The following document is attached under a separate cover for submittal to the Public Document Repository.

1. Process Controls Program
October 8, 2014

VIA HAND DELIVERY

Ms. Corinne Hill
Library Director
Chattanooga-Hamilton County Public Library
1001 Broad Street
Chattanooga, TN 37402

Subject: United States of America et. al. v. City of Chattanooga, No. 1:12-cv-00245
Consent Decree Public Document Repository
Process Controls Program (PCP)

Dear Ms. Hill:

On behalf of the City of Chattanooga, Tennessee (“City”), and in accordance with the consent decree entered by the United States District Court for the Eastern District of Tennessee (Southern Division), on April 24, 2013, in the case styled the United States of America et. al. v. City of Chattanooga, No. 1:12-cv-00245 (“Consent Decree”), we are providing the Chattanooga-Hamilton County Public Library with the Process Controls Program (“PCP”) for submission to the City’s Public Document Repository (“PDR”). The purpose of the PCP is to establish a program designed to minimize the frequency, duration and volume of any wet weather discharge and violation of an applicable National Pollutant Discharge Elimination System (“NPDES”) permit condition for the Moccasin Bend Wastewater Treatment Plant (“MBWWTP”).

We are providing a copy of the PCP to the PDR for public review and comment, prior to final submission of the PCP to the EPA and the State of Tennessee. Thus, we ask that you make this document available to the public for review for thirty (30) days. The public can provide comments to the City by sending comments to the following address:

City of Chattanooga: Waste Resources Divisions
RE: Consent Decree Public Comments
c/o Jacobs Engineering Group
4510 Turntable Road, Suite 110
Chattanooga, TN 37421
Ms. Corrine Hill  
October 8, 2014  
Page Two

An electronic copy of this document is also available for review and comment on the City's Consent Decree website at the following location:


We look forward to receiving comments from the public on this important document.

Sincerely,

Alice L. Cannella, P.E.  
Director, Waste Resources Division

Enclosure

cc:  Donald L. Norris, Administrator, Public Works, City of Chattanooga  
     Mike Marino, PE, Jacobs  
     Adam Sowitzka, King & Spalding
Process Controls Program

Prepared for

United States Environmental Protection Agency and Tennessee Department of Environment and Conservation

City of Chattanooga
Waste Resources Division
Consent Decree Program
Case No. 1:12-cv-00245

Prepared by

CDM Smith Inc.

Submitted by

Jacobs Engineering Group, Inc.
Consent Decree Program Manager

Chattanooga, Tennessee

October 10, 2014
# Contents

1.0   **Introduction** ................................................................................................................. 1  
1.1   Purpose .............................................................................................................................. 1  
1.2   MBWWTP Overview .......................................................................................................... 1  
1.3   Description of the Wastewater Collection and Transmission System ......................... 2  
1.4   PCP Goals ......................................................................................................................... 2  
1.5   NPDES Permit Overview ................................................................................................. 3  
1.5.1  General ............................................................................................................................ 3  
1.5.2  Effluent Limits ............................................................................................................... 3  
1.5.3  Overflow and Bypass ..................................................................................................... 4  
1.6   Wet-Weather Operational Issues ...................................................................................... 5  

2.0   **PCP Rationale** ............................................................................................................. 8  
2.1   Hydraulic, Process Treatment, and Operational Assessment ......................................... 8  
2.1.1  Hydraulic Capacities ...................................................................................................... 8  
2.1.2  Process Treatment Capacities ....................................................................................... 8  
2.1.3  Process and Hydraulic Controls Operability ................................................................ 9  
2.2   Flow Regimes .................................................................................................................... 10  
2.3   PCP Flowchart .................................................................................................................. 11  
2.4   Laboratory and Online Instrumentation Data .................................................................. 11  

3.0   **PCP Checklist** ............................................................................................................ 12  

4.0   **Staffing** ....................................................................................................................... 13  
4.1   Staffing Overview ............................................................................................................. 13  
4.2   PCP Impact on Staffing .................................................................................................... 14  
4.3   Training ............................................................................................................................. 14  

5.0   **Data Management and Recordkeeping** ..................................................................... 15  
5.1   Data Management .......................................................................................................... 15  
5.2   Semi-Annual Evaluations ............................................................................................... 15  

6.0   **PCP Update Plan** ....................................................................................................... 16
Appendices
A  Wet-Weather Checklist
B  Waste Resources Division Organizational Chart

Tables
1-1  Summary of NPDES Permit Maximum Seasonal Average Daily Flows............................3
1-2  Summary of NPDES Permit Effluent Limits .....................................................................3
2-1  Flow Conditions Dictating PCP Actions .........................................................................10

Figures
1-1  Simplified Flow and Maximum Sustainable Capacity Schematic
2-1  Flow Conditions Dictating PCP Actions
2-2  Process Controls Program Flowchart
2-3  Equalization Flow Schematic
2-4  Relationships Between Flow, Basin Level, and Remaining Storage
## Acronyms and Abbreviations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBOD$_5$</td>
<td>5-Day Carbonaceous Biological Oxygen Demand</td>
</tr>
<tr>
<td>City</td>
<td>City of Chattanooga</td>
</tr>
<tr>
<td>CSOTF</td>
<td>Combined Sewer Overflow Treatment Facility</td>
</tr>
<tr>
<td>EPA</td>
<td>U.S. Environmental Protection Agency (Region 4)</td>
</tr>
<tr>
<td>EQ</td>
<td>Equalization</td>
</tr>
<tr>
<td>ft</td>
<td>Feet</td>
</tr>
<tr>
<td>hr</td>
<td>Hour</td>
</tr>
<tr>
<td>in</td>
<td>Inches</td>
</tr>
<tr>
<td>MBWWTP</td>
<td>Moccasin Bend Wastewater Treatment Plant</td>
</tr>
<tr>
<td>mgd</td>
<td>Million Gallons Per Day</td>
</tr>
<tr>
<td>mg/L</td>
<td>Milligrams Per Liter</td>
</tr>
<tr>
<td>MLSS</td>
<td>Mixed Liquor Suspended Solids</td>
</tr>
<tr>
<td>N/A</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>NH$_3$-N</td>
<td>Ammonia Nitrogen</td>
</tr>
<tr>
<td>NPDES</td>
<td>National Pollutant Discharge Elimination System</td>
</tr>
<tr>
<td>PCP</td>
<td>Process Controls Program</td>
</tr>
<tr>
<td>PS</td>
<td>Pump Station</td>
</tr>
<tr>
<td>RAS</td>
<td>Return Activated Sludge</td>
</tr>
<tr>
<td>SCADA</td>
<td>Supervisory Control and Data Acquisition System</td>
</tr>
<tr>
<td>SSO</td>
<td>Sanitary Sewer Overflow</td>
</tr>
<tr>
<td>TDEC</td>
<td>Tennessee Department of Environment and Conservation</td>
</tr>
<tr>
<td>TSS</td>
<td>Total Suspended Solids</td>
</tr>
<tr>
<td>UNOX</td>
<td>Oxygen Activated Sludge Process</td>
</tr>
<tr>
<td>WAS</td>
<td>Waste Activated Sludge</td>
</tr>
<tr>
<td>WRD</td>
<td>Waste Resources Division</td>
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</table>
1.0 Introduction

1.1 Purpose

On April 24, 2013, the City of Chattanooga (City) entered into a consent decree with the United States and the State of Tennessee, in the case styled United States of America et. al. v. City of Chattanooga, No. 1:12-cv-00245 (“CD”). The City’s Waste Resources Division (WRD) has prepared a Process Controls Program (PCP) for the Moccasin Bend Wastewater Treatment Plant (MBWWTP) for review and approval by the United States Environmental Protection Agency (EPA) and the Tennessee Department of Environment and Conservation (TDEC), as a condition (paragraph 25) of the CD.

The purpose of this PCP is to establish a program designed to minimize the frequency, duration, and volume of wet-weather discharges; the frequency, duration, and volume of overflows and bypasses; and comply with an applicable National Pollutant Discharge Elimination System (NPDES) permit condition for the MBWWTP. This document presents the developed PCP and the associated management, operation, and maintenance controls established as part of the PCP.

1.2 MBWWTP Overview

The MBWWTP treats wastewater generated in the Chattanooga metropolitan area that includes both separate sanitary sewer service areas and combined sewer service areas. The plant provides full secondary treatment and disinfection for dry-weather and a portion of wet-weather flows, and it provides the equivalent of primary treatment and disinfection of excess wet-weather flows. Treated flows are discharged through Outfall 001 which, along with other offsite outfalls, are covered by NPDES Permit No. TN0024210 (effective from December 1, 2013 to December 31, 2014).

A simplified schematic of the liquids treatment train is provided in Figure 1-1 along with maximum sustained operational capacities. Hydraulic and operational capacities are discussed further in Section 2. Figure 1-1 also shows flow measurement and on-line monitoring locations, as well as sidestreams.

Planned upgrades that will enhance process train capacity and treatment performance include:

- A plant headworks upgrade,
- The addition of two secondary clarifiers, and
- An additional chlorine contact basin.

These upgrades may impact plant operations during construction, and the PCP standard operating procedures will need to be revised to address the operation of these facilities once they are complete.
Figure 1-1
Simplified Flow and Maximum Sustainable Capacity Schematic
Process Controls Program for the MBWWTP
1.3 Description of the Wastewater Collection and Transmission System

As a regional wastewater utility, the City, a Municipal Corporation, owns, operates, maintains, and manages a network of pipes, manholes, pump stations, force mains, combined sewer overflow treatment facilities (CSOTFs), and associated appurtenances that transport wastewater from homes, businesses, and industries to the MBWWTP. All of this infrastructure is part of the Wastewater Collection and Transmission System (WCTS), as defined in the CD and herein. Property owners own the private service laterals from the served residential, commercial, and industrial structures to the public main line in the street or right-of-way, including the connection.

The City’s WCTS currently serves approximately 170,000 people with approximately 61,000 customers within the City including 80 permitted industries. It also provides treatment for eight (8) regional or satellite users comprised of approximately 25,000 customers. The WCTS is composed of:

- 1,263 miles of gravity sewers (approximate), including 70 miles of combined sewers;
- 30,000 manholes (approximate);
- 70 pump stations;
- 53 miles of force main;
- Eight (8) CSOTFs;
- One (1) Combined Sewer Storage Facility;
- 192 (approximate) residential/grinder pumps; and
- One (1) Moccasin Bend WWTP

An organizational chart for the WRD is provided in Appendix B.

1.4 PCP Goals

The goals of the PCP for the MBWWTP are to:

1. Achieve consistency in wet-weather plant operations and related decision-making using appropriate data and recordkeeping.
2. Maximize flow through the plant to minimize the frequency and volume of overflows upstream from the plant, including other outfalls covered by the NPDES permit, and other system overflows.
3. Maximize the amount of flow that receives full secondary treatment and disinfection prior to discharge through Outfall 001.
4. Meet NPDES permit conditions for plant operations and for all flows discharged through Outfall 001.
1. Provide sufficient staffing during wet-weather conditions to consistently implement the PCP and to meet the plant performance goals.

1.5 NPDES Permit Overview

1.5.1 General

The current NPDES permit provides seasonal limits for conventional pollutants (carbonaceous oxygen demand, total suspended solids, and ammonia-nitrogen) for Outfall 001. Average daily flows applicable to this outfall have been established for the purpose of establishing loadings, as indicated in Table 1-1. These flows, along with the monthly concentration limits, are used to establish maximum monthly mass loading limits and residual chlorine concentration limits. These maximum daily average flows include base dry-weather flows and a significant wet-weather flow component (average dry-weather flows are currently less than 70 million gallons per day [mgd]).

Table 1-1
Summary of NPDES Permit Maximum Seasonal Average Daily Flows

<table>
<thead>
<tr>
<th>Period</th>
<th>Maximum Average Daily Flows (mgd)</th>
</tr>
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<tbody>
<tr>
<td>November 1 through April 30</td>
<td>140</td>
</tr>
<tr>
<td>May 1-31 and September 1-30</td>
<td>130</td>
</tr>
<tr>
<td>June 1 through August 31</td>
<td>100</td>
</tr>
<tr>
<td>October 1-31</td>
<td>114</td>
</tr>
</tbody>
</table>

1.5.2 Effluent Limits

Effluent concentration limits for critical parameters, along with minimum percent removal requirements, are the same for all seasonal periods. These requirements are summarized in Table 1-2.

Table 1-2
Summary of NPDES Permit Effluent Limits

<table>
<thead>
<tr>
<th>Limit Category</th>
<th>CBOD$_5$</th>
<th>NH$_3$-N</th>
<th>TSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly Average Concentration (mg/L)</td>
<td>25</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>Weekly Average Concentration (mg/L)</td>
<td>35</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>Daily Maximum Concentration (mg/L)</td>
<td>40*</td>
<td>30*</td>
<td>45*</td>
</tr>
<tr>
<td>Daily Minimum Percent Removal (%)</td>
<td>40*</td>
<td>--</td>
<td>40*</td>
</tr>
<tr>
<td>Minimum Monthly Average Removal (%)</td>
<td>79</td>
<td>--</td>
<td>80</td>
</tr>
</tbody>
</table>

* These limits do not apply for flows above the maximum seasonal average daily flow (Table 1-1).
1.5.3 Overflow and Bypass

Other relevant portions of the NPDES permit that impact the PCP address Overflow and Bypass conditions. Excerpts from the permit are provided below:

2.3.3 Overflow

a. "Overflow" means any release of sewage from any portion of the collection, transmission, or treatment system other than through permitted outfalls. The West Bank CS Outfall is an overflow from the designed hydraulic relief point in the combined sewer system.

b. Overflows are prohibited.

c. The permittee shall operate the collection system so as to avoid overflows. No new or additional flows shall be added upstream of any point in the collection system, which experiences chronic overflows (greater than 5 events per year) or would otherwise overload any portion of the system.

d. Unless there is specific enforcement action to the contrary, the permittee is relieved of this requirement after: 1) an authorized representative of the Commissioner of the Department of Environment and Conservation has approved an engineering report and construction plans and specifications prepared in accordance with accepted engineering practices for correction of the problem; 2) the correction work is underway; and 3) the cumulative, peak-design, flows potentially added from new connections and line extensions upstream of any chronic overflow point are less than or proportional to the amount of inflow and infiltration removal documented upstream of that point. The inflow and infiltration reduction must be measured by the permittee using practices that are customary in the environmental engineering field and reported in an attachment to a Monthly Operating Report submitted to the local TDEC Environmental Field Office. The data measurement period shall be sufficient to account for seasonal rainfall patterns and seasonal groundwater table elevations.

e. In the event that more than 5 overflows have occurred from a single point in the collection system for reasons that may not warrant the self-imposed moratorium or completion of the actions identified in this paragraph, the permittee may request a meeting with the Division of Water Resources EFO staff to petition for a waiver based on mitigating evidence.

2.3.6 Bypass

a. “Bypass” is the intentional diversion of wastewater away from any portion of a treatment facility other than through peak excess flow treatment facilities or permitted outfalls in accordance with both the long-term control plan and the nine minimum technology-based effluent controls for combined sewer systems. “Severe property damage” means substantial physical damage to property, damage to the treatment facilities that would cause them to become inoperable or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence
of a bypass. Severe property damage does not mean economic loss caused by delays in production.

b. Bypasses are prohibited unless all of the following three conditions are met:

i. The bypass is unavoidable to prevent loss of life, personal injury, or severe property damage;

ii. There are no feasible alternatives to bypass, such as the construction and use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass, which occurred during normal periods of equipment downtime or preventative maintenance;

iii. The permittee submits notice of an unanticipated bypass to the Division of Water Resources in the appropriate Environmental Field Office within 24 hours of becoming aware of the bypass (if this information is provided orally, a written submission must be provided within five days). When the need for the bypass is foreseeable, prior notification shall be submitted to the director, if possible, at least 10 days before the date of the bypass.

c. Bypasses not exceeding permit limitations are allowed only if the bypass is necessary for essential maintenance to assure efficient operation. All other bypasses are prohibited. Allowable bypasses not exceeding limitations are not subject to the reporting requirements of 2.3.6.b.iii, above.

Per the permit definition, the outfalls at East Bank and West Bank are considered overflows. Bypasses are rare and limited to intentional diversions not through a peak excess flow treatment facility or permitted outfall. When wet-weather events result in large increases in incoming flow to the MBWWTP, a portion of total incoming plant flow will occasionally be routed through a peak excess flow treatment facility (referred to as the wet-weather treatment system) and diverted away from equalization. Under these conditions, the diverted flow does not receive secondary treatment through the oxygen activated sludge process (referred to as a UNOX system in this document) and the secondary clarifiers. This flow is disinfected, combined with disinfected secondary treatment effluent prior to discharge, and is subject to NPDES permit effluent limits. Diverting flow away from equalization and secondary treatment is not a bypass per the NPDES permit definition and is referred to as a wet-weather discharge in the remainder of this document.

1.6 Wet-Weather Operational Issues

Under normal dry-weather conditions, flows are typically less than 75 mgd, the MBWWTP has more than adequate capacity to meet NPDES permit conditions. Under these conditions, and particularly during the dry season (e.g., summer), some UNOX basins are removed from service to reduce nitrite production and associated chlorine use for disinfection.

Prior to and during wet-weather conditions, when plant influent flows can rise rapidly, the following strategies currently used to accommodate the high flows include:
Initial Preparation
1. Wet-weather clarifiers are emptied.
2. Equalization basins are partially emptied.
3. All process units are confirmed available for service.

Headworks Adjustments
1. As flow rises above 80 mgd, hydraulic controls are adjusted to provide sufficient influent pumping, screening, and grit removal capacity for flows up to 205 mgd (does not include sidestreams). This total flow is based on the sustained operational capacity, which is discussed further in Section 2.

UNOX Basins
1. Additional UNOX basins are brought on line to achieve capacity of up to 135 mgd (sustained operational capacity).

Wet-Weather Treatment
1. Wet-weather treatment is brought on line when the relief pump station wet well reaches 6.2 feet (influent flow of approximately 120 mgd, which is the sustained operational capacity of the preliminary treatment system).

Wet-Weather Discharge Initiation
1. Wet-weather discharge and chlorine feed to wet-weather discharge flow are initiated once wet-weather clarifiers and equalization basins are nearly full.

Wet-Weather Discharge Closure and Return to Normal Operations
1. Wet-weather discharge and chlorine feed are stopped once flow drops below UNOX capacity.
2. As flows continue to drop, wet-weather treatment is taken out of service and headworks operation is returned to normal.

The PCP checklist introduced in Section 3 formalizes and enhances these activities to achieve the goals of the PCP. Wet-weather operational issues that have been reported and/or observed are summarized below.

1. The hydraulic capacity of the screening and grit removal facilities is adversely impacted during rapid flow increases and associated first flush of debris. This can result in an overflow of a plant structure or through one of the offsite outfalls. A plant upgrade to address this problem is currently underway.

2. Rapid flow increases can result in filling the equalization basins and/or prematurely using available storage prior to the UNOX system achieving full capacity. However, full capacity of flow through UNOX cannot be achieved until the equalization basin levels reach approximately 13 feet and provide sufficient head. Once equalization is nearly full and flows exceed the pumping rate to UNOX, the wet-weather discharge process is initiated.
1. When the equalization basin levels rise above 15 feet, this causes water to back up over the primary clarifier weirs at higher flows. High basin levels also reduce the pumping capacity of the influent pump station pumps due to increased back pressure.

2. The secondary clarifiers are adversely impacted during rapid flow increases, resulting in submergence of the effluent weirs. Two additional clarifiers are planned to address this issue.

3. Chlorination of flow in the wet-weather treatment facility discharge pipe does not provide sufficient contact time at peak flows. An additional contact basin for wet-weather discharge flow is planned to address this issue.

4. Treatment performance occasionally results in effluent violations.

These operational issues and the current approach to wet-weather operation are addressed in the remainder of the PCP. Opportunities for improvement exist and have been incorporated into the PCP flowchart and checklist to help achieve the PCP objectives.
2.0 PCP Rationale

2.1 Hydraulic, Process Treatment, and Operational Assessment

Developing the rationale for the PCP requires an evaluation of existing facilities and conditions related to the following limiting factors:

- Hydraulic Capacities
- Process Treatment Capacities
- Process and Hydraulic Controls Operability

Previous studies, site visits and observation of operations, communication with plant staff, and analyses of existing facilities were used to establish baseline operating conditions to achieve consistent, reliable plant performance under wet-weather conditions. Each limiting factor is further addressed below. The analysis presented in this section is based on current conditions. As mentioned in Section 1.2, upgrades are currently planned or already being designed that will improve hydraulic and process treatment capacities.

2.1.1 Hydraulic Capacities

A hydraulic analysis of the MBWWTP was recently completed and is summarized in the Moccasin Bend WWTP Hydraulic Profile Model Report (Hazen and Sawyer, March 2014). As reported by Hazen and Sawyer, and not factoring in process treatment capacities or operational/maintenance issues, the plant should be able to pass a total influent flow of 220 mgd along with an additional 10 mgd of sidestreams through primary treatment. The hydraulic limitations for primary treatment are 140 mgd for the influent pump station and 90 mgd for the influent relief pump station. Hazen and Sawyer reports that 124 mgd can be passed through secondary treatment, not including Return Activated Sludge (RAS) flow, without experiencing hydraulic issues. The hydraulic capacity of the secondary treatment system is limited by the secondary clarifiers.

2.1.2 Process Treatment Capacities

The secondary treatment process was evaluated by CDM Smith at the maximum permitted average daily flow condition of 140 mgd. The analysis indicates that there should be no process performance problems under the peak hydraulic capacity of the system, even if the entire 140 mgd was dry-weather influent flow. The average day secondary treatment capacity is approximately the same as the secondary treatment hydraulic capacity. Therefore, secondary treatment capacity (and disinfection) is hydraulically limited. Maximizing use of UNOX prior to a wet-weather discharge is a challenge due to plant operability as described below.
2.1.3 Process and Hydraulic Controls Operability

Based on observations of plant operations, discussions with plant staff, and review of plant operations documents, the following operability issues were identified:

- Blinding of the fine screens during wet-weather flows can reduce the sustained operational capacity of the preliminary treatment system to 120 mgd (not including sidestreams).
- Manual control of headworks gates, valves, and process equipment is time consuming, cumbersome, and requires experience to understand the impact of actions on capacity and performance. This can result in spillage from channels or structures, or cause a discharge from one of the outfalls.
- Ramping up the UNOX flow too quickly can result in turnover of solids in the secondary clarifiers. However, if UNOX cannot be ramped up at a rate similar to influent flow increases, storage in the wet-weather clarifiers and equalization basins will be used prematurely, and on rare occasions, flow through UNOX and secondary treatment will not be maximized prior to a wet-weather discharge.
- The flow split to the secondary clarifier banks at high flow conditions can cause hydraulic problems (spillage) and uneven flow splits, which adversely impact clarifier performance.
- While rated for 90 mgd, the influent relief pump station pumps can pump a maximum of 85 mgd.
- The water levels in the equalization basins have a direct impact on both influent pump station capacity as well as the capacity of the equalization pump station. The lower the level in the basins, the more flow can be pumped through the influent pump station. Conversely, low levels in the basins limit the total capacity of the equalization pump station pumps.
  - Approximately 134 mgd can be pumped through the influent pump station when basin levels are 11 feet or less and assuming no blinding of the fine screens. This total drops to approximately 115 mgd when basin levels reach 15 feet.
  - Maximum flow of 135 mgd through the equalization pump station cannot be achieved until equalization basins levels reach at least 13 feet.

Factoring in both hydraulic and process capacities, and as shown on Figure 1-1, the plant should be able to pass a maximum influent flow of 219 mgd along with an additional 10 mgd of sidestreams. This maximum is prior to a wet-weather discharge and is dependent on the following:

- The volume of water in the equalization basins being 11 feet or less.
- The sustainable capacity (85 mgd) of the influent relief pump station.
- Whether blinding of the fine screens has occurred.

Once the equalization basin levels are full (15 feet) and/or blinding of the fine screens has occurred, the maximum influent flow that can be moved through the plant is approximately 200 mgd (85 mgd [capacity of the influent relief pump station] + 115 mgd [capacity of the influent
pump station]. Flows above 200 mgd (not including sidestreams) directly impact whether overflows occur at East Bank and West Bank.

The need to discharge wet-weather flow without secondary treatment and the timing of a wet-weather discharge are controlled by a separate set of criteria, specifically:

- The sustainable capacity (135 mgd) for the UNOX and secondary treatment systems;
- The rate at which the UNOX system can be ramped up from normal, dry-weather operation relative to influent flow increases; and
- The available storage within the plant and whether this storage fills prior to the end of a wet-weather event.

To maximize flow through the plant and avoid unnecessary wet-weather discharges and overflows at East Bank and West Bank, it is critical to maximize flow through the UNOX and secondary treatment systems. The quicker flow is ramped up to the UNOX system, the more available storage within the plant can be reserved for wet-weather treatment system effluent, thus extending the time before a wet-weather discharge or overflow occurs.

Available storage within the equalization basins is currently limited to approximately 46.9 million gallons. This total is based on a minimum level of 5 feet to ensure submergence of the air diffusers and a maximum level of 15 feet, which is the level when flow will back up over the primary clarifier weirs.

### 2.2 Flow Regimes

As summarized here in **Table 2-1** and graphically presented in **Figure 2-1**, the rationale for maximizing flow through the plant is based on incoming flow conditions.

**Table 2-1**

Flow Conditions Dictating PCP Actions

<table>
<thead>
<tr>
<th>Flow</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 75 mgd</td>
<td>Normal, dry-weather flow operation with both primary and secondary treatment</td>
</tr>
</tbody>
</table>
| Between 75 and 125 mgd | Activities completed in preparation for wet-weather treatment and flow maximization, including ramp up for the UNOX system  
                          Flow is initiated to the wet-weather system around 120 mgd |
| Greater than 125 mgd | Flow through the preliminary, primary, and secondary systems has been maximized  
                          The need to discharge wet-weather flow without secondary treatment depends on whether available storage fills up prior to flows dropping back below 125 mgd |

This table and Figure 2-1 are based on the maximum sustained capacities discussed previously. If these capacities cannot be achieved due to equipment being out of service or other operational issues, the logic is the same but the flow numbers will be different.
Notes:
Flows are total influent plant flow, not including sidestreams

The maximum flow through the plant range of 200 - 219 mgd is dependent on EQ basin levels (when above 11 feet, these limit the influent pump station capacity) and whether the fine screens have blinded (when blinded, the preliminary treatment system capacity is reduced).

The need to initiate a wet-weather discharge is dependent on the maximum observed flow, the duration of higher flows, and the ability to maximize flow through UNOX and the secondary system prior to using EQ storage. The duration of a wet-weather discharge is based on how long after the discharge is initiated before flows drop back below the sustained capacity of the UNOX and secondary systems.
Management of flow expectations is addressed as part of the PCP Wet-Weather Checklist presented in Section 3.

2.3 PCP Flowchart

The flowchart presented in Figure 2-2 provides the basis for a detailed PCP checklist to guide operational readiness and operational decisions during wet-weather conditions. The junction boxes, valves, and gates referenced in the flowchart are shown on the schematic in Figure 2-3. Figure 2-4 presents the relationship between plant flows and time remaining to fill the equalization basins.

2.4 Laboratory and Online Instrumentation Data

Considering that the need to discharge wet-weather flow without secondary treatment and the overflows at East Bank and West Bank are controlled in large part by the hydraulic capacities of the plant, the most critical data for PCP decision making are flows and equalization basin levels. These data are available through instrumentation already installed and monitored through the Supervisory Control and Data Acquisition System (SCADA). Laboratory data are not as critical except with respect to verifying chlorine residual for the wet-weather disinfection system prior to a wet-weather discharge.

Figure 1-1 and the PCP Wet-Weather Checklist introduced in Section 3 include specific instrument IDs and trigger levels that will be used to support the PCP and associated decisions. The checklist also includes recording/verifying critical laboratory data. The following laboratory and online instrument data are critical to the PCP:

- Influent pump station flow
- Influent relief pump station flow
- UNOX system flow
- Equalization basin levels
- Mixed liquor suspended solids (MLSS) concentrations
- Wet-weather chlorine residual prior to wet-weather discharge

The MBWWTP operators currently obtain one daily MLSS concentration, which is measured by collecting a grab sample and analyzing at an onsite laboratory. Results are typically received back within 24 to 48 hours. Considering the rapid rate at which incoming plant flow can increase and the delay in receipt of MLSS concentrations, going forward biomass levels during a wet-weather event will be monitored using online TSS measurements.
**Figure 2-2**
**Process Controls Program Flowchart**

**Process Controls Program for the MBWWTP**

**General Criteria**
This flowchart deals with maximizing flow through the Moccasin Bend Wastewater Treatment Plant (MBWWTP). The following criteria, listed in order of priority, guide how this process is governed:

1. Overflows from the East and West Bank outfalls are minimized to the greatest extent possible.
2. Flow through secondary treatment is maximized to the extent possible before a wet-weather discharge occurs.
3. The use of available storage in the equalization basins is limited until both the primary and secondary systems are at full capacity.
4. Conditions that could result in NPDES effluent limit exceedances are avoided.

**Note**: NPDES daily maximum concentrations and daily minimum percent removal limits for CBOD₅, NH₃–N, and TSS do not apply when maximum seasonal average daily flows are exceeded. Refer to Tables 1-1 and 1-2.

**Maximum Sustainable MBWWTP Capacities**

<table>
<thead>
<tr>
<th>Process</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influent Pump Station</td>
<td>115 – 134 mgd</td>
</tr>
<tr>
<td>Influent Relief Pump Station</td>
<td>85 mgd</td>
</tr>
<tr>
<td>Preliminary / Primary Treatment System</td>
<td>120 – 134 mgd</td>
</tr>
<tr>
<td>Additional Sidestream Through Primary</td>
<td>10 mgd</td>
</tr>
<tr>
<td>UNOX &amp; Secondary Treatment Systems</td>
<td>135 mgd</td>
</tr>
<tr>
<td>Wet-Weather Treatment System</td>
<td>85 mgd</td>
</tr>
</tbody>
</table>

The flowchart is based on these capacities and, as noted on the PCP checklist, adjustments will need to be made if any system is not at full capacity.

**Footnotes:**
(1) Dependent on EQ basin levels
(2) Dependent on whether the fine screens have blinded
(3) Only if necessary to prevent flow from backing up over the primary clarifier weirs or overflows within the plant (approval required)

Refer to Figure 2-3 for junction box, valve, and gate locations

**Referenced Figures**
- Figure 2-3 for junction box, valve, and gate locations
- Figure 2-4 for reference on flow, basin level, and fill time relationships.

**Influent Flow Between 75 and 125 mgd**
- Confirm status of all critical wet-weather equipment and perform readiness checks
- Establish process treatment capacities
- Bring any UNOX basins out of service online when rainfall and/or influent flow increases are imminent
- Due to the capacity of the EQ bypass line, direct flow to either EQ Basin 1 or EQ Basin 2 around 80 mgd
- Flow is opened to Communitor #6 around 90 mgd
- UNOX flow is ramped up as quickly as possible without adversely affecting biomass levels or secondary clarifier performance
- Flow is initiated to the wet-weather system when the relief pump station wet well reaches 6.2 feet (approximately 120 mgd)

**Influent Flow Greater than 125 mgd**
- Flow through the primary and secondary treatment systems has been maximized
- Equalization basins are filling
- The levels and flows between EQ basins are equalized through gate and valve adjustments
- When both EQ basins reach approximately 12.5 feet, wet-weather discharge steps are initiated

**Influent Flow Decreases and is Sustained Below Secondary Treatment Capacity**
- Wet-weather discharge is stopped:
  - MOG-8 is closed
  - Chlorine injection ceased
  - MOG-4 is closed
  - M315 and M316 are opened
  - EQ-A valves are adjusted to bypass

**Wet-Weather Discharge**
- Approval of the Liquids Handling Operation Supervisor (or higher) shall be obtained
- Junction Box EQ-A bypass valve is closed
- Chlorine injection is initiated for the wet-weather system effluent
- Chlorine residual reaches 3 ppm AND both EQ basin levels have reached at least 15 feet

**Preparation for Next Event**
Immediately following a wet-weather event, and in preparation for the next event, the plant should be returned to normal operation with available storage within the plant maximized. Preparation shall include:

1. Emptying the three wet-weather clarifiers (approximately 5 million gallons of total storage when empty).
2. Draining the equalization basins down to 5 feet (up to 46.9 million gallons of available storage assuming an operating level of 5 to 15 feet per basin).
3. Completing maintenance for items expected to last more than one day during the dry season and when rain is not expected in the 5-day forecast.

**Warning:**
Sufficient time shall be allowed for wet-weather chlorination without risk of a basin overflow. However, note that 1 foot in both basins equates to approximately 4 million gallons of total storage (2 million gallons per basin), or 3 hours of storage when incoming plant flow (including sidestreams) is 150 mgd and flow through secondary is 120 mgd. Refer to Figure 2-4 for reference on flow, basin level, and fill time relationships.

**Footnotes:**
(1) Dependent on EQ basin levels
(2) Dependent on whether the fine screens have blinded
(3) Only if necessary to prevent flow from backing up over the primary clarifier weirs or overflows within the plant (approval required)
EQ Basin 2

EQ Basin 1

From Primary Clarifiers

Chlorine Injection

EQ Bypass Line

MOG-6

MOG-7

EQ-A

NEW OUTFALL

New Outfall Old Outfall

UNOX

From Chlorine Contact Tanks

EQ Pump Station

MOG-8

From EQ-B Thickener Overflow

To / From EQ Basin 1

To / From EQ Basin 2

To EQ Basin 1

To EQ Basin 2

M-313

M-315

M-317

M-318

M-316

M-314

Pump #1

Pump #2

Pump #3

Pump #4

To Uinox

Insert for EQ Pump Station

Typical Valve Operation

Valve Dry Weather Wet-Weather Discharge

1 Closed Open

2 Closed Open

3 Open Closed

A Closed Closed

B Closed Closed

MOG-4 Closed Open (25%)

MOG-6 Open Open

MOG-7 Open Open

MOG-8 Closed Open

* Wet-weather discharge occurs when EQ basin storage is full and incoming plant flow exceeds the capacity of the secondary treatment system.

Insert for EQ Pump Station

Typical Gate Operation

Gate Dry Weather Wet-Weather Discharge

M-311 Open Open

M-312 Open Open

M-313 Open Open

M-314 Closed Closed

M-315 Open Closed

M-316 Open Closed

M-317 Open Open

M-318 Open Open

M-319 Open Open

* Wet-weather discharge occurs when EQ basin storage is full and incoming plant flow exceeds the capacity of the secondary treatment system.
Notes:
"Time Until Storage is Full" includes both basins.
Storage is considered full at a level of 15 feet in each basin.

\[
t = \frac{813.41 - 0.000958* h^3 - 0.386* h^2 - 48.2* h}{I - U} \times 2 \text{ basins}
\]
where:
- \(t\) = remaining time in hours
- \(h\) = basin level in feet
- \(I\) = incoming plant flow in mgd
- \(U\) = flow through UNOX in mgd

---

Figure 2-4
Relationships Between Flow, Basin Level, and Remaining Storage
Process Controls Program for the MBWWTP

Each line corresponds to the difference between incoming plant flow and flow through UNOX. For example, if incoming flow is 150 mgd and flow through UNOX is 120 mgd, use the 30 mgd line.
3.0 PCP Checklist

The primary operations tool of the PCP is the detailed checklist that will be used during wet-weather events to guide decisions regarding plant operation, document decisions and plant conditions, and assess actions taken to determine what future improvements should be made to the program. The detailed Wet-Weather Checklist for the MBWWTP is presented in Appendix A. The primary goals of the checklist are to achieve consistency in:

- Preparing the plant to receive wet-weather flows;
- Maximizing flow through the plant headworks and secondary treatment system;
- Ramping UNOX up to hydraulic capacity as quickly as possible without adversely affecting biomass levels or final clarifier performance;
- Optimizing the use of available storage;
- Making decisions regarding plant operation during a wet-weather event;
- Documenting critical data and process control decisions; and
- Evaluating plant operation improvements following each event.

The checklist shall be completed by plant staff for all wet-weather events, regardless of whether a wet-weather discharge occurs or not. For the purposes of this PCP, a wet-weather event is defined as any precipitation event that results in an increase of incoming flow to the plant above 75 mgd and necessitates operational adjustments (e.g., UNOX ramp up) in preparations for wet-weather flows.
4.0 Staffing

4.1 Staffing Overview

The MBWWTP operates two, 12-hours shifts per day with shift changes at 7:00 AM and 7:00 PM. Each shift includes five dedicated operators:

1. Chief Operator
   a. Oversees all operations and makes final decisions on his or her shift.
   b. Can perform all other operator duties identified below and will support these positions as necessary.

2. Control Room Operator (also referred to as Operator 3)
   a. Monitors the SCADA system in the Control Room, including various data screens, plant conditions, pump status, etc.
   b. Enters data from logs, notes, etc. into electronic data management systems.
   c. Monitors plant cameras.
   d. Receives / makes calls after hours.
   e. Supports the oxygen plant operator as necessary.

3. Plant Operator 1
   a. Monitors the primary and wet-weather treatment systems. This includes the Influent Building, Influent Relief Station, and Detritor area.
   b. Collects various grab samples for analysis.
   c. Measures blanket levels for the primary clarifiers.
   d. Monitors and adjusts the chemical feed system for the wet-weather treatment process.

4. Plant Operator 2
   a. Monitors the secondary treatment system, including secondary clarifiers 1 through 4 and the chlorination system.
   b. Measures blanket levels for secondary clarifiers 1 through 4.
   c. Collects various grab samples and performs tests, including chlorine residual (during wet weather), TSS, settling tests, bug counts, and pH.

5. Oxygen Plant Operator
   a. Monitors operation of the oxygen plant, equalization basins, equalization pump station, UNOX system, and secondary clarifiers 5 through 14.
   b. Measures blanket levels for secondary clarifiers 5 through 14.
c. Collect various measurements, including dissolved oxygen, temperatures, and basin levels.
d. Adjusts Waste Activated Sludge (WAS) and RAS pumping rates.
e. Operates the equalization bypass valves and MOG-8 during wet-weather events.

In addition to these five operators, the day shift will typically include the Liquids Handling Operation Supervisor, Solids Handling Operation Supervisor, Plant Manager, Deputy Director, and Director. These staff members are available to support operations as needed and assist with decision making during wet-weather events.

4.2 PCP Impact on Staffing

The current staffing level is considered sufficient to handle all responsibilities during a wet-weather event. Responsibilities will not change significantly with implementation of the PCP as roles will remain the same. PCP implementation will modify and improve how certain processes are operated, when certain actions are taken, and how wet-weather decisions and data are documented. Completion of the Wet-Weather Checklist will be the joint responsibility of the Chief Operator and Control Room Operator. Approval must be obtained from the Liquids Handling Operation Supervisor prior to initiating a wet-weather discharge. If the Liquids Handling Operation Supervisor is not available, approval must be obtained from the Plant Manager, Deputy Director, or Director.

4.3 Training

Initial PCP training and implementation will consist of a 4-hour workshop, conducted at multiple times to ensure that all current operators, management, and appropriate support staff receive the training. This training will consist of reviewing the PCP objectives and PCP flowchart along with a detailed review of the PCP checklist and expectations for completion. At least two follow-up sessions will be held during the first year of implementation to evaluate PCP success and reinforce operator training. When new operators are added to staff, PCP training will be the responsibility of the current operators.
5.0 Data Management and Recordkeeping

5.1 Data Management

The MBWWTP operators use several mechanisms for recording plant data and conditions, including logs, activity reports, and electronic data management systems. These systems effectively capture the data required to operate, monitor, and evaluate the MBWWTP processes. Modification of these processes is not part of the PCP.

The Wet-Weather Checklist is part of the PCP and was developed to consolidate critical data, decisions, and documentation for wet-weather events on one form. This form shall be completed for all wet-weather events, as defined in Section 3 and on the checklist, filed in a dedicated file on site, and maintained for at least five years.

5.2 Semi-Annual Evaluations

In addition to the individual checklists, the effectiveness of the PCP shall be evaluated semi-annually by the WRD. This evaluation should include:

- Reviewing the number of wet-weather discharges during the previous six months and determining whether alternative actions could have reduced the number and/or volume of wet-weather discharges;
- Reviewing the Consent Decree criteria for the PCP to evaluate whether all criteria continue to be addressed;
- Assessing maintenance practices and plant readiness to confirm that treatment capacities are maximized for each wet-weather event;
- Discussing, identifying, and evaluating any modifications to the PCP that are expected to improve the PCP; and
- Identifying any recent upgrades, instrumentation additions, etc. that affect the PCP.

The discussions and results of each semi-annual review shall be documented in a summary memo and placed in the dedicated PCP files.
6.0 PCP Update Plan

The PCP, and specifically the flowchart and checklist, are living documents and should be updated whenever significant plant changes are implemented that affect the PCP. At a minimum, the PCP should be updated whenever:

- An upgrade is completed that affects the hydraulic or process treatment capacities, or that affects operability during a wet-weather event;
- Online instrumentation is added that could affect decision making during a wet-weather event;
- Staff positions and/or responsibilities are modified;
- Significant changes are implemented that affect how quickly and/or over what duration flows are routed to the plant headworks during a wet-weather event; and
- Post wet-weather event evaluations or semi-annual evaluations reveal that the PCP is not as effective as it could be in reducing wet-weather discharges or avoiding violations of NPDES permit criteria.

For major upgrade projects, it is recommended that PCP updates are finished before construction is complete so that a revised PCP can be used immediately following start-up and training. Within three months of construction completion, unless an alternative timeline has been established based on the nature of the upgrades, it should be verified that the upgrades and PCP revisions are functioning as intended. For the other items noted above, PCP revisions should be initiated within one month following the change or identified issue.

Depending on the nature of the change, revisions can be as simple as a memo filed with the PCP until the next major PCP revision occurs. Any material change to the PCP that affects the wet-weather discharge triggers will be documented in a revised PCP submitted to EPA. Minor changes will not be submitted to EPA. A copy of the latest PCP revision and addendums shall be included in the dedicated file and at least one copy should be immediately available to operations staff.
Wet-Weather Checklist
Process Controls Program for the MBWWTP

Event Date(s): ______________________
Chief Operator at Start: ______________________
Chief Operators through End: ______________________

Instructions:
All lines on this form shall be completed at the start of any wet-weather event, during the event, or at the conclusion of the event, as noted below. A wet-weather event is not limited to events where a wet-weather discharge occurred and shall include events that result in an increase of incoming flow to the plant above 75 mgd and that necessitate operational adjustments (e.g., UNOX ramp up) in preparation for wet-weather flows. If an item or section does not apply (e.g., a wet-weather discharge was not initiated), mark with "N/A". "If" fields do not need to be marked "N/A" if they do not apply.

Weather Conditions
Completed By (initial):

Approximate start time of precipitation: ________ Predicted □ Actual □
Forecasted amount of precipitation (range): ________ in Actual: ________ in
Forecasted duration (range): ________ hr Actual: ________ hr
Source of Data: □ High / Wet □ Normal / Average □ Low / Dry

To be completed at conclusion of the event

General qualification of soil moisture conditions: Conditions do not need to be based on scientific measurement; simply the operator's opinion based on the amount of recent rain, cloud cover, temperature, etc.

Plant Readiness
Completed By (initial):

Are the wet-weather clarifiers empty? □ Yes □ No If no, explain: ______________________
Report EQ Basin 1 level: ________ ft __________
Report EQ Basin 2 level: ________ ft __________

If either basin level is greater than 5 feet, explain below:

No. of influent pumps in service: out of 4 No. of UNOX basins currently online: out of 4
No. of relief station pumps in service: out of 5 No. of UNOX basins available for service: out of 4
No. of EQ PS pumps in service: out of 4 No. of primary clarifiers in service: out of 8
No. of coarse screens in service: out of 4 No. of secondary clarifiers in service: out of 14
No. of fine screens in service: out of 6 No. of chlorine contact basins in service: out of 5
No. of detritors in service: out of 3 No. of wet-weather grit basins available: out of 5
No. of comminutors in service: out of 2 No. of wet-weather clarifiers available: out of 3

"In Service" shall mean available for use and not down for maintenance or other issues. It does not necessarily mean that a pump is on, a screen is currently being used, etc.
Wet-Weather Checklist
Process Controls Program for the MBWWTP

Assessment of Maximum Treatment Capacities for this Event

Please identify the operator's best estimate for the maximum treatment capacity of each system listed below based on plant readiness:

<table>
<thead>
<tr>
<th>System</th>
<th>Start of Event</th>
<th>End of Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influent pump station</td>
<td>mgd</td>
<td>134</td>
</tr>
<tr>
<td>Influent relief pump station</td>
<td>mgd</td>
<td>115</td>
</tr>
<tr>
<td>Preliminary / primary treatment system</td>
<td>mgd</td>
<td>85</td>
</tr>
<tr>
<td>UNOX system</td>
<td>mgd</td>
<td>135 (including sidestreams)</td>
</tr>
<tr>
<td>Secondary treatment system</td>
<td>mgd</td>
<td>135</td>
</tr>
<tr>
<td>Disinfection system</td>
<td>mgd</td>
<td>135 (not including wet weather)</td>
</tr>
<tr>
<td>Wet-weather system</td>
<td>mgd</td>
<td>85</td>
</tr>
</tbody>
</table>

Target

If the assessed treatment capacities for this event are less than the target treatment capacities, state reason(s):

Wet-Weather Event Goals:

Maximize flow through the headworks, preliminary treatment system, and primary treatment system to avoid West Bank and East Bank overflows.

Maximize ramp up rate and flow through UNOX to avoid premature use of available storage.

Maximize available storage prior to initiating a wet-weather discharge.

Avoid conditions that could result in an NPDES permit violation or loss of excess biomass.

NOTE: NPDES daily maximum concentrations and daily minimum percent removal limits for CBOD5, NH3-N, and TSS do not apply when maximum seasonal average daily flows are exceeded. Refer to Tables 1-1 and 1-2.

Refer to Figure 2-2 of the PCP for the rationale and order of priority.

Influent Flow Increases Above and Maintains 75 mgd

Completed By (initial):

<table>
<thead>
<tr>
<th>Time</th>
<th>Influent Flow</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mgd</td>
<td>80 mgd</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1st valve)</td>
</tr>
<tr>
<td></td>
<td>mgd</td>
<td>90 mgd</td>
</tr>
</tbody>
</table>

☐ Valve in EQ-A opened to EQ Basin 1
☐ Valve in EQ-A opened to EQ Basin 2
☐ PS gate opened to equalize flow between basins
☐ Flow to Communitior #6 is opened
Wet-Weather Checklist
Process Controls Program for the MBWWTP

UNOX System Ramp Up

Baseline influent flow: __________ mgd
Baseline UNOX flow: __________ mgd

Use these values to calculate initial influent flow and UNOX flow ramp up rates

Approximate start time of influent flow increases: __________

Attach additional sheets as necessary

<table>
<thead>
<tr>
<th>Time</th>
<th>Influent PS Flow (mgd)</th>
<th>Influent Relief PS Flow (mgd)</th>
<th>Total Influent Flow (mgd)</th>
<th>Influent Flow Ramp Up Rate (mgd/hr)</th>
<th>UNOX Flow (mgd)</th>
<th>UNOX Ramp Up Rate (mgd/hr)</th>
<th>UNOX Effluent TSS (mg/L)</th>
<th>EQ Basin 1 Level (ft)</th>
<th>EQ Basin 2 Level (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FT2250</td>
<td>FT2100</td>
<td>See Calculation</td>
<td>FT1019 through FT1022</td>
<td>See Calculation</td>
<td>AT0896</td>
<td>LT0246</td>
<td>LT0247</td>
<td></td>
</tr>
</tbody>
</table>

Include an entry whenever UNOX flow is adjusted by the operator, up to the point where flow is maximized through UNOX (target = 135 mgd).

UNOX ramp up rate is controlled by adjusting Equalization Pump Station pump speeds.
UNOX ramp up rate = (New UNOX Flow - Old UNOX Flow) / (Current Time - Time of Previous UNOX Flow Measurement)
Influent ramp up rate = (New Total Influent Flow - Last Total Influent Flow) / (Current Time - Previous Flow Reading Time)

NOTE:
Up to the point where incoming flow exceeds the capacity of the secondary system, the UNOX units shall be ramped up at a rate similar to influent flow increases to the extent possible without adversely affecting biomass levels or secondary clarifier performance. To maximize system storage, the EQ basins levels should be kept as low as possible until influent flow exceeds the capacity of the secondary system.
Wet-Weather Checklist
Process Controls Program for the MBWWTP

Biomass Monitoring

Considering how fast incoming plant flow can increase and the 24-48 hour delay in receipt of laboratory MLSS concentration data, approximate biomass loss during a wet-weather event shall be monitored using the TSS meter in the mixed liquor channel.

<table>
<thead>
<tr>
<th>No. of Basins in Service:</th>
<th>start of event</th>
<th>end of event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-event UNOX effluent TSS reading:</td>
<td>mg/L</td>
<td>= pre-event reading * 0.8</td>
</tr>
<tr>
<td>TSS reading at 20% biomass loss:</td>
<td>mg/L</td>
<td>= pre-event reading * 0.7</td>
</tr>
<tr>
<td>TSS reading at 30% biomass loss:</td>
<td>mg/L</td>
<td>= pre-event reading * 0.6</td>
</tr>
</tbody>
</table>

TSS readings are monitored via the online measurement displayed in SCADA and recorded on Page 3 of the checklist during UNOX ramp up. Once flow is maximized through the UNOX system, TSS shall be monitored at least hourly.

NOTE: If a basin is added into service during a wet-weather event, sufficient time shall be allowed for TSS readings to stabilize prior to evaluating biomass loss.

NOTE: When TSS readings drop by 20% or more compared to the pre-event reading, notify the Liquids Handling Operation Supervisor

Did approximate biomass loss exceed 20% this event?  [ ] Yes  [ ] No
If yes, state date and time:
If yes, supervisor notified:  [ ] Yes  [ ] No

Flow Maximized through Preliminary and Primary Systems

Was flow initiated to the wet-weather system this event?  [ ] Yes  [ ] No
If yes, note date and time:  [ ] Yes  [ ] No
Corresponding total incoming plant flow:  mgd
Target = Max Primary Treatment Capacity (this event)
Total = sum of Influent PS and Relief PS flows
Wet-weather clarifiers are full:  [ ] Yes  [ ] No
Note date and time
To be completed at the conclusion of the event
Max flow achieved through wet-weather:  mgd
Target = Max Wet-Weather Treatment Capacity (this event)
Total wet-weather system runtime:  hr

Completed By (initial):
Wet-Weather Checklist
Process Controls Program for the MBWWTP

Wet-Weather Discharge Initiation

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Agricultural Ditch Discharge Initiated this event?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Was a wet-weather discharge initiated this event?</td>
<td></td>
<td></td>
<td>If no, leave remainder of this section blank</td>
</tr>
</tbody>
</table>

Conditions:

- Flow maximized through primary system: Yes No
- Flow maximized through wet-weather system: Yes No
- Flow maximized through secondary system: Yes No
- Use of available storage maximized: Yes No

Influent Flow (mgd):  
Primary Flow (mgd):  
Wet-Weather Flow (mgd):  
UNOX Flow (mgd):  
EQ Basin 1 Level (ft):  
EQ Basin 2 Level (ft):  

Date and Time:  

If an answer to any of the above questions is "No", indicate reasoning:

Authorization to Initiate Wet-Weather Discharge:

Signature of Liquids Operation Supervisor:  
Date and Time:  

* If the Liquids Operation Supervisor is not available, approval shall be obtained from the Plant Manager, Deputy Director, or Director.

☐ EQ-A bypass valve is closed  
☐ Wet-weather chlorine injection initiated  
☐ Chlorine residual reaches at least 3 ppm  
☐ Valve MOG-4 is opened approximately 25%  
☐ Gates M315 and M316 are closed  
☐ Valve MOG-8 is opened  

Approx. Time  
Date

☐ TDEC notified of wet-weather discharge  
☐ Report filed with TDEC  

Influent Pump Station Flow Throttling

☐ Approval obtained from Liquids Operation Supervisor  

NOTE: Throttling of influent flow below the sustainable capacity of the preliminary and primary treatment systems is only acceptable once EQ basin levels have reached at least 15 feet and a wet-weather discharge has been initiated.

Completed By (initial):  

Time of initial throttling:  

Influent Flow (mgd):  
EQ Basin 1 Level (ft):  
EQ Basin 2 Level (ft):  

Page 5 of 6
## Wet-Weather Checklist

**Process Controls Program for the MBWWTP**

### Ramp Down: Flow Sustained Below Secondary Treatment Capacity

Complete this section only if a wet-weather discharge occurred

<table>
<thead>
<tr>
<th>Valve MOG-8 is closed</th>
<th>Approx. Time</th>
<th>Influent Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wet-weather chlorine injection ceased</td>
<td></td>
<td>mgd</td>
</tr>
<tr>
<td>Valve MOG-4 is closed</td>
<td></td>
<td>mgd</td>
</tr>
<tr>
<td>Gates M315 and M316 are opened</td>
<td></td>
<td>mgd</td>
</tr>
<tr>
<td>EQ-A bypass valve is opened</td>
<td></td>
<td>mgd</td>
</tr>
<tr>
<td>Influent flow no longer throttled</td>
<td></td>
<td>mgd</td>
</tr>
</tbody>
</table>

**NOTE:** If influent flow begins to increase after wet-weather discharge has been stopped and there is a potential that another wet-weather discharge will need to be initiated, a new Wet-Weather Checklist shall be started.

**NOTE:** Flow through UNOX shall be maintained as high as possible without adversely affecting biomass levels or secondary clarifier performance so that the EQ basins and wet-weather clarifiers are pumped down quickly. UNOX flow shall be monitored using the existing flow readings forms used daily (and completed approximately hourly) by the treatment plant operators.

### Post Event Review

Complete By (Initial):

Max total influent flow during the event: __________ mgd  
Reduced total influent flow (if applicable): __________ mgd

Total = sum of Influent PS and Relief PS flows  
Due to screen blinding or high EQ basin levels or other

Any significant changes in secondary clarifier blanket levels?  
☑ Yes ☐ No  
If yes, reason: ____________________________

Any NPDES permit effluent limit violations?  
☑ Yes ☐ No  
If yes, state: ____________________________

Did total influent flow exceed the capacity of the primary, secondary, or wet-weather systems?  
☐ Yes ☐ No

If yes, please answer the following questions:

Did a wet-weather discharge occur?  
☑ Yes ☐ No  
If yes, duration and volume: ________ hrs ________ mg

Did West Bank overflow?  
☑ Yes ☐ No  
If yes, duration and volume: ________ hrs ________ mg

Did East Bank overflow?  
☑ Yes ☐ No  
If yes, duration and volume: ________ hrs ________ mg

Were applicable target flows achieved?  
☑ Yes ☐ No

If no, indicate reasons for variances from target flows:

### Certification

I have reviewed this checklist and the actions taken, and approve it for filing:

Signature of Liquids Operation Supervisor, Plant Manager, Deputy Director, or Director  
Date __________
Appendix B
Waste Resources Division Organizational Chart
Deputy Director (1)

Maintenance Manager
(See Chart 5)
(1)

Personnel Assistant
(1)

Administrative Support Assistant 2
(1)

Plant Manager
(See Chart 3)
(1)

System Engineer
(See Chart 4)
(1)