copper (ug/L)
9/27/2016	Reproduction	C-NOEC	30	30	15.0-60.0	Copper (ug/L)
9/27/2016	Reproduction	MSDp	21.7	31.4	13.2-49.7	Copper (ug/L)
P. promelas						
8/30/2016	Survival	LC-50	25.2	33.9	23.4-44.4	SDS (mg/L)
9/28/2016	Survival	C-NOEC	10	20	10.0-30.0	SDS (mg/L)
9/28/2016	Growth	C-NOEC	10	20	10.0-30.0	SDS (mg/L)
9/28/2016	Growth	MSDp	28.4	28.1	1.2-54.9	SDS (mg/L)

Initial Water Quality and Analytical Data Summary				
Parameter	Units	Effluent	Receiving Water	Site-Specific Lab Water
Specific Conductance	umhos/cm	855	360	128
pH	SU	6.81	6.88	7.3
Total Residual Chlorine	mg/L	<0.02	-	-
Alkalinity	mg/L	45	17	21
Hardness	mg/L	87	39	31
Total Solids	mg/L	450	-	-
Total Dissolved Solids	mg/L	510	-	-
Total Organic Carbon	mg/L	9.7	4.5	1.3
Ammonia	mg/L	<0.1	<0.1	<0.1
Aluminum, total	mg/L	0.062	0.046	<0.01
Cadmium, total	mg/L	<0.0001	0.0001	<0.0001
Calcium, total	mg/L	25.4	11.2	5.93
Copper, total	mg/L	0.014	0.0016	0.0006
Lead, total	mg/L	0.0007	0.0006	<0.0002
Magnesium, total	mg/L	6.06	2.04	3.78
Nickel, total	mg/L	0.0066	<0.001	<0.001
Zinc, total	mg/L	0.06	0.034	<0.002

Effluent Start Water			
Parameter	Result	Quant Limit	Units
Total Solids	450	10	mg/L
Total Dissolved Solids	510	10	mg/L
Alkalinity as CaCO3	45	2	mg/L
Total Organic Carbon	9.7	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	87	0.3	mg/L
Aluminum, total	0.062	0.01	mg/L
Cadmium, total	ND	0.0001	mg/L
Calcium, total	25.4	0.05	mg/L
Copper, total	0.014	0.0005	mg/L
Lead, total	0.0007	0.0002	mg/L
Magnesium, total	6.06	0.05	mg/L
Nickel, total	0.0066	0.001	mg/L
Zinc, total	0.06	0.002	mg/L

Effluent First Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	46	2	mg/L
Ammonia-N	0.14	0.1	mg/L as N
Hardness as CaCO3	86	0.3	mg/L

Effluent Second Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	40	2	mg/L
Ammonia-N	0.1	0.1	mg/L as N
Hardness as CaCO3	91	0.3	mg/L

Receiving Water Start			
Alkalinity as CaCO3	17	2	mg/L
Total Organic Carbon	4.5	1.2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	39	0.3	mg/L
Aluminum, total	0.046	0.02	mg/L
Cadmium, total	0.0001	0.0001	mg/L
Calcium, total	11.2	0.05	mg/L
Copper, total	0.0016	0.0005	mg/L
Lead, total	0.0006	0.0002	mg/L
Magnesium, total	2.04	0.05	mg/L
Nickel, total	ND	0.001	mg/L
Zinc, total	0.034	0.002	mg/L

Receiving Water First Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	17	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	40	0.3	mg/L

Receiving Water Second Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	18	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	44	0.3	mg/L

SSR W-918 03/10/15			
Alkalinity as CaCO3	21	2	mg/L
Total Organic Carbon	1.3	0.4	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	31	0.3	mg/L
Aluminum, total	ND	0.01	mg/L
Cadmium, total	ND	0.0001	mg/L
Calcium, total	5.93	0.05	mg/L
Chromium, total	ND	0.001	mg/L
Copper, total	0.0006	0.0005	mg/L
Iron, total	0.01	0.01	mg/L
Lead, total	ND	0.0002	mg/L
Magnesium, total	3.78	0.05	mg/L
Nickel, total	ND	0.001	mg/L
Selenium, total	0.0029	0.002	mg/L
Zinc, total	ND	0.002	mg/L

SSR W-918 03/10/15			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	21	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	32	0.3	mg/L

SSR W-918 03/10/15			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	21	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	33	0.3	mg/L

Organism History and Water Chemistry Record						
Species	Hatch Date	Age	Food	Temperature (Celsius)	Total Hardness (as CaCO3)	pH
P. promelas	12/11/2016	1 day	Artemia sp.	23	114 mg/L	7.99
	Began Feeding	Life Stage		Salinity Conductivity	Total Alkalinity (as CaCO3)	
	12/12/2016	Larvae		--	90 mg/L	

March 2017 Toxicological Report			
Acute Toxicity	Acute Toxicity	Chronic	Chronic
Ceriodaphnia dubia	Pimephales promelas	Ceriodaphnia dubia	Pimephales promelas
Meets Permit/Protocol	Meets Permit/Protocol	Meets Permit/Protocol	Meets Permit/Protocol

Summary of Reference Toxicant Data						
Date	Endpoint		Value	Historic Mean/Central Tendency	Acceptable Range	Reference Toxicant
C. dubia						
3/29/2016	Survival	LC-50	27.9	22.3	0-45.4	SDS (mg/L)
4/4/2016	Survival	C-NOEC	30	30	15.0-60.0	Copper (ug/L)
4/4/2016	Reproduction	C-NOEC	15	15	7.5-30.0	Copper (ug/L)
4/4/2016	Reproduction	MSDp	30.9	31.4	13.3-49.4	Copper (ug/L)
P. promelas						
3/29/2016	Survival	LC-50	41.6	34.2	23.7-44.8	SDS (mg/L)
3/28/2016	Survival	C-NOEC	10	20	10.0-30.0	SDS (mg/L)
3/28/2016	Growth	C-NOEC	10	20	10.0-30.0	SDS (mg/L)
3/28/2016	Growth	MSDp	41.6	28.4	2.0-54.8	SDS (mg/L)

Initial Water Quality and Analytical Data Summary				
Parameter	Units	Effluent	Receiving Water	Site-Specific Lab Water
Specific Conductance	umhos/cm	1020	344	116
pH	SU	7.13	6.61	7.38
Total Residual Chlorine	mg/L	<0.02	-	-
Alkalinity	mg/L	57	9.8	18
Hardness	mg/L	110	32	32
Total Solids	mg/L	620	-	-
Total Dissolved Solids	mg/L	600	-	-
Total Organic Carbon	mg/L	9.4	3.3	1.6
Ammonia	mg/L	0.32	<0.1	<0.1
Aluminum, total	mg/L	0.049	0.061	<0.02
Cadmium, total	mg/L	<0.0001	0.0001	<0.0001
Calcium, total	mg/L	25.2	9.19	5.16
Copper, total	mg/L	0.012	0.0018	0.001
Lead, total	mg/L	0.0011	0.0004	<0.0002
Magnesium, total	mg/L	9.37	1.69	3.54
Nickel, total	mg/L	0.0046	<0.001	<0.001
Zinc, total	mg/L	0.049	0.017	0.0038

Effluent Start Water			
Parameter	Result	Quant Limit	Units
Total Solids	620	10	mg/L
Total Dissolved Solids	600	10	mg/L
Alkalinity as CaCO3	57	2	mg/L
Total Organic Carbon	9.4	0.8	mg/L
Ammonia-N	0.32	0.1	mg/L as N
Hardness as CaCO3	110	0.3	mg/L
Aluminum, total	0.049	0.02	mg/L
Cadmium, total	ND	0.0001	mg/L
Calcium, total	25.2	0.05	mg/L
Copper, total	0.012	0.0005	mg/L
Lead, total	0.0011	0.0002	mg/L
Magnesium, total	9.37	0.05	mg/L
Nickel, total	0.0046	0.001	mg/L
Zinc, total	0.049	0.002	mg/L

Effluent First Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	76	2	mg/L
Total Organic Carbon	13	0.4	mg/L
Ammonia-N	0.14	0.1	mg/L as N
Hardness as CaCO3	110	0.3	mg/L
Aluminum, total	0.048	0.02	mg/L
Cadmium, total	ND	0.0003	mg/L
Calcium, total	24.7	0.05	mg/L
Copper, total	0.011	0.0005	mg/L
Lead, total	0.0005	0.0003	mg/L
Magnesium, total	8.97	0.05	mg/L
Nickel, total	0.0053	0.001	mg/L
Zinc, total	0.054	0.002	mg/L

Effluent Second Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	47	2	mg/L
Total Organic Carbon	12	0.4	
Ammonia-N	0.3	0.1	mg/L as N
Hardness as CaCO3	110	0.3	mg/L
Aluminum, total	0.034	0.02	mg/L
Cadmium, total	ND	0.0003	mg/L
Calcium, total	25.1	0.05	mg/L
Copper, total	0.0098	0.0005	mg/L
Lead, total	0.0005	0.0003	mg/L
Magnesium, total	9.17	0.05	mg/L
Nickel, total	0.0047	0.001	mg/L
Zinc, total	0.044	0.002	mg/L

Receiving Water Start			
Alkalinity as CaCO3	9.8	2	mg/L
Total Organic Carbon	3.3	0.8	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	32	0.3	mg/L
Aluminum, total	0.061	0.02	mg/L
Cadmium, total	0.0001	0.0001	mg/L
Calcium, total	9.19	0.05	mg/L
Copper, total	0.0018	0.0005	mg/L
Lead, total	0.0004	0.0002	mg/L
Magnesium, total	1.69	0.05	mg/L
Nickel, total	ND	0.001	mg/L
Zinc, total	0.017	0.002	mg/L

Receiving Water First Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	36	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	31	0.3	mg/L

Receiving Water Second Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	16	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	30	0.3	mg/L

SSR W-918 03/10/15			
Alkalinity as CaCO3	18	2	mg/L
Total Organic Carbon	1.6	0.4	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	32	0.3	mg/L
Aluminum, total	ND	0.02	mg/L
Cadmium, total	ND	0.0001	mg/L
Calcium, total	5.16	0.05	mg/L
Chromium, total	ND	0.001	mg/L
Copper, total	0.001	0.0005	mg/L
Iron, total	ND	0.01	mg/L
Lead, total	ND	0.0002	mg/L
Magnesium, total	3.54	0.05	mg/L
Nickel, total	ND	0.001	mg/L
Selenium, total	0.0027	0.002	mg/L
Zinc, total	0.0038	0.002	mg/L

SSR W-918 03/10/15			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	20	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	29	0.3	mg/L

SSR W-918 03/10/15			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	20	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	29	0.3	mg/L

Organism History and Water Chemistry Record						
Species	Hatch Date	Age	Food	Temperature (Celsius)	Total Hardness (as CaCO3)	pH
P. promelas	3/12/2017	1 day	Artemia sp.	23	170 mg/L	8.24
	Began Feeding	Life Stage		Salinity Conductivity	Total Alkalinity (as CaCO3)	
	3/13/2017	Larvae		--	90 mg/L	

June 2017 Toxicological Report			
Acute Toxicity	Acute Toxicity	Chronic	Chronic
Ceriodaphnia dubia	Pimephales promelas	Ceriodaphnia dubia	Pimephales promelas
Meets Permit/Protocol	Meets Permit/Protocol	Meets Permit/Protocol	Meets Permit/Protocol

Summary of Reference Toxicant Data						
Date	Endpoint		Value	Historic Mean/Central Tendency	Acceptable Range	Reference Toxicant
C. dubia						
6/21/2017	Survival	LC-50	22.4	24.2	1.7-46.8	SDS (mg/L)
6/21/2017	Survival	C-NOEC	30	30	15.0-60.0	Copper (ug/L)
6/21/2017	Reproduction	C-NOEC	30	15	7.5-30.0	Copper (ug/L)
6/21/2017	Reproduction	MSDp	19.1	31.1	13.3-48.9	Copper (ug/L)
P. promelas						
6/21/2017	Survival	LC-50	41.8	34	22.5-45.4	SDS (mg/L)
6/21/2017	Survival	C-NOEC	30	20	10.0-30.0	SDS (mg/L)
6/21/2017	Growth	C-NOEC	30	20	10.0-30.0	SDS (mg/L)
6/21/2017	Growth	MSDp	35.4	28.6	2.5-54.8	SDS (mg/L)

Initial Water Quality and Analytical Data Summary				
Parameter	Units	Effluent	Receiving Water	Site-Specific Lab Water
Specific Conductance	umhos/cm	966	252	107
pH	SU	7.18	6.76	7.64
Total Residual Chlorine	mg/L	<0.02	-	-
Alkalinity	mg/L	71	12	19
Hardness	mg/L	97	97	27
Total Solids	mg/L	530	-	-
Total Dissolved Solids	mg/L	530	-	-
Total Organic Carbon	mg/L	8.7	4.4	0.9
Ammonia	mg/L	<0.1	<0.1	<0.1
Aluminum, total	mg/L	0.028	0.094	<0.02
Cadmium, total	mg/L	<0.0003	<0.0001	<0.0001
Calcium, total	mg/L	26.3	8.49	5.07
Copper, total	mg/L	0.0097	0.0021	0.0009
Lead, total	mg/L	<0.0003	0.0011	<0.0002
Magnesium, total	mg/L	8.22	1.28	3.51
Nickel, total	mg/L	0.0053	<0.001	<0.001
Zinc, total	mg/L	0.038	0.01	0.0031

Effluent Start Water			
Parameter	Result	Quant Limit	Units
Total Solids	530	10	mg/L
Total Dissolved Solids	530	10	mg/L
Alkalinity as CaCO3	71	2	mg/L
Total Organic Carbon	8.7	0.8	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	97	0.3	mg/L
Aluminum, total	0.028	0.02	mg/L
Cadmium, total	ND	0.0003	mg/L
Calcium, total	26.3	0.05	mg/L
Copper, total	0.0097	0.0005	mg/L
Lead, total	ND	0.0003	mg/L
Magnesium, total	8.22	0.05	mg/L
Nickel, total	0.0053	0.001	mg/L
Zinc, total	0.038	0.002	mg/L

Effluent First Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	67	2	mg/L
Ammonia-N	0.13	0.1	mg/L as N
Hardness as CaCO3	88	0.3	mg/L

Effluent Second Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	79	2	mg/L
Ammonia-N	0.22	0.1	mg/L as N
Hardness as CaCO3	97	0.3	mg/L

Receiving Water Start			
Alkalinity as CaCO3	12	2	mg/L
Total Organic Carbon	4.4	0.8	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	26	0.3	mg/L
Aluminum, total	0.094	0.02	mg/L
Cadmium, total	ND	0.0001	mg/L
Calcium, total	8.49	0.05	mg/L
Copper, total	0.0021	0.0005	mg/L
Lead, total	0.0011	0.0002	mg/L
Magnesium, total	1.28	0.05	mg/L
Nickel, total	ND	0.001	mg/L
Zinc, total	0.01	0.002	mg/L

Receiving Water First Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	15	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	28	0.3	mg/L

Receiving Water Second Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	17	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	33	0.3	mg/L

SSR W-918 03/10/15			
Total solids	54	10	mg/L
Total suspended solids	ND	1	mg/L
Total dissolved solids	40	10	mg/L
Alkalinity as CaCO3	19	2	mg/L
Total Organic Carbon	0.9	0.4	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	27	0.3	mg/L
Aluminum, total	ND	0.02	mg/L
Cadmium, total	ND	0.0001	mg/L
Calcium, total	5.07	0.05	mg/L
Chromium, total	ND	0.001	mg/L
Copper, total	0.0009	0.0005	mg/L
Iron, total	ND	0.01	mg/L
Lead, total	ND	0.0002	mg/L
Magnesium, total	3.51	0.05	mg/L
Nickel, total	ND	0.001	mg/L
Selenium, total	0.0035	0.002	mg/L
Zinc, total	0.0031	0.002	mg/L

SSR W-918 03/10/15			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	20	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	28	0.3	mg/L

SSR W-918 03/10/15			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	20	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	27	0.3	mg/L

Organism History and Water Chemistry Record						
Species	Hatch Date	Age	Food	Temperature (Celsius)	Total Hardness (as CaCO3)	pH
P. promelas	6/11/2017	1 day	Artemia sp.	25	128 mg/L	8.3
	Began Feeding	Life Stage		Salinity Conductivity	Total Alkalinity (as CaCO3)	
	6/12/2017	Larvae		--	110 mg/L	

September 2017 Toxicological Report			
Acute Toxicity	Acute Toxicity	Chronic	Chronic
Ceriodaphnia dubia	Pimephales promelas	Ceriodaphnia dubia	Pimephales promelas
Meets Permit/Protocol	Meets Permit/Protocol	Meets Permit/Protocol	Meets Permit/Protocol

Summary of Reference Toxicant Data						
Date	Endpoint		Value	Historic Mean/Central Tendency	Acceptable Range	Reference Toxicant
C. dubia						
9/26/2017	Survival	LC-50	27.5	25.8	4.0-47.6	SDS (mg/L)
9/26/2017	Survival	C-NOEC	15	30	15.0-60.0	Copper (ug/L)
9/26/2017	Reproduction	C-NOEC	15	15	7.5-30.0	Copper (ug/L)
9/26/2017	Reproduction	MSDp	20.5	30.7	13.0-48.4	Copper (ug/L)
P. promelas						
9/26/2017	Survival	LC-50	36.5	34.9	24.4-45.4	SDS (mg/L)
9/26/2017	Survival	C-NOEC	5	20	10.0-30.0	SDS (mg/L)
9/26/2017	Growth	C-NOEC	5	20	10.0-30.0	SDS (mg/L)
9/26/2017	Growth	MSDp	14	27.9	1.6-54.2	SDS (mg/L)

Initial Water Quality and Analytical Data Summary				
Parameter	Units	Effluent	Receiving Water	Site-Specific Lab Water
Specific Conductance	umhos/cm	1006	304	131
pH	SU	7.33	7.04	7.7
Total Residual Chlorine	mg/L	0	-	-
Alkalinity	mg/L	120	19	21
Hardness	mg/L	150	31	29
Total Solids	mg/L	610	-	-
Total Dissolved Solids	mg/L	640	-	-
Total Organic Carbon	mg/L	12.2	4.6	0.9
Ammonia	mg/L	0.12	<0.1	<0.1
Aluminum, total	mg/L	0.044	0.056	<0.01
Cadmium, total	mg/L	<0.0001	<0.0001	<0.0001
Calcium, total	mg/L	32.5	10.1	5.54
Copper, total	mg/L	0.012	0.002	0.0008
Lead, total	mg/L	0.0005	0.0011	<0.0002
Magnesium, total	mg/L	15.8	1.67	3.68
Nickel, total	mg/L	0.0071	<0.001	<0.001
Zinc, total	mg/L	0.037	0.011	<0.002

Effluent Start Water			
Parameter	Result	Quant Limit	Units
Total Solids	610	10	mg/L
Total Dissolved Solids	640	10	mg/L
Alkalinity as CaCO3	120	2	mg/L
Total Organic Carbon	12.2	0.8	mg/L
Ammonia-N	0.12	0.1	mg/L as N
Hardness as CaCO3	150	0.3	mg/L
Aluminum, total	0.044	0.02	mg/L
Cadmium, total	ND	0.0003	mg/L
Calcium, total	32.5	0.05	mg/L
Copper, total	0.012	0.0005	mg/L
Lead, total	0.0005	0.0003	mg/L
Magnesium, total	15.8	0.05	mg/L
Nickel, total	0.0071	0.001	mg/L
Zinc, total	0.037	0.002	mg/L

Effluent First Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	89	2	mg/L
Ammonia-N	0.22	0.1	mg/L as N
Hardness as CaCO3	120	0.3	mg/L

Effluent Second Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	98	2	mg/L
Ammonia-N	0.9	0.1	mg/L as N
Hardness as CaCO3	110	0.3	mg/L

Receiving Water Start			
Alkalinity as CaCO3	19	2	mg/L
Total Organic Carbon	4.6	0.4	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	31	0.3	mg/L
Aluminum, total	0.056	0.02	mg/L
Cadmium, total	ND	0.0001	mg/L
Calcium, total	10.1	0.05	mg/L
Copper, total	0.002	0.0005	mg/L
Lead, total	0.0011	0.0002	mg/L
Magnesium, total	1.67	0.05	mg/L
Nickel, total	ND	0.001	mg/L
Zinc, total	0.011	0.002	mg/L

Receiving Water First Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	20	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	35	0.3	mg/L

Receiving Water Second Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	21	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	37	0.3	mg/L

SSR W-918 03/10/15			
Alkalinity as CaCO3	21	2	mg/L
Total Organic Carbon	0.9	0.4	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	29	0.3	mg/L
Aluminum, total	ND	0.01	mg/L
Cadmium, total	ND	0.0001	mg/L
Calcium, total	5.54	0.05	mg/L
Chromium, total	ND	0.001	mg/L
Copper, total	0.0008	0.0005	mg/L
Iron, total	ND	0.01	mg/L
Lead, total	ND	0.0002	mg/L
Magnesium, total	3.68	0.05	mg/L
Nickel, total	ND	0.001	mg/L
Selenium, total	0.003	0.002	mg/L
Zinc, total	ND	0.002	mg/L

SSR W-918 03/10/15			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	22	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	30	0.3	mg/L

SSR W-918 03/10/15			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	22	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	30	0.3	mg/L

Organism History and Water Chemistry Record						
Species	Hatch Date	Age	Food	Temperature (Celsius)	Total Hardness (as CaCO3)	pH
P. promelas	9/11/2017	1 day	Artemia sp.	25	116 mg/L	8.3
	Began Feeding	Life Stage		Salinity Conductivity	Total Alkalinity (as CaCO3)	
	9/12/2017	Larvae		--	110 mg/L	

Appendix C: NPDES Reporting Data for the Easterly Wastewater Treatment Facility

Quarterly Toxicological Report

December 2017 Toxicological Report			
Acute Toxicity	Acute Toxicity	Chronic	Chronic
Ceriodaphnia dubia	Pimephales promelas	Ceriodaphnia dubia	Pimephales promelas
Meets Permit/Protocol	Meets Permit/Protocol	Meets Permit/Protocol	Meets Permit/Protocol

Summary of Reference Toxicant Data						
Date	Endpoint		Value	Historic Mean/Central Tendency	Acceptable Range	Reference Toxicant
C. dubia						
12/21/2017	Survival	LC-50	27.5	25.8	4.0-47.6	SDS (mg/L)
12/29/2017	Survival	C-NOEC	15	30	15.0-60.0	Copper (ug/L)
12/29/2017	Reproduction	C-NOEC	15	15	7.5-30.0	Copper (ug/L)
12/29/2017	Reproduction	MSDp	20.5	30.7	13.0-48.4	Copper (ug/L)
P. promelas						
12/21/2017	Survival	LC-50	36.5	34.9	24.4-45.4	SDS (mg/L)
12/28/2017	Survival	C-NOEC	5	20	10.0-30.0	SDS (mg/L)
12/28/2017	Growth	C-NOEC	5	20	10.0-30.0	SDS (mg/L)
12/28/2017	Growth	MSDp	14	27.9	1.6-54.2	SDS (mg/L)

Initial Water Quality and Analytical Data Summary				
Parameter	Units	Effluent	Receiving Water	Site-Specific Lab Water
Specific Conductance	umhos/cm	1116	265	115
pH	SU	6.93	6.43	7.42
Total Residual Chlorine	mg/L	<0.02	-	-
Alkalinity	mg/L	68	12	22
Hardness	mg/L	100	25	29
Total Solids	mg/L	720	-	-
Total Dissolved Solids	mg/L	720	-	-
Total Organic Carbon	mg/L	14.5	5	1.2
Ammonia	mg/L	<0.1	<0.1	<0.1
Aluminum, total	mg/L	0.055	0.096	<0.02
Cadmium, total	mg/L	<0.0003	0.0002	<0.0001
Calcium, total	mg/L	25.6	7.75	6.06
Copper, total	mg/L	0.021	0.0028	0.0007
Lead, total	mg/L	0.0007	0.001	<0.0002
Magnesium, total	mg/L	9.26	1.43	3.47
Nickel, total	mg/L	0.009	0.0013	<0.001
Zinc, total	mg/L	0.056	0.066	0.0032

Effluent Start Water			
Parameter	Result	Quant Limit	Units
Total Solids	720	100	mg/L
Total Dissolved Solids	720	5	mg/L
Alkalinity as CaCO3	68	2	mg/L
Total Organic Carbon	14.5	0.4	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	100	0.3	mg/L
Aluminum, total	0.055	0.02	mg/L
Cadmium, total	ND	0.0003	mg/L
Calcium, total	25.6	0.05	mg/L
Copper, total	0.021	0.0005	mg/L
Lead, total	0.0007	0.0003	mg/L
Magnesium, total	9.26	0.05	mg/L
Nickel, total	0.009	0.001	mg/L
Zinc, total	0.056	0.002	mg/L

Effluent First Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	60	2	mg/L
Ammonia-N	0.18	0.1	mg/L as N
Hardness as CaCO3	110	0.3	mg/L

Effluent Second Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	65	2	mg/L
Ammonia-N	1.8	0.1	mg/L as N
Hardness as CaCO3	100	0.3	mg/L

Receiving Water Start			
Alkalinity as CaCO3	12	2	mg/L
Total Organic Carbon	5	0.4	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	25	0.3	mg/L
Aluminum, total	0.096	0.02	mg/L
Cadmium, total	0.0002	0.0001	mg/L
Calcium, total	7.75	0.05	mg/L
Copper, total	0.0028	0.0005	mg/L
Lead, total	0.001	0.0002	mg/L
Magnesium, total	1.43	0.05	mg/L
Nickel, total	0.0013	0.001	mg/L
Zinc, total	0.066	0.002	mg/L

Receiving Water First Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	ND	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	27	0.3	mg/L

Receiving Water Second Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	13	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	30	0.3	mg/L

SSR W-918 03/10/15			
Alkalinity as CaCO3	22	2	mg/L
Total Organic Carbon	1.2	0.4	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	29	0.3	mg/L
Aluminum, total	ND	0.02	mg/L
Cadmium, total	ND	0.0001	mg/L
Calcium, total	6.06	0.05	mg/L
Chromium, total	ND	0.001	mg/L
Copper, total	0.0007	0.0005	mg/L
Iron, total	ND	0.01	mg/L
Lead, total	ND	0.0002	mg/L
Magnesium, total	3.47	0.05	mg/L
Nickel, total	ND	0.001	mg/L
Selenium, total	0.003	0.002	mg/L
Zinc, total	0.0032	0.002	mg/L

SSR W-918 03/10/15			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	22	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	29	0.3	mg/L

SSR W-918 03/10/15			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	22	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	33	0.3	mg/L

Organism History and Water Chemistry Record						
Species	Hatch Date	Age	Food	Temperature (Celsius)	Total Hardness (as CaCO3)	pH
P. promelas	12/10/2017	1 day	Artemia sp.	23	118 mg/L	8.28
	Began Feeding	Life Stage		Salinity Conductivity	Total Alkalinity (as CaCO3)	
	12/12/2017	Larvae		--	95 mg/L	

March 2018 Toxicological Report			
Acute Toxicity	Acute Toxicity	Chronic	Chronic
Ceriodaphnia dubia	Pimephales promelas	Ceriodaphnia dubia	Pimephales promelas
Meets Permit/Protocol	Meets Permit/Protocol	Meets Permit/Protocol	Meets Permit/Protocol

Summary of Reference Toxicant Data						
Date	Endpoint		Value	Historic Mean/Central Tendency	Acceptable Range	Reference Toxicant
C. dubia						
3/6/2018	Survival	LC-50	13.4	23	2.6-43.4	SDS (mg/L)
3/6/2018	Survival	C-NOEC	60	60	30-120	Copper (ug/L)
3/6/2018	Reproduction	C-NOEC	30	30	15-60	Copper (ug/L)
3/6/2018	Reproduction	MSDp	26.3	30.5	13.3-47.8	Copper (ug/L)
P. promelas						
3/6/2018	Survival	LC-50	34.7	35.5	23.8-47.1	SDS (mg/L)
3/6/2018	Survival	C-NOEC	5	10	5.0-20.0	SDS (mg/L)
3/6/2018	Growth	C-NOEC	5	20	10.0-30.0	SDS (mg/L)
3/6/2018	Growth	MSDp	34.8	28.5	0.7-56.3	SDS (mg/L)

Initial Water Quality and Analytical Data Summary				
Parameter	Units	Effluent	Receiving Water	Site-Specific Lab Water
Specific Conductance	umhos/cm	1046	270	123
pH	SU	6.83	6.7	7.47
Total Residual Chlorine	mg/L	<0.02	-	-
Alkalinity	mg/L	51	10	26
Hardness	mg/L	93	24	32
Total Solids	mg/L	610	-	-
Total Dissolved Solids	mg/L	570	-	-
Total Organic Carbon	mg/L	8.9	3.3	1.1
Ammonia	mg/L	<0.1	<0.1	<0.1
Aluminum, total	mg/L	0.04	0.085	<0.02
Cadmium, total	mg/L	<0.0003	<0.0003	<0.0001
Calcium, total	mg/L	26.3	7.14	6.12
Copper, total	mg/L	0.013	0.0014	0.0013
Lead, total	mg/L	0.0006	0.0005	<0.0002
Magnesium, total	mg/L	5.89	1.34	4
Nickel, total	mg/L	0.005	<0.001	<0.001
Zinc, total	mg/L	0.06	0.012	0.0026

Effluent Start Water			
Parameter	Result	Quant Limit	Units
Total Solids	610	10	mg/L
Total Dissolved Solids	570	5	mg/L
Alkalinity as CaCO3	51	2	mg/L
Total Organic Carbon	8.9	0.4	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	93	0.3	mg/L
Aluminum, total	0.04	0.02	mg/L
Cadmium, total	ND	0.0003	mg/L
Calcium, total	26.3	0.05	mg/L
Copper, total	0.013	0.0005	mg/L
Lead, total	0.0006	0.0003	mg/L
Magnesium, total	5.89	0.05	mg/L
Nickel, total	0.005	0.001	mg/L
Zinc, total	0.06	0.002	mg/L

Effluent First Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	61	2	mg/L
Total organic carbon	8.3	0.4	mg/L
Ammonia-N	0.13	0.1	mg/L as N
Hardness as CaCO3	99	0.3	mg/L
Aluminum, total	0.047	0.02	mg/L
Cadmium, total	ND	0.0003	mg/L
Calcium, total	26.8	0.05	mg/L
Copper, total	0.011	0.0005	mg/L
Lead, total	0.005	0.0003	mg/L
Magnesium, total	5.99	0.05	mg/L
Nickel, total	0.0056	0.001	mg/L
Zinc, total	0.048	0.002	mg/L

Effluent Second Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	68	2	mg/L
Total organic carbon	10.3	0.4	mg/L
Ammonia-N	1.2	0.1	mg/L as N
Hardness as CaCO3	93	0.3	mg/L
Aluminum, total	0.11	0.02	mg/L
Cadmium, total	ND	0.0003	mg/L
Calcium, total	26.7	0.05	mg/L
Copper, total	0.015	0.0005	mg/L
Lead, total	0.0008	0.0003	mg/L
Magnesium, total	5.55	0.05	mg/L
Nickel, total	0.0059	0.001	mg/L
Zinc, total	0.057	0.002	mg/L

Receiving Water Start			
Alkalinity as CaCO3	10	2	mg/L
Total Organic Carbon	3.3	0.4	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	24	0.3	mg/L
Aluminum, total	0.085	0.02	mg/L
Cadmium, total	ND	0.0003	mg/L
Calcium, total	7.14	0.05	mg/L
Copper, total	0.0014	0.0005	mg/L
Lead, total	0.0005	0.0003	mg/L
Magnesium, total	0.34	0.05	mg/L
Nickel, total	ND	0.001	mg/L
Zinc, total	0.012	0.002	mg/L

Receiving Water First Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	8.7	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	25	0.3	mg/L

Receiving Water Second Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	7.4	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	26	0.3	mg/L

SSR W-918 03/10/15			
Total solids	86	10	mg/L
Total suspended solids	ND	1	mg/L
Total dissolved solids	26	5	mg/L
Alkalinity as CaCO3	26	2	mg/L
Total Organic Carbon	1.1	0.4	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	32	0.3	mg/L
Aluminum, total	ND	0.02	mg/L
Cadmium, total	ND	0.0001	mg/L
Calcium, total	6.12	0.05	mg/L
Chromium, total	ND	0.001	mg/L
Copper, total	0.0013	0.0005	mg/L
Iron, total	ND	0.01	mg/L
Lead, total	ND	0.0002	mg/L
Magnesium, total	4	0.05	mg/L
Nickel, total	ND	0.001	mg/L
Selenium, total	0.0031	0.002	mg/L
Zinc, total	0.0026	0.002	mg/L

SSR W-918 03/10/15			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	22	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	32	0.3	mg/L

SSR W-918 03/10/15			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	22	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	30	0.3	mg/L

Organism History and Water Chemistry Record						
Species	Hatch Date	Age	Food	Temperature (Celsius)	Total Hardness (as CaCO3)	pH
P. promelas	3/12/2018		Artemia sp.	24	~100 mg/L	7.3
	Began Feeding	Life Stage		Salinity Conductivity	Total Alkalinity (as CaCO3)	
				--	~100 mg/L	

Appendix C: NPDES Reporting Data for the Easterly Wastewater Treatment Facility

Quarterly Toxicological Report

June 2018 Toxicological Report			
Acute Toxicity	Acute Toxicity	Chronic	Chronic
Ceriodaphnia dubia	Pimephales promelas	Ceriodaphnia dubia	Pimephales promelas
Meets Permit/Protocol	Meets Permit/Protocol	Meets Permit/Protocol	Meets Permit/Protocol

Summary of Reference Toxicant Data						
Date	Endpoint		Value	Historic Mean/Central Tendency	Acceptable Range	Reference Toxicant
C. dubia						
6/5/2018	Survival	LC-50	14	22.9	2.3-43.5	SDS (mg/L)
6/5/2018	Survival	C-NOEC	30	60	30-120	Copper (ug/L)
6/5/2018	Reproduction	C-NOEC	15	30	15-60	Copper (ug/L)
6/5/2018	Reproduction	MSDp	28.3	30	12.8-47.3	Copper (ug/L)
P. promelas						
6/5/2018	Survival	LC-50	37.1	34.4	24.2-44.6	SDS (mg/L)
5/1/2018	Survival	C-NOEC	10	10	5.0-20.0	SDS (mg/L)
5/1/2018	Growth	C-NOEC	10	10	20-May	SDS (mg/L)
5/1/2018	Growth	MSDp	22.1	28	0.6-55.5	SDS (mg/L)

Initial Water Quality and Analytical Data Summary				
Parameter	Units	Effluent	Receiving Water	Site-Specific Lab Water
Specific Conductance	umhos/cm	955	413	124
pH	SU	7.01	7.3	7.48
Total Residual Chlorine	mg/L	<0.02	-	-
Alkalinity	mg/L	91	21	22
Hardness	mg/L	97	42	31
Total Solids	mg/L	600	-	-
Total Dissolved Solids	mg/L	560	-	-
Total Organic Carbon	mg/L	13	3.2	0.9
Ammonia	mg/L	0.2	<0.1	<0.1
Aluminum, total	mg/L	0.082	0.06	<0.02
Cadmium, total	mg/L	<0.0003	<0.0003	<0.0001
Calcium, total	mg/L	23.1	13.5	5.89
Copper, total	mg/L	0.018	0.0025	0.0014
Lead, total	mg/L	0.001	0.0011	<0.0002
Magnesium, total	mg/L	9.43	2.15	3.76
Nickel, total	mg/L	0.0062	0.0012	<0.001
Zinc, total	mg/L	0.063	0.013	0.0028

Effluent Start Water			
Parameter	Result	Quant Limit	Units
Total Solids	600	10	mg/L
Total Dissolved Solids	560	5	mg/L
Alkalinity as CaCO3	91	2	mg/L
Total Organic Carbon	13	0.4	mg/L
Ammonia-N	0.2	0.1	mg/L as N
Hardness as CaCO3	97	0.3	mg/L
Aluminum, total	0.082	0.02	mg/L
Cadmium, total	ND	0.0003	mg/L
Calcium, total	23.1	0.05	mg/L
Copper, total	0.018	0.0005	mg/L
Lead, total	0.001	0.0003	mg/L
Magnesium, total	9.43	0.05	mg/L
Nickel, total	0.0062	0.001	mg/L
Zinc, total	0.063	0.002	mg/L

Effluent First Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	75	2	mg/L
Ammonia-N	0.26	0.1	mg/L as N
Hardness as CaCO3	100	0.3	mg/L

Effluent Second Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	90	2	mg/L
Ammonia-N	0.38	0.1	mg/L as N
Hardness as CaCO3	110	0.3	mg/L

Receiving Water Start			
Alkalinity as CaCO3	21	2	mg/L
Total Organic Carbon	3.2	0.4	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	42	0.3	mg/L
Aluminum, total	0.06	0.02	mg/L
Cadmium, total	ND	0.0003	mg/L
Calcium, total	13.5	0.05	mg/L
Copper, total	0.0025	0.0005	mg/L
Lead, total	0.0011	0.0003	mg/L
Magnesium, total	2.15	0.05	mg/L
Nickel, total	0.0012	0.001	mg/L
Zinc, total	0.013	0.002	mg/L

Receiving Water First Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	ND	2	mg/L
Ammonia-N	0.1	0.1	mg/L as N
Hardness as CaCO3	45	0.3	mg/L

Receiving Water Second Renewal			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	22	2	mg/L
Ammonia-N	0.11	0.1	mg/L as N
Hardness as CaCO3	43	0.3	mg/L

SSR W-918 03/10/15			
Total solids	100	10	mg/L
Total suspended solids	ND	1	mg/L
Total dissolved solids	73	5	mg/L
Alkalinity as CaCO3	22	2	mg/L
Total Organic Carbon	0.9	0.4	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	31	0.3	mg/L
Aluminum, total	ND	0.02	mg/L
Cadmium, total	ND	0.0001	mg/L
Calcium, total	5.89	0.05	mg/L
Chromium, total	ND	0.001	mg/L
Copper, total	0.0014	0.0005	mg/L
Iron, total	ND	0.01	mg/L
Lead, total	ND	0.0002	mg/L
Magnesium, total	3.76	0.05	mg/L
Nickel, total	ND	0.001	mg/L
Selenium, total	0.003	0.002	mg/L
Zinc, total	0.0028	0.002	mg/L

SSR W-918 03/10/15			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	23	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	31	0.3	mg/L

SSR W-918 03/10/15			
Parameter	Result	Quant Limit	Units
Alkalinity as CaCO3	23	2	mg/L
Ammonia-N	ND	0.1	mg/L as N
Hardness as CaCO3	31	0.3	mg/L

Organism History and Water Chemistry Record						
Species	Hatch Date	Age	Food	Temperature (Celsius)	Total Hardness (as CaCO3)	pH
P. promelas	6/10/2018	1 day	Artemia sp.	25	135 mg/L	7.96
	Began Feeding	Life Stage		Salinity Conductivity	Total Alkalinity (as CaCO3)	
	6/11/2018	Larvae		--	100 mg/L	

APPENDIX D

Combined Sewer Overflow Long-Term Control Plan
(Under Separate Cover)