UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION

UNITED STATES OF AMERICA, Plaintiff, STATE OF TEXAS, Plaintiff, and BAYOU CITY WATERKEEPER, Plaintiff-Intervenor, v. CITY OF HOUSTON, TEXAS, Defendant.	)	Civil Action No. 4:18-cv-03368 Judge EWING WERLEIN, JR.

CONSENT DECREE

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WHEREAS, Plaintiff, the United States of America ("United States"), by the authority of the Attorney General of the United States and through its undersigned counsel, acting at the request and on behalf of the United States Environmental Protection Agency ("EPA"), filed a Complaint ("Complaint") alleging Defendant, the City of Houston, Texas ("City"), has violated and continues to violate the Clean Water Act, 33 U.S.C. § 1251 *et seq.*, ("CWA"), the regulations promulgated under the CWA, and terms and conditions of the City's National Pollutant Discharge Elimination System ("NPDES") permits issued under Section 402 of the CWA, 33 U.S.C. § 1342;

WHEREAS, Plaintiff, the State of Texas ("State"), acting at the request of and on behalf of the Texas Commission on Environmental Quality ("TCEQ"), has joined in the Complaint as a Plaintiff in this action and as a Party pursuant to CWA § 309(e), 33 U.S.C. § 1319(e), seeking injunctive relief, civil penalties, and attorney's fees for the City's alleged violations of Chapter 7, Subchapter D, and § 26.121 of the Tex. Water Code ("TWC") and the regulations promulgated and permits issued pursuant thereto;

WHEREAS, the City disagrees with and does not admit to these contentions, any facts alleged in the Complaint or liability to the United States, the State or any third party arising out of the transactions or occurrences alleged in the Complaint;

WHEREAS, notwithstanding these disagreements, the Parties have negotiated this Consent Decree to resolve the matter and to memorialize the terms of their agreement to work cooperatively on issues relating to the City's Sewer System;

WHEREAS, since 1998, TCEQ has been authorized by EPA to administer the National Pollutant Discharge Elimination System ("NPDES") program in Texas pursuant to Section

402(b) of the CWA, 33 U.S.C. § 1342(b), and NPDES permits administered by TCEQ are known as Texas Pollutant Discharge Elimination System ("TPDES") permits;

WHEREAS, the City is a "municipality" pursuant to Section 502 of the CWA, 33 U.S.C. § 1362;

WHEREAS, the City owns and operates a "treatment works" as defined in Section 212 of the CWA, 33 U.S.C. § 1292. The treatment works, also referred to herein as the Sewer System, includes the Wet Weather Facilities ("WWFs"), Wastewater Collection and Transmission System ("WCTS") and Wastewater Treatment Plants ("WWTPs"). The City's Sewer System is one of the largest and most complex in the nation, with approximately 6,000 miles of sewer mains, 390 Lift Stations to move sewage due to Houston's flat topography, and 39 WWTPs serving approximately 2 million people. The City contends that it has been working to implement improvements to its massive system to try to keep pace with its rapidly growing population and has spent close to three billion dollars in upgrades and renewals to millions of feet of pipes and infrastructure pursuant to Texas Agreed Orders and earlier initiatives such as the Greater Houston Wastewater Program and is committing to undertake additional improvements pursuant to this Consent Decree;

WHEREAS, as of the Date of Lodging, the WWFs are permitted under Permit Nos. TX0063053, TX0096172, and TX0105058 and continue to operate under said permits;

WHEREAS, the Parties recognize this Consent Decree is in the interests of justice, a transparent resolution, and consistent with the impartial rule of law and fundamental constitutional principles, including federalism and control of state governments by their democratically elected leaders. While the City has proposed and agreed to make significant

improvements to its infrastructure, this Consent Decree is narrowly tailored to achieve the improvements necessary to remedy alleged violations of federal and state law; it is not being used to accomplish other policy goals or obtain relief that is unrelated to the alleged violations;

WHEREAS, the Parties recognize, and the Court by entering this Consent Decree finds, this Consent Decree has been negotiated by the Parties in good faith and will avoid litigation among the Parties and this Consent Decree is fair, reasonable, and in the public interest.

NOW, THEREFORE, IT IS HEREBY ADJUDGED, ORDERED AND DECREED as follows:

SECTION I. JURISDICTION AND VENUE

1. This Court has jurisdiction over the subject matter of this action, pursuant to 28 U.S.C. §§ 1331, 1345, 1355 and 1367(a), and Sections 309(b) of the CWA, 33 U.S.C. § 1319(b), and over the Parties. Pursuant to 28 U.S.C. § 1367, this Court has supplemental jurisdiction over the state law claims. Venue lies in this District pursuant to Section 309(b) of the CWA, 33 U.S.C. § 1319(b), and 28 U.S.C. §§ 1391(b) and 1395(a), because the City is located in this judicial district, and the violations in the Complaint are alleged to have occurred in this judicial district. For purposes of this Decree, the City does not contest the Court's jurisdiction over this action or over the City and does not contest venue in this judicial district.

2. For purposes of this Consent Decree, the City agrees not to contest that the Complaint states claims upon which relief may be granted pursuant to Sections 301 and 309 of the CWA, 33 U.S.C. § 1311 and 1319, and under Sections 7.105 and 7.108 of the TWC.

SECTION II. OBJECTIVES

3. The objectives of this Consent Decree are for the City to take all measures necessary as agreed upon by the Parties to fulfill the objectives of and achieve compliance with the CWA and the regulations promulgated thereunder, the TWC and the City's Permits, with the goal of eliminating SSOs.

SECTION III. APPLICABILITY

4. The obligations of this Consent Decree apply to and are binding upon the United States, the State, and upon the City and any successors, assigns, or other entities or persons otherwise bound by law.

5. At least 30 Days before transferring ownership or operation of any WWTP or any part of or the whole WCTS to any other person, the City shall provide, or otherwise make electronically available, a copy of this Consent Decree to each prospective successor owner or operator and shall simultaneously verify such by a written notice to the United States and the State in accordance with Paragraph 123 of this Decree. Any such transfer must be conditioned upon the transferee's agreement to undertake the obligations required by this Decree, and no such transfer shall relieve the City of its obligation to ensure that the terms of the Decree are implemented.

6. The City shall provide a copy of this Consent Decree, or otherwise make electronically available, to all directors, managers, employees, and agents whose duties might reasonably include compliance with any provision of this Decree, as well as to any contractor retained to perform Work required under this Consent Decree. The City shall

condition any such contract upon performance of the Work in conformity with the terms of this Consent Decree.

7. In any action to enforce this Consent Decree, the City shall not raise as a defense the failure by any of its directors, managers, employees, agents, or contractors to take any actions necessary to comply with the provisions of this Consent Decree except as otherwise may be specifically provided in this Decree.

SECTION IV. DEFINITIONS

8. Unless otherwise defined herein, terms used in this Consent Decree (and any appendices) shall have the meanings given to those terms in the CWA, 33 U.S.C. §§ 1251 - 1387 or the regulations promulgated under the CWA.

9. The following terms used in this Consent Decree (and any appendices) shall be defined as follows:

a. "Building/Private Property Backup" for purposes of this Decree, shall mean an SSO in the form of wastewater release or backup into a building or onto private property that is caused by blockages, flow conditions, or other malfunctions in the WCTS. A wastewater backup or release that is caused by blockages, flow conditions, or other malfunctions of a Private Lateral is not a Building/Private Property Backup for purposes of this Decree.

b. "CCTV" shall mean Closed Circuit Television.

c. "CMOM" or "Capacity, Management, Operations and Maintenance" shall mean a program of industry practices to manage, operate and maintain sanitary wastewater collection, transmission and treatment systems, investigate capacity-

constrained areas of these systems, and respond to SSO events.

d. "City" or "Houston" shall mean the City of Houston, Texas.

e. "Complaint" shall mean the complaint filed on September 20, 2018 by the United States and the State in this action.

f. "Consent Decree" or "Decree" shall mean this consent decree document and all appendices attached hereto (listed in Paragraph 142). In the event of a conflict between this document and any appendix, this document shall control.

g. "CWA" shall mean the Clean Water Act, as amended 33 U.S.C. §§ 1251 - 1387.

h. "Date of Lodging" shall mean the date this Consent Decree is lodged with the Clerk of the Court for the United States District Court for the Southern District of Texas, Houston Division.

i. "Day" shall mean a calendar day unless expressly stated to be a business day. In computing any period of time under this Consent Decree, where the last day would fall on a Saturday, Sunday, Federal, State or City holiday, the period shall run until the close of business of the next business day.

j. "Defendant" shall mean the City of Houston, Texas and any successor thereto.

k. "Deliverable" shall mean the written documents required to be submitted by or on behalf of the City under this Consent Decree.

l. "EPA" shall mean the United States Environmental Protection Agency and any of its successor departments or agencies.

m. "Effective Date" shall be the date that this Decree is entered by the Court.

n. "Fiscal Year" shall mean July 1 of a particular year through June 30 of the

following year.

o. "FOG" shall mean fats, oils and grease.

p. "FOG Generator" shall mean any establishment required to operate and maintain a FOG interceptor pursuant to Art. XI, Ch. 47-513(a) of the Code of Ordinances, Houston, Texas.

q. "Force Main" shall mean any pipe that receives and conveys wastewater under pressure from the discharge side of a pump.

r. "Gravity Sewer Main" shall mean a pipe that receives, contains and conveys wastewater that is not normally under pressure, but is intended to flow unassisted under the influence of gravity. The Gravity Sewer Mains consist of Small Diameter Gravity Sewer Mains and Large Diameter Gravity Sewer Mains.

s. "Infiltration" shall mean water other than wastewater that enters a sewer system (including sewer service connections and foundation drains) from the ground through such means as defective pipes, pipe joints, connections, or manholes, as defined by 40 C.F.R. § 35.2005(b)(20).

t. "Inflow" shall mean water other than wastewater that enters a sewer system (including sewer service connections) from sources such as, but not limited to, roof leaders, cellar drains, yard drains, area drains, drains from springs and swampy areas, manhole covers, cross connections between storm sewers and sanitary sewers, catch basins, cooling towers, stormwater, surface runoff, street wash waters, or drainage, as defined by 40 C.F.R. § 35.2005(b)(21).

u. "I/I" shall mean the total quantity of water from Infiltration and Inflow without

distinguishing the source.

v. "Interest" shall mean interest at the rate calculated as specified in 28 U.S.C. § 1961, and unless otherwise stated, shall be the rate in effect at the time the Interest accrues. The State interest rate, calculated as specified in Tex. Fin. Code § 304.003, shall apply where applicable.

w. "Large Diameter Gravity Sewer Mains" shall mean sanitary sewer pipes greater than 24" diameter.

x. "Lift Station" shall mean a facility that includes pumps to lift wastewater to a higher hydraulic elevation, including all electrical, mechanical, and structural systems necessary to the operation of the Lift Station. Except as may be specifically provided otherwise, for purposes of this Consent Decree, Lift Stations shall not include facilities located at the WWTPs.

y. "MS4" shall mean Municipal Separate Storm Sewer System.

z. "NPDES" shall mean the National Pollutant Discharge Elimination System authorized under Section 402 of the CWA, 33 U.S.C. § 1342.

aa. "Parties" shall mean the United States of America, on behalf of EPA, the State of Texas, on behalf of the TCEQ, and the City.

bb. "Permit" shall mean any of the TPDES/NPDES Permits identified in Appendix A and issued to the City pursuant to Chapter 26 of the TWC and Section 402 of the CWA, 33 U.S.C. § 1342, for the City's Sewer System, and any future extensions, modifications or reissuance of those Permits.

cc. "Plaintiffs" shall mean the United States of America, on behalf of EPA, and the

State of Texas, on behalf of the TCEQ.

dd. "Private Lateral" shall mean sewer assets not owned by the City, used to convey wastewater from a building or buildings to the WCTS.

ee. "Publicly Owned Treatment Works" or "POTW" shall mean a publicly owned treatment works as defined in 40 C.F.R. § 403.3(q) and includes the WCTS and the WWTPs as defined in this Consent Decree.

ff. "Sanitary Sewer Overflow" or "SSO" shall mean an overflow, spill, or release of wastewater from or caused by the City's WCTS. This term shall include: 1) discharges to waters of the United States or into or adjacent to Waters in the State of Texas from the City's WCTS; and 2) any release of wastewater from the City's WCTS to public or private property that does not reach waters of the United States or into or adjacent to Waters in the State of Texas, including Building/Private Property Backups.

gg. "Service Area" shall mean a portion of the WCTS that typically flows to a single WWTP.

hh. "Sewer Segment" shall mean the full length of a Gravity Sewer Main extending from one manhole to the next manhole in the WCTS.

ii. "Sewer System" shall mean the WCTS, WWFs and the WWTPs.

jj. "Small Diameter Gravity Sewer Mains" shall mean sanitary sewer pipes less than or equal to 24" diameter.

kk. "State" or "Texas" shall mean the State of Texas.

ll. "TCEQ" shall mean the Texas Commission on Environmental Quality and any

successor agency.

mm. "TPDES" shall mean the Texas Pollutant Discharge Elimination System.

nn. "Wastewater Collection and Transmission Systems" or "WCTS" shall mean Force Mains, Gravity Sewer Mains, Lift Stations, manholes, access vaults/structures, flow-regulating devices/structures, other hydraulic structures, and the appurtenances thereto that are owned or operated by the City to transport wastewater.

oo. "Wastewater Treatment Plant" or "WWTP" shall mean the sewage treatment plants owned or operated by the City as identified in Appendix A and all components of each of those plants, subject to modification of Appendix A as a result of consolidation activities. "WWTP" does not include any plant that has been decommissioned and has a permit that has been terminated.

pp. "Waters in the State of Texas" are "waters" as defined under Texas law. Tex. Water Code 26.001(5) defines "water" or "water in the state" to mean "groundwater, percolating or otherwise, lakes, bays, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, wetlands, marshes, inlets, canals, the Gulf of Mexico, inside the territorial limits of the state, and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, navigable or nonnavigable, and including the beds and banks of all watercourses and bodies of surface water, that are wholly or partially inside or bordering the state or inside the jurisdiction of the state."

qq. "Wet Weather Facility" or "WWF" shall mean one of the three facilities the City

operates in the WCTS and that are permitted under Permits listed above.

rr. "Work" shall mean the activities the City is required to perform under this Consent Decree.

ss. "Work Project" shall mean an individual task that is part of a larger overall Remedial Measures Plan under Section V (Compliance Requirements). It does not mean the entire overall Remedial Measures Plan.

SECTION V. COMPLIANCE REQUIREMENTS

10. The following constitutes the remedial measures the City shall undertake to achieve the Objectives of this Consent Decree. The City is responsible for ensuring contractors hired to perform Work pursuant to this Consent Decree comply with all applicable laws. All Work shall be performed using sound engineering practices, the City's best professional judgment, and industry standards in compliance with the terms of this Decree. Sound engineering practices may include appropriate provisions of EPA's *Climate Ready Water Utilities (CRWU) Initiative*, referenced at EPA 817-F-12-005, 2012; and EPA's *Climate Resilience Evaluation and Awareness Tool* (CREAT). All remedial measures required under this Consent Decree shall be completed no later than 15 years from the Effective Date.

Early Action Projects

11. The City shall implement the Early Action Program under this Paragraph and in accordance with Appendix B:

a. For the Lift Stations identified in Appendix B, the City shall complete the described remediation, replacement, or consolidation projects pursuant to the

schedule in Appendix B;

b. For Force Main projects identified in Appendix B, the City shall complete the described projects pursuant to the schedule in Appendix B. Regarding the Force Main projects identified on page 12 of Appendix B, the City shall specify to the Parties the extent of remediation to be implemented per Force Main project within 90 Days after each Force Main has been evaluated and a determination has been made;

c. For Consolidation Projects identified in Appendix B, the City shall complete the described projects pursuant to the schedule in Appendix B;

d. For the 69th Street, Upper Brays, Almeda Sims, Greenridge, Metro Central, Keegans Bayou, Westway, FWSD 23, Kingwood Central, and Southwest WWTPs the City shall complete the remedial measures pursuant to the schedule in Appendix B.

e. For each WWTP identified in Appendix B, the City shall also implement, as soon as technically and operationally practicable, interim operational changes and/or other short-term improvements where appropriate until the identified remedial measures are completed.

WCTS Capacity Assessment

12. The City has identified nine areas with known capacity related constraints that are identified in Appendix C. Within two years of the Effective Date, the City shall perform remedial alternatives analysis/es to address any identified capacity constraints within each of the nine areas and shall submit a Capacity Remedial Measures Plan(s) to EPA for

its review and approval, with a copy to TCEQ. The Capacity Remedial Measures Plan(s) shall address any identified capacity constraints in each of the nine areas by completing a remedial action design, including timelines for completion, to prevent sewer asset surcharge during a five-year, six-hour rain event using the Point Precipitation Frequency estimates published in 2018 NOAA Atlas 14, Volume 11, Version 2, except in situations where a remedial action design to prevent surcharge during a five-year, six-hour rain event would be detrimental to the operation of the WCTS, in which case the Capacity Remedial Measures Plan(s) shall include alternative measures that will be taken to correct the capacity constraint. The remedial measures identified in the Capacity Remedial Measures Plan(s) shall be completed within 10 years of the Effective Date with progress toward capacity improvements achieved on an annual basis. For Areas 1 and 3, identified in Appendix C, the City shall provide a detailed explanation in the Capacity Remedial Measures Plan(s) of why additional time may be needed beyond 10 years, for reasons including coordination with other agencies. If approved, the remedial measures for those areas shall be completed within the approved schedule not to exceed 15 years from the Effective Date. In Annual Reports following the approval of the Capacity Remedial Measures Plan(s), the City shall identify progress made in the previous year toward completing the remedial measures identified in the Capacity Remedial Measures Plan(s).

13. To identify and address additional areas beyond those included under Paragraph 12 with potential capacity constraints, the City shall evaluate all SSOs from the prior three years to identify any WCTS asset that meets one of the following criteria:

a. The total wet-weather SSO volume from any single WCTS asset over the

prior three years exceeds 100,000 gallons; or

b. Three or more wet weather SSOs occur from any single WCTS asset over the prior three years.

If a WCTS asset meets the above-specified criteria, the City shall perform a capacity assessment of the area associated with the WCTS asset to determine whether capacity is the cause of the SSOs. If a lack of capacity is determined to be the cause of the SSOs meeting the above-specified criteria in this Paragraph, the City shall perform a capacity remedial alternatives analysis to address the identified capacity constraint at the area associated with the WCTS asset and shall implement remedial action to address the capacity constraint. If the remedial action to address the capacity constraint is to upsize the Sewer Segment, the new Sewer Segment shall be designed to prevent sewer asset surcharge during a five-year, six-hour rain event using the Point Precipitation Frequency estimates published in 2018 NOAA Atlas 14, Volume 11, Version 2, except in situations where a remedial action design to prevent surcharge during a five-year, six-hour rain event would be detrimental to the operation of the WCTS, in which case the remedial alternatives analysis shall include alternative measures that will be taken to correct the capacity constraint. In the Annual Reports submitted to EPA for review and comment, with a copy to TCEQ, the City shall identify the locations that meet the criteria specified above, identify areas with capacity constraints, provide remedial alternative analysis for each area in the Capacity Remedial Summary, specify the remedial action taken or to be taken, along with a timeline for completion of each remedial action.

14. Each time a Sewer Segment in the WCTS is scheduled for renewal or replacement, the

City shall perform a capacity assessment using its assessment storm. If the Sewer Segment does not have adequate capacity to convey the City's assessment storm, the City shall design and install a new Sewer Segment designed to prevent sewer asset surcharge during a five-year, six-hour rain event using the Point Precipitation Frequency estimates published in 2018 NOAA Atlas 14, Volume 11, Version 2, except in situations where a remedial action design to prevent surcharge during a five-year, six-hour rain event would be detrimental to the operation of the WCTS, in which case the remedial alternatives analysis shall include alternative measures that will be taken to correct the capacity constraints. In each Annual Report, the City shall identify all capacity-related Sewer Segments that were renewed or replaced in the previous year and shall identify all Sewer Segments that are scheduled for renewal or replacement in the following year (Capacity Remedial Summary).

15. The City has developed a four-step process for updating its hydraulic models. Step one includes reviewing the hydraulic model and updating it based on the City's GIS asset database and other operational databases. Step two includes collecting field data to verify the model, including flow monitoring and lift station flow tests. Step three includes validating the data and updating the model network. Step four includes using the field data to calibrate and verify the model results.

16. Based on this four-step process, the City will complete updates to its sanitary sewer system hydraulic models for the WWTPs and associated sewer collection systems within five years after the Effective Date as follows:

Year One - FWSD23, Homestead, Clinton Park, Kingwood, Chocolate Bayou,

Greenridge;

Year Two - Almeda Sims, 69th Street, Southwest, Sims Bayou;

Year Three - Northwest, Upper Brays, West District;

Year Four - Beltway, Imperial Valley, MUD203, Sagemont, Tidwell Timber, WCID111, WCID76, Westway;

Year Five - Blackhawk, Cedar Bayou, Chelford City, Easthaven, Forest Cove, Intercontinental, Keegans, MUD48, Metro Central, Northbelt, Northgate, Park Ten, Southeast, Turkey Creek, Willowbrook, WCID47, White Oak.

After the initial five-year cycle, the City shall perform an additional sanitary sewer system hydraulic model update to its models within 15 years from the Effective Date.

Wet Weather Facilities

17. This section of the Consent Decree addresses three WWFs. They are (i) the Bretshire WWF that operates under Permit No. TX0063053, (ii) the WWF that operates under 69th Street WWTP Permit No. TX0096172 and is referred to herein as the "Northside" WWF, and (iii) the WWF that operates under Sims Bayou Permit No. TX0105058 and is referred to herein as the "Scott Street" WWF. The City operates the WWFs under the above-referenced Permits. This Section contains remedial measures intended to either eliminate discharges from the WWFs or treat effluent to achieve water quality standards for the receiving stream prescribed by 40 C.F.R. § 122.44(d) and the CWA's secondary treatment requirements.

Bretshire WWF

18. The City shall eliminate discharges from the Bretshire WWF by the Effective Date.

Scott Street WWF and Northside WWF Pilot Studies

19. The City shall conduct pilot studies to evaluate treatment technology for the Scott Street and Northside WWFs to achieve effluent that meets the water quality standards for the receiving stream and the CWA's secondary treatment requirements.

20. Pilot Studies. The City shall conduct pilot studies (such as, but not limited to, flocculation, filtration, and/or biological treatment) at the Scott Street WWF and the Northside WWF consistent with the requirements and schedule provided below:

a. No later than 12 months from the Effective Date, the City shall request from TCEQ a Letter of Authorization (LOA) for each of the pilot studies. In the request for the LOA, City shall describe: each technology being evaluated; the scope of the testing conditions (including the type and frequency of wet weather events necessary for testing); schedules for conducting the study of each technology; all pollutant parameters to be evaluated; water quality standards; secondary treatment performance criteria; schedules for periodic water quality and pollutant sampling; and schedules for periodic sampling and performance reporting to the TCEQ and EPA.

b. Within three months from receipt of the City's request for Pilot Studies, TCEQ shall issue a decision on the LOA.

c. No more than 30 months from the Effective Date, the City shall begin operation of the authorized pilot-scale treatments at a level scalable to full-size construction.

d. The City shall provide periodic written reports to the TCEQ and EPA, according to the timetable specified in the LOA, explaining the status of its

pilot studies and providing the results of all sampling conducted for each pilot-scale treatment.

e. The City shall respond completely and adequately, as determined by the TCEQ, to all requests for information concerning each pilot study proposal submitted pursuant to this Consent Decree within 30 Days after the date of such requests or by any other deadline specified by the TCEQ in writing.

21. If the EPA and TCEQ do not approve the pilot studies that have been timely proposed by the City within two years from the Effective Date, the City shall eliminate discharges from Scott Street and Northside WWFs in accordance with this paragraph:

a. Scott Street WWF. No later than four years and six months from the Effective Date the City shall submit to EPA and to TCEQ, for review and approval, a Remedial Measures Plan that includes a proposed schedule to eliminate discharges from the Scott Street WWF. No later than 11 years from the Effective Date, the City shall implement and have fully operational all EPA/TCEQ approved remedial measures for the Scott Street WWF.

b. Northside WWF. No later than six years and six months from the Effective Date, the City shall submit to EPA and TCEQ, for review and approval, a Remedial Measures Plan that includes a proposed schedule to eliminate discharges from the Northside WWF. No later than 15 years from the Effective Date, the City shall implement and have fully operational all EPA approved remedial measures for the Northside WWF.

22. WWF Pilot Testing Result Report. No later than four years and six months from the Effective Date, the City shall submit a WWF Pilot Testing Result Report, including all sampling results and an analysis comparing the sampling results to the water quality standard limits and secondary treatment performance criteria. EPA and TCEQ shall respond to the WWF Pilot Testing Result Report, within 45 Days, indicating whether any of the piloted technologies meets the water quality standard limits for the receiving stream and secondary treatment performance criteria.

23. WWF Full-Scale Treatment Plan. If EPA and TCEQ concur that pilot studies demonstrate that the water quality standards and secondary treatment performance criteria have been met, the City shall, no later than six months after EPA's response, submit a plan to EPA and TCEQ, for review and approval, indicating how full implementation will occur and providing justification for the proposed implementation schedules.

24. Elimination of Discharge from Scott Street and Northside WWFs. If EPA and TCEQ conclude that the pilot's sampling results do not demonstrate that water quality standards and secondary treatment performance criteria can be met, the City shall eliminate discharges from Scott Street and Northside WWFs in accordance with this Paragraph.

    a. The City shall continue to use the WWFs as wastewater storage before any discharge would occur and maximize the amount of wastewater flow that receives secondary treatment under this Consent Decree until the discharges are eliminated.

    b. Scott Street WWF. No later than seven years from the Effective Date, the

City shall submit to EPA, with a copy to TCEQ, for EPA review and approval, a Remedial Measures Plan, including a proposed schedule to eliminate discharges from the Scott Street WWF. No later than 13 years from the Effective Date, the City shall implement and have fully operational all EPA approved remedial measures for the Scott Street WWF.

c. Northside WWF. No later than 10 years from the Effective Date, the City shall submit to EPA, with a copy to TCEQ, for EPA review and approval, a Remedial Measures Plan, including a proposed schedule to eliminate discharges from the Northside WWF. No later than 15 years from the Effective Date, the City shall implement and have fully operational all EPA approved remedial measures for the Northside WWF.

WCTS Condition Assessment and Remediation

25. The City shall conduct a system-wide inspection and assessment of the structural condition of its Gravity Sewer Mains, manholes, Force Mains, and Lift Stations within the WCTS by implementing the condition assessment requirements of this Subsection. The system-wide inspection and assessment activities are designed to identify defects in the WCTS that have caused or significantly contributed to previous SSOs; and/or, that are likely to cause or significantly contribute to the future occurrence of SSOs.

26. The City shall conduct CCTV inspections of 100 percent of Gravity Sewer Mains and manholes within 10 years from the Effective Date. After the initial ten-year cycle, the City shall perform condition reassessments of no less than 50 percent of Gravity Sewer Mains and manholes within 15 years after the Effective Date. Furthermore, the City shall

conduct CCTV inspections of: (1) no less than 50 percent of the total length of all Gravity Sewer Mains within five years from the Effective Date; and (2) no less than 50 percent of the total number of all manholes within five years of the Effective Date. Furthermore, as part of the Early Year Targeted Cleaning set forth in Paragraph 43(e), the City shall CCTV no less than 1,500 miles of Gravity Sewer Main and inspect all companion manholes within two years from the Effective Date in areas with more than 10 SSOs per square mile. The assessment of the CCTV data and data from other inspection techniques utilized by the City shall be based on industry best practices defined by National Association of Sewer Services Companies (NASSCO), including the Pipeline Assessment and Certification Program (PACP) and the Manhole Assessment and Certification Program (MACP).

27. The City shall prioritize sewer basins for the inspections described in Paragraph 26 based upon the City's Sewer Basin Prioritization Matrix, which prioritizes the City's sewer basins based on factors that include, but are not limited to, SSO and stoppage history, as set forth in Appendix D.

28. Inspections of all Gravity Sewer Mains and manholes shall provide the basis for characterizing, using industry-accepted condition rating scoring systems described in this Paragraph and the City's best professional judgment, the inspected assets into one of five categories designated Category 5 – 1 as follows:

Gravity Sewer Category	**Example of Structural Conditions Anticipated for Each Category**
NASSCO Grade 5 (Very Poor Condition)	Structural collapse (Deformation > 40 percent), which has or could likely cause SSO; or collapse imminent.

NASSCO Grade 4 (Poor Condition)	Significant missing material or broken material, severe corrosion with exposed pipe wall reinforcement, or pipe wall deformation > 25 percent from structural deterioration.
NASSCO Grade 3 (Fair Condition)	Pipe wall deformation < 25 percent from structural deterioration combined with displaced fractures or moderate corrosion - but no pipe wall reinforcement visible.
NASSCO Grade 2 (Good Condition)	Pipe wall deformation from construction impacts or < 10 percent of diameter from structural deterioration, minor corrosion, slightly open non-displaced fractures, or other moderate material degradation.
NASSCO Grade 1 (Very Good Condition)	No defects or mild defects which may include tight non-displaced cracks or other mild material degradation.

Manhole Category	**Example of Structural Conditions Anticipated for Each Category**
NASSCO Grade 5 (Very Poor Condition)	Severe structural defects that may include: cracks in walls; loose or missing bricks; or separated/broken casting; indicating potential for structural failure. Severe corrosion in the wall and/or base and broken/missing cover and frame. Active infiltration may be observed.
NASSCO Grade 4 (Poor Condition)	Moderate structural defects that may include: one or two open cracks; four or more closed cracks; loose bricks; separated casting; adjustment beginning to fail; signs of leakage through adjustment; or damaged cover and frame. Active infiltration may be observed. Moderate defects may include loose casting, moderate corrosion of metal surfaces, deterioration of concrete mortar between bricks, moderate deterioration of precast wall sections, and precast joint defects.
NASSCO Grade 3 (Fair Condition)	Minor structural defects. Nominal defects may include: two or three closed cracks; loose casting; nominal corrosion of metal surfaces; no active leaks or structural failure in adjustment; signs of past infiltration; or minor deterioration of concrete mortar between bricks or concrete walls.
NASSCO Grade 2 (Good Condition)	No significant structural defects. Conditions may include: a single closed crack; no signs of leakage in adjustment; minor frame/cover defects; or minor manhole corrosion.
NASSCO Grade 1 (Very Good Condition)	New manhole or older manhole with no structural defects, no adjustment leakage or structural damage, no defects in frame/cover, only cosmetic manhole wall defects observed, if any.

29. Gravity Sewer Mains or manholes discovered to be rated as Category 4 and 5 shall go into the City's Remedial Measures Alternatives Analysis process, where the City determines the most practical solutions for resolving defects and the timetable for implementing those solutions considering the long-term performance.

30. The City shall additionally CCTV no less than 30 percent of all Preventive Cleaning to track the effectiveness of the Preventive Cleaning program in Paragraph 43(d) and to characterize assets as specified in Paragraph 28.

31. The City shall inspect Force Mains on a balanced annual basis so that all Force Mains are inspected at least once every 10 years from the Effective Date. During the inspections, the City shall assess each Force Main by reviewing past maintenance records, noting the age or installation date, physically examining the air- or vacuum-release valves, and visually inspecting the ground surface over the entire length of the Force Main, to the extent practicable.

32. The City shall inspect Lift Stations on a balanced annual basis so that all Lift Stations are inspected at least once every 10 years from the Effective Date. However, due to the impacts of Hurricane Harvey during August 2017, the initial ten-year inspection may be front loaded with inspections and assessments conducted primarily during the first three years from the Effective Date. The Lift Station inspections shall include review of the following:

i. Maintenance records;

ii. SSOs;

iii. Lift Station equipment, including Lift Station mechanical, electrical, structural, and supervisory control and data acquisition (SCADA) components; and

iv. Lift Station power sources, including on-site alternate power equipment, redundant power supplies and power switch over systems, where

applicable.

33. The City shall prioritize Lift Stations for the inspections described in Paragraph 32 based upon the City's Lift Station Prioritization Matrix as set forth in Appendix D, which prioritizes the City's Lift Stations based on factors that include, but are not limited to, likelihood and potential consequences of Lift Station failure.

34. In each Annual Report, the City shall document the inspection and Condition Assessment activities (Condition Assessment Summary) undertaken by providing a summary of identified Category 1 through 5 Gravity Sewer Mains and manholes, as well as defects identified during the inspections of Force Mains and Lift Stations. Additionally, the City shall provide a list and locational map of identified Category 4 and 5 Gravity Sewer Mains and manholes. The Condition Assessment Summary shall include the Gravity Sewer Main mileage and the number of manholes, Force Mains, and Lift Stations that will be remediated.

35. Following completion of the condition assessment, the City shall evaluate potential remedial measures that are required to resolve condition defects identified as Categories "4" or "5". Such remedial measures may include:

i. Point repairs

ii. Rehabilitation

iii. Pipe, manhole, Force Main, or Lift Station replacement

iv. Other remediation techniques (such as new technologies or methods that may become available)

v. Monitoring or maintenance analysis

36. Beginning upon the Effective Date, the City shall annually rehabilitate/renew or replace no less than 2.5 percent of all Gravity Sewer Mains, including associated manholes that have been identified in the Condition Assessment Summary pursuant to Paragraph 34. At the time of Date of Lodging, 2.5 percent of all Gravity Sewer Mains is equal to approximately 150 miles.

37. Beginning upon the Effective Date, the City shall annually rehabilitate or replace no less than 5 percent of all Lift Stations. At the time of Date of Lodging, 5 percent of all Lift Stations is equal to approximately 18.

38. In each Annual Report, the City shall identify all condition remedial measures that were completed for the previous year and condition remedial measures that are scheduled for the following year (Condition Remedial Summary). The Condition Remedial Summary shall provide a list and locational map of completed remedial measures of Force Mains, Lift Stations, and Category 4 and 5 Gravity Sewer Mains and manholes. The Condition Remedial Summary shall also include the Gravity Sewer Main and Force Main mileage, and the number of manholes and Lift Stations that were rehabilitated/renewed or replaced for the previous year and that will be rehabilitated/renewed or replaced in the following year.

WWTP Assessment and Remediation

39. The City shall address the effluent limit exceedances from the WWTPs specified in Appendix E. The City has conducted root cause analyses for each of the effluent limit exceedances from these WWTPs. As a result, the City has implemented operational changes to address the effluent violations and/or has identified remedial projects to

correct deficiencies, which are included in the Early Action Projects, Appendix B. The City shall implement the remedial projects for each WWTP identified in the Early Action Projects as specified in Paragraph 11(d).

40. The City shall implement a routine system of operations and maintenance performance evaluations for each WWTP. The initial evaluation shall be conducted for each WWTP within five years. The evaluation report shall assess the capability of the WWTPs to function in accordance with their Permits during the following five-year period. The report shall:

a. Evaluate the physical condition of each WWTP and the effectiveness of the operation and maintenance program.

b. Identify physical, capacity, performance, and operation and maintenance issues which require immediate attention.

c. Provide recommendations and schedules for corrective actions that shall be performed as identified in the Annual report.

The City shall maintain an evaluation checklist and supporting documentation to assist in preparing the evaluation report. WWTP rehabilitation/renewal, if necessary, shall be based on the findings and results of these evaluations.

41. The City shall make repairs or implement operational changes as soon as technically and operationally practicable, as necessary and where appropriate, to address effluent limit exceedances at all the WWTPs.

Capacity, Management, Operations and Maintenance Program

42. Upon the Effective Date, the City shall implement its existing Standard Operating

Procedures ("SOPs") for WCTS operation and maintenance activities including Small and Large Diameter Gravity Sewer inspection and cleaning, manhole inspection and repair, Lift Station inspection and repair, conducting sanitarian inspections of food service establishments, and SSO investigation and response.

43. Thereafter the City shall develop a written CMOM Program Plan as detailed in this Paragraph. The City's CMOM Program Plan will incorporate the elements listed in this Paragraph, which are consistent with EPA's 2005 Guidance entitled "Guide for Evaluating Capacity, Management, Operation, and Maintenance Programs at Sanitary Sewer Collection Systems." This CMOM Program Plan shall be submitted to EPA, with a copy to TCEQ, for EPA review and approval, within one and a half years of the Effective Date. Except as may otherwise be provided, each element of the CMOM Program Plan shall be implemented as soon as practicable and all elements shall be implemented no later than one year after receipt of EPA approval regarding the CMOM Program Plan. WCTS activities required under the CMOM Program Plan shall be coordinated with other activities of this Consent Decree as appropriate. The CMOM Program Plan shall include the following:

a. A Strategic Asset Management program to be implemented within two years from the Effective Date. The Strategic Asset Management Program shall include the City's WCTS component and equipment inventory and shall include information obtained during cleaning activities, condition and capacity assessments and rehabilitation activities that are used to update asset inventory. The City shall utilize this program to support the decision-making

process in prioritizing sewer basins for assessment and rehabilitation/renewal, replacement and consolidation.

b. Advanced Infrastructure Analytics Platform (AIAP). Within two years from the Effective Date, the City shall implement its AIAP. The AIAP integrates citywide wastewater system hydraulic models, infrastructure asset inventory and condition, historical Capital Improvement Plan (CIP), projected regional growth, and operational databases regularly maintained by the City. The integrated platform will be used to develop effective operational and CIP plans for wastewater infrastructure. It will also be used to establish interactive key performance indicators (KPIs) and management reports on demand. The AIAP tools include statistical analytical results from the wastewater infrastructure models with SCADA, level monitoring, flow monitoring, and rainfall data, and shall be used to identify, respond to, and help to prevent SSOs from occurring in the wastewater collection system. Upon full integration of capacity, condition and work order management systems in the AIAP, the needs for infrastructure assets (pipes and facilities) will be identified and prioritized for developing a balanced CIP and operation and maintenance plan/projects.

c. Program Cleaning. Program Cleaning is the process of routinely removing debris from the interior of the pipe. The City shall clean all Small Diameter Gravity Sewer Mains within the WCTS within 10 years from the Effective Date. All Large Diameter Gravity Sewer Mains within the WCTS shall be

inspected within 10 years from the Effective Date. The City shall clean each Large Diameter Gravity Sewer Segment that the City determines, based on inspection results and other analysis, to have a maximum depth of debris in any part of that Sewer Segment that exceeds 20 percent of the Sewer Segment's height. After the initial 10-year cycle, the City shall perform program cleaning of no less than 50 percent of Gravity Sewer Mains and manholes within 15 years from the Effective Date.

d. Preventive Cleaning. Preventive Cleaning is the process of cleaning the same pipe segment more often than Program Cleaning due to a higher rate of debris accumulation. Preventive Cleaning shall target areas identified through analysis of the WCTS including reoccurrence of SSOs, SSO causes, and selection of areas with multiple FOG generators. The City shall annually clean no less than 275 miles of Small Diameter Gravity Sewer Mains in addition to Program Cleaning.

e. Early Year Targeted Cleaning. Within two years of the Effective Date, the City shall clean no less than 1,500 miles of Gravity Sewer as part of Early Year Targeted Cleaning. The Early Year Targeted Cleaning shall consist of Program Cleaning in areas that have experienced more than 10 SSOs per square mile as well as Preventive Cleaning. The City may count Early Year Targeted Cleaning to comply with the Program Cleaning and Preventive Cleaning requirements, as applicable.

f. Root Control. As part of the Gravity Sewer Main Condition Assessment

described under Paragraphs 25, 26 and 30 of this Consent Decree and CMOM activities, the City shall identify and expeditiously remove root intrusions to minimize hydraulic capacity loss and prevent future blockage. The City may remove roots through application of chemical root growth inhibitors or by mechanical means. In each Annual Report, the City shall describe its yearly root control activities, including a map identifying Sewer Segments where root control activities were conducted.

g. A FOG Program with the goal of eliminating FOG-related SSOs in the WCTS. The City has implemented and shall continue to implement its FOG Program that includes, at a minimum, the following elements related to FOG Generators:

i. Specific requirements for the installation and maintenance of FOG interceptors at new commercial, institutional and industrial facilities that discharge FOG to the WCTS. Specific requirements for the installation and maintenance of FOG interceptors at existing commercial, institutional and industrial facilities when those facilities undergo modification(s) that trigger the local ordinance's permitting requirements;

ii. An ongoing FOG communication and response process that (1) investigates FOG SSOs by engaging City departments or staff responsible for FOG investigations or industrial pretreatment; (2) identifies practicable remedial actions to be taken by the City or

FOG Generators to address identified FOG discharges or locations within the WCTS where FOG accumulation caused an SSO; and, (3) facilitates communication and prioritization strategies between different departments or staff responsible for implementing the FOG program;

iii. A tiered FOG Generator interceptor inspection program based upon compliance histories that requires routine internal inspection of FOG interceptors no less often than once every three years. The City shall also continue its practice of conducting sanitarian inspections of food service establishments, which include review of FOG Generator compliance documentation;

iv. Guidance and standards for FOG Generators to comply with local FOG ordinances;

v. FOG program effectiveness metrics and measures that shall include an analysis of FOG-related blockages and SSOs;

vi. FOG disposal manifest program to document transportation and disposal of FOG;

vii. The ability to make all modifications to local regulations, including Art. XI, Ch. 47 of the Code of Ordinances, Houston, Texas ("Transportation and Treatment of Certain Wastes"), which includes enforcement mechanisms and procedures for addressing non-compliant FOG Generators;

viii. Educational efforts aimed at FOG Generators and if appropriate, residential customers of the Sewer System; and

ix. A list of FOG generators that discharge FOG into the WCTS that is updated annually.

h. A list of categories of employees that require training and a list of specific training for each category of employee directly related to operation and maintenance of the WCTS, for the purpose of responding to and preventing SSOs, including identification of the types of training records that the City maintains and of the information management systems used to plan and document completed training.

i. The Parties acknowledge the City has authority to address Private Laterals that cause or threaten to cause an unauthorized discharge to the City's MS4, the WCTS, or waters of the United States or waters in the State of Texas, pursuant to City Code chs.10 and 47.

j. To address a wastewater release that impacts or threatens to impact the City's MS4 or waters of the United States or waters in the State of Texas from a Private Lateral caused by blockages, flow conditions, or other malfunctions of that Private Lateral of which the City has become aware, the City shall:

i. Provide either verbal information (if the owner of the Private Lateral is present) or leave a "door hanger"-style written notice at the property. The information whether written or verbal shall inform the owner to contact a plumber to resolve the defective Private Lateral.

ii. Houston Public Works (HPW), its responsible branch, department or successor shall electronically notify the Houston Health Department (HHD) of the defective Private Lateral.

iii. HHD shall dispatch an investigator to the location of the defective Private Lateral. If the defective Private Lateral has not been addressed by the owner when the HHD inspector conducts his/her inspection, HHD shall inform the owner to hire a plumber to correct the defective Private Lateral.

iv. HHD shall re-inspect to confirm that the defective Private Lateral has been corrected by the owner. If the defective Private Lateral has not been corrected, the City may pursue any of its enforcement options allowed by law.

k. To address defective Private Laterals that are found to significantly contribute I/I to a capacity constraint, the City shall:

i. Provide either verbal information (if the owner of the Private Lateral is present) or leave a "door hanger"-style written notice at the property. The information, whether written or verbal, shall inform the owner to contact a plumber to resolve the defective Private Lateral.

ii. HPW shall electronically notify the City's Building Code Enforcement Branch (BCE), its responsible branch, department or successor of the defective Private Lateral.

iii. BCE shall dispatch an investigator to the location of the defective Private Lateral. If the defective Private Lateral has not been addressed by the owner prior to the BCE investigator's inspection, BCE shall inform the owner to hire a plumber to correct the defective Private Lateral.

iv. BCE shall re-inspect to confirm that the defective Private Lateral has been corrected by the owner. If the defective Private Lateral has not been corrected, the City may pursue any of its enforcement options allowed by law.

44. The City has developed and begun to implement an SSO Response Plan ("SSORP") to expedite the response to SSOs.

a. The SSORP includes the following objectives:

i. Response and halting SSOs as rapidly as practicable, including Building/Private Property Backups. The City shall respond within an average of four hours after it becomes aware of an SSO, but not longer than eight hours;

ii. Appropriate response and remediation of SSOs to minimize potential health hazards and adverse environmental impacts; and,

iii. Appropriate measures implemented to prevent SSO recurrence, including identifying and mitigating the cause of the SSO.

b. The SSORP includes the following information:

i. A description of the actions the City will undertake to provide notice to

the public of each SSO from the WCTS when such notice is required by Permits or applicable law;

ii. A description of the actions the City will undertake to provide notice to any applicable government authorities of an SSO from the WCTS when such notice is required by Permits or applicable law;

iii. A description of procedures to minimize the volume of untreated wastewater discharging that is associated with an SSO;

iv. A description of procedures for responding to a Building/Private Property Backup, including:

1. A description of methods for communicating with customers where Building/Private Property Back-ups have occurred;
2. A description of procedures for customers to report Building/Private Property Backups; and
3. A description of procedures for customers to obtain assistance with property clean-up.

v. Identification of location(s) within the service area of each Lift Station where SSOs are first likely to occur in the event of a failure of that Lift Station;

vi. A description of SSO response procedures that are specific to each Lift Station, including alternative pumping strategies, critical wet well levels and operation of emergency power system; and

vii. A description of procedures for responding to and resolving SSOs that

occur at Gravity Sewers Mains or Force Mains.

45. The City has developed certain SOPs for general operation and maintenance of components of the WCTS, including Gravity Sewer Mains, manholes, Lift Stations, Force Mains, and other major ancillary facilities. The City shall enhance existing and/or develop new SOPs as necessary to assist it with implementation of this Decree, including major work tasks required for the operation and maintenance of the WCTS related to the Decree as shown in the List of Houston SOPs Appendix F. If substantial updates to SOPs are made, the City shall submit, electronically or otherwise, such updated SOPs to EPA, with a copy to TCEQ, as part of the Annual Report. EPA reserves the right to comment on SOPs.

Advanced Sewer System Monitoring

46. The City shall expand its current network of approximately 300 manhole sewer level remote monitoring devices by completing installation of no less than 3,000 additional manhole sewer level remote monitoring devices across the WCTS within five years of the Effective Date. The devices shall monitor wastewater levels and shall be designed and capable of sending real-time alerts when specified thresholds are exceeded, thereby improving responsiveness and operations with the goal of preventing SSOs from occurring. The City shall maintain at least 3,000 remote monitoring devices for a period of four years after installation and shall evaluate the benefits of this technology and other remote wastewater detection technologies to increase efficiency in SSO prevention and hydraulic modeling efforts. After the evaluation, the City shall continue remote

monitoring of sewer levels at locations where it deems appropriate, with the goal of reducing SSOs.

SECTION VI. CIVIL PENALTY

47. Within 60 Days after the Effective Date of this Consent Decree, the City shall pay the sum of $4,400,000 as a civil penalty. Of this amount, $2,200,000 shall be payable to the United States as a civil penalty and $2,200,000 shall be payable to the State as a civil penalty as set forth below.

48. In the event that full cash payment to the United States or the State is not made within 60 Days after the Effective Date of this Consent Decree, the City shall pay to the United States interest on the balance due from the original due date to the date of full payment, at the rate calculated pursuant to 28 U.S.C. § 1961, and shall pay to the State interest on the balance due from the original due date to the date of full payment, at the rate calculated pursuant to Texas Finance Code § 304.003.

49. Payment shall be made by FedWire Electronic Funds Transfer (EFT) to the U.S. Department of Justice in accordance with instructions to be provided to the City by the Financial Litigation Unit of the U.S. Attorney's Office for the Southern District of Texas. At the time of payment, the City shall simultaneously send written notice of payment identifying the payment as a civil penalty and a copy of any transmittal documentation (which should reference DOJ case number 90-5-1-1-08687/1 and the civil action number of this case) to the United States in accordance with Paragraph 123 of this Decree (Notices).

50. The City shall make payment directed to Texas by this Consent Decree as follows: the City shall pay Texas by wire transfer to the Texas Comptroller of Public Accounts – Federal Reserve Clearing Account for the Office of the Attorney General:

Financial Institution (short name):	TX COMP AUSTIN
Routing Number:	114900164
Account Name:	Comptroller of Public Accounts Treasury Operations
Account Number to Credit:	463600001
Reference:	City of Houston, Texas AG Case # CX3618358233 Priscilla M. Hubenak, Chief, Environmental Protection Division MC-066
Attention	Office of the Attorney General, Kristy Lerma, Financial: Rptg

51. At the time of payment, the City shall send a copy of the wire transfer authorization form and the wire transaction record, together with a transmittal letter, which shall state that the payment is for the Civil Penalty and Attorney's Fees owed pursuant to the Consent Decree in the United States et. al v. City of Houston, and shall reference the civil action number and Reference: AG # CX3618358233 to Texas in accordance with Section XVIII (Notices).

SECTION VII. ATTORNEY'S FEES

52. The City shall pay Texas $200,000 in attorney's fees within 60 Days after the Effective Date of the Consent Decree. The City shall make full payment of this amount in accordance with Paragraphs 50 and 51 of this Consent Decree.

SECTION VIII. REVIEW OF DELIVERABLES

53. Each Deliverable is subject to review by EPA. For any Deliverables due to EPA under this Consent Decree, the City shall concurrently provide a copy of the Deliverable to TCEQ at the time that such Deliverable is submitted to EPA. Select Deliverables are subject to review and approval, as detailed in Paragraph 54 below. All other Deliverables are subject to review and comment, as detailed in Paragraph 55 below. Select Deliverables are subject only to EPA review, as detailed in Paragraph 56 below.

54. Deliverables Subject to Review and Approval. The Capacity Remedial Measures Plan(s), the TCEQ Letter of Authorization request, the WWF Pilot Testing Result Report, the WWF Full Scale Treatment Plans, the Scott Street WWF Remedial Measures Plan, the Northside WWF Remedial Measures Plan, and the CMOM Program Plan shall be subject to the review and approval process described in Paragraph 57 below. During the review of the Capacity Remedial Measures Plan(s), EPA will consider all factors used by the City in the development of the Capacity Remedial Measures Plan(s).

55. Deliverables Subject to Review and Comment. The Annual Reports shall be subject to Review and Comment, as detailed in Paragraph 58.

56. Other Deliverables. All other Deliverables required under this Consent Decree, including Monthly SSO Summary Reports, and any substantial updates to SOPs for general operation and maintenance of the WCTS submitted as part of the Annual Reports, are subject to EPA review at its option.

57. EPA Action on Deliverables Subject to Review and Approval. After review of any Deliverable that is required to be submitted pursuant to Paragraph 54 and after

consultation with TCEQ, EPA shall in writing: (i) approve the Deliverable, in whole or in part; (ii) approve the Deliverable upon specified conditions; (iii) disapprove the Deliverable, in whole or in part, providing comments identifying deficiencies and directing the City to modify the Deliverable, in whole or in part; or, (iv) any combination of the above.

a. Approved Deliverables. If a whole Deliverable is approved by EPA pursuant to Paragraph 57, the City shall take all actions required by the Deliverable in accordance with the schedules and requirements of the Deliverable as approved. If the Deliverable is approved only in part pursuant to Paragraph 57, the City shall, upon written direction from EPA, after consultation with TCEQ, take all actions required by the approved Deliverable that EPA, after consultation with TCEQ, determines are technically severable from any disapproved portions, subject to the City's right to dispute severability, the specified conditions, or the disapproved portions, under Section XII (Dispute Resolution) of this Decree. Following EPA approval of any Deliverable or portion thereof, such Deliverable or portion thereof so approved shall be incorporated into, and become enforceable under, this Consent Decree.

b. Disapproved Deliverables. If the Deliverable is disapproved in whole or in part pursuant to Paragraph 57, the City shall, within 60 Days or such other time as EPA and the City agree to in writing, correct all deficiencies and resubmit to EPA the Deliverable, or disapproved portion thereof, for approval, in accordance with Paragraph 57, and subject to Subparagraph d. If the resubmission is approved in

whole or in part, the City shall proceed in accordance with Subparagraph d. For any Deliverable that is disapproved in whole or in part, EPA shall provide a written explanation of how the Deliverable does not meet the requirements of the Consent Decree.

c. Stipulated Penalties Accruing. Any Stipulated Penalties applicable to the original Deliverable, as provided in Paragraph 85 (Stipulated Penalties) of this Decree, shall accrue during the 60 Day period or other specified period, but shall not be payable unless the resubmitted Deliverable is untimely or is disapproved in whole or in part. If the original submission was so deficient as to constitute a material breach of the City's obligations under this Decree, the stipulated penalties applicable to the original submission shall be due and payable notwithstanding any subsequent resubmission.

d. Resubmitted Deliverable. If a resubmitted Deliverable, or portion thereof, is disapproved in whole or in part, EPA, after consultation with TCEQ, may again require the City to correct any deficiencies, in accordance with this Subparagraph. If, upon resubmission, a Deliverable is disapproved or modified in whole or in part by EPA, after consultation with TCEQ, due to a material defect previously identified and not corrected, the City shall be deemed to have failed to submit the Deliverable timely and adequately unless the City invokes the dispute resolution procedures set forth in Section XII (Dispute Resolution), and (i) EPA agrees to modify their earlier position or (ii) the Court adopts the City's position. If EPA's disapproval is upheld by the Court, Stipulated Penalties shall accrue for such

violation from the date on which the initial Deliverable was originally required. Upon EPA's approval of the City's resubmitted Deliverable, that Deliverable will be incorporated into and become enforceable under this Consent Decree and shall be implemented by the City according to the approved schedule subject to the City's right to invoke Dispute Resolution.

58. Deliverables for Which EPA Provides Written Comments. EPA may choose to provide written comments on the Deliverables subject to Paragraph 55. If EPA provides comments that identify deficiencies in such a Deliverable, and EPA specifically requests a response from the City, then the City shall provide a written response to EPA within 60 Days of receipt of such request.

59. Public Document Repository. The City shall post to its website all final EPA-reviewed and/or EPA-approved plans, reports, or other submissions required by Section V (Compliance Requirements) and Section IX (Reporting Requirements). Each submission shall remain on the website or by link or other accepted method for at least three years.

SECTION IX. REPORTING REQUIREMENTS

60. Provisions applicable to all Deliverables:

a. All Deliverables shall be certified in accordance with Paragraph 111 (Certification) of this Consent Decree.

b. All Deliverables shall be submitted electronically in a searchable format.

c. All Deliverables shall be submitted to the persons designated in Paragraph 123 (Notices) of this Consent Decree.

d. The reporting requirements of this Consent Decree do not modify in any way or

relieve the City of any reporting obligations required under the CWA or its implementing regulations or any other federal, state, or local law, regulation, permit or other requirement.

e. If a due date for an action or Deliverable falls on a Saturday, Sunday, or a Federal, State, or City holiday, then the required information or action is due on the next business day.

61. Monthly SSO Reporting. Beginning 45 Days after the Effective Date, the City shall provide a monthly SSO summary report in tabular format addressing the SSOs that occurred the previous month and shall continue providing monthly SSO summary reports over the term of this Consent Decree. The monthly SSO summary reports shall be submitted within 30 Days of the end of each reporting month and shall be consistent with the monthly report provided to TCEQ so long as it includes the following for each SSO:

a. Location of the SSO by street address, asset identification number or any other appropriate method (e.g., by latitude and longitude);

b. SSO route including whether the SSO entered the storm sewer, drainage ditch, surface water (bayou), or was contained on site;

c. An estimate of the volume (in gallons) of wastewater lost in the SSO;

d. Description of the WCTS component from which the SSO occurred (e.g., manhole, Gravity Sewer Main, pump station wet well);

e. Number of fish kill occurrences caused by SSOs, if any;

f. Cause(s) or suspected cause(s) of the SSO;

g. Estimated date and time when the SSO began and stopped and the average SSO gallons per minute (gpm) discharged;

h. Description of corrective action taken to mitigate adverse impact of SSO;

i. Indication of notifications to the public and other agencies or departments, as required by law or regulation; and

j. Any report by the City asserting that an SSO, WWF effluent or WWTP effluent violation is not a violation pursuant to TWC Section 7.251.

62. Annual Reports. On October 31 following each Fiscal Year over the term of this Consent Decree, and until this Consent Decree is terminated, the City shall submit to EPA, with a copy to TCEQ, an Annual Report. The Annual Report shall generally conform to the Annual Report Template provided in Appendix G, and contain all the information required under Paragraphs 11, 12-14, 16, 18-24, 25-38, 39-41, 43-44, 46, 63-74, 75-76, and 131. All Annual Reports shall be submitted to EPA for review and comment.

63. SSO Reporting. A tabular or graphic summary of the following SSO information:

a. Total number of SSOs during the previous Fiscal Year and annual total number of SSOs for up to the previous 10 Fiscal Years after the Effective Date;

b. Total number of SSOs during the previous Fiscal Year categorized by cause, such as grease, roots, lift station failure, capacity constraint;

c. Total SSO discharge volume during the previous Fiscal Year and annual total SSO discharge volume for up to the previous 10 Fiscal Years after the Effective Date;

d. Total number of media reports issued during the previous Fiscal Year;

e. Total number of locations where "repeat SSOs" occurred during the previous Fiscal Year (for purposes of this section, "repeat SSO" is defined as an SSO that occurred at the same Pipe Segment within the past 24 months) including the date of the last SSO that occurred at the same location; and

f. Any report by the City asserting that an SSO, WWF effluent or WWTP effluent violation is not a violation pursuant to TWC Section 7.251.

64. Early Action Program. A tabular summary of the status of each Early Action Project as of the end of the Fiscal Year.

65. CMOM - FOG Program. A tabular summary of the total number of permitted FOG Generators, FOG program interceptor inspections, number of FOG Generators that have not been inspected during the previous three Fiscal Years, and enforcement or compliance assistance actions taken during the previous Fiscal Year.

66. CMOM - Sewer Cleaning. A tabular summary of total WCTS Small and Large Diameter Gravity Sewer Main miles, miles of Gravity Sewer Mains inspected and/or cleaned as part of Program Cleaning, miles of Gravity Sewer Mains cleaned as part of Preventive Cleaning, and percent of Small and Large Diameter Gravity Sewer Mains cleaned during the previous Fiscal Year. During the first two years of the Consent Decree, Early Year Targeted Cleaning results will also be reported in this section of the Annual Report.

67. CMOM - Private Laterals. A tabular summary regarding Private Lateral wastewater releases that impact or threaten to impact the MS4 or waters of the United States or waters in the State of Texas due to blockages, flow conditions, or other malfunctions of

that Private Lateral. The tabular summary shall provide the following information regarding each Private Lateral addressed pursuant to Paragraph 43(j) and (k): location of Private Lateral and the date of the wastewater release. A second tabular summary shall provide the following: number of Private Laterals remediated as a result of a notification (verbal or written); number of Private Laterals remediated as a result of inspections conducted by HHD or BCE; number of Private Laterals remediated as a result of an assessment of a fine; number of Private Laterals remediated as a result of suspension of city water or sewer service; and number of Private Laterals not remediated despite City efforts.

68. Capacity Assessment and Rehabilitation. Identify the status of and progress made in the previous year toward completing the remedial measures identified in the Capacity Remedial Measures Plan(s). A list of assets that meet the criteria specified in Paragraph 13 of the Consent Decree regarding potential capacity constraints and specify the reason the location meets the criteria. A list and map of new areas with capacity constraints, remedial alternative analysis for each new area, remedial action taken or to be taken along with a timeline for completion of each remedial action. Identify all capacity-related Sewer Segments that were renewed or replaced in the previous year, all Sewer Segments that are scheduled for renewal or replacement in the following year, and provide a list of sanitary sewer system hydraulic models updated during the previous year.

69. Condition Assessment and Rehabilitation. A tabular summary of Gravity Sewer Mains and manholes inspected with corresponding NASSCO grades (1-5), as well as any defects identified during inspections of Force Mains and Lift Stations; a list of identified

Category 4 and 5 Gravity Sewer Mains and manholes; and a tabular summary of the mileage of Gravity Sewer Mains and Force Mains and number of Lift stations to be inspected in the upcoming year.

70. Completed Condition Remedial Measures. A tabular summary of condition remedial measures completed pursuant to Paragraph 38 during the previous Fiscal Year showing the following remediation figures: miles of Gravity Sewer Mains, number of manholes, miles of Force Mains, and number of Lift Stations.

71. Completed Capacity Remedial Measures. A tabular summary of capacity remedial measures completed pursuant to Paragraphs 12, 13, and 14 during the previous Fiscal year showing the following remediation figures: miles of Gravity Sewer Mains, number of Force Mains, number of Lift Stations.

72. WWTP Corrective Actions. A tabular summary of WWTP corrective actions scheduled and WWTP corrective actions completed pursuant to Paragraphs 40 and 41.

73. Wet Weather Facilities. A summary of all activities performed in the previous Fiscal Year pursuant to Paragraphs 18 - 24 of the Consent Decree regarding the Wet Weather Facilities, including, as appropriate, a summary of pilot study activities, LOA activities, sampling results and analysis, status of Pilot Testing Result Report, status of Full-Scale Treatment Plan, and status of the Remedial Measures Plan. The City shall specify any non-effluent maintenance-related permit violations involving the WWFs. After any applicable deadline specified in Paragraphs 21 and 24, the City shall provide the number of discharges from the Scott Street WWF.

74. Inaccessible/nonexistent Sewer Assets. A list identifying assets within the Sewer System that the City was unable to inspect or clean because the asset was inaccessible, nonexistent, or not located.

75. Modifications. A summary of written agreements pursuant to Paragraph 131 during the previous Fiscal Year.

76. Standard Operating Procedures. Copies of SOPs that were substantively modified in the previous Fiscal Year, if any, as described in Paragraph 45 of the Consent Decree.

77. The City shall not object to the authenticity of any certified Annual Report that it submits in any proceeding brought to enforce this Consent Decree.

SECTION X. STIPULATED PENALTIES

78. The City shall be liable for stipulated penalties as specified in this Section for violations of the items listed below in this Section, upon demand. Stipulated penalties due and owing under this Paragraph shall be paid in the manner specified in Paragraphs 89-90 below. Stipulated penalties for which a demand has been made and are due and owing shall be paid unless excused under Section XI (Force Majeure) or the terms of this Section.

79. Failure to pay Civil Penalty. If the City fails to pay the civil penalty required under Section VI of this Decree when due, then stipulated penalties of $2,000 per Day may be assessed against the City by the Plaintiffs for each Day the payment is late.

80. Failure to meet WWTP effluent limitations set in the City's Permits. If the City exceeds the WWTP effluent limits set in its Permits, then the following stipulated penalties may

be assessed by Plaintiffs, except for permit #TX0096172 regarding the copper effluent limit, and permit #TX0105058 for two-hour peak flow:

Effluent Limitation	Penalty per Exceedance
Daily effluent limitation	$1,000
Seven-day average effluent limitation	$2,000
Monthly average effluent limitation	$5,000

81. Failure to meet a WWF non-effluent maintenance-related requirement set in the City's Permits. If the City does not meet a WWF operational requirement for Outfall 002 set forth in TPDES/NPDES Permit Nos. TX0096172 or TX0105058, then Plaintiffs may assess a $1,000 stipulated penalty per exceedance or other failure (e.g., the City does not provide a minimum chlorine dosage, the City does not comply with requirement to drain, clean and temporarily remove the WWF from service within 48 hours after a discharge event).

82. WWF Discharges that occur after a compliance deadline. In the event a WWF experiences a discharge after a compliance deadline specified in Paragraphs 21(a) and 24(b) the following stipulated penalties may be assessed by Plaintiffs:

WWF Discharge occurring after compliance deadline	Penalty per WWF Discharge per Day
1st year in which any such discharge occurs from that WWF	$20,000
2nd year in which any such discharge occurs from that WWF	$40,000
3rd year in which any such discharge occurs from that WWF	$60,000
4th and later years in which any such discharge occurs from that WWF	$100,000

83. SSOs discharging into or adjacent to waters. For each SSO that discharges to either waters of the United States or into or adjacent to Waters in the State of Texas, the following stipulated penalties may be assessed by Plaintiffs.

If SSO occurs	Penalty per SSO per Day
Within four years from the Effective Date	$500
More than four years from the Effective Date	$1,000
More than seven years from the Effective Date	$2,500
More than 10 years from the Effective Date	$3,000

84. SSOs that do not reach into or adjacent to waters. For each SSO that does not reach either waters of the United States or into or adjacent to Waters in the State of Texas, the following stipulated penalties may be assessed by Plaintiffs.

If SSO occurs	Penalty per SSO per Day
Within five years from the Effective Date	$300
More than five years from the Effective Date	$1,000
More than nine years from the Effective Date	$1,500

85. Failure to submit timely and/or complete Deliverables. For each Day the City fails to submit and/or complete any Deliverables required under Section V of this Consent Decree by the specified due dates, stipulated penalties may be assessed by the Plaintiffs. If a due date falls on a Saturday, Sunday, Federal, State, or City holiday, the due date

shall be the following business day. The stipulated penalties for failure to meet each Deliverable submission date shall be as follows:

Period of noncompliance	Penalty per violation per Day
1st to 30th Day	$500
31st to 60th Day	$1,000
61st Day to 90th Day	$2,000
Beyond the 90th Day	$2,500

86. Failure to implement and complete Compliance Requirements in Section V. The Plaintiffs may assess stipulated penalties as set forth below for each Day the City fails to satisfy any of the following remedial requirements: Early Action Projects referenced in Paragraph 11; capacity requirements referenced in Paragraphs 12, 13, 14 and 16; condition requirements referenced in Paragraphs 26, 30, 31, 32, 36 and 37; and CMOM requirements referenced in Paragraph 43(c), (d), and (e) (Program Cleaning, Preventive Cleaning and Early Year Targeted Cleaning). The stipulated penalties for failure to meet each remedial requirement shall be as follows:

Period of noncompliance	Penalty per Day
Days 1-30	$1,000
Days 30-60	$2,500
Days 61-180	$3,500
More than 180 Days	$4,500

87. Stipulated penalties under this Section shall begin to accrue on the day after performance is due or on the day a violation occurs, whichever is applicable, and shall continue to

accrue until performance is satisfactorily completed or until the violation ceases. Stipulated penalties shall accrue simultaneously for separate violations of this Consent Decree. The City shall pay any stipulated penalty within 60 Days of receiving a written demand from the United States and/or the State. Prior to either Plaintiff making a written demand for stipulated penalties pursuant to this Paragraph, the Plaintiffs shall consult. Where the Plaintiffs jointly pursue stipulated penalties that accrue pursuant to any Paragraph(s) in this Section, the City shall pay 50 percent of the total penalty owed to the United States and the remaining 50 percent of the total penalty owed to Texas. Where only one Plaintiff, the United States or Texas, pursues stipulated penalties, only that Plaintiff shall recover the full amount of the penalty accrued pursuant to the Paragraph(s) invoked, and the Plaintiff not joining in the pursuit of stipulated penalties shall be deemed to have waived such penalties. The Plaintiff independently making a demand for payment of stipulated penalties shall concurrently send a copy of the written demand to the other Plaintiff.

88. Stipulated penalties shall continue to accrue as provided in Paragraph 87 above, during any Dispute Resolution subject to the provisions set forth below, with Interest on accrued penalties payable and calculated at the rate established by the Secretary of the Treasury, pursuant to 28 U.S.C. § 1961, but need not be paid until the following:

a. If the dispute is resolved by agreement or by a decision of the United States and/or Texas that is not appealed to the Court, the City shall pay accrued penalties determined to be due and owing, together with Interest, to the United States

and/or Texas within 60 Days of the effective date of the agreement or the receipt of the United States' or Texas's written decision or order;

b. If the dispute is appealed by the City to the Court and the United States and/or Texas prevails in whole or in part, the City shall pay all accrued penalties determined by the Court to be due and owing, together with Interest, within 60 Days of receiving the Court's decision or order, except as provided in Subparagraph 88(c), below;

c. If the City appeals the District Court's decision, the City shall pay all accrued penalties determined to be due and owing, together with Interest, within 60 Days of receiving the final non-appealable appellate court decision.

89. Stipulated penalties due and owing to the United States shall, as directed by the United States, be paid by EFT in the amount due payable to the "U.S. Department of Justice," referencing DOJ No. 90-5-1-1-08687/1 and the United States Attorney's Office file number and delivered to the office of the United States Attorney, Southern District of Texas.

90. Stipulated penalties due and owing to Texas shall be paid in the manner set forth and with the confirmation notices required in Paragraphs 50 and 51, except that the transmittal letter shall state that payment is for stipulated penalties and shall state for which violation(s) the penalties are being paid.

91. If the City fails to pay stipulated penalties according to the terms of this Consent Decree, the City shall be liable for Interest on such penalties, as provided for in 28 U.S.C. § 1961, accruing as of the date payment became due.

92. Either the United States or Texas, or both, may, in the unreviewable exercise of each Plaintiff's own discretion, reduce or waive stipulated penalties otherwise due to them pursuant to Paragraphs 79 (Failure to pay Civil Penalty), 80 (Failure to meet effluent WWTP limitations set in the City's Permits), 81 (Failure to meet a WWF non-effluent maintenance-related requirement set in the City's Permits), 82 (WWF Discharges that occur after a compliance schedule), 83 (SSOs discharging to waters of the United States or into or adjacent to Waters in the State of Texas), 84 (SSOs that do not reach waters of the United States or into or adjacent to Waters in the State of Texas), 85 (Failure to submit timely and/or complete Deliverables), and 86 (Failure to implement and complete Compliance Requirements in Section V) under this Consent Decree. Any such reduction or waiver shall only apply to stipulated penalties owed to the Plaintiff exercising the discretion allowed under these Paragraphs and shall not affect the right of the other Plaintiff to enforce the stipulated penalties provisions of this Section.

93. Subject to the provisions of Section XVI of this Consent Decree (Effect of Settlement/Reservation of Rights), the stipulated penalties provided for in this Consent Decree shall be in addition to any other rights, remedies, or sanctions available to the United States and/or Texas for the City's violation of this Consent Decree or applicable law. Where a violation of this Consent Decree is also a violation of the CWA or TWC, regulations promulgated under those Acts, the Permits, or state law, any statutory penalties due or owed by the City to a Plaintiff for any violation of law shall be reduced by the amount of all stipulated penalties paid by the City for the same violation under this Consent Decree.

SECTION XI. FORCE MAJEURE

94. "Force Majeure" shall mean any event arising from causes beyond the control of the City, its contractors, or any entity controlled by the City that delays or prevents the performance of any obligation under this Consent Decree despite the City's best efforts to fulfill the obligation. "Best efforts" include using efforts to anticipate reasonably foreseeable Force Majeure events and to address the effects of any such event (a) as it is occurring and (b) after it has occurred, such that the delay is minimized to the extent reasonably practicable. "Force Majeure" does not include the City's financial inability to perform any obligation under this Consent Decree.

95. The City shall provide notice to the United States and Texas orally or by electronic or facsimile transmission within 15 Days of when the City first knew of, or by the exercise of due diligence, should have known of, a claimed Force Majeure event. Within 30 Days thereafter or such other time as EPA, TCEQ, and the City agree in writing, the City shall provide in writing to EPA and TCEQ the following: an explanation and description of the reasons for the delay; the anticipated duration of any delay; all actions taken to prevent or minimize the delay; a schedule for implementing any measure to be taken to prevent or mitigate the delay or the effect of the delay; and the City's rationale for attributing the delay to a Force Majeure event, if it intends to assert such a claim. Failure to comply with the requirements of this paragraph may at EPA's and TCEQ's option preclude the City from asserting any claim of Force Majeure. The City shall be deemed to know of any circumstance of which the City, its contractors, or any entity controlled by the City knew or, through best efforts, should have known.

96. If Plaintiffs agree that the delay or anticipated delay is attributable to a Force Majeure event, then the time for the City to perform the obligations under this Decree that are affected by the Force Majeure event will be extended by Plaintiffs by such time as is necessary to complete those obligations. An extension of time to perform the obligations affected by a Force Majeure event shall not, by itself, extend the time to perform any other obligation. Plaintiffs will notify the City in writing of the length of the extension of time, if any, for performance of the obligations affected by the Force Majeure event.

97. If Plaintiffs do not agree that a Force Majeure event has occurred, or do not agree to the extension of time sought by the City, then Plaintiffs will issue a notice, in writing, to the City of Plaintiffs' position that the delay or anticipated delay was not caused by a Force Majeure event or that Plaintiffs do not agree to the extension of time sought by the City.

98. If the City elects to invoke the Dispute Resolution procedures set forth in the Decree, it shall do so no later than 30 Days after receipt of Plaintiffs' notice sent under Paragraph 97 above. In any such 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; the duration of the delay or the extension sought was or will be warranted under the circumstances; the City exercised best efforts to prevent or minimize the effects of the delay; and the City complied with the requirements of the preceding Paragraphs in this Section. If the City carries this burden, then the delay at issue shall be deemed not to be a violation by the City of the affected obligation of this Decree identified to Plaintiffs and the Court.

SECTION XII. DISPUTE RESOLUTION

99. Unless otherwise expressly provided for in this Consent Decree, the procedures of this section shall be the exclusive mechanism to resolve disputes arising under this Consent Decree.

100. 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 Texas a written notice of dispute, which may be sent by regular first-class mail, return receipt requested, and by electronic mail. Such notice of dispute shall state clearly the matter in dispute. The period of informal negotiations shall not exceed 45 Days from the date the City sends its notice of dispute, unless that period is modified by written agreement between the Plaintiffs and the City. During the period of informal negotiations:

a. With respect to disputes regarding force majeure under Section XI (Force Majeure) and termination under Section XXII (Termination), Plaintiffs shall consult about their position. The position Plaintiffs take in their written notification to the City as set forth in Section XI (Force Majeure) or Section XXII (Termination) will be the position of Plaintiffs in informal dispute resolution pursuant to this Paragraph, unless Plaintiffs mutually agree to modify that position and inform the City of their modified position on the dispute in writing. If the Parties cannot resolve a dispute by informal negotiations, then Plaintiffs will send the City formal written notice of conclusion of the informal negotiation period by electronic and certified mail, return receipt requested, and the position advanced

by Plaintiffs shall be considered binding unless, within 45 Days after the City's receipt of the written notice of conclusion of the informal negotiation period, the City invokes formal dispute resolution procedures as set forth below in Paragraph 101;

b. With respect to disputes regarding modification under Section XXI (Modification), the City shall provide written notice of the dispute and explanation of its position to Plaintiffs. Plaintiffs shall consult in an attempt to reach a joint position.

i. If Plaintiffs reach a joint position, the United States shall send Plaintiffs' written joint position to the City within 20 Days from the date the City submits its notice of dispute. If the Parties cannot resolve a dispute by informal negotiations, then the United States, after consulting with the State of Texas, shall send the City formal written notice of conclusion of the informal negotiation period by electronic and certified mail, return receipt requested, with copies to the State of Texas. The position of Plaintiffs shall be considered binding, unless the City invokes formal dispute resolution procedures as set forth in Paragraph 101 within 45 Days after the City's receipt of written notice of conclusion of the informal negotiation period.

ii. If Plaintiffs do not reach a joint position, each Plaintiff shall send its written position regarding the dispute to the City, with a copy to the other Plaintiff, within 20 Days from the date the City submits its notice of

dispute. If the Parties cannot resolve a dispute by informal negotiations, then the United States, after consulting with the State of Texas, shall send the City formal written notice of conclusion of the informal negotiation period by electronic and certified mail, return receipt requested, with copies to the State of Texas. Within 45 Days of receipt of the written notice of conclusion of the informal negotiation period, the City shall initiate the formal dispute resolution process specified in Paragraph 101(b), below by submitting its Statement of Position to Plaintiffs.

c. With respect to all other disputes under this Consent Decree, the United States shall, after providing Texas a reasonable opportunity for consultation, inform the City of the United States' position. If the United States and the City cannot resolve a dispute by informal negotiations, then the United States will send the City formal written notice of conclusion of the informal negotiation period by electronic and certified mail, return receipt requested, and the position advanced by the United States shall be considered binding unless, within 45 Days after the City's receipt of the written notice of conclusion of the informal negotiation period, the City invokes formal dispute resolution procedures as set forth in Paragraph 101.

101. Formal Dispute Resolution. The City shall invoke formal dispute resolution procedures, within the time period provided in the preceding paragraph, by serving on Plaintiffs a written statement of position regarding the matter in dispute. The statement of position shall include any factual data, analysis, or opinion supporting the City's position and any

supporting documentation relied upon by it. During the period of formal negotiations:

a. With respect to disputes regarding force majeure under Section XI (Force Majeure) and termination under Section XXII (Termination), the position Plaintiffs provided to the City pursuant to Subparagraph 100(a) shall be the position of Plaintiffs under this Paragraph, unless Plaintiffs mutually agree to modify their position. Plaintiffs shall consult and serve on the City Plaintiffs' Statement of Position within 90 Days after receipt of City's Statement of Position. Plaintiffs' Statement of Position shall include any factual data, analysis, or opinion supporting that position and any supporting documentation relied upon by Plaintiffs. Plaintiffs' Statement of Position shall be binding on the City, unless the City files a motion for judicial review of the dispute in accordance with Paragraph 102;

b. With respect to disputes regarding modification under Section XXI (Modification), the City shall provide to Plaintiffs its written Statement of Position regarding the dispute and shall include any factual data, analysis, or opinion supporting that position and any supporting documentation relied upon by the City. Plaintiffs shall consult in an attempt to reach a joint position.

   i. If Plaintiffs reach a joint position, the United States shall serve on the City Plaintiffs' Statement of Position within 90 Days after receipt of City's Statement of Position with a copy to the State of Texas. Plaintiffs' Statement of Position shall include any factual data, analysis, or opinion supporting that position and any supporting documentation relied upon by

Plaintiffs. Plaintiffs' Statement of Position shall be binding on the City, unless the City files a motion for judicial review of the dispute within 30 Days of receipt of Plaintiff's Statement of Position in accordance with Paragraph 102.

ii. If the Plaintiffs do not reach a joint position, each Plaintiff shall serve on the City and the other Plaintiff its Statement of Position within 90 Days after receipt of City's Statement of Position with a copy to the other Plaintiff. Each Statement of Position shall include any factual data, analysis, or opinion supporting that position and any supporting documentation relied upon by the respective Plaintiff. Within 30 Days of receipt of Plaintiffs' Statements of Position, the City shall file a motion for judicial review of the dispute in accordance with Paragraph 102.

c. With respect to all other disputes under this Consent Decree, the United States shall provide Texas a reasonable opportunity for consultation during the preparation of the United States' Statement of Position. The United States shall serve on the City the United States' Statement of Position within 90 Days after receipt of the City's Statement of Position. The Statement of Position served by the United States shall include any factual data, analysis, or opinion supporting that position and any supporting documentation relied upon by the United States. The United States' Statement of Position shall be binding on the City, unless the City files a motion for judicial review within 30 Days of receiving the United States' Statement of Position, in accordance with Paragraph 102.

102. Judicial Dispute Resolution. The City may seek judicial review of the dispute by filing with the Court and serving on the United States and the State, in accordance with Paragraph 123 of this Consent Decree (Notices), a motion requesting judicial resolution of the dispute. The motion must be filed within 30 Days of receipt of the Plaintiffs' Statements of Position, pursuant to Paragraph 101. The 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. Plaintiffs shall respond to the City's motion as follows:

a. With respect to disputes regarding force majeure under Section XI (Force Majeure) and termination under Section XXII (Termination), Plaintiffs shall file their response to the City's motion within the time period allowed by the Local Rules of this Court. Plaintiffs shall consult about their response. Unless Plaintiffs mutually agree to modify their position, the position provided to the City in their Statement of Position pursuant to Paragraph 101(a) shall be the position of the Plaintiffs under this Paragraph. The City may file a reply memorandum, to the extent permitted by the Local Rules or order of the Court;

b. With respect to disputes regarding modification under Section XXI (Modification), Plaintiffs shall consult in an attempt to reach a joint position.

i. If Plaintiffs reach a joint position, Plaintiffs shall file a joint response to the City's motion within the time period allowed by the Local Rules of this Court. The City may file a reply memorandum, to the extent

permitted by the Local Rules or order of the Court.

ii. If Plaintiffs do not reach a joint position, each Plaintiff shall file a response to the City's motion within the time period allowed by the Local Rules of this Court. The City may file a reply memorandum, to the extent permitted by the Local Rules or order of the Court.

c. With respect to all other disputes under this Consent Decree, the United States shall provide Texas a reasonable opportunity for consultation during the preparation of the United States' response. The United States shall file its response to the City's motion within the time period allowed by the Local Rules of this Court. The City may file a reply memorandum, to the extent permitted by the Local Rules or order of the Court.

103. The invocation of dispute resolution procedures under this Paragraph 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 88. If the City does not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Paragraph 88 (Stipulated Penalties).

104. Standard of Review. Except as otherwise provided in this Consent Decree, in any dispute brought under this Section, the City shall bear the burden of demonstrating that its position complies with this Consent Decree. The Parties' positions are reviewable only on the record of this dispute, including Statements of Position submitted by the Parties

pursuant to Paragraph 101. The following standard of review applies:

a. With respect to disputes involving modifications pursuant to Section XXI, the Party seeking the modification bears the burden of demonstrating that it is entitled to the requested modification in accordance with Federal Rules of Civil Procedure 60(b).

b. With all other disputes brought under this Section, the City shall bear the burden of demonstrating that its position complies with this Consent Decree. The Parties' positions are reviewable only on the record of this dispute, including Statements of Position submitted by the Parties pursuant to Paragraph 101. The Parties reserve the right to argue regarding the applicable standard of review.

SECTION XIII. RIGHT OF ENTRY AND INFORMATION COLLECTION AND RETENTION

105. The United States, the State, and their representatives, including attorneys, contractors, and consultants, shall have the right of entry to the WWTPs and any part of the WCTS covered by this Consent Decree, at all reasonable times, upon presentation of credentials to:

a. monitor the progress of activities required under this Consent Decree;

b. verify any data or information submitted to the United States or the State in accordance with the terms of this Consent Decree;

c. obtain samples and, upon request, splits of any samples taken by the City or its representatives, contractors, or consultants; and

d. assess the City's compliance with this Consent Decree.

106. Upon request, the City shall allow split or duplicate samples to be taken by EPA and the

TCEQ or their authorized representatives. Upon request, EPA and the TCEQ shall allow the City to take split or duplicate samples of any samples they take.

107. Until five years after the termination of this Consent Decree, the City shall retain and preserve, and shall instruct its contractors and agents to retain and preserve, all non-identical copies of all records, documents and underlying data (including records, documents or data in electronic form) now in its or its contractors' or agents' possession or control, or that come into its or its contractors' or agents' possession or control, and that relate directly to the City's Deliverables unless the underlying data has been provided to Plaintiffs previously. The City may seek a determination from EPA and TCEQ as to whether any particular document or data must be preserved pursuant to this Paragraph by submitting that document or data to EPA and TCEQ. This record retention requirement shall apply regardless of any corporate document-retention policy to the contrary.

108. At the conclusion of the document retention period provided in the preceding Paragraph, the City shall notify the United States and the State at least 90 Days prior to the destruction of any records or documents subject to the requirements of the preceding Paragraph, and, upon request by the United States or the State, the City shall deliver any such records or documents to EPA or the TCEQ. The City may assert that certain documents, records, or other information are 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: (1) the title of the document, record, or information; (2) the date of the document, record, or information; (3) the name and title

of the author of the document, record, or information; (4) the name and title of each addressee and recipient; (5) a description of the subject of the document, record, or information; and (6) the privilege asserted by the City. No documents, reports, or other information created or generated pursuant to the requirements of this Consent Decree shall be withheld on the grounds they are privileged. However, nothing in this Consent Decree shall require the City to provide documents to Plaintiffs that are listed in a City privilege log for which the City can claim a privilege recognized by federal law until the matter is resolved by the Parties or the Court.

109. 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 State, pursuant to applicable federal or state laws, regulations, or permits.

SECTION XIV. FAILURE OF COMPLIANCE

110. The United States and the State of Texas do not, by 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 TWC, regulations enacted pursuant to those Acts, or applicable state laws and regulations. Notwithstanding the United States' or the State's review and approval of any documents submitted to it by the City pursuant to this Consent Decree, the City shall remain solely responsible for compliance with the terms of the CWA, TWC and this Consent Decree.

SECTION XV. CERTIFICATION

111. In all Deliverables, notices, documents or reports submitted to the United States and State

pursuant to this Consent Decree, the City shall, by a City senior management official, sign and certify such notices, documents and reports as follows:

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 such 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.

The certification requirement does not apply to emergency or similar notifications where compliance would be impractical.

112. The City shall not object to the authenticity of any report, plan, notice or any other document prepared in accordance with this Consent Decree or the information contained in said reports in any proceeding to enforce this Consent Decree.

SECTION XVI. EFFECT OF SETTLEMENT/RESERVATION OF RIGHTS

113. This Consent Decree resolves the civil claims of the United States and Texas against the City for violations alleged in the Complaint filed in this action, through the Effective Date of this Consent Decree. Stipulated penalties shall apply pursuant to Section X (Stipulated Penalties) of the Consent Decree, specifically for effluent violations, pursuant to Paragraph 80, and SSO violations, pursuant to Paragraphs 83 and 84, that occur between the Date of Lodging of the Decree through the Effective Date.

114. The United States and Texas reserve all legal and equitable remedies available to enforce the provisions of this Consent Decree, except as expressly stated in Paragraph 113. This Consent Decree shall not be construed to limit the rights of the United States or Texas to obtain penalties or injunctive relief under the CWA, the TWC, or their implementing regulations, or under other federal or state laws, regulations, or permit conditions, except as expressly specified in Paragraph 113. The United States and Texas further reserve all legal and equitable remedies to address any imminent and substantial endangerment to the public health or welfare or the environment arising at, or posed by, Houston's WCTS and WWTPs, whether related to the violations addressed in this Consent Decree or otherwise.

115. In any subsequent administrative or judicial proceeding initiated by the United States or Texas for injunctive relief, civil penalties, or other appropriate relief relating to the Sewer System or Houston's violations, Houston 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 Texas 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 113.

116. This Consent Decree is not a permit, or a modification of any permit, under any federal, state, or local laws or regulations. The City is responsible for achieving and maintaining complete compliance with all applicable federal, State, and local laws, regulations, and permits; and the City's compliance with this Consent Decree shall be no defense to any

action commenced pursuant to said laws, regulations, or permits except as a defense in connection with any third-party claim relating to or arising out of claims or violations alleged by Plaintiffs in the Complaint. Notwithstanding any other provision in this Consent Decree, the City may seek to offer as evidence its compliance with this Consent Decree in any third-party proceeding. Plaintiffs 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, TWC, regulations, the Permits, or state law.

117. Nothing in this Consent Decree will preclude the City from raising defenses available under its Permits, including under TWC Section 7.251, or any renewals or modifications thereof in any such actions.

118. Nothing in this Consent Decree limits the rights or defenses available under Section 309(e) of the CWA, 33 U.S.C. §1319(e), in the event the laws of the State, as currently or hereafter enacted, may prevent the City from raising the revenue needed to comply with this Decree.

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

120. 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.

121. The Parties agree the Complaint and compliance with this Consent Decree constitute and establish diligent prosecution by the United States and the State of Texas under Section

505(b)(1)(B) of the CWA, 33 U.S.C. § 1365(b)(1)(B) and state law, of all matters alleged in the Complaint and addressed in this Consent Decree arising from the beginning of the applicable statute of limitations through the termination of this Consent Decree in accordance with Section XXII.

SECTION XVII. COSTS

122. The Parties shall each bear their own costs of litigation of this action, including attorneys' fees, except that Texas may collect its Attorney's fees as set forth in Section VII of this Consent Decree, and Plaintiffs shall be entitled to collect the costs (including attorneys' fees) incurred in any action necessary to collect any portion of the civil penalties or stipulated penalties due but not paid by the City.

SECTION XVIII. NOTICES

123. Unless otherwise specified herein, whenever notifications, submissions, or communications are required by this Consent Decree, they shall be made in writing and addressed as follows:

To the United States:

Chief, Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
Box 7611 Ben Franklin Station
Washington, D.C. 20044-7611
Re: DOJ No. 90-5-1-1-08687/1

Municipal Enforcement Branch Chief, Water Enforcement Division
Office of Enforcement and Compliance Assurance,
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Mail Code 2243A

Washington, DC 20460

Associate Director, Water Enforcement
U.S. Environmental Protection Agency
Region VI
1445 Ross Avenue
Mail Code 6EN
Dallas, Texas 75202

To Texas:

Phillip Ledbetter
Environmental Protection Division, MC-066
Office of the Attorney General
P.O. Box 12548
Austin, Texas 78711-2548

Reference: AG # CX3618358233

-AND-

James Sallans
Litigation Division, MC-175
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

To the City of Houston:

City Attorney
City of Houston
900 Bagby Street
Houston, Texas 77002

-AND-

City of Houston
Attn: Director, Houston Public Works
611 Walker St.
Houston, Texas 77002

124. Notices submitted pursuant to this Paragraph shall be deemed effective upon sending by electronic and certified mail, return receipt requested, unless otherwise provided in this Consent Decree or by mutual agreement of the Parties in writing.

125. Any Party may, by written notice to the other Parties, change its designated notice recipient or notice address provided above.

126. If the City annexes new assets into its WCTS during the term of the Consent Decree, it shall provide written notice to EPA and TCEQ under this Section within 45 Days. The Parties shall meet and confer within 45 Days to discuss and resolve all issues raised by the Parties related to annexation.

SECTION XIX. EFFECTIVE DATE

127. The Effective Date of this Consent Decree shall be the date upon which this Consent Decree is entered by the Court.

SECTION XX. RETENTION OF JURISDICTION

128. The Court shall retain jurisdiction of this case until termination of this Consent Decree, for the purpose of enabling any of the Parties to apply to the Court for such further order, direction, or relief as may be necessary or appropriate for the construction or modification of this Consent Decree, or to effectuate or enforce compliance with its terms, or to resolve disputes in accordance with Section XII of this Decree (Dispute Resolution). The Court retains exclusive jurisdiction to enforce all matters under this Consent Decree.

SECTION XXI. MODIFICATION

129. The terms of this Consent Decree, including any attached appendices, may be modified only by a subsequent written agreement signed by all the Parties. Where the modification constitutes a material change to this Decree, it shall be effective only upon approval by the Court. The Parties may by mutual agreement make non-material modifications to this Consent Decree.

130. Any disputes concerning modification of this Decree shall be resolved pursuant to Section XII of this Decree (Dispute Resolution), provided that the Party seeking the modification pursuant to Paragraph 104(a) bears the burden of demonstrating that it is entitled to the requested modification in accordance with Federal Rule of Civil Procedure 60(b).

131. The City and Plaintiffs may by mutual agreement determine whether a proposed modification is a non-material change to the Consent Decree. Non-material changes to the Consent Decree (including Appendices) shall be made by written agreement of the Parties without approval by the Court. The City will request a non-material change at least 90 Days before the deadline for the specific Work at issue. The City shall provide sufficient information to the EPA about why and how it seeks the modification. Non-material changes include the examples provided below:

a. Changes to Appendices, guidelines or processes based upon implementation experience so long as the overall technical and schedule objectives are achieved.

b. Changes in Sewer System investigation and/or remediation techniques as a result of technology advancements or implementation experience so long as the specific

requirements set forth in Paragraphs 25 - 37 (WCTS Condition Assessment and Remediation) are met.

c. The City may reprioritize a Work Project under an EPA-approved Remedial Measures Plans under Section V (Compliance Requirements), provided the Work Project reprioritized ahead of other tasks offers substantially the same or better CWA compliance benefits as the Work Project reduced to a lower priority. The City may reprioritize Work Projects under EPA-approved Remedial Measures Plans where the City determines technical, health, safety or other reasons justify priority completion of an existing, particular Work Project or a new Work Project ahead of another task, provided such determination is provided to EPA in writing and submitted to EPA for review and approval at the time any change under this Paragraph is requested.

d. The City may, subsequent to EPA's approval of a Remedial Measures Plan under Section V (Compliance Requirements), based on new or additional information, substitute a new Work Project or a redefined Work Project under an EPA-approved Remedial Measures Plan, provided that any such new or redefined Work Project offers substantially the same or better CWA compliance benefits.

e. The City and the Plaintiffs may agree to extend the schedule for completion of any Work Project for a period of up to 60 Days, provided any such extension does not extend the term of the Consent Decree.

f. Decrease in the annual Preventive Cleaning requirement, based upon demonstration by the City that there are not 275 miles of Small Diameter Gravity

Sewer Mains that meet the criteria for Preventive Cleaning.

SECTION XXII. TERMINATION

132. The City may serve upon the United States and the State a request for termination, certifying the City has completed performance of its compliance requirements under this Decree (Section V) together with all necessary supporting documentation such as references to the Annual Reports. This Consent Decree may be terminated when the Plaintiffs determine the City has completed performance of its compliance requirements (Section V) under this Decree, provided that the City has fulfilled all other obligations of this Decree, including payment of the Civil Penalty under Section VI of this Decree, Attorney's Fees under Section VII and Stipulated Penalties that have been demanded and found to be due and owing as required by Section X of this Decree not waived or reduced by the Plaintiffs.

133. Following receipt by the United States and the State of the City's request for termination, the United States, the State and the City shall confer informally concerning the request and any disagreement that they may have as to whether the City has complied with the requirements for termination of this Consent Decree.

134. If Plaintiffs agree the City has satisfactorily complied with the requirements for termination of this Consent Decree, the Parties shall submit, for the Court's approval, a joint stipulation terminating the Consent Decree.

135. If the Plaintiffs do not agree that the City has satisfactorily complied with the requirements for termination of this Consent Decree, they will notify the City in writing and the City may invoke Dispute Resolution under Section XII of this Decree. However,

the City shall not seek Dispute Resolution of any dispute regarding termination, under Section XII, until 120 Days after service of its request for termination.

136. Partial Termination. The City may serve upon the United States and the State a request for Partial Termination of the Consent Decree with respect to following provisions:

a. Early Action Projects identified in Paragraph 11;

b. WWF requirements identified in Paragraphs 18 - 24, which includes either full implementation of the approved Wet Weather Facility Full-Scale Treatment Plan, pursuant to Paragraph 23 or elimination of discharges pursuant to Paragraph 21 or 24.

137. Any request for Partial Termination of the provisions identified in Paragraph 136 shall be subject to the same conditions, requirements and procedures applicable to any request for termination of the Decree as set forth in Paragraphs 132, 133, 134, and 135. The City shall remain subject to stipulated penalties for WWTP effluent limit exceedances under Section X.

SECTION XXIII. PUBLIC PARTICIPATION

138. This Consent Decree shall be lodged with the Court for a period of not less than 30 Days for public notice and comment in accordance with 28 C.F.R. § 50.7 and TWC § 7.110. The United States and Texas each reserve the right to withdraw or withhold their consent if the comments regarding the Consent Decree disclose facts or considerations indicating that the Consent Decree is inappropriate, improper, or inadequate. The City consents to entry of this Consent Decree without further notice. The City hereby agrees not to oppose entry of this Consent Decree by the Court or to challenge any provision of the

Decree, unless one or more Plaintiffs has notified the City in writing that it no longer supports entry of the Decree.

SECTION XXIV. SIGNATORIES/SERVICE

139. Each undersigned representative of the City, the State of Texas, and the Assistant Attorney General for the Environment and Natural Resources Division of the Department of Justice, certifies that he or she is fully authorized to enter into the terms and conditions of this Consent Decree and to execute and legally bind the Party he or she represents to this document.

140. This Consent Decree may be signed in counterparts, and such counterpart signature pages shall be given full force and effect.

141. The City hereby agrees to accept service of process by mail with respect to all matters arising under or relating to this Consent Decree and to waive the formal service requirements set forth in Rule 4 of the Federal Rules of Civil Procedure and any applicable Local Rules of this Court including, service of a summons.

SECTION XXV. INTEGRATION/APPENDICES

142. This Consent Decree and all its attachments and appendices constitute the final, complete, and exclusive agreement and understanding among the Parties with respect to the settlement embodied in the Decree and supersedes all prior agreements and understandings, whether oral or written. No other document, nor any representation, inducement, agreement, understanding, or promise, constitutes any part of this Decree or the settlement it represents, nor shall it be used in construing the terms of this Decree.

The Appendices for this Consent Decree are as follows:

Appendix A List of WWTPs

Appendix B Early Action Projects

Appendix C Description of 9 Areas for Capacity Remedial Measures Plan(s)

Appendix D Sewer Basin and Lift Station Prioritization Matrices

Appendix E WWTP Violations and Associated Corrective Action

Appendix F List of SOPs

Appendix G Annual Report Template

SECTION XXVI. FINAL JUDGMENT

Upon approval and entry of this Consent Decree by the Court, this Consent Decree shall constitute a final judgment between Plaintiffs and the City of Houston. The Court finds that there is no just reason for delay and therefore enters this judgment as a final judgment under Federal Rules of Civil Procedure 54 and 58.

_____

United States District Court Judge

WE HEREBY CONSENT to the entry of this Consent Decree, subject to the public notice and comment provisions of 28 C.F.R. § 50.7:

FOR THE UNITED STATES OF AMERICA:

8-15-19
Date

JEFFREY BOSSERT CLARK
Assistant Attorney General
Environment and Natural Resources Division
United States Department of Justice

8-8-19
Date

NATHANIEL DOUGLAS
Deputy Section Chief
Environmental Enforcement Section
Environment and Natural Resources Division
United States Department of Justice

WE HEREBY CONSENT to the entry of this Consent Decree, subject to the public notice and comment provisions of 28 C.F.R. § 50.7:

FOR PLAINTIFF THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY:

8/1/19
Date

CHERYL SEAGER
Director, Compliance Assurance and Enforcement Division
U.S. Environmental Protection Agency, Region VI
1201 Elm Street, Suite 500
Dallas, Texas 75270

8/1/19
Date

EFREN ORDÓÑEZ
Assistant Regional Counsel
U.S. Environmental Protection Agency, Region VI
1201 Elm Street, Suite 500
Dallas, Texas 75270

WE HEREBY CONSENT to the entry of this Consent Decree, subject to the public notice and comment provisions of 28 C.F.R. § 50.7:

FOR PLAINTIFF THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY:

8/9/19
Date

SUSAN PARKER BODINE
ASSISTANT ADMINISTRATOR
Office of Enforcement and Compliance Assurance
United States Environmental Protection Agency

8/8/19
Date

ROSEMARIE KELLEY
Office Director
Office of Civil Enforcement
Office of Enforcement and Compliance Assurance
United States Environmental Protection Agency

8/6/19
Date

MARK POLLINS
Division Director
Water Enforcement Division
Office of Civil Enforcement
Office of Enforcement and Compliance Assurance
United States Environmental Protection Agency

8/5/19
Date

CAROL DEMARCO KING
MORGAN ROG
Water Enforcement Division
Office of Civil Enforcement
Office of Enforcement and Compliance Assurance
United States Environmental Protection Agency

WE HEREBY CONSENT to the entry of this Consent Decree, subject to the public notice and comment provisions of 28 C.F.R. § 50.7 and TWC § 7.110:

FOR PLAINTIFF STATE OF TEXAS:

KEN PAXTON
Attorney General of Texas

JEFFERY MATEER
First Assistant Attorney General

DARREN L. MCCARTY
Deputy Attorney General for Civil Litigation

PRISCILLA M. HUBENAK
Chief, Environmental Protection Division

July 29, 2019
Date

PHILLIP LEDBETTER
Assistant Attorney General
State Bar No. 24041316
Southern District No. 1401529
Phillip.Ledbetter@oag.texas.gov

Office of the Attorney General of Texas
Environmental Protection Division
P. O. Box 12548, Capitol Station
Austin, Texas 78711-2548
(512) 475-4152
(512) 320-0911 (Facsimile)
ATTORNEYS FOR THE STATE OF TEXAS

WE HEREBY CONSENT to the entry of this Consent Decree, subject to the public notice and comment provisions of 28 C.F.R. § 50.7 and TWC § 7.110:

FOR THE CITY OF HOUSTON, TEXAS:

Mayor
Date signed: 7-26-19, 2019

ATTEST/SEAL

City Secretary Assistant

DocuSigned by:
A93C410B72B3453...
Director, Houston Public Works

APPROVED:

DocuSigned by:
Ronald C. Lewis
01B8EE0AC120491...
City Attorney

APPROVED AS TO FORM:

Assistant City Attorney

COUNTERSIGNED BY:

City Controller
Date countersigned: 7-26-19

APPENDICES A – G

TO CONSENT DECREE

Appendix A

List of WWTPs

APPENDIX A – Houston Wastewater TPDES/NPDES Permits

NAME	TPDES #	EPA ID #
69th Street WWTP	10495-090	TX0096172
Almeda Sims WWTP	10495-003	TX0034924
Beltway WWTP	10495-111	TX0065307
Cedar Bayou WWTP	10495-112	TX0103667
Chocolate Bayou WWTP	10495-009	TX0063061
Clinton Park WWTP	10495-010	TX0035106
Easthaven WWTP	10495-065	TX0034886
FWSD # 23 WWTP	10495-016	TX0063053
Forest Cove WWTP	10495-149	TX0115924
Greenridge WWTP	10495-110	TX0026433
Homestead WWTP	10495-023	TX0063029
Imperial Valley WWTP	10495-101	TX0020478
Intercontinental Airport WWTP	10495-078	TX0034916
Keegans Bayou WWTP	10495-119	TX0098191
Kingwood Central WWTP	10495-146	TX0066583
Kingwood West WWTP (frm. MUD # 48)	10495-142	TX0088501
MUD # 203 WWTP	10495-133	TX0084875
Metro Central WWTP (frm. 10495-136)	10495-152	TX0069736
Northbelt WWTP	10495-122	TX0103721
Northeast WWTP	10495-077	TX0063037
Northgate WWTP	10495-100	TX0055310
Northwest WWTP	10495-076	TX0063011
Park Ten WWTP	10495-135	TX0026395
Sagemont WWTP	10495-075	TX0063070
Sims Bayou North WWTP	10495-002	TX0062201
Sims Bayou South WWTP	10495-002	TX0105058
Southeast WWTP	10495-079	TX0035009
Southwest WWTP	10495-037	TX0062995
Tidwell Timbers WWTP	10495-148	TX0101460
Turkey Creek WWTP	10495-109	TX0035017
Upper Brays WWTP	10495-116	TX0088153
WCID # 111 WWTP	10495-095	TX0027201
WCID # 47 WWTP	10495-050	TX0063045
WCID # 76 WWTP	10495-150	TX0025291
West District WWTP	10495-030	TX0063002
West Lake Houston WWTP	14650-001	TX0128244
Westway WWTP	10495-139	TX0026875
White Oak WWTP	10495-099	TX0057347
Willowbrook WWTP	10495-126	TX0113131

Appendix B

Early Action Projects

APPENDIX B – EARLY ACTION PROJECTS

Lift Station Early Action Projects

Project Name	Project Description	Number of LS Impacted	Updated Timeframe for Completion of Construction
Lift Station Renewal and Replacement Woodway #1	Lift station upgrade to receive flow from Post Oak, Stablewood, Buckingham, and Bayou Timber Lift Station	1	2020
Lift Station Renewal and Replacement Hunterwood MUD Northbrook	Replace of Lift Station Pump, mechanical and structural remediation.	2	Complete
Lift Station Renewal and Replacement Greens Bayou Crossing #3 Fir Ridge Parker Rd	Rehab Lift Station Diversion to Sunny Glen LS Electrical and odor control upgrades	3	2020

APPENDIX B – EARLY ACTION PROJECTS

Lift Station Renewal and Replacement Tidwell Road #1 Iroquois West Canino Road John Alber Road	 Rehab Lift Station Rehab Lift Station Rehab Lift Station Rehab Lift Station	4	2020
Lift Station Renewal and Replacement MUD #237 MUD #159-	 Abandonment and flow diversion Abandonment and flow diversion	2	2023
Lift Station Renewal and Replacement MacGregor Way North #1 Magnet Westpark #1	 Rehab Lift Station Replace Lift Station Rehab Lift Station	3	2023

APPENDIX B – EARLY ACTION PROJECTS

Lift Station Renewal and Replacement Findlay Garden Villas Goodyear Reveille	 Rehab Lift Station Rehab Lift Station Rehab Lift Station Rehab Lift Station	4	2022
Lift Station Renewal and Replacement Interwood MUD #266 Vickery	 Abandonment and flow diversion Abandonment and flow diversion Abandonment and flow diversion	3	2022
Lift Station Renewal and Replacement East Park Ten Maxey Road Mesa Drive Westmont North Shore	 Replace Lift Station Rehab Lift Station Rehab Lift Station Rehab Lift Station Upgrade from 10.8 MGD to 12.8 MGD	5	2023

APPENDIX B – EARLY ACTION PROJECTS

Lift Station Renewal and Replacement High Star WCID #78 Belle Park #1 WCID #94	 Replace lift station Rehab lift station Rehab lift station Replace lift station	4	2023
Lift Station Renewal and Replacement Eddington Brock	 Replacement of Lift Station Submersible Conversion	2	2022
Lift Station Renewal and Replacement Ayreshire Brompton Bradford Kirby Drive #2	 Rehab Lift Station Rehab Lift Station Rehab Lift Station Rehab Lift Station	4	2022
Lift Station Renewal and Replacement Kirby Drive #1 Westridge	 Abandonment and flow diversion New Regional Lift Station and abandonment and flow diversion of existing LS	2	2024

APPENDIX B – EARLY ACTION PROJECTS

Lift Station Renewal and Replacement Main Street S.	 Abandonment and flow diversion	1	2024
Lift Station Renewal and Replacement MacGregor #2 Eppes Kellogg Scott #2 Glengyle WCID #73	 Rehab Lift Station Replace Lift Station Rehab Lift Station Rehab Lift Station Rehab Lift Station Rehab Lift Station	6	2022
Lift Station Renewal and Replacement Green River Dr Bretshire #2 No. 2 Bayfield UD Highland Meadow Hempstead #1 Ferguson Way	 Abandonment and flow diversion Rehab Lift Station Rehab Lift Station Rehab Lift Station Rehab Lift Station Rehab Lift Station	6	2023

APPENDIX B – EARLY ACTION PROJECTS

Lift Station Renewal and Replacement Willie Dockal	Replace Lift Station Submersible Conversion	2	2021
Clinton Drive Lift Station Improvements Clinton Drive #2	1. Replacement of electric equipment including but not limited to the existing service feeders, transformers, MCC equipment, breakers, control panels, Scada/Instrumentation equipment. 2. Provide provisions for a full redundant power source and associated transformers and switching components to operate lift station reliably at its full capacity. 3. Update all electrical, instrumentation and Scada systems to the latest city of Houston design standards.	1	2021

APPENDIX B – EARLY ACTION PROJECTS

Lift Station Renewal and Replacement MacGregor #3 Gilpin West Orem Quail View Hillcroft Wheeler	 Rehab Lift Station Rehab Lift Station Rehab Lift Station Rehab Lift Station Rehab Lift Station Rehab Lift Station	6	2024
Lift Station Renewal and Replacement Northborough Dr. #1 Northborough Dr. #2 Old Katy Rd. Richmond #1 Bonner Rd.	 Rehab Lift Station Rehab Lift Station Rehab Lift Station Rehab Lift Station Rehab Lift Station	5	2023
Lift Station Renewal and Replacement Alief Village Belle Park #2	 Abandonment and flow diversion Abandonment and flow diversion	2	2024

APPENDIX B – EARLY ACTION PROJECTS

FY 19 Lift Station Renewal and Replacement: Bintliff Gessner #1 Gessner #2 Park Ten #2 Farther Point Willowbend	Condition assessment and evaluation for possible rehab, replacement, relocation or consolidation.	6	2026
FY 20 Lift Station Renewal and Replacement MUD #175-1 West Court Dr Sherwood Oaks N.E. Sludge Transfer Green Dolphin	Rehab Lift Station Rehab Lift Station Rehab Lift Station Rehab Lift Station Rehab Lift Station	5	2028
FY 20 Lift Station Renewal and Replacement Braeswood N Post Oak #2 Bissonnet #4 Brooklet Synott Rd. #1	Rehab Lift Station Rehab Lift Station Rehab Lift Station Rehab Lift Station Rehab Lift Station	5	2028
FY 21 Lift Station Renewal and Replacement	Condition assessment and evaluation for possible rehab, replacement, relocation or consolidation.	6	2029

APPENDIX B – EARLY ACTION PROJECTS

FY 21 Lift Station Renewal and Replacement	Condition assessment and evaluation for possible rehab, replacement, relocation or consolidation.	5	2029
FY 22 Lift Station Renewal and Replacement	Condition assessment and evaluation for possible rehab, replacement, relocation or consolidation.	6	2030
FY 22 Lift Station Renewal and Replacement	Condition assessment and evaluation for possible rehab, replacement, relocation or consolidation.	6	2030

APPENDIX B – EARLY ACTION PROJECTS

Force Main Early Action Projects

Project Name	Project Description	Approximate Feet of Pipe	Updated Timeframe for Completion (Fiscal Year)
Force main Renewal and Replacement Stroud	18" FM renewal with CIPP	2,411	2022
Force Main Renewal and Replacement Bayfield Bretshire #2 Woodland Ridge Forest Shores	12,211 LF 12" &14" CIPP or HDPE lining 3,118 LF of 24" CIPP or HDPE lining 3,370LF of 10" CIPP or HDPE lining 3,042LF of 8" CIPP or HDPE lining	21,741	2022
Force Main Renewal and Replacement Annunciation Banner Road Plum Creek	Install new 13,192 LF of 16” FM Install new 2,961LF of 18” FM Replace 410 LF of 6” FM	16,563	2021
Force Main Renewal and Replacement Woodsman Trail	Replacement of 2,810 LF of 12” FM	2,810	2019

APPENDIX B – EARLY ACTION PROJECTS

Project Name	Project Description	Approximate Feet of Pipe	Updated Timeframe for Completion (Fiscal Year)
Force Main Renewal and Replacement Eldridge Parkway Beechnut West Orem	 Replace 5,765 LF of 12” FM with 3,878 LF of 24” gravity line Replace 3,719 LF of 12" FM Replace 2,513 LF of 20"FM	11,997	2024
Force Main Renewal and Replacement Golf Course	 Replacement of 3,180 LF 20” FM	3,180	2022
Force main Renewal and Replacement Tanya Circle Old Stone Trail	 Replace 3,284 LF of 10” FM Replace 675 LF of 8” FM	3,959	2022
Force Main Renewal and Replacement Sleepy Hollow Telephone Road #1	 Replace 11,000 LF 18” FM with 36” gravity line Replace 520 LF 8” FM	11,520	2023

APPENDIX B – EARLY ACTION PROJECTS

Project Name	Project Description	Approximate Feet of Pipe	Updated Timeframe for Completion (Fiscal Year)
FY 19 Force Main Renewal: Bay Area Belle Park #3 Highland Meadow	Evaluation and possible renewal or replacement of all or part of the listed force mains.	TBD	2026
Force Main Renewal and Replacement Gulf Freeway #2	Evaluation and possible renewal or replacement of all or part of the listed force mains.	TBD	2024
FY 21- Force Main Renewal and Replacement	Evaluation and possible renewal or replacement of all or part of the listed force mains.	TBD	2028
FY 22- Force Main Renewal and Replacement	Evaluation and possible renewal or replacement of all or part of the listed force mains.	TBD	2029
FY 23- Force Main Renewal and Replacement	Evaluation and possible renewal or replacement of all or part of the listed force mains.	TBD	2030

APPENDIX B – EARLY ACTION PROJECTS

Consolidation Early Action Projects

Project Name	Project Description	Number of LS Impacted	Approximate Feet of Pipe	Updated project completion Timeframe
37 MGD Northgate Regional Lift Station and Force Main	Construct a regional lift station of capacity 37 MGD and two force mains to discharge location at Green Road and Hardy Toll Road Intersection	1	9,500 LF of 24" and 30" FM	2023
Diversion and Abandonment of Kirkwood #3 Lift Station	Divert the flow from Kirkwood #3 LS to a newly constructed Harvest Moon by gravity sewer. Demolish Kirkwood #3 LS. Upgrade on Harvest Moon to 21.3 MGD	2	5,500 LF of 42" sewer	2023
West Belfort No. 2 and Fondren Meadow Lift Station Rehab	rehabilitation of West Belfort #2 and Fondren Meadow lift stations.	2	N/A	2022
Willow Meadow Rehab	rehabilitation of Willow Meadow, lift station	1	N/A	2023
Construction of Fountain View (regional) Lift Station,	Replacement of Westheimer #1 LS by a new LS at Fountain View and Skyline	2	4,200 LF of 48" sewer 4,900 LF of 36" FM	2022
Facilities Consolidation – Chelford City Diversion Package 1 – Segment 2	Construct 60" sewer along Westpark Drive from Alief Central LS site to Dairy Ashford Road	1	5,700 LF of 60" Sewer	2023

APPENDIX B – EARLY ACTION PROJECTS

Project Name	Project Description	Number of LS Impacted	Approximate Feet of Pipe	Updated project completion Timeframe
Chelford City Diversion Package 1– Segment 1	Construct 60" sewer along Westpark Drive Drive from Dairy Ashford to Houston Center; tie to 108" sewer	N/A	4,637 LF of 60" sewer	2022
Abandonment of Bering LS and San Felipe LS.	Gravity diversion of the flow from San Felipe LS. and Bering LS and divert to a proposed 48-inch sewer to Fountain View	2	2,100 LF of 30" 210 LF of 36" 4,400 LF of 48"	2023
Chelford City Diversion Package 2 – West Hollow LS flow diversion	Diversion of West Hollow LS flow to the new Upper Brays 60" tunnel	1	2,480 LF of 15" 7,255 LF of 36"	2024
Chelford City Diversion Package 3 – Green Crest LS flow Diversion	Green Crest LS flow diversion to Upper Brays WWTP	1	6,825 LF of 24"	2024
North Corridor Consolidation Package 3 Imperial Valley WWTP flow diversion	Flow Diversion (36-inch gravity sewer line) from Imperial Valley WWTP to Northgate Regional LS.	1	10,220 LF of 36"	2026
North Corridor Consolidation Package 4 MUD #203 WWTP flow diversion	Flow diversion through a 36" Gravity Sewer from MUD #203 WWTP to Northgate Regional LS.	1	11,758 LF of 36"	2026
Flow Diversion from Tidwell Timber to FWSD 23	Construct a new lift station, force main, and gravity line for flow diversion from Tidewell Timber to FWSD 23.	1	7,665 LF of 12" FM 4,375 LF of 30" sewer 3,075 LF of 36" sewer	2025

APPENDIX B – EARLY ACTION PROJECTS

Project Name	Project Description	Number of LS Impacted	Approximate Feet of Pipe	Updated project completion Timeframe
Force Main from Sagemont Lift Station to Southeast WWTP for the flow diversion	Construct force main sewer for flow diversion from Sagemont WWTP to Southeast WWTP	1	TBD	2025
Flow Diversion from Easthaven to Southeast WWTP	Construct force main or gravity line for flow diversion.	TBD	TBD	2028
Easthaven, Gulfway, Gulf Freeway #2, Howard Drive Lift Stations	Easthaven: rehab Gulf Freeway #2: rehab Gulfway MUD: New trunk main to divert flow to Metro Central Howard Drive: Abandonment	4	8" FM 1,592 LF 6" FM 8,035 LF 30" sewer 6,866 LF	Complete
Consolidation of Post Oak, Stablewood, and Buckingham Lift Stations	New trunk main to divert flow from Post Oak, Stablewood and Buckingham LS to Woodway #1 Lift Station	3	N/A	2020
Replacement and consolidation of Harvestmoon, Dairy Ashford #1, and Hardy Temp. Lift Stations	Harvestmoon: Lift station replacement Dairy Ashford #1: New trunk main to divert flow to Harvestmoon lift station. Hardy Temp: Eliminate lift station.	3	N/A	2020
Willow Run WWTP, W. Mount Houston, and Rutherford Lift Stations	W. Mount Houston: New trunk main to divert flow. Rutherford: New trunk main to divert flow. Willow Run WWTP: New trunk main to divert flow to DePries Lift Station	3	N/A	Complete

APPENDIX B – EARLY ACTION PROJECTS

Project Name	Project Description	Number of LS Impacted	Approximate Feet of Pipe	Updated project completion Timeframe
Wrightwood Tunnel	Design of 84" tunnel to divert flow of existing 60" sewer along Wrightwood to existing 90" tunnel.	N/A	~4,000 LF 84" sewer	2025
North Corridor Consolidation Package 1A Trunk Sewer	Design of a 4,000 LF of 54" (0.09% slope) sewer and 600 LF of 78" (0.049%) sewer from Aldine-Westfield @ Rankin Rd to HCFCD P155-00-00	N/A	4,000 LF of 54" sewer 600 LF of 78" sewer	2020
North Corridor Consolidation Package 1B:	Design of a 5,800 LF of 54" Trunk Sewer from Hardy Airport Connector @ HCFCD P155-00-00 to Greens Rd.to receive the flow from the dual FM designed in R-536-08-3	N/A	5,800 LF of 54" sewer	2021
Park Ten WWTP Abandonment and Flow Diversion to Turkey Creek WWTP	Design of gravity sewers to divert the flow from Park Ten WWTP to North Eldridge LS, which pumps to Turkey Creek	3	12,640 LF of 24" and 30" sewer 4,756 LF of 24" FM	2023

WWTP PRIORITIES

69th Street WWTP

Repair/Replacement of Centrifuges

The original twenty-one centrifuges started operation in 1987. Since that initial startup, two units have been replaced in-kind. It is anticipated that, beginning in FY2022, the remaining original centrifuges will be replaced in-kind with new units. Construction should be complete by FY2024.

Repair/Replacement of Sludge Dryers

The flash dryers also started operation in 1987. One dryer was overhauled in 2003 and it is anticipated that key parts of the other six (6) units will be replaced. Rehabilitation of the dryers is anticipated to begin in FY2021 and be complete by FY2026.

New Cloth Media Filters

New cloth media filters will be installed, providing greater hydraulic capacity while not requiring replacement of the filter structure. The filters will be procured in fiscal year 2019. Construction is

scheduled to be complete by the end of FY2023.

Upper Brays WWTP

Work at the Upper Brays WWTP to repair the aeration system at aeration basin #3 is completed; diffuser replacement in basin #1 and #2 is in progress. Construction is scheduled to be complete by FY2019.

Other WWTPs

There are other plants which have had effluent or other issues which will be addressed by priority projects. These WWTPs, and the proposed projects, are identified in the following table:

WWTP Early Action Projects

WWTP	Project	Completion Date
Almeda Sims	Blower Replacement & Addition of Clarifier No. 6	FY 2024
Greenridge	Basin Cleaning	FY 2021
Keegans Bayou	Grit Removal System Improvements	FY 2021
	Blower Improvements	FY 2020
	Disinfection Improvements	FY 2020
	Clarifier Rehabilitation	FY 2020
Metro Central	Blower Improvements Clarifier Rehabilitation	FY 2021
Southwest	Purge Blower, Mixer and Chlorine Contact Basin Improvements	FY2021
Kingwood Central	Post-aeration basin modifications	Being re-evaluated due to Harvey damage.
FWSD 23	Chlorine Contact Basin Improvements	Being re-evaluated due to Harvey damage.
Westway	Clarifier Improvements	FY 2021

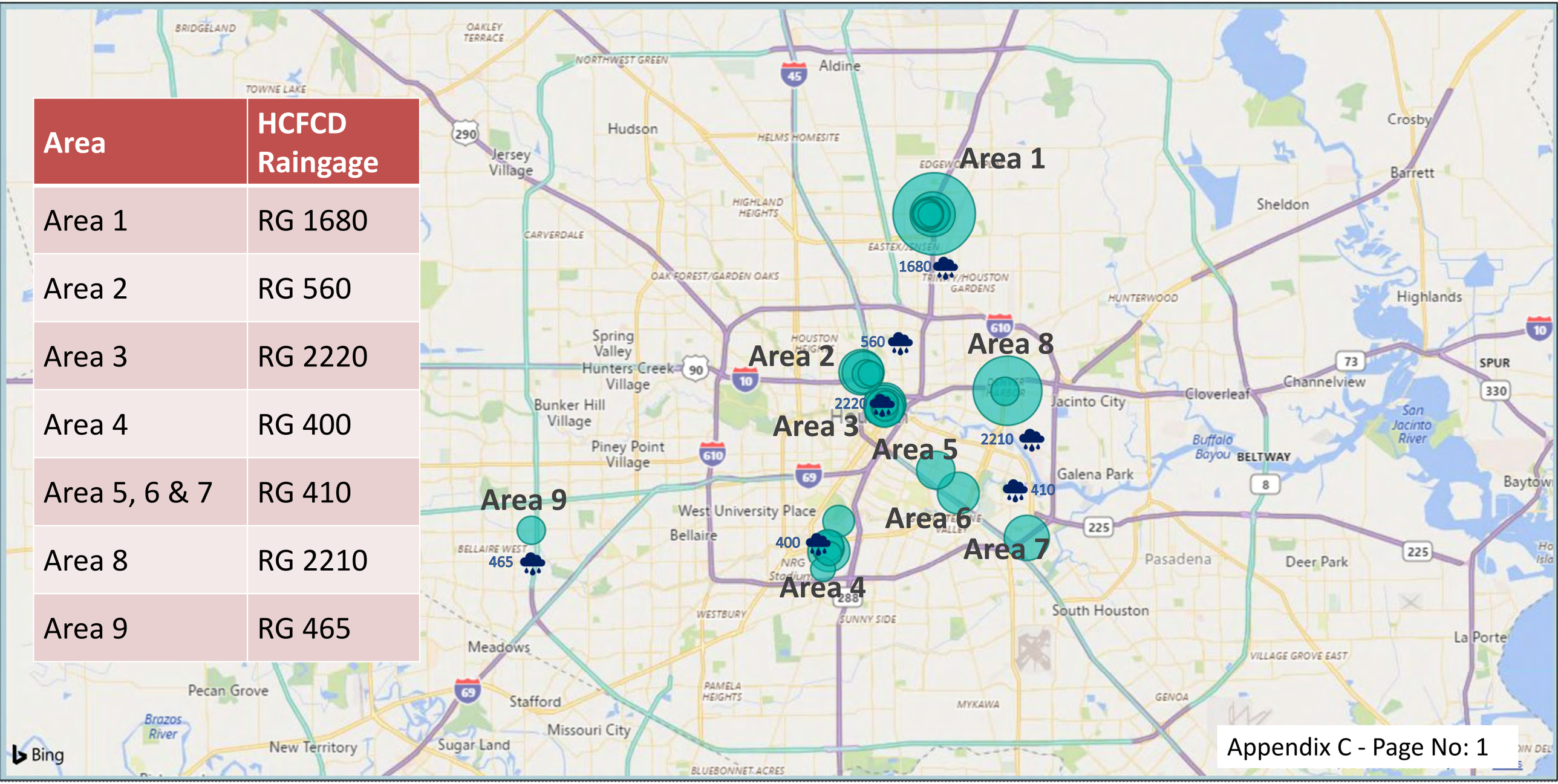
Appendix C

Description of 9 Areas for Capacity Remedial Measures Plan(s)

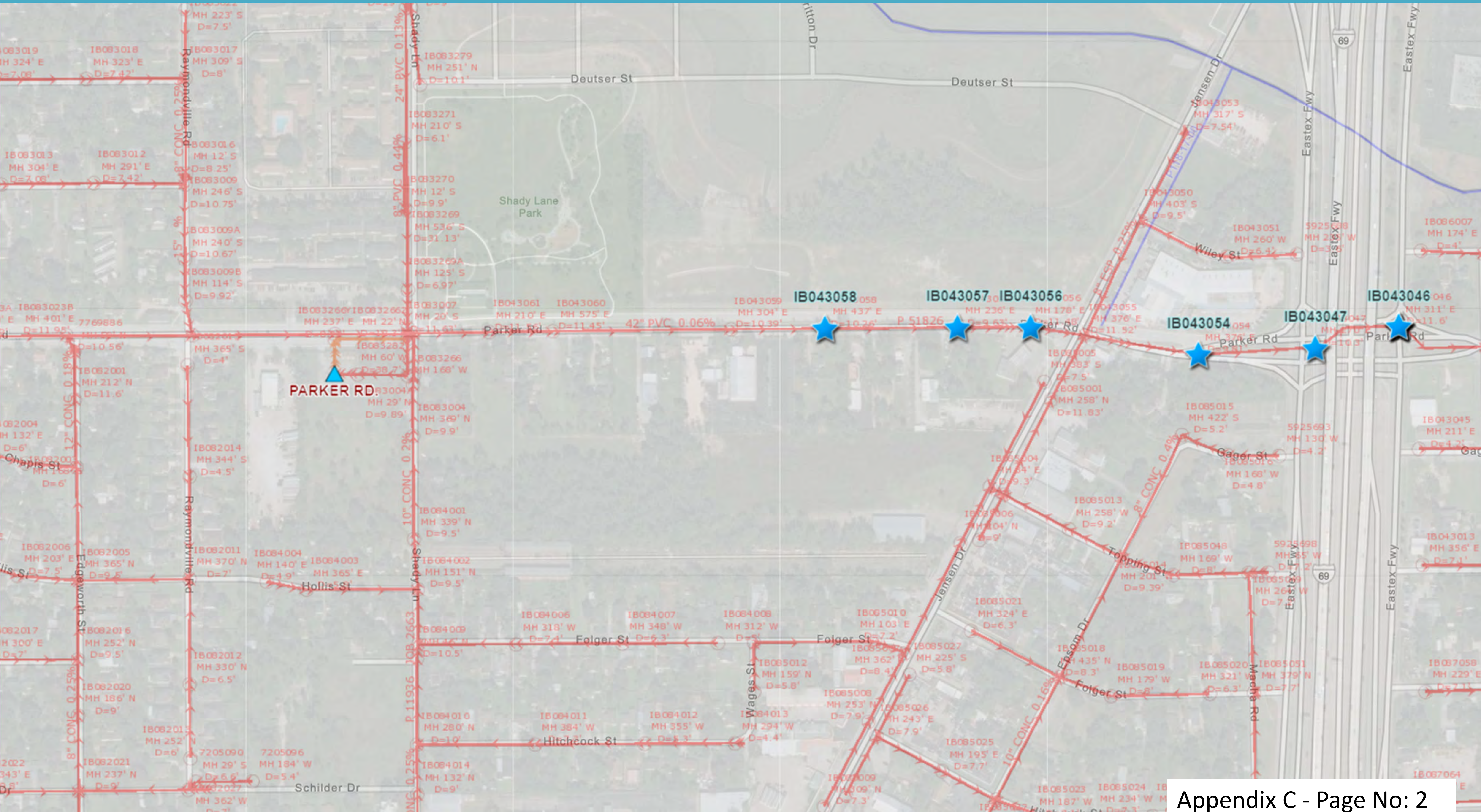
Known Capacity Constraints (Wet Weather SSO FY16 to FY18 Evaluation)

Fiscal Year (FY16, FY17 & FY18)	System	Excursion Cause	SSO Occurrence	Manhole Count	MANHOLE
All	Public System	Collection system - wet weather	134	33	All

Area	HCFCD Raingage
Area 1	RG 1680
Area 2	RG 560
Area 3	RG 2220
Area 4	RG 400
Area 5, 6 & 7	RG 410
Area 8	RG 2210
Area 9	RG 465



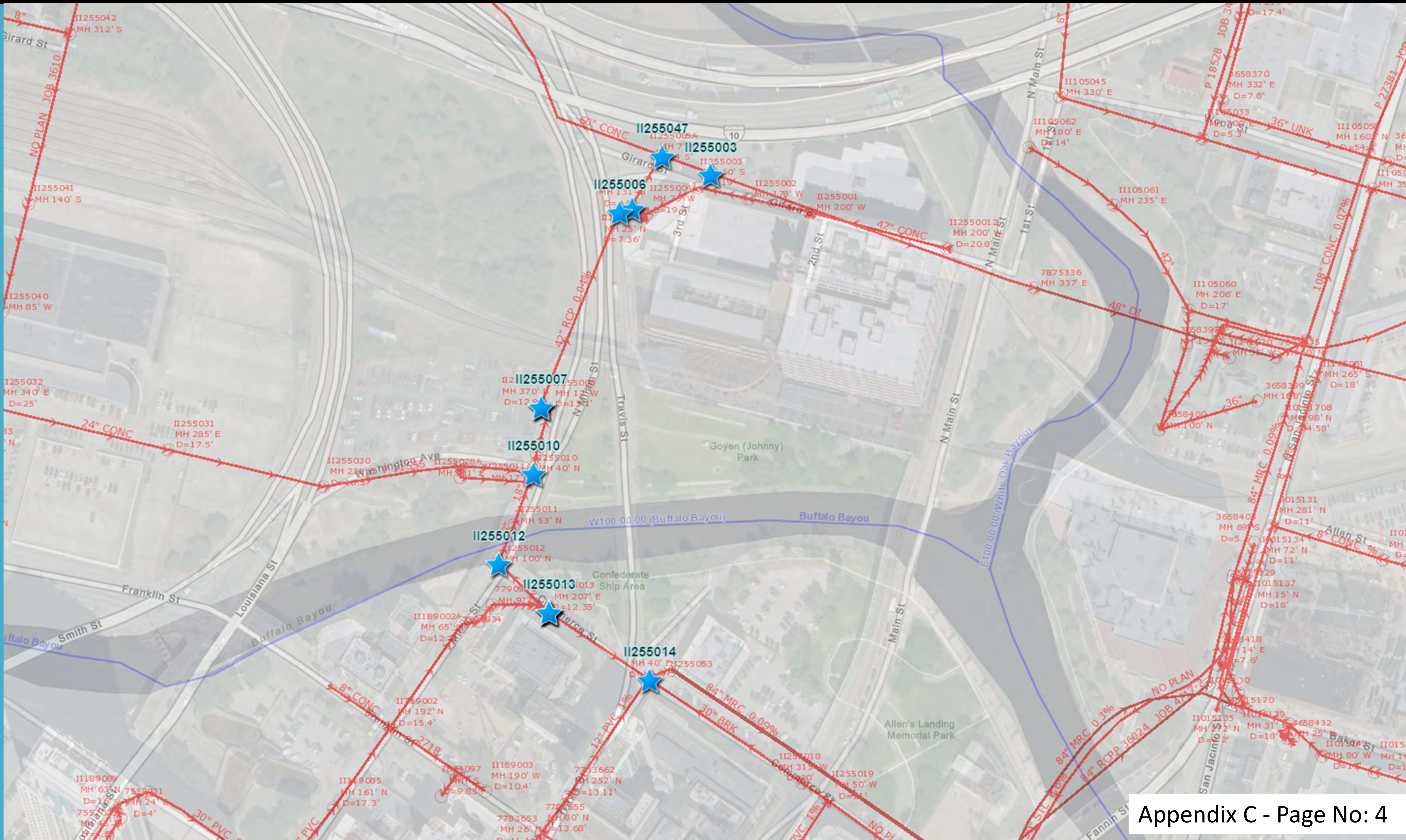
Area 1


IB043058
IB043057
IB043056
IB043054
IB043047
IB043046
PARKER RD.
Deutser St
Shady Lane Park
Parker Rd
42" PVC 0.06%
Shady Ln
Raymondville Rd
Jensen Dr
Eastex Fwy
Wiley St
Gager St
Topping St
Folger St
Hollis St
Hitchcock St
Schilder Dr
Edgeworth St
Wages St
Epsom Dr
Macha Rd
Dodson Rd
Chapis St

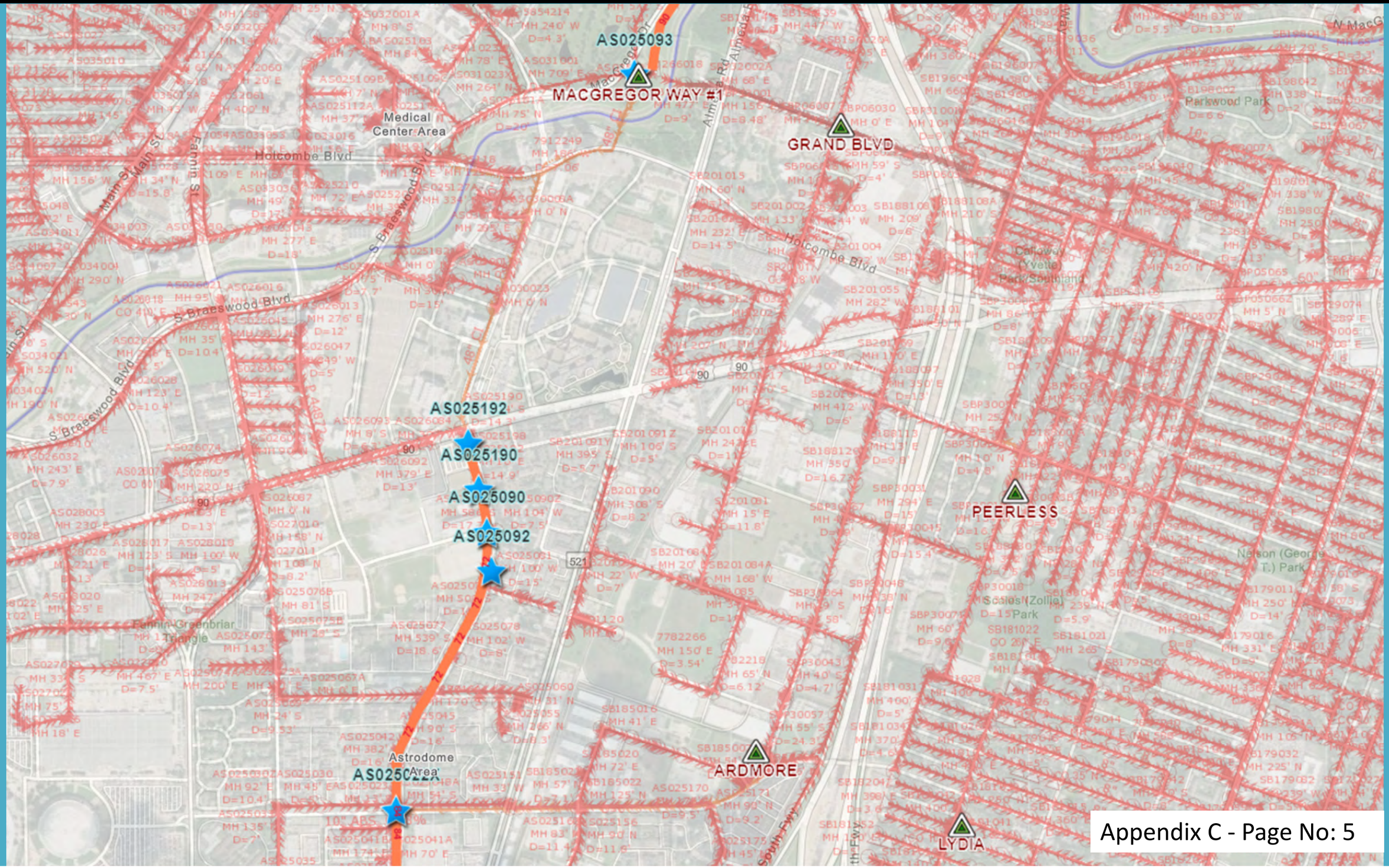
Area 2


IIP28051
IIP28051A
IIP28050
IIP51002A
STUDEMONT ADDITION
Woodland Park
White Oak Parkway
Ley Plaza Park
White Oak Bayou
Freed Art And Nature Park (PB 2)
Hogg Park
Houston Ave
White Oak Dr
Quitman St
North Fwy
I-45 Hoy Lane
Katy Fwy
Maud St
Depelchin St
Euclid St
Byrne St
Parkview St
Payne St
North St
Ridge St
Wrightwood
South St
McIntosh St

Area 3

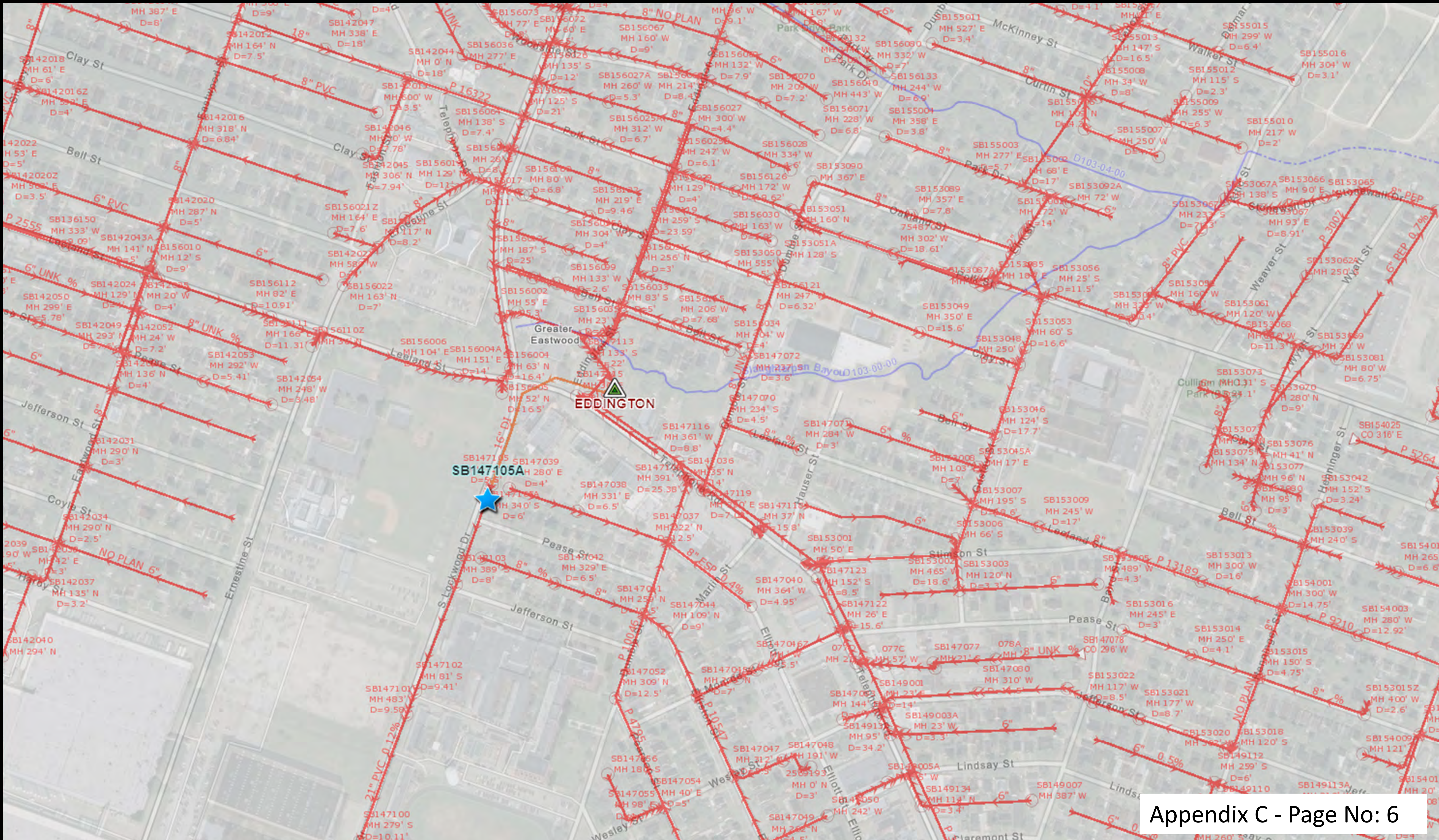

II255047
II255003
II255006
II255007
II255010
II255012
II255013
II255014
Girard St
Washington Ave
Franklin St
Smith St
Louisiana St
N Main St
Travis St
3rd St
2nd St
1st St
Main St
N San Jacinto St
San Jacinto St
Fannin St
Allen St
Baker St
Buffalo Bayou
W100-00-00 (Buffalo Bayou)
E100-00-00 (White Oak Bayou)
Goyen (Johnny) Park
Confederate Ship Area
Allen's Landing Memorial Park
60" CONC
42" CONC
48" DI
42" RCP 0.04%
24" CONC
84" MRC 0.09%
30" BRK
84" RCP 36024
108" CONC 0.07%
36" UNK
NO PLAN
NO PLAN JOB 3610

Area 4



Appendix C - Page No: 5

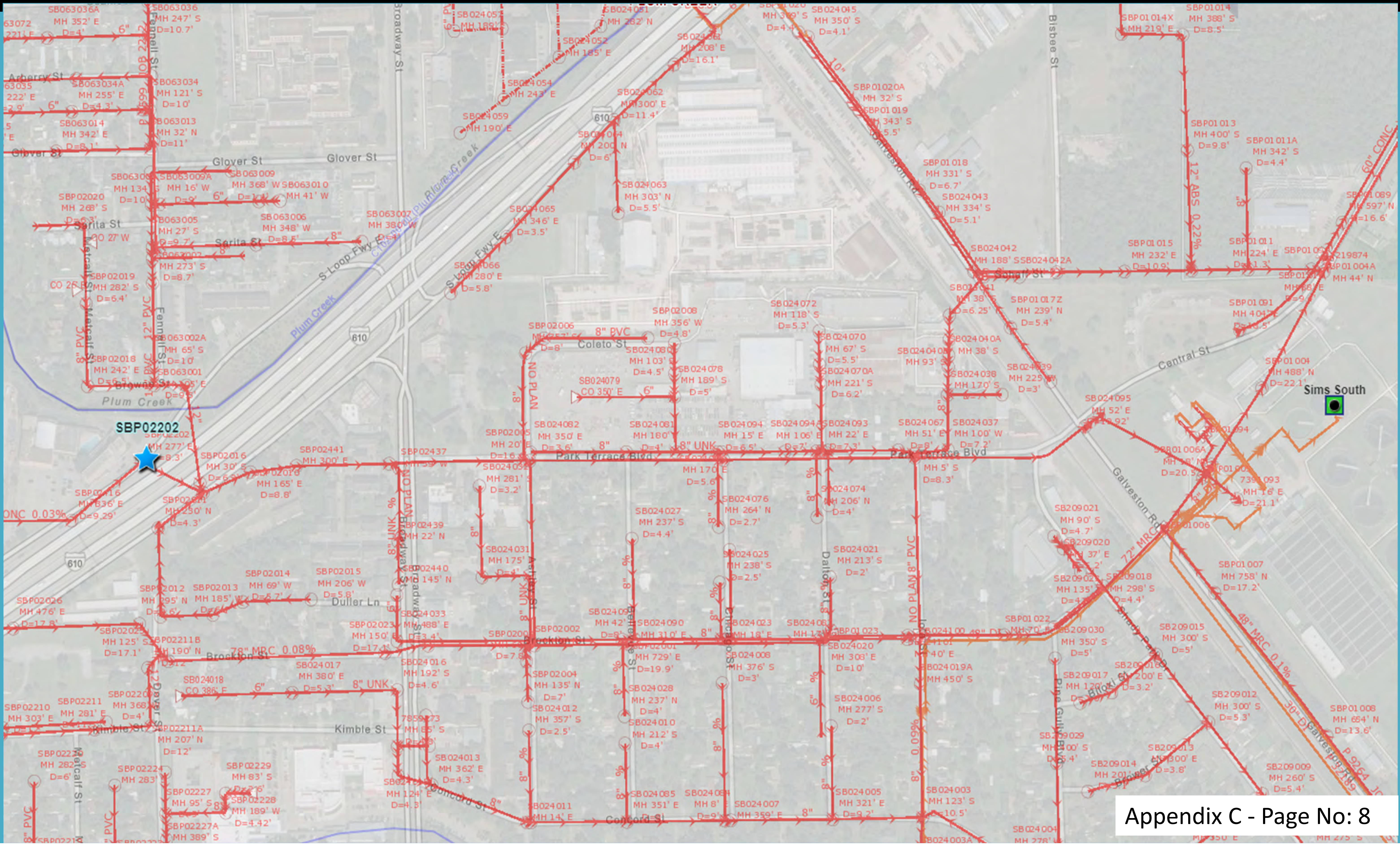
Area 5


SB147105A
EDDINGTON
Greater Eastwood
Clay St
Belt St
Jefferson St
Coyle St
Pease St
Leeland St
McKinney St
Walker St
Curtin St
Lindsay St
Claremont St
Wesley St
Ernestine St
S Lockwood Dr
Telephone Rd
Park Dr
Oakland St
Bell St
Stimson St
Hauser St
Weaver St
Wyatt St
Henninger St
Cullinan Park
Park Drive Park

Area 6


SB152044
Hillman St
McCormick St
Truett St
Lawson St
Bonsrell St
Barremore St
Craig St
Eskridge St
Newport St
Dorbtandt St
Lawndale Ave
Pinehurst St
S Wayside Dr
Godwin St
Lombardy St
Telephone Rd
Hackney St
Sibley St
Sunnyland St
Hallwell St
Dismuke St
Jean St
Munger St
Des Jardines St
Park Ln
Lindy Ln
Rockbridge Ln
Villa de Mabel Rd
NO PLAN
8" CONC
6" PEP
8" PEP
8" UNK

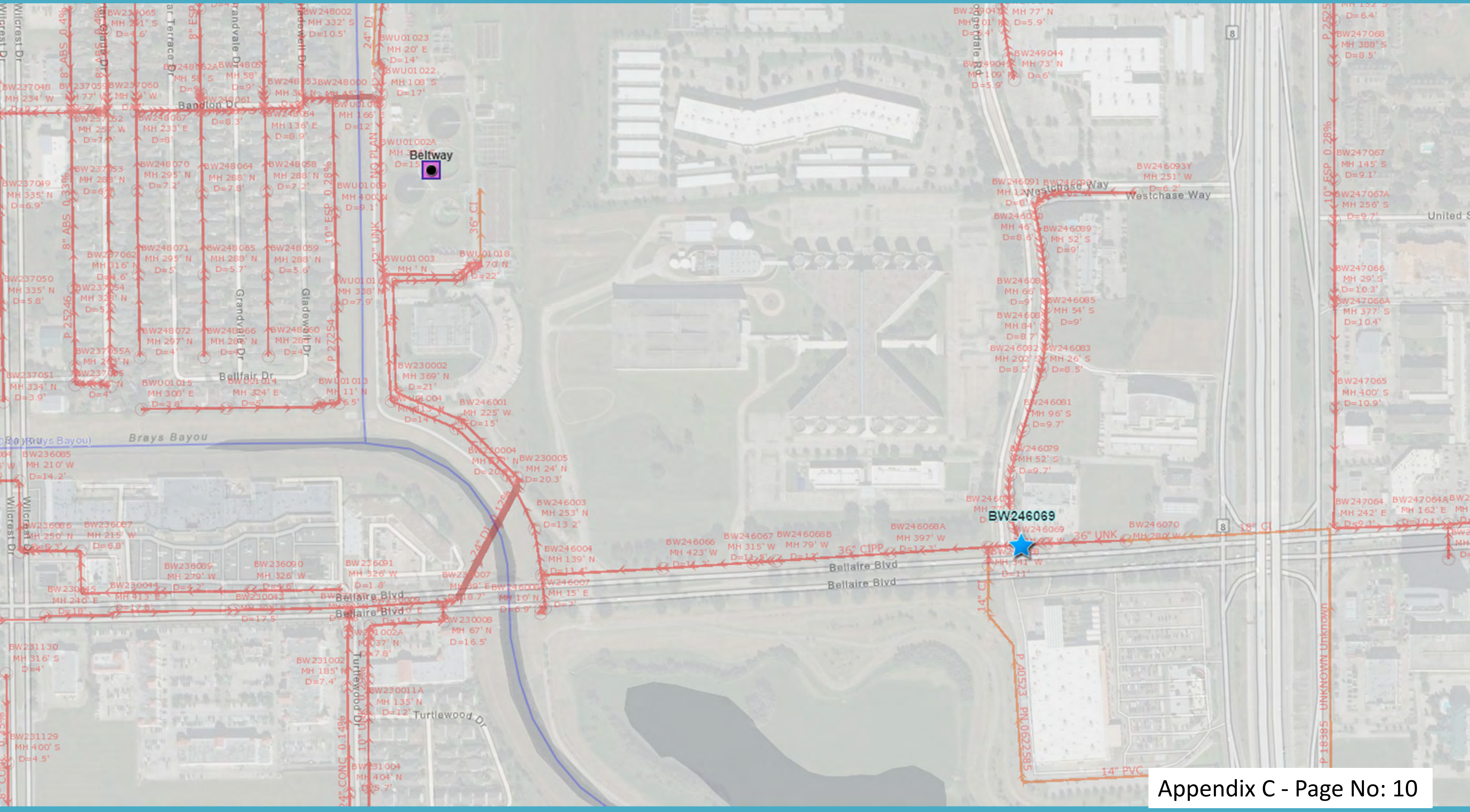
Area 7


SBP02202
Sims South
Park Terrace Blvd
Brockton St
Kimble St
Duller Ln
Coleto St
Central St
Galveston Rd
Glover St
Sarita St
Concord St
Plum Creek
S Loop Fwy E

Area 8


IB032056
IB032058
MARKET ST. #1
Amarillo St
Anzac St
Market St
Abilene St
El Paso St
N Wayside Dr
Crown St

Area 9


Beltway
BW246069
Brays Bayou
Bellaire Blvd
Westchase Way
Bandlon Dr
Bellfair Dr
Turtlewood Dr
36" CIPP
36" UNK

Appendix D

Sewer Basin and Lift Station Prioritization Matrices

Sewer Basin Prioritization:

	Relative Weightage for Different Parameters Used for Sewer Basin Prioritization							
	Regulatory			Level of Service				
Level 1 Relative Weights	60%			40%				
	RSSO	Public SSO	Private SSO	Almost SSO	Repeat Stoppage	Stoppage	Repeat Odor	Odor
Level 2 Relative Weights	50%	40%	10%	40%	30%	15%	10%	5%

Scoring Criteria for Sewer Basin Prioritization Parameters

(Score: 0 to 5, 5 being the worst**)**

S. N.	Parameter	5	4	3	2	1	0
1	Repeat SSO (RSSO)	Normalized RSSO Count > 9.400	Normalized RSSO count > 4.050 to 9.400	Normalized RSSO count > 1.885 to 4.050	Normalized RSSO count > 1.130 to 1.885	Normalized RSSO count > 0.200 to 1.130	RSSO = 0
2	Public SSO	Normalized Public SSO count > 9.570	Normalized Public SSO count > 5.345 to 9.570	Normalized Public SSO count > 2.738 to 5.345	Normalized Public SSO count > 1.524 to 2.738	Normalized Public SSO count > 0 to 1.524	Public SSO count= 0
3	Private SSO	Normalized Private SSO count > 10.850	Normalized Private SSO count > 6.537 to 10.850	Normalized Public SSO count > 3.665 to 6.537	Normalized Public SSO count > 1.920 to 3.665	Normalized Public SSO count > 0 to 1.920	Private SSO count= 0
4	Almost SSO	Normalized Almost SSO count > 4.265	Normalized Almost SSO count > 3.412 to 4.265	Normalized Almost SSO count > 2.439 to 3.412	Normalized Almost SSO count > 1.813 to 2.439	Normalized Almost SSO count > 0.210 to 1.813	No Almost SSO
5	Repeat Stoppage	Normalized Value > 79.600	Normalized Value > 45.200 to 79.600	Normalized Value > 20.850 to 45.200	Normalized Value > 9.930 to 20.850	Normalized Value > 0.670 9.930	No Repeat Stoppage
6	Stoppage	Normalized Value > 33.400	Normalized Value >21.150 to 33.400	Normalized Value > 11.940 to 21.150	Normalized Value > 6.030 to 11.940	Normalized Value > 0.470 to 6.030	No Stoppage
7	Repeat Odor	Normalized Value >9.450	Normalized Value > 4.200 to 9.450	Normalized Value > 2.730 to 4.200	Normalized Value > 1.953 to 2.730	Normalized Value > 0.450 to 1.953	No Repeat Odor
8	Odor	Normalized Value >8.670	Normalized Value > 5.355 to 8.670	Normalized Value > 3.082 to 5.355	Normalized Value > 1.702 to 3.082	Normalized Value > 0.470 to 1.702	No Odor Complaint

Lift Station Prioritization (Risk-based):

Risk Score = Likelihood of Failure (LOF) x Consequence of Failure (COF)

			Scoring Criteria for LOF Parameters (for Lift Station Prioritization) (Score: 1 to 5, 5 being the worst)				
S. N.	**Likelihood of Failure (LOF)**	Relative Weight (abs)	**5**	**4**	**3**	**2**	**1**
1	Age	3	>= 31 yrs.	20 to 30 yrs.	15 to 19 yrs.	11 to 14 yrs.	10 yrs. or less
2	Structural Condition	2	Very Poor/ Require Replacement	Poor/ Require Rehabilitation	Moderate/ Require Significant Maintenance	Good/ Minor Defects	Excellent/ Very Good
3	Mechanical Condition	4	Very Poor/ Require Replacement	Poor/ Require Rehabilitation	Moderate/ Require Significant Maintenance	Good/ Minor Defects	Excellent/ Very Good
4	Electrical Condition	3	Very Poor/ Require Replacement	Poor/ Require Rehabilitation	Moderate/ Require Significant Maintenance	Good/ Minor Defects	Excellent/ Very Good
5	Capacity Limitation	2	Capacity Inadequate @ 10K GPAD				Capacity adequate @ 10K GPAD
6	Site Property	1	High Risk				Low Risk
7	Facility Building	1	High Risk				Low Risk
8	Accessibility	1	High Risk				Low Risk
9	FIRM Capacity	1	FC > 5 MGD	FC >2.25 to 5 MGD	FC >0.5 to 2.25 MGD	FC > 0.25 to 0.5 MGD	FC <= 0.25 MGD
10	Design Safety	1	High Risk				Low Risk
11	Flood Zone	1	in Floodway	in 100-yr FP		in 500 yr FP	In Zone X

Scoring Criteria for COF Parameters (for Lift Station Prioritization)

(Score: 1 to 5, 5 being the worst**)**

S. N.	**Consequence of Failure (COF)**	Relative Weight (abs)	**5**	**4**	**3**	**2**	**1**
1	Public Disruption	1	SA >580 ac	SA=> 281 to 580	SA=> 141 to 280	SA=> 61 to 140	SA<= 60
2	Customer Odor Complaints	1	No of odor complaint =>7	No of odor complaint = 6	No of odor complaint = 4 to 5	No of odor complaint = 3	No of odor complaint <=2
3	Number of Upstream Lift Stations	1	No of US LS =>2		No of US LS =1		No of US LS =0
4	Work Order History	3	No. of WO in 3-yrs =>18	No. of WO in 3-yrs =16 to 17	No. of WO in 3-yrs =14 to 15	No. of WO in 3-yrs =12 tp 13	No. of WO in 3-yrs <12
5	Lift Station Related SSOs	3	No. of SSO in 3-yrs =>14	No. of SSO in 3-yrs =11 to 13	No. of SSO in 3-yrs = 8 to 10	No. of SSO in 3-yrs =5 to 7	No. of SSO in 3-yrs<5
6	Repair Cost	2	Motor HP =>120	Motor HP >50 to 119	Motor HP >20 to 49	Motor HP > 8 to 19	Motor HP <=8
7	Retention Time	3	T<5 hrs	T= 5 to 10 hrs	T= 11 to 16 hrs	T= 17 to 71 hrs	T=>72 hrs
8	Critical Industries	1	>3		2 to 3		0 to 1
9	Elimination/ Consolidation Potential	1	High		Medium		Low

Appendix E

WWTP Violations and Associated Corrective Action

Plant Greenridge

Permit Parameter	Non-Compliance Date(s)	Initial Root Cause Assessment	CORRECTIVE ACTION
2-hr peak	8/26/2017 8/28/2017 8/27/2017	Hurricane Harvey related. The region experienced extreme rainfall due to Hurricane Harvey. Ten inches of rain were recorded at the WWTP on August 26, 2017.	Operations personnel made process adjustments, as conditions allowed, to maximize treatment.
CBOD5	04/17/2015	During the heavy rainfall of 3.27 inches on April 17, 2015, a sudden hydraulic surge was created through the plant, due to the sudden rise in the flow (18 mgd). This caused solids to build up in the clarifiers and escape with the effluent, which contributed in the CBOD-5 excursion.	Operations staff is closely monitoring the plant and making process adjustments, as needed.
E. coli	05/13/2015	Insufficient bleach feed in the system during an abnormal high flow at the time of sampling. Chlorine deficiency in the contact basin resulted in elevated E. coli bacteria in the effluent.	Work order # 1122347 was created for the chlorination group to thoroughly inspect the chlorination system to ensure proper operation.
	06/18/2015	Undetermined. Both the operator logs and SCADA trends indicated that the chlorine residual and effluent flow were variable, but the chlorine residual was above 1.0 mg/L prior to and at the time of sample collection.	Work order # 1134273 was created for the chlorination group to evaluate the chlorination system to ensure proper operation.
	07/01/2015	Undetermined. Chlorine residual by grab sample and analyzer indicated that the plant was in compliance.	Work order # 1134273 was created for the chlorination group to evaluate the chlorination system to ensure proper operation.
	3/3/2016	Undetermined. SCADA trends indicate that the residual was 1.75 mg/L at the time of sampling.	Chlorination system was assessed under work order # 1233658
	12/21/2016	Equipment failure resulted in insufficient chlorination to properly disinfect the effluent.	The chlorination group troubleshooted the chlorine monitoring system.
	9/27/2017	The disinfection system was not maintaining an adequate chlorine residual at the time of sample collection.	The chlorination group repaired the disinfection system.
NH3-N	8/29/2016	The return sludge pumps malfunctioned, causing inadequate return of sludge to the process and an elevated ammonia concentration in the effluent.	All return sludge pumps were immediately restored back to service under work orders 1231783 and 1237180.
	4/2/2018	Clogged return telescopes caused a deficiency of RAS in the process, disrupting the complete treatment of ammonia.	The return telescope cleaning schedule was revised to include more frequent monitoring and cleaning.
	01/22/2015	Combination of heavy rain and multiple flow restrictions in the clarifiers. According to the rain gauge at the WWTP, it rained 1.10 inches on 1/22/2015 and caused a sustained flow of 10 mgd for over 4 hours. The hydraulic surge due to the wet weather caused debris to plug the inlets and center wells of the clarifiers. This caused solids to build up and escape with the effluent, and resulted in a high TSS concentration.	Work order # 1087159 was created to remove all trash and debris from clarifier inlets and center wells. The situation corrected itself once flow subsided.
TSS	1/18-1/24/2015	Combination of heavy rain and multiple flow restrictions in the clarifiers. According to the rain gauge at the WWTP, it rained 1.10 inches on 1/22/2015 and caused a sustained flow of 10 mgd for over 4 hours. The hydraulic surge due to the wet weather caused debris to plug the inlets and center wells of the clarifiers. This caused solids to build up and escape with the effluent and resulted in a very high TSS concentration on January 22, 2015, which affected the calculated 7-day average concentration.	Work order # 1087159 was created to remove all trash and debris from clarifier inlets and center wells. The situation corrected itself once flow subsided.
	04/01/2015	All lift station pumps came on during the heavy rainfall of 3.27 inches on April 17, 2015, resulting in a flow increase to 18 mgd. This apparently reduced detention time, allowing solids to build up in the clarifiers that escaped with the effluent. This increased the TSS daily average above the permitted limit.	Operations staff is closely monitoring the plant and making process adjustments, as needed.
	04/16/2015	During the heavy rainfall of 2.5 inches on April 16, 2015, a sudden hydraulic surge was created through the plant, due to the sudden rise in the flow (>15 mgd). This caused solids to build up in the clarifiers and escape with the effluent.	Operations staff is closely monitoring the plant and making process adjustments, as needed.
	04/17/2015	During the heavy rainfall of 3.27 inches on April 17, 2015, a sudden hydraulic surge was created through the plant, due to the sudden rise in the flow (18 mgd). This caused solids to build up in the clarifiers and escape with the effluent.	Operations staff is closely monitoring the plant and making process adjustments, as needed.
	4/12 TO 4/18/2015	Heavy rainfall of 3.27 inches on April 17, 2015, and 2.5 inches on April 16, 2015, created hydraulic surges through the WWTP. Solids built up in the clarifiers and escaped with the effluent, leading to TSS exceedance for two days. The high TSS concentrations for two consecutive days affected the calculated 7-day average concentration.	Operations staff is closely monitoring the plant and making process adjustments, as needed.
	05/12/2015	Clarifier issues were caused by debris build up in the inlet of # 3 clarifier, increasing flow toward the smaller clarifiers (# 1 and 2). Some short circuiting occurred, allowing a high rate of flow to reach the weirs prior to settling. Severe thunderstorms produced 3.20 inches of rain, which may have contributed to the problem. These factors allowed solids to escape over the weirs and caused the TSS violation.	Work orders have been submitted to clean the inlets and center wells of the clarifiers. (#1083298, #1083490, #1087159)
	2/8/2016	A combination of high solids in the plant and problems with the lift station caused elevated TSS in the effluent. Rainfall may have also contributed to the problem. On January 8, 2016, 0.76 inches of rain were recorded at the WWTP.	Operations is working diligently to remove excess solids from the plant.
	5/2/2017	A sudden surge of flow, created when the lift station pumps were reprimed, caused solids to be pushed out of the clarifier, into the chlorine contact basin, and out the outfall.	The operator has been retrained on the effects of sudden surges of flow. A work order was written for the installation of air relief valves on the lift pumps.
	7/10/2017	A power outage on July 8, 2017 caused the return pump to trip off. As a result, an accumulation of solids in clarifier #2 eventually flowed over the clarifier weirs to the chlorine contact basin and through the outfall.	The tripped return pumps were repaired.

Plant FWSD 23			
Permit Parameter	**Non-Compliance Date(s)**	**Initial Root Cause Assessment**	**CORRECTIVE ACTION**
2 hour peak flow	10/24/2015 10/25/2015	Severe rain in the service area. On October 24, 8.43 inches of rain were recorded at the WWTP. On October 25, 1.41 inches of rain were recorded at the WWTP.	Operations staff is closely monitoring the plant and making process adjustments as needed.
	10/30/2015 10/31/2015	Severe rain in the service area. On October 30, 7.6 inches of rain were recorded at the WWTP. On October 31, 1.17 inches of rain were recorded at the WWTP.	Operations staff is closely monitoring the plant and making process adjustments as needed.
	12/13/2015	Heavy rain in the service area. On December 13, 2015, 1.42 inches of rain were recorded at the WWTP	Operations staff is closely monitoring the plant and making process adjustments as needed.
	1/8/2016	Rain in the service area. On January 8, 2016, 0.79 inches of rain were recorded at the WWTP.	Operations staff is closely monitoring the plant and making process adjustments as needed.
	4/18/2016	A total of 4.43 inches of rain were recorded at the WWTP on April 17 and 18, 2016. 4/17/16: 3.63 inches 4/18/16: 0.8 inch	On April 18, 2016, Governor Greg Abbott issued a Disaster Proclamation for Harris County and other areas of southeast Texas.
	5/27/2016	Heavy rain in the service area. On May 27, 2016, 2.86 inches of rain were recorded at the WWTP.	Operations staff is closely monitoring the plant and making process adjustments as needed.
	6/2/2016	Heavy rain in the service area. On June 2, 2016, 2.10 inches of rain were recorded at the WWTP.	Operations staff is closely monitoring the plant and making process adjustments as needed.
	6/3/2016	Heavy rain in the service area. On June 3, 2016, 1.7 inches of rain were recorded at the WWTP.	Operations staff is closely monitoring the plant and making process adjustments as needed.
	6/4/2016	Heavy rain in the service area. On June 3 and 4, 2016, 1.70 and 0.20 inches of rain were, respectively, recorded at the WWTP.	Operations staff is closely monitoring the plant and making process adjustments as needed.
	1/18/2017	Heavy rain in the service area. On January 17 and 18, 2017 a total of seven inches of rain were recorded at the WWTP.	Operations staff is closely monitoring the plant and making process adjustments as needed. NOTE: The Bretshire WWF did not discharge.
	1/20/2017	Heavy rain in the service area. On January 20, 2017 2.64 inches of rain were recorded at the WWTP.	Operations staff is closely monitoring the plant and making process adjustments as needed. NOTE: The Bretshire WWF did not discharge.
	1/21/2017	Heavy rain in the service area. On January 20 and 21, 2017 a total of 2.72 inches of rain were recorded at the WWTP.	Operations staff is closely monitoring the plant and making process adjustments as needed. NOTE: The Bretshire WWF did not discharge.
	3/29/2017	Heavy rain in the service area. On March 29, 2017, 2.2 inches of rain were recorded at the WWTP.	Operations staff is closely monitoring the plant and making process adjustments as needed. NOTE: The Bretshire WWF did not discharge.
	8/7/2017	Heavy rain in the service area. On August 7, 2017, 4.78 inches of rain were recorded at the WWTP.	Operations staff is closely monitoring the plant and making process adjustments as needed. NOTE: The Bretshire WWF did not discharge.
	2/10/2018	Heavy rain in the service area. On February 9 and 10, 2018, 3.17 inches of rain were recorded at the WWTP	Operations staff is closely monitoring the plant and making process adjustments as needed. NOTE: The Bretshire WWF did not discharge.
	6/20/2018	Heavy rain in the service area. On June 20, 2018, 2.89 inches of rain were recorded at the WWTP.	Plant operations returned to normal after the rain subsided.
	7/4/2018	Heavy rain in the service area. On July 4, 2018, 4.35 inches of rain were recorded at the WWTP	Operations staff is closely monitoring the plant and making process adjustments as needed. Upon issuance of the pending TPDES permit (WQ0010495016), the 2-hour peak flow limit will be 33,056 gpm. TCEQ received the application on November 1, 2002; the latest draft permit was issued on July 25, 2016. NOTE: The Bretshire WWF did not discharge.
	9/9/2018	Heavy rain in the service area. On September 9, 2018, 3.06 inches of rain were recorded at the WWTP.	Operation staff is closely monitoring the plant and making process adjustments as needed.
NH3-N	11/14/2016 (outfall 001, 003)	Undetermined. The WWTP was operating normally, with no upsets. The influent NH3-N was measured at 82 mg/L and may have contributed to the noncompliance.	The WWTP influent will be closely monitored to determine if an investigation of possible illegal dumping is warranted.
	9/3/-9/9/2017 (outfall 001, 003)	Hurricane Harvey related. Flooding at the facility site damaged the blowers, motors, and electrical gear. This prevented adequate secondary treatment.	On August 30, 2017, emergency electrical and mechanical repairs were begun. Two temporary blowers were installed for back-up. Secondary treatment was partially restored on September 3, 2017 and fully restored on September 4, 2017. NOTE: The Bretshire WWF did not discharge.
	9/4/2017 (outfall 001 and 003)	Hurricane Harvey related. The WWTP was inaccessible from August 27 to 29, 2017.	Clarifiers and blowers became available for service on September 4, 2017.
	9/5/2017 (outfall 001 and 003)	Hurricane Harvey related. Flooding at the facility site damaged the blowers, motors, and electrical gear. This prevented adequate secondary treatment.	On August 30, 2017, emergency electrical and mechanical repairs were begun. Two temporary blowers were installed for back-up. Secondary treatment was partially restored on September 3, 2017 and fully restored on September 4, 2017.
	3/15/2018 (outfall 001 and 003)	An air diffuser broke off of the air header, preventing air from being fed into the aeration basins. This equipment failure happened after hours and was not discovered until the morning shift arrived.	A work order was generated for the repair of the broken diffuser.

	9/18/2018 9/20/2018 9/16/18-9/22/18	A stoppage in the air lift pump system and blowers out of service for maintenance caused incomplete treatment.	Maintenance completed stoppage removal from the air return lines.
TSS	5/12/2015 (outfall 001 and 003)	Combination of high sludge blanket in clarifier #4 due to clogged sludge wasting line and out of service equipment (clarifier #2). Rainfall of 2.54 inches on 5/12/2015 and 0.9 inches on the day before may have contributed to the problem. These factors allowed solids to escape over the weirs.	Work order #1121170 was generated to clear the blockage in the sludge wasting line on clarifier #4.
	5/15/2015 (outfall 001 and 003)	Combination of high sludge blanket in clarifier #4 due to clogged sludge wasting line and out of service equipment (clarifier #2). Rainfall of 0.70 inches on 5/15/2015 may have contributed to the problem. These factors allowed solids to escape over the weirs.	Work order #1121170 was generated to clear the blockage in the sludge wasting line on clarifier #4.
	3/10/2016 (outfall 001 and 003)	Combination of equipment failure and heavy rainfall in the area. Two clarifiers were out of service due stoppages in the return air lift pumps. On March 9 and 10, 2016, 3.75 inches of rainfall were recorded at the WWTP.	Wasting rates were adjusted. Maintenance and operations removed the stoppages in the air lift pumps and placed clarifier #2 back in service.
	1/20/2017 (outfall 001 and 003)	Clarifier #5 was taken out of service to clear a stoppage in the return line. This allowed a hydraulic surge, experienced during a period of heavy rainfall, to push solids out of the in-service clarifiers.	Maintenance crews are removing the stoppage in the Clarifier #5 return line.
	1/1/2017-1/31/17 (outfall 001 and 003)	Clarifier #5 was taken out of service to clear a stoppage in the return line. This allowed a hydraulic surge, experienced during a period of heavy rainfall, to push solids out of the in-service clarifiers.	Maintenance crews are removing the stoppage in the Clarifier #5 return line. NOTE: The Bretshire WWF did not discharge.
	1/15/2017-1/21/17 (outfall 001 and 003)	Clarifier #5 was taken out of service to clear a stoppage in the return line. This allowed a hydraulic surge, experienced during a period of heavy rainfall, to push solids out of the in-service clarifiers.	Maintenance crews are removing the stoppage in the Clarifier #5 return line.
	8/7/2017 (outfall 001 and 003)	Poor settling caused solids to discharge over the clarifier weirs. Heavy rainfall (4.78 inches on 8/7/17) may have contributed.	Process adjustments were made to maximize treatment.
	1/23/2018 (outfall 001 and 003)	Unknown. All plant equipment was in service and all process controls were within appropriate ranges.	None

Plant: Kingwood Central

Permit Parameter	Non-Compliance Date(s)	Initial Root Cause Assessment	CORRECTIVE ACTION
COBD5	9/6/2017 9/7/2017 9/8/2017 9/3-9/6/2017 9/1-9/30/2017 9/1-9/30/2017	Hurricane Harvey related. Floodwaters (over 23 inches of rain were recorded at the WWTP) damaged all three blowers and destroyed the UV disinfection system. The storm left the plant with no power.	Bids for replacing/repairing the UV system are being solicited. Blowers are being repaired.
E.coli	01/13/2015	Plant rainfall of 1" on January 11, 2015 caused a power surge at the ultraviolet (UV) disinfection system. Routine preventive maintenance activities on Monday, January 12, 2014 revealed 72 lights burned out, preventing the plant from maintaining the optimal disinfection efficiency. This allowed the E. coli bacteria value to rise above the permitted value.	Additional ballasts were ordered to replace stock on hand.
	02/10/2015	UV system shut down due to electrical problem. This allowed the E. coli bacteria value to rise above the permitted value.	Work assignment was ordered to STES contractor for UV system evaluation.
	9/5/2016	Rags accumulated on the bulbs of the UV system, preventing adequate disinfection.	The mechanical bar screen is being repaired, which will prevent this problem from occurring again.
	9/6/2017 9/7/2017 9/8/2017 9/9/2017 9/10/2017	Hurricane Harvey related. Floodwaters (over 23 inches of rain were recorded at the WWTP) damaged all three blowers and destroyed the UV disinfection system. The storm left the plant with no power.	Bids for replacing/repairing the UV system are being solicited. Blowers are being repaired.
	9/20/2017	The bleach injection system was unable to maintain an adequate chlorine residual. Hurricane Harvey destroyed the UV disinfection system; a temporary bleach system is being utilized.	An emergency purchase order is being pursued for repairs to and/or replacement of the disinfection system.
	7/31/2018	Elevated flow due to rainfall (1.0 inch recorded at the WWTP) is believed to have contributed to incomplete disinfection.	Inframark is making process control adjustments and troubleshooting the disinfection system to ensure proper treatment. NOTE: The UV disinfection system was destroyed by Hurricane Harvey. Chlorination is being used for disinfection.
NH3-N	2/12/2016	The blowers tripped off on February 11, 2016 during non-working hours, and the alarm system failed. Insufficient aeration caused incomplete treatment in the aeration basin. **The laboratory provided updated analytical results on March 9, 2016.	The communication issue with the alarm system was corrected.
	9/6/2017 9/7/2017 9/8/2017 9/3-9/9/2017 9/1-9/30/2017	Hurricane Harvey related. Floodwaters (over 23 inches of rain were recorded at the WWTP) damaged all three blowers and destroyed the UV disinfection system. The storm left the plant with no power.	Bids for replacing/repairing the UV system are being solicited. Blowers are being repaired.
TSS	9/6/2017 9/7/2017 9/8/2017 9/3-9/9/2017 9/1-9/30/2017	Hurricane Harvey related. Floodwaters (over 23 inches of rain were recorded at the WWTP) damaged all three blowers and destroyed the UV disinfection system. The storm left the plant with no power.	Bids for replacing/repairing the UV system are being solicited. Blowers are being repaired.

Plant Metro Central

Permit Parameter	Non-Compliance Date(s)	Initial Root Cause Assessment	CORRECTIVE ACTION
CBOD5	8/27/2017-9/2/2017 9/1/2017	Hurricane Harvey related. The facility was flooded for several days. Blowers were unable to run because water had collected in discharge lines. Return sludge pumps on both clarifiers suffered failures and could not return solids.	Return sludge pumps and valves on blowers have been replaced. Blower discharge lines have been cleared. Plant solids have been reduced and reseeding was performed to introduce active bacteria.
Enteroco	11/2/2016	Undetermined. According to the SCADA trends, the chlorine residual was within an adequate range for disinfection at the time of sample collection.	The disinfection system was checked for problems, but it was found to be working properly. Operations personnel is continuously monitoring plant operations and disinfection system equipment.
	2/21/2018	Undetermined. At the time of sample collection, the chlorine residual was with an adequate range for disinfection. Plant flow was normal, and all plant process equipment was in service.	Operations is continuously monitoring plant processes, equipment, and chemical feed systems.
	7/25/2018	Undetermined. SCADA trends show that the chlorine residual was within an adequate range for disinfection at the time of sample collection. Plant flow was normal, and all process equipment was in service.	Continuously monitor plant operations, equipment, and chemical feed systems.
NH3-N	7/1-7/31/2015	Multiple RAS pump issues throughout the month of July resulted in excessive sludge blankets in the clarifiers which affected the treatment process and caused elevated ammonia-nitrogen levels throughout the month.	RAS pumps have been either replaced or repaired and electrical issues have been addressed.
	9/1/2017 9/4/2017 9/5/2017 8/17-9/2/2017 9/3-9/9/2017 9/1-9/30/2017	Hurricane Harvey related. The facility was flooded for several days. Blowers were unable to run because water had collected in discharge lines. Return sludge pumps on both clarifiers suffered failures and could not return solids.	Return sludge pumps and valves on blowers have been replaced. Blower discharge lines have been cleared. Plant solids have been reduced and reseeding was performed to introduce active bacteria.
TSS	01/22/2015	Heavy rain. According to the rain gauge at the WWTP, it rained 2.78 inches on 1/22/2015. The hydraulic surge due to the sustained high flow of 10.0 MGD for nearly four hours, caused solids from the sludge blankets to escape with the effluent, and resulted in the elevated TSS concentration.	Operations staff is closely monitoring the plant and making process adjustments, as needed.
	02/09/2015	The main return pumps lost prime during a five hour power outage. Sludge built up in the clarifiers and accumulated solids escaped with the effluent.	The plant returned to normal operation once the power was restored and the return pumps were primed.
	12/1-12/31/2015	One of the clarifiers malfunctioned, causing the bio solids removal system to fail. Rising bio solids exited the clarifier over the weirs and subsequently discharged in the effluent.	A work request was made for the electrician to service the traveling bridge limit torque switch and a railing contactor that was tripping the unit off.
	1/11/31/2016	The malfunction of clarifier #4 caused the solids level in the clarifier to rise and exit over the clarifier weirs. This resulted in elevated TSS concentrations throughout the month which caused the daily average to exceed the permitted limit.	Rags are continuously cleaned from the sludge return lines, and the contractor is working on getting an additional clarifier in service.
	12/1-12/31/2016	Only one clarifier was available for use and various return pump failures caused elevated TSS concentrations throughout the month.	Service requests have been made for repairs to clarifiers and the associated pumps.
	5/1/2017 4/30-5/6/2017	The composite sampler was recently moved so a contractor could perform upgrades. In doing so, the intake tube was placed adjacent to the chlorine contact basin wall. It is suspected that the cause of the elevated TSS is an accumulation of sand along the wall of the chlorine contact basin.	The lab group has been requested to relocate the sampler. Operations personnel are also performing maintenance activities in the chlorine contact basin.
	8/27/2017-9/2/17	Hurricane Harvey related. The facility was flooded for several days. Blowers were unable to run because water had collected in discharge lines. Return sludge pumps on both clarifiers suffered failures and could not return solids.	Return sludge pumps and valves on blowers have been replaced. Blower discharge lines have been cleared. Plant solids have been reduced and reseeding was performed to introduce active bacteria.

Plant Southwest			
Permit Parameter	**Non-Compliance Date(s)**	**Initial Root Cause Assessment**	**CORRECTIVE ACTION**
CBOD5	5/24- 5/30/2015 5/29/2015	The Houston area experienced intense, sustained rainfall of 11 inches in less than six hours over May 25/26, 2015. As a result, Brays Bayou overflowed its banks and flooding occurred. The entire WWTP was flooded and extensive damage occurred to the electrical and blower systems. The inability to use the full capacity of the blowers caused insufficient air in the aeration basins, allowing the ammonia value to rise above the permitted amount.	Operations will closely monitor the situation while electrical systems, blowers and all other equipment are being repaired.
	1/28/2018-2/3/2018 2/3/2018	A power failure to the return flow station caused the violation.	Power was restored, and work orders were generated to verify proper operation of the return pumps.
Cerio NOEC	1/9/2017	A review of the routine water chemistries did not reveal a definitive cause of the sublethal failure.	Additional analyses may be conducted to determine a potential cause for toxicity. Increased monitoring will be conducted as required by the permit.
	1/1/2017-1/31/17	A review of the routine water chemistries did not reveal a definitive cause of the failure. Additional testing is being conducted.	None
	3/7/2017	A review of the routine water chemistries did not reveal a definitive cause of the failure. Additional testing is being conducted.	None
E.coli	01/05/2015	Insufficient bleach feed due to a failure to the pre-analyzer pump. This caused a temporary chlorine residual drop in the plant's effluent and the E. coli bacteria value to rise above the permitted value.	Work order #1083183 was created to evaluate and verify proper operation of the chlorination system. Operations and the control center will closely monitor the chlorination system.
	03/09/2015	Combination of wet weather events and electrical failure in the effluent lift station system. These caused the out of service filter deck to flood and re-contaminate the plant's effluent.	Work order #1098030 was created to check the cause of the lift station failure. Operations will closely monitor the situation.
	5/12/2015 5/13/2015	Chlorination system failed on May 12 and May 13, 2015, due to PLC problem on the first day, and power failure at the plant on the second. The insufficient bleach feed resulted in high E. coli concentrations.	Work orders #1120166 and #1122231 were created to check PLC and power failure. Operations will closely monitor the situation.
	5/28/2015 6/5/2015 6/18/2015	The Houston area experienced intense, sustained rainfall of 11 inches in less than six hours over May 25/26, 2015. As a result, Brays Bayou overflowed its banks and flooding occurred. The entire WWTP was flooded and extensive damage occurred to the electrical and blower systems. The inability to use the full capacity of the blowers caused insufficient air in the aeration basins, allowing the ammonia value to rise above the permitted amount.	Operations will closely monitor the situation while electrical systems, blowers and all other equipment are being repaired.
	10/15/2015	Unknown. According to SCADA trends and operator logs, the chlorine residual was in range, and the bleach feed was working properly at the time of sample collection.	Operations staff is closely monitoring the plant and making process adjustments, if needed.
	10/29/2015	Unknown. The mix point and pre-dechlorination analyzers indicated that there was adequate bleach in the system during the sample period.	The process and equipment will continue to be monitored.
	3/21/2016	Equipment failure. The SCADA system alerted the operator of low chlorine residuals at the mix point and pre-dechlorination point. When the operator arrived the chlorine pump and metering pump were tripped	A work order was written for the chlorination group to troubleshoot and/or repair the chlorine pump and metering pump
	4/20/2016	Undetermined. According to SCADA trends, the chlorine residual was in range at the time of sampling. No problem found with the chlorination system.	Chlorination system was checked and confirmed working properly
	5/20/2016	Undetermined. According to SCADA trends, the chlorine residual was in range at the time of sampling. No problem found with the chlorination system	Chlorination system was checked and confirmed working properly
	6/8/2016	Undetermined. According to SCADA trends, the chlorine residual was in range at the time of sampling. No problem was found with the chlorination system.	The chlorination system was check and was working properly.
	7/26/2016	Undetermined. According to SCADA trends, the chlorine residual was within an acceptable range for disinfection at the time of sample collection.	The chlorination system was checked for malfunction but was found to be working properly.
	9/14/2016	Undetermined. SCADA trends at the time of sample collection indicate a chlorine residual adequate for disinfection.	The chlorination system was troubleshooted. No problems were found.
	1/4/2017	A power failure disabled the chlorination system, causing inadequate disinfection.	An electrician traced the power failure and restored power.
	3/14/2017	Undetermined. The SCADA trends indicate that the chlorine residual at the time of sample collection was adequate for disinfection. The chlorination system was working properly	The chlorination system was troubleshooted, but not problems were found.
	5/26/2017	Undetermined. At the time of sample collection, the SCADA trends indicate an adequate chlorine residual for disinfection.	None.
	9/19/2017	A power failure disabled both chlorine pumps, resulting in inadequate disinfection.	Power was restored, and the chlorine pumps were put back online.
	12/7/2017	Intermittent power failures affecting the chlorination system caused inadequate disinfection at the time of sample collection.	A work order was generated for the chlorination group to troubleshoot the disinfection system
	1/20/2018	The chlorine analyzer failed, resulting in an inadequate chlorine residual at the time of sample collection.	The chlorination group troubleshooted the disinfection system.
	3/9/2018	Undetermined. At the time of sample collection, the SCADA trends show that the chlorine residual was within an adequate range for disinfection. The chlorination equipment was not experiencing any issues.	Operations personnel verified the operability of the chlorination system.
	3/29/2018	A temporary increase in hydraulic load caused solids to rise and escape the clarifiers, causing an increase in E. coli.	The chlorination group troubleshooted the disinfection system.
	6/5/2018	The chlorine pump lost prime, resulting in inadequate disinfection.	The chlorination group removed a stoppage from the pump and returned it to service.
	6/12/2018	Undetermined. SCADA trends indicate that the chlorine residual was within an acceptable range for disinfection.	None
	7/3/2018	Failure of the chlorine pump prevented adequate disinfection.	The chlorination group repaired the chlorine pump.
NH3-N	5/24 - 5/30/2015 5/29/2015 6/1/2015	The Houston area experienced intense, sustained rainfall of 11 inches in less than six hours over May 25/26, 2015. As a result, Brays Bayou overflowed its banks and flooding occurred. The entire WWTP was flooded and extensive damage occurred to the electrical and blower systems. The inability to use the full capacity of the blowers caused insufficient air in the aeration basins, allowing the ammonia value to rise above the permitted amount.	Operations will closely monitor the situation while electrical systems, blowers and all other equipment are being repaired.
	6/1-6/30/2016	Multiple power failures caused inadequate aeration and mixing on the reactor deck during the month of June.	The electrician was notified and power was restored each time there was a loss of power.
	6/9/2017 6/10/2017 6/11/2017 6/4-6/10/2017 6/11-6/17/2017 6/1-6/30/2017	A combination of planned shutdowns for contractor work and a power failure resulted in insufficient dissolved oxygen in the system.	All equipment was put back into service, and power was restored.
	8/27-9/2/17 9/3-9/9/2017 9/1/2017 9/2/2017 9/3/2017 9/4/2017 9/5/2017	Hurricane Harvey related. The facility was flooded for several days. Blowers were unable to run as a result of water damage.	A contractor was dispatched to check the electrical feeder lines and repair the damaged blowers.
	9/1-9/30/17	The clarifier inlet lines are plugged, causing the mixed liquor channel to overflow into the adjacent clarifier effluent channel.	A work order has been generated to have all clarifier inlet lines cleaned.
TSS	05/12/2015	Heavy rainfall was recorded as 0.85" on May 27, 2014 and 1.10" on the previous day, causing a hydraulic surge through the WWTP. The mixed liquor channel overflowed into the clarifier effluent launders.	Operations made process adjustments throughout the plant to balance the flow. A work order is pending to investigate and remove debris that may be impeding flow.
	5/27/2015 6/9/2015 6/17/2015	The Houston area experienced intense, sustained rainfall of 11 inches in less than six hours over May 25/26, 2015. As a result, Brays Bayou overflowed its banks and flooding occurred. The entire WWTP was flooded and extensive damage occurred to the electrical and blower systems. The inability to use the full capacity of the blowers caused insufficient air in the aeration basins, allowing the ammonia value to rise above the permitted amount.	Operations will closely monitor the situation while electrical systems, blowers and all other equipment are being repaired.
	7/7/2015 7/8/2015 7/9/2015 7/5-7/11/2015 7/1-7/31/2015	In order for the electrical contractor to safely perform repairs, electricity to the return flow station had to be disconnected to a portion of the plant. During the power outage, the return activated sludge overflowed the return flow station into the effluent filter deck, elevating the TSS concentration in the effluent.	The electrical contractor was performing repair work to Power Center #7 in response to the damages incurred during the historic flooding on May 26, 2015. Repairs to Power Center #7 were completed on July 9, 2015. Future electrical work will be limited to a maximum shut-down time of four hours.
	1/30/2016	Problems with the return flow lift pumps caused an increase in the elevation of solids in the center well which caused solids to enter the effluent.	Repair of the return flow pumps was put under work order numbers 1176062, 1212634, 1212913, and 1212635.
	4/14/2017 4/15/2017	A communications malfunction within the return flow station resulted in a false reading of the return flow well level which prevented the return flow pumps from activating.	The plant network technician repaired the communications malfunction. A second work order was written for the electrical group to check and repair the transducer at the return
	9/15/2017	The clarifier inlet lines are plugged, causing the mixed liquor channel to overflow into the adjacent clarifier effluent channel.	A work order has been generated to have all clarifier inlet lines cleaned.
	11/4/2017 11/5/2017	An intermittent overflow of the clarifier #4 inlet pit into the clarifier effluent channel elevated the concentration of TSS in the effluent.	Clarifier inlet pit cleaning is ongoing.
	12/6/2017 12/3-12/9/2017	The clarifier #4 inlet pit was intermittently overflowing into the clarifier effluent channel.	Clarifier inlet pit cleaning is ongoing.
	2/1-2/28/18 2/1-2/28/2018 1/28-2/3/2018 2/3/2018	A power failure to the return flow station caused elevated TSS concentrations at the beginning of the month.	Power was restored, and work orders were generated to verify proper operation of the return pumps.

Plant Upper Brays

Permit Parameter	Non-Compliance Date(s)	Initial Root Cause Assessment	CORRECTIVE ACTION
CBOD5	03/21/2015	A combination of 1.2" of rainfall and high sludge blanket in clarifier #3 contributed to the high CBOD-5 concentration.	The situation corrected upon adjustment of the clarifier telescopes.
	8/4/2016 8/5/2016 8/9/2016 8/10/2016 8/11/2016 8/12/2016 8/13/2016 8/14/2016 8/15/2016 8/1-8/31/2016 8/1-8/31/2016 7/31/2016-8/6/2016 8/7-8/13/2016	Insufficient oxygen in the treatment process caused by various blower/diffuser issues. During the period of July 22 to 28, blowers tripped off periodically. During the period of August 1 to 12, blowers tripped off daily. Problems with the blowers can be attributed to high ambient temperatures and added pressure in the air distribution lines due to fouled diffusers in the aeration basins. The inconsistent and prolonged periods of oxygen deficiency caused the plant to reach septic conditions.	There is a long term plan in place to address the fouled diffusers in the aeration basins.
	12/12/2016	Clogged return telescopes caused sludge to overflow the clarifier weirs.	Operations will closely monitor the return telescopes and clean as needed.
	1/18/2017	A combination of blower issues, plugged returned telescopes, and wet weather caused incomplete treatment of CBOD.	Blowers were adjusted, and debris was removed from the return telescopes.
	6/7/2017 6/10/2017 6/11/2017 6/12/2017 5/28-6/3/2017 6/1-6/30/2017 6/4-6/10/2017 6/11-6/17/2017	Insufficient dissolved oxygen in the process due to issues with the air distribution system caused incomplete treatment of CBOD.	Contractors are onsite making permanent improvements to the aeration basins.
	9/1-9/30/2017	Hurricane Harvey related. Problems with blowers resulted in too little dissolved oxygen to fully treat ammonia-nitrogen. This issue was worsened by abnormally high flows and decreased detention time. In order to provide relief to the inundated West District WWTP, raw sewage from the West District collection system was diverted to the Upper Brays WWTP. This additional flow inflated the loadings to a level outside of the normal range for this facility.	The blowers have been repaired. The solids inventory has been restored to normal levels.
Cerio lethal	12/12/2016 12/12/2016	The most probable cause of toxicity was the high ammonia-nitrogen concentrations in samples 1 and 2.	Retests were scheduled for January and February 2017.
	1/23/2017	An elevated concentration of ammonia-nitrogen in the effluent is believed to have contributed to the failure.	Additional testing will be conducted as required by the permit.
	1/1/-3/31/2017	An elevated concentration of ammonia-nitrogen in the effluent is believed to have contributed to the failure in January 2017. This affected the calculated daily average.	Additional testing will be conducted as required by the permit.
	7/3/2017	Elevated ammonia-nitrogen in the samples.	The contractor has completed repairs on one of the aeration basins. The repaired basin was put back into service on July 8, 2017.
	7/1/2017-9/30/17	Elevated ammonia-nitrogen in the samples. A failure in July 2017 caused the calculated daily average to violate the permitted limit. Cerio lethal	The contractor has completed repairs on one of the aeration basins. The repaired basin was put back into service on July 8, 2017.
	7/1/2017-9/30/17	Elevated ammonia-nitrogen in the samples. A failure in July 2017 caused the calculated daily average to violate the permitted limit. cerio sub lethal	The contractor has completed repairs on one of the aeration basins. The repaired basin was put back into service on July 8, 2017.
	10/1-12/31/17	At this time, the cause of the failure is unclear. Sample check-in chemistries were within normal ranges. Additional testing to determine the cause of the failure is pending. The October 2017 test failed, causing the daily average percentage to fall below the permitted limit.	Monthly testing will continue. The City is working with the contract laboratory to identify potential causative agents.
	10/23/2017	At this time, the cause of the failure is unclear. Sample check-in chemistries were within normal ranges. Additional testing to determine the cause of the failure is pending.	Monthly testing will continue. The City is working with the contract laboratory to identify potential causative agents.
	1/1-3/31/2018	The contract laboratory suspects that a combination of copper and zinc caused toxicity in the test conducted in January 2018. This failure affected the reported daily average.	Monthly testing will continue. The City is working with the contract laboratory to identify potential causative agents.
	1/16/2018	The contract laboratory suspects that a combination of copper and zinc caused toxicity.	Monthly testing will continue. The City is working with the contract laboratory to identify potential causative agents.
E.coli	05/08/2015	Insufficient bleach feed due to low level of bleach in tank. This caused a temporary chlorine residual drop in the plant's effluent and the E. Coli bacteria value to rise above the permitted value.	were held with the operators involved to reiterate the standard operating procedures and established standards regarding end
	09/10/2015	Insufficient bleach feed due to an analyzer malfunction. This caused a temporary chlorine residual drop in the plant's effluent and the E. Coli bacteria value to rise above the permitted value.	The analyzer was repaired and the chlorination system is back to normal.
	4/20/2016	Undetermined. At the time of sample collection, the chlorine residual was above the acceptable level.	E. coli values will be closely monitored in subsequent days.
	8/22/2016	Undetermined. At the time of sample collection, the chlorine residual was within an acceptable range for disinfection.	E. coli values will be closely monitored in subsequent days.
	1/18/2017	Inadequate chlorine residual. At the time of sample collection, the plant was experiencing a wet weather event, and the chlorination system was unable to maintain an adequate chlorine residual. In addition, elevated TSS was being discharged because of plugged RAS telescopes.	The chlorination group troubleshooted the chlorination system.
	1/19/2017	Inadequate chlorine residual. At the time of sample collection, the chlorination system was unable to maintain an adequate chlorine residual.	The chlorination group troubleshooted the chlorination system.
	3/27/2017	The bleach pump lost prime overnight, causing an inadequate chlorine residual at the time of sample collection.	The chlorination group has troubleshooted the disinfection system.
	5/26/2017	At the time of sample collection, the chlorination system was unable to maintain an acceptable chlorine residual.	The chlorination group troubleshooted the system.
	5/29/2017	At the time of sample collection, the flow was elevated and the chlorination system was unable to maintain an acceptable chlorine residual.	The chlorination group troubleshooted the system.
Fathead Lethal	12/12/2016	The most probable cause of toxicity was the high ammonia-nitrogen concentrations in samples 1 and 2.	Retests were scheduled for January and February 2017.
	1/23/2017	An elevated concentration of ammonia-nitrogen in the effluent is believed to have contributed to the failure.	Additional testing will be conducted as required by the permit.
	1/1-3/31/2017	An elevated concentration of ammonia-nitrogen in the effluent is believed to have contributed to the failure in January 2017. This affected the calculated daily average.	Additional testing will be conducted as required by the permit.

7/1/2017-9/30/2017	Elevated ammonia-nitrogen in the samples. A failure in July 2017 caused the calculated daily average to violate the permitted limit.	The contractor has completed repairs on one of the aeration basins. The repaired basin was put back into service on July 8, 2017.

	7/3/2017	Elevated ammonia-nitrogen in the samples.	The contractor has completed repairs on one of the aeration basins. The repaired basin was put back into service on July 8, 2017.
NH3_N	4/17-4/23/2016	On three days during the third week of April, the operator found the aeration blowers off upon the start of the morning shift. This left the WWTP without sufficient dissolved oxygen to thoroughly treat ammonia.	The SCADA group is troubleshooting communications with the blowers to prevent the blowers from being out of service for extended periods of time in the future.
NH3_N	5/1/2016 5/2/2016	The aeration blower tripped off over night, leaving the treatment process with insufficient dissolved oxygen.	The Electrical Group is troubleshooting the functionality of the blower control systems.
NH3_N	5/13/2016 5/14/2016 5/15/2016 5/16/2016 5/1-5/31/2016 5/15-5/21/2016	Insufficient dissolved oxygen in the treatment process. The blower tripped off overnight. The blower was restarted, but upon inspection the next morning, air was found escaping from the blow off valve. Broken/clogged diffusers may be contributing to the problems with the blowers.	The Electrical Group is troubleshooting the functionality of the blower control systems. An Emergency Purchase Order has been submitted to repair the diffusers in the aeration basin to allow for increased dissolved oxygen.
NH3_N	6/12/2016, 6/16/2016 6/17/2016, 6/18/2016 6/19/2016, 6/20/2016 6/21/2016, 6/22/2016 6/23/2016, 6/30/2016 6/12-6/18/2016 6/19-6/25/2016 6/27-7/2/201 6/1-6/30/2016 6/1-6/30/2016 7/1/2016,7/2/2016 7/3/2016,7/4/2016	Insufficient oxygen in the treatment process caused by various blower/aeration basin diffuser issues.	Troubleshooting of the blower control systems is being performed. An emergency purchase order has been submitted to repair diffusers in the aeration basin.
NH3_N	7/23/2016, 7/24/2016 7/25/2016, 7/26/2016 7/27/2016, 7/28/2016 7/29/2016, 7/30/2016 7/31/2016 7/3-7/9/2016, 7/17-7/23/2016 7/24-7/30/2016 7/1-7/31/2016 7/1-7/31/2016 8/1/2016, 8/2/2016, 8/3/2016, 8/4/2016 8/4/2016,8/5/2016 8/7/2016,8/8/2016 8/9/2016,8/10/2016 8/11/2016, 8/12/2016, 8/13/2016, 8/14/2016 8/15/2016, 8/16/2016 8/17/2016, 8/18/2016 7/31-8/6/2018 8/7-8/13/2016 8/14-8/20/2016 8/1-8/31/2016 8/1-8/31/2016	Insufficient oxygen in the treatment process caused by various blower/diffuser issues. During the period of July 22 to 28, blowers tripped off periodically. During the period of August 1 to 12, blowers tripped off daily. Problems with the blowers can be attributed to high ambient temperatures and added pressure in the air distribution lines due to fouled diffusers in the aeration basins. The inconsistent and prolonged periods of oxygen deficiency caused the plant to reach septic conditions.	There is a long term plan in place to address the fouled diffusers in the aeration basins.
NH3_N	12/10/2016 12/11/2016	Clogged RAS telescopes prevented sufficient return activated sludge to return to the process.	A request was made for vactor trucks to clean out the return pits to prevent further stoppages.
NH3_N	12/12/2016 12/13/2016 12/11-12/17/2016	Insufficient dissolved oxygen in the process due to air leaking out of an empty basin caused elevated NH3-N in the effluent.	Plant operations were restored once leaks were corrected.
NH3_N	1/16/2017 1/17/2017	Insufficient oxygen in the process due to issues with the blowers.	Operations is closely monitoring the blowers.
NH3_N	1/18/2017, 1/19/2017 1/20/2017, 1/21/2017 1/22/2017, 1/23/2017 1/24/2017, 1/25/2017 1/26/2017, 1/27/2017 1/28/2017, 1/29/2017 1/30/2017, 1/31/2017 1/15-1/21/2017 1/22-1/28/2017 1/29-2/4/2017 1/1-1/31/2017	A combination of blower issues, plugged returned telescopes, and wet weather caused incomplete treatment of NH3-N.	Blowers were adjusted, and debris was removed from the return telescopes.
NH3_N	2/27/2017	Problems with the blowers caused insufficient dissolved oxygen in the process.	The blowers were troubleshooted and found to be working properly.
NH3_N	4/24/2017 4/23/2017-4/29/17 4/1-4/31/2017	The blowers were tripped off for an extended period of time, causing insufficient dissolved oxygen in the process.	Work orders were submitted to troubleshoot the blowers.
NH3_N	5/1/2017,5/2/2017 5/3/2017,5/4/2017 5/5/2017,5/6/2017 5/7/2017,5/8/2017 5/9/2017,5/10/2017 5/11/2017, 5/12/2017 5/13/2017, 5/14/2017 5/15/2017, 5/16/2017 5/18/2017, 5/19/2017 5/20/2017, 5/21/2017 5/22/2017, 5/23/2017 5/24/2017, 5/25/2017 5/26/2017, 5/17/2017 5/28/2017, 5/29/2017 5/30/2017, 5/31/2017 4/30/2017-5/6/17 5/7-5/13/2017 5/14-5/21/2017 5/21-5/27/2017 5/28-6/3/2017 5/1-5/31/2017 5/1-5/31/2017	Insufficient dissolved oxygen in the process due to air leaks and multiple blower issues.	The air leak was repaired, and additional adjustments were made to the process to maximize treatment ofNH3-N.

NH3_N	6/1/2017,6/2/2017 6/3/2017,6/4/2017	Insufficient dissolved oxygen in the process due to air leaks and multiple blower issues.	The air leak was repaired, and additional adjustments were made to the process to maximize treatment ofNH3-N.
NH3_N	6/5/2017,6/6/2017 6/8/2017,6/9/2017 6/10/2017, 6/11/2017 6/12/2017, 6/13/2017 6/14/2017, 6/15/2017 6/16/2017, 6/17/2017 6/18/2017, 6/19/2017 6/20/2017, 6/21/2017 6/22/2017, 6/22/2017 6/23/2017, 6/24/2017 6/25/2017, 6/26/2017 6/27/2017, 6/28/2017 6/29/2017, 6/30/2017 6/4-6/10/2017 6/11-6/17/2017 6/18-6/24/2017 6/25-7/1/2017 6/1-6/30/217 6/1-6/30/2017	Insufficient dissolved oxygen in the process due to issues with the air distribution system.	Contractors are onsite making permanent improvements to the aeration basins.
NH3_N	7/1/2017,7/2/2017 7/3/2017,7/4/2017 7/5/2017,7/6/2017 7/7/2017,7/8/2017 7/9/2017,7/10/2017 7/11/2017, 7/12/2017 7/13/2017, 7/14/2017 7/18/2017, 7/19/2017 7/2-7/8/2017 7/9-7/15/2017 7/16-7/22/2017 7/1-7/31/2017 7/1-7/31/2017	Insufficient dissolved oxygen in the process due to ongoing issues with the air distribution system.	The contractor has completed repairs on one of the aeration basins. The repaired basin was put back into service on July 8, 2017.
NH3_N	9/11/2017 9/12/2017 9/10-9/16/2017 9/1-9/30/2017 9/1-9/30/2017	Hurricane Harvey related. Problems with blowers resulted in too little dissolved oxygen to fully treat ammonia-nitrogen. This issue was worsened by abnormally high flows and decreased detention time. In order to provide relief to the inundated West District WWTP, raw sewage from the West District collection system was diverted to the Upper Brays WWTP.	The blowers have been repaired. The solids inventory has been restored to normal levels.
TSS	3/21/2015 3/15-3/21/2015	A combination of 1.2" of rainfall and high sludge blanket in clarifier #3 contributed to the high TSS concentration.	The situation corrected itself once flow subsided and clarifier telescopes were adjusted.
	8/13/2016 8/1-8/31/2016	Insufficient oxygen in the treatment process caused by various blower/diffuser issues. During the period of July 22 to 28, blowers tripped off periodically. During the period of August 1 to 12, blowers tripped off daily. Problems with the blowers can be attributed to high ambient temperatures and added pressure in the air distribution lines due to fouled diffusers in the aeration basins. The inconsistent and prolonged periods of oxygen deficiency caused the plant to reach septic conditions.	There is a long term plan in place to address the fouled diffusers in the aeration basins.
	1/15/2017 1/18/2017 1/20/2017	Plugged return sludge telescopes during a wet weather event caused sludge to escape over the clarifier weirs.	Debris was removed from the return telescopes.
	1/1/2017-1/31/2017 1/1-1/31/2017	A combination of blower issues and plugged returned telescopes caused incomplete removal of TSS.	Blowers were adjusted, and debris was removed from the return telescopes.
	6/1-6/30/2017 6/4-6/10/2017	Insufficient dissolved oxygen in the process due to issues with the air distribution system.	Contractors are onsite making permanent improvements to the aeration basins.
	9/1-9/30/2017	Hurricane Harvey related. Problems with blowers resulted in too little dissolved oxygen to fully treat ammonia-nitrogen. This issue was worsened by abnormally high flows and decreased detention time. In order to provide relief to the inundated West District	The blowers have been repaired. The solids inventory has been restored to normal levels.

Plant Almeda Sims

Permit Parameter	Non-Compliance Date(s)	Initial Root Cause Assessment	CORRECTIVE ACTION
2-hr peak	8/26/2017	Hurricane Harvey related. The region experienced extreme rainfall due to Hurricane Harvey. Six inches of rain were recorded at the WWTP on August 26, 2017.	Operations personnel made process adjustments, as conditions allowed, to maximize treatment.
CBOD5	4/30/2015 4/1-4/30/2015 4/26-5/2/2015	Several factors apparently contributed to the measured values reported herein, including: two out-of-service clarifiers, a temporary failure in a third clarifier due to a clogged sludge return line, and high solids inventory due to sludge processing limitations during a large maintenance project at the sludge drying facility. In some instances, heavy rainfall contributed to the noncompliance issues (April 17 and 18, 2015). The COH plans to maintain continuous operation of the treatment plant during future construction and will take all actions necessary to mitigate adverse effects.	Solids were trucked out of the plant while COH contractors were working on the sludge dryers. As of the date of this writing, the dryers and all clarifiers are operational.
CBOD5	5/5/2015 5/6/2015 5/7/2015 5/3-5/9/2015	Several factors apparently contributed to the measured values reported herein, including: two out-of-service clarifiers, a temporary failure in a third clarifier due to a clogged sludge return line, and high solids inventory due to sludge processing limitations during a large maintenance project at the sludge drying facility. In some instances, heavy rainfall contributed to the noncompliance issues (April 17 and 18, 2015). The COH plans to maintain continuous operation of the treatment plant during future construction and will take all actions necessary to mitigate adverse effects.	Solids were trucked out of the plant while COH contractors were working on the sludge dryers. As of the date of this writing, the dryers and all clarifiers are operational.
CBOD5	06/30/2015	Combination of poor settling and over-wasting of sludge. The poor settling was due to the on-going CIP construction work that involves a use of pump for direct feed to the clarifiers. The sludge over-wasting was planned to reduce the plant's solids level in preparation for expected rainfall. Rainfall of 1.0 inches on June 30, 2015 and 0.5 inches on the day before may have contributed to the problem by washing solids out of the sludge return channel. These factors caused elevated CBOD-5 level.	Solids were trucked out of the plant while COH contractors were working on the sludge dryers. As of the date of this writing, the dryers and all clarifiers are operational.
CBOD5	08/20/2015	Construction activities that limited capacity and detention time coupled with power failures during the storm experienced on August 19 and 20 caused the CBOD concentration to rise above the permitted limit.	Operations is working diligently with the contractor to plan and execute the construction so there is minimal effect on the effluent.
NH3-N	4/1/2015 4/2/2015 4/3/2015 4/4/2015 03/29 to 04/04/2015	Insufficient air in the plant due to ongoing contractor activities that required all blowers to be turned off. Limited air supply affected the treatment process and caused ammonia concentration to rise above the permit limit. Elevated ammonia concentrations affected the calculated 7-day average.	Operations staff is closely monitoring the plant and making process adjustments, as needed. City contractor continues work on all six blowers and is expected to be completed before the end of April 2015.
NH3-N	4/1/2015-4/30/2015	Several factors apparently contributed to the measured values reported herein, including: two out-of-service clarifiers, a temporary failure in a third clarifier due to a clogged sludge return line, and high solids inventory due to sludge processing limitations during a large maintenance project at the sludge drying facility. In some instances, heavy rainfall contributed to the noncompliance issues (April 17 and 18, 2015). The COH plans to maintain continuous operation of the treatment plant during future construction and will take all actions necessary to mitigate adverse effects.	Solids were trucked out of the plant while COH contractors were working on the sludge dryers. As of the date of this writing, the dryers and all clarifiers are operational.
NH3-N	6/17/2015 6/18/2015 6/20/2015 6/21/2015 06/14 to 06/20/2015	Combination of construction and over-wasting of sludge to reduce the plant's solids level in preparation for expected rainfall. Rainfall from Tropical Storm Bill of 0.5 inches on June 17, 2015 and 0.75 inches the day before may have contributed to the problem by washing solids out of the sludge return channel. These factors caused the ammonia to rise above the permitted limit for four days and exceed the calculated 7-day average.	Operations staff is closely monitoring the plant's sludge level and making process adjustments, as needed, to maintain permit compliance.
NH3-N	06/21 to 06/27/2015	Combination of poor settling and over-wasting of sludge. The poor settling was due to the on-going CIP construction work that involves a use of pump for direct feed to the clarifiers. The sludge over-wasting was planned to reduce the plant's solids level in preparation for expected rainfall. Rainfall of 1.0 inches on June 30, 2015 and 0.5 inches on the day before may have contributed to the problem by washing solids out of the sludge return channel. These factors caused elevated ammonia (NH3-N) and total suspended solids (TSS) levels.	Operations staff is closely monitoring the plant's sludge level and making process adjustments, as needed, to maintain permit compliance.
NH3-N	6/1/2015-6/30/2015	Combination of poor settling and over-wasting of sludge. The poor settling was due to the on-going CIP construction work that involves a use of pump for direct feed to the clarifiers. The sludge over-wasting was planned to reduce the plant's solids level in preparation for expected rainfall. Rainfall of 1.0 inches on June 30, 2015 and 0.5 inches on the day before may have contributed to the problem by washing solids out of the sludge return channel. These factors caused elevated ammonia (NH3-N) and total suspended solids (TSS) levels.	Operations staff is closely monitoring the plant's sludge level and making process adjustments, as needed, to maintain permit compliance.
NH3-N	8/12/2015 8/13/2015 8/14/2015 8/15/2015 08/09 to 08/15/2015	Construction activities that limited capacity and detention time coupled with a power outage on August 12 and 13, 2015 that removed two blowers from service affected the plant's ability to maintain the ammonia (NH3-N) levels below the permitted limit. The above-referenced construction activities limited the plant's ability to maintain total suspended solids (TSS) levels below the permitted limits.	Steps have been taken to ensure that an adequate number of blowers are in service. Operations staff is closely monitoring the plant's sludge level and making process adjustments to maintain permit compliance.
NH3-N	8/1/2015-8/31/2015	A combination of construction activities that limited capacity and detention time and a power failure during a storm experienced on August 19 and 20 caused elevated TSS and NH3-N concentrations throughout the month. These elevated concentrations affected the calculated daily averages.	Operations is working diligently with the contractor to plan and execute the construction so that there is minimal effect on the effluent.
NH3-N	11/22 to 11/28/2015	A combination of construction activities that limited capacity and detention time and power failures during the storm that removed aeration blowers #1 and #6 from service. The storm took place from 10/30/15 to 11/1/15 and resulted in 11.3 inches of rainfall at the WWTP.	Aeration blowers #1 and #6 were repaired.
NH3-N	12/1/2015-12/31/2015	Process capability was limited due to a combination of construction activities and power failure that took aeration blower #1 out of service due to a storm. This affected the daily average concentration for the monitoring period.	Operations is working diligently with the contractor to plan and execute construction with minimum effect to the effluent.
NH3-N	6/25/2016 6/26/2016 6/27/2016 6/1-6/30/2016 6/26/2016-7/2/2016	Sludge dryer breakdowns caused high solids in the plant, and malfunctioning aeration blowers caused limited dissolved oxygen in the aeration basins.	The aeration blowers were repaired and put back in service.
NH3-N	7/19/2017 7/20/2017 7/21/2017 7/22/2017 7/16/2017-7/22/17	High solids resulting from sludge dryer breakdowns combined with aeration blower failures caused incomplete treatment of ammonia-nitrogen.	The aeration blower was repaired, and the sludge dryers are back in service.
TSS	01/22/2015	Combination of high solids inventory and heavy rain in the service area. According to the rain gauge at the WWTP, it rained 1.9 inches on 1/22/2015.The hydraulic surge due to the severe weather caused the plant to maintain a high flow (20-40 MGD) for about five hours, allowed solids to escape out into the effluent, and resulted in a high TSS concentration.	The situation corrected itself once flow subsided.
TSS	4/10/2015 4/11/2015 4/12/2015 4/16/2015 4/17/2015 4/18/2015 4/12-4/18/2015	Combination of high solids inventory, unavailable clarifier due to an ongoing contractor activity and rain in the service area (0.1" on 4/10, 1.3" on 4/11/15, 0.15" on 4/12/15, 1.4" on 4/16, 3.3" on 4/17, 0.1 on 4/18). These factors caused the TSS concentration to rise above the permit limit.	Additional solids will be hauled out from the plant by truck during contractor activity, which is estimated to be completed within two months.
TSS	4/22/2015 4/23/2015 4/24/2015 4/25/2015 4/19-4/25/2015	Combination of high solids inventory and unavailable clarifiers (#4 & #5) due to ongoing contractor activity. These factors caused the TSS concentration to rise above the permit limit.	Contractor activity is estimated to be completed within two months.
TSS	4/27/2015 4/28/2015 4/29/2015 4/30/2015 4/26-5/2/2015	Several factors apparently contributed to the measured values reported herein, including: two out-of-service clarifiers, a temporary failure in a third clarifier due to a clogged sludge return line, and high solids inventory due to sludge processing limitations during a large maintenance project at the sludge drying facility. In some instances, heavy rainfall contributed to the noncompliance issues (April 17 and 18, 2015). The COH plans to maintain continuous operation of the treatment plant during future construction and will take all actions necessary to mitigate adverse effects.	Solids were trucked out of the plant while COH contractors were working on the sludge dryers. As of the date of this writing, the dryers and all clarifiers are operational.

TSS	4/1/2015-4/30/2015 4/1-4/30/2015	Several factors apparently contributed to the measured values reported herein, including: two out-of-service clarifiers, a temporary failure in a third clarifier due to a clogged sludge return line, and high solids inventory due to sludge processing limitations during a large maintenance project at the sludge drying facility. In some instances, heavy rainfall contributed to the noncompliance issues (April 17 and 18, 2015). The COH plans to maintain continuous operation of the treatment plant during future construction and will take all actions necessary to mitigate adverse effects.	Solids were trucked out of the plant while COH contractors were working on the sludge dryers. As of the date of this writing, the dryers and all clarifiers are operational.
TSS	5/1/2015 5/2/2015 5/3/2015 5/4/2015 5/5/2015 5/6/2015 5/7/2015 5/8/2015 5/10/2015	Several factors apparently contributed to the measured values reported herein, including: two out-of-service clarifiers, a temporary failure in a third clarifier due to a clogged sludge return line, and high solids inventory due to sludge processing limitations during a large maintenance project at the sludge drying facility. In some instances, heavy rainfall contributed to the noncompliance issues (April 17 and 18, 2015). The COH plans to maintain continuous operation of the treatment plant during future construction and will take all actions necessary to mitigate adverse effects.	Solids were trucked out of the plant while COH contractors were working on the sludge dryers. As of the date of this writing, the dryers and all clarifiers are operational.
TSS	05/03 to 05/09/2015	Several factors apparently contributed to the measured values reported herein, including: two out-of-service clarifiers, a temporary failure in a third clarifier due to a clogged sludge return line, and high solids inventory due to sludge processing limitations during a large maintenance project at the sludge drying facility. In some instances, heavy rainfall contributed to the noncompliance issues (April 17 and 18, 2015). The COH plans to maintain continuous operation of the treatment plant during future construction and will take all actions necessary to mitigate adverse effects.	Solids were trucked out of the plant while COH contractors were working on the sludge dryers. As of the date of this writing, the dryers and all clarifiers are operational.
TSS	5/1/2015-5/31/2015 5/1-5/31/2015	Several factors apparently contributed to the excursion, including: two out-of-service clarifiers, a temporary failure in a third clarifier due to a clogged sludge return line, and high solids inventory due to sludge processing limitations during a large maintenance project at the sludge drying facility. These factors caused the TSS concentration to rise above the permit limit for several days during the month of May affecting the calculated daily average concentration.	Solids were trucked out of the plant while COH contractors were working on the sludge dryers. As of May 14, 2015 the dryers and all clarifiers are operational.
TSS	6/28/2015 6/29/2015 6/30/2015 6/18-7/4/2015	Combination of poor settling and over-wasting of sludge. The poor settling was due to the on-going CIP construction work that involves a use of pump for direct feed to the clarifiers. The sludge over-wasting was planned to reduce the plant's solids level in preparation for expected rainfall. Rainfall of 1.0 inches on June 30, 2015 and 0.5 inches on the day before may have contributed to the problem by washing solids out of the sludge return channel. These factors caused elevated ammonia (NH3-N) and total suspended solids (TSS) levels.	Operations staff is closely monitoring the plant's sludge level and making process adjustments, as needed, to maintain permit compliance.
TSS	6/1/2015-6/30/2015 6/1-6/30/2015	Combination of poor settling and over-wasting of sludge. The poor settling was due to the on-going CIP construction work that involves a use of pump for direct feed to the clarifiers. The sludge over-wasting was planned to reduce the plant's solids level in preparation for expected rainfall. Rainfall of 1.0 inches on June 30, 2015 and 0.5 inches on the day before may have contributed to the problem by washing solids out of the sludge return channel. These factors caused elevated ammonia (NH3-N) and total suspended solids (TSS) levels and calculated loading.	Operations staff is closely monitoring the plant's sludge level and making process adjustments, as needed, to maintain permit compliance.
TSS	7/1/2015 7/2/2015 7/3/2015	The clarifiers experienced poor settling due to the on-going CIP construction work that involves the use of a pump for direct feed to the clarifiers.	Operations staff is closely monitoring the activities of the contractor and making process adjustments, as needed, to maintain permit compliance.
TSS	8/14/2015 8/15/2015 8/16/2015 8/9-8/15/2015	Construction activities that limited capacity and detention time coupled with a power outage on August 12 and 13, 2015 that removed two blowers from service affected the plant's ability to maintain the ammonia (NH3-N) levels below the permitted limit. The above-referenced construction activities limited the plant's ability to maintain total suspended solids (TSS) levels below the permitted limits.	Steps have been taken to ensure that an adequate number of blowers are in service. Operations staff is closely monitoring the plant's sludge level and making process adjustments to maintain permit compliance.
TSS	8/20/2015 8/16-8/22/2015	Construction activities that limited capacity and detention time coupled with power failures during the storm experienced on August 19 and 20 caused the TSS concentration to rise above the permitted limit.	Operations is working diligently with the contractor to plan and execute the construction so there is minimal effect on the effluent.
TSS	08/25/2015	Construction activities that limited capacity and detention time caused the TSS concentration to rise above the permitted limit.	Operations is working diligently with the contractor to plan and execute the construction so there is minimal effect on the effluent.
TSS	8/1/2015-8/31/2015 8/1-8/31/2015	A combination of construction activities that limited capacity and detention time and a power failure during a storm experienced on August 19 and 20 caused elevated TSS and NH3-N concentrations throughout the month. These elevated concentrations affected the calculated daily averages and daily average loading.	Operations is working diligently with the contractor to plan and execute the construction so that there is minimal effect on the effluent.
TSS	10/25/2015	A combination of construction and power failures during the storm on October 25 limited capacity and detention time. Dryer cake pump #1 broke down and limited the plant's ability to process sludge at routine volumes.	Dryer cake pump #1 was pulled for repairs or replacement. Operations is working closely with the contractor to plan and execute construction with minimal affect to effluent quality.
TSS	11/17/2015	Combination of construction and failed equipment. Ongoing construction activities limited capacity and detention time. Dryer cake pump #1 failed, removing the dryer from service and limiting sludge processing capability.	Operations is working diligently with the contractor to plan and execute construction with minimal effect to the effluent. Dryer cake pump #1 was repaired under work order #1175575.
TSS	12/13/2015	A combination of construction activities that limited capacity and detention time, power failures during the storm that dropped 2.5 inches of rain, and the failure of dryer unit #2. These factors combined to limit process capability.	Operations is working diligently with the contractor to plan and execute construction with minimum effect to the effluent.
TSS	1/6/2016	A combination of construction activities that limited capacity and detention time, power failures during storm that dropped 1.05 inches of rain, and the failure of dryer unit #2. These factors combined to limit process capability.	Operation is working diligently with the contractor to plan and execute construction with minimum effect to the effluent.
TSS	1/8/2016	A combination of rain (1 inch recorded at WWTP), high solids, and construction which limited capacity within the plant.	Operations is working diligently with the contractor to expedite construction. Additionally, solids are being removed from the plant.
TSS	1/9/2016	A combination of high solids and construction which limited capacity within the plant.	Operations is working diligently with the contractor to expedite construction. Additionally, solids are being removed from the plant.
TSS	1/3/2016-1/9/2016	A combination of rain, high solids, and construction which limited capacity in the plant.	Operations is working diligently with the contractor to expedite construction. Additionally, solids are being removed from the plant.
TSS	1/1/2016-1/31/2016 1/1-1/31/2016	Combination of construction that limited capacity and detention time, power failures during a storm (2.15 inches of rain between 1/6/16 and 1/8/16), and the mechanical failure of the #2 dryer unit. These factors caused elevated TSS levels during the first week of the month and affecting the calculated daily average and dailt averag loading.	Operations is working diligently with the contractor to plan and execute construction with minimal effect to the effluent. In order to reduce the solids level in the plant, sludge was processed to wet cake for transportation.
TSS	3/9/2016	A combination of construction that limited capacity and detention time, power failures during the storm that affected plant operations, and the #2 dryer unit being out of service. On March 9, 2016, 2.10 inches of rain were recorded at the WWTP.	Operations is working diligently with the contractor to plan and execute the construction with minimum effluent violations. Power was restored, and the clarifier air-lifts were started in order to reduce the high levels of solids in the clarifiers.
TSS	5/27/2016	Combination of high solid inventory in the plant, due to dryer #1 failure, and power failures during a storm (2.0 inches of rain on 5/27/2016). These factors contributed to the elevated TSS that day.	Work order #126597 was created to repair dryer #1
TSS	6/8/2016	One of the sludge dryers broke down, causing elevated solids throughout the plant; and a power failure during a lightning storm. These factors caused solids to discharge over the weirs of clarifier #2.	The maintenance group is working to repair the dryer unit and put it back in service (work order #1264778).

Plant 69 th Street

Permit Parameter	Non-Compliance Date(s)	Initial Root Cause Assessment	CORRECTIVE ACTION
CBOD5	03/09/2015	Combination of hydraulic surge and high solids inventory in the plant. According to the rain gauge, it rained 1.8 inches on March 09, 2015 and 1.90 inches on the day before. The combination resulted in elevated CBOD-5 concentration.	Operations staff is closely monitoring the plant and making process adjustments, as needed.
	1/17/2017	A combination of out of service equipment (B Train for grit/debris removal) and continuous RAS pump stoppages caused an elevated solids inventory. As a result, an elevated concentration of CBOD was discharged.	All available equipment was put into service, including B Train. **NOTE**: The Northside WWF discharged on January 17, 2017 and January 18, 2017.
Copper	6/16/2015 6/30/2015 6/1-6/30/2015 6/1-6/30/2015	The source of copper in the effluent is unknown, seasonal use of copper based algaecide may have contributed to the higher copper levels. All available equipment was in service.	The City was issued a draft permit on December 06, 2011. Upon issuance of the new permit, the discharge limitations for copper will be revised to; 0.039 mg/L as single grab (one/week), 0.0264 mg/L for 7-day average, and 0.013 mg/L (22 lbs/day) for daily average. The violations will not occur when the new permit is issued.
	11/1/2016 11/82016 11/15/2016 11/22/2016 11/29/2016 11/1-11/30/2016	The source of copper in the effluent is unknown. The City suspects that the influent contained an abnormally high concentration of the pollutant.	The City's Industrial Waste Group has been notified of the elevated levels of copper in the effluent.
	12/6/2016 12/1-12/31/2016	The source of copper in the effluent is unknown. The City suspects that the influent contained an abnormally high concentration of the pollutant.	The City's Industrial Waste Group has been notified of the elevated levels of copper in the effluent.
	1/17/2017 1/1-1/31/2017 1/1-1/31/2017	The source of copper in the effluent is unknown. The City suspects that the influent contained an abnormally high concentration of the pollutant.	The City's Industrial Waste Group has been notified of the elevated levels of copper in the effluent.
	2/7/2017 2/14/2017 2/28/2017 2/1-2/28/2017	The source of copper in the effluent is unknown. Also, seasonal use of copper-based algaecide may have contributed to the higher copper levels. All available equipment was in service.	The City was issued a draft permit on July 25, 2016. Upon issuance of the new permit, the discharge limitations for copper will be revised to: 0.039 mg/L for single grab, 0.0264 mg/L for 7-day average, and 0.013 mg/L (22 lbs/day) for daily average.
	3/7/2017 3/21/2017 3/28/2017 3/1-3/31/2017	The source of copper in the effluent is unknown. Also, seasonal use of copper-based algaecide may have contributed to the higher copper levels. All available equipment was in service.	The City was issued a draft permit on July 25, 2016. Upon issuance of the new permit, the discharge limitations for copper will be revised to: 0.039 mg/L for single grab, 0.0264 mg/L for 7-day average, and 0.013 mg/L (22 lbs/day) for daily average.
	4/4/2017 4/11/2017 4/18/2017 4/1-4/30/2017	The source of copper in the effluent is unknown. Also, seasonal use of copper-based algaecide may have contributed to the higher copper levels. All available equipment was in service.	The City was issued a draft permit on July 25, 2016. Upon issuance of the new permit, the discharge limitations for copper will be revised to: 0.039 mg/L for single grab, 0.0264 mg/L for 7-day average, and 0.013 mg/L (22 lbs/day) for daily average.
	8/1/2017 8/8/2017 8/1-8/31/2017 8/1-8/31/2017	The source of copper in the effluent is unknown. Also, seasonal use of copper-based algaecide may have contributed to the higher copper levels. All available equipment was in service.	The City was issued a draft permit on July 25, 2016. Upon issuance of the new permit, the discharge limitations for copper will be revised to: 0.039 mg/L for single grab, 0.0264 mg/L for 7-day average, and 0.013 mg/L (22 lbs./day) for daily average.
	10/3/2017 10/31/2017 10/1-10/31/2017	The source of copper in the effluent is unknown. Also, seasonal use of copper-based algaecide may have contributed to the higher copper levels. All available equipment was in service.	The City was issued a draft permit on July 25, 2016. Upon issuance of the new permit, the discharge limitations for copper will be revised to: 0.039 mg/L for single grab, 0.0264 mg/L for 7-day average, and 0.013 mg/L (22 lbs./day) for daily average.
	11/7/2017 11/1-11/30/2017	The source of copper in the effluent is unknown. Also, seasonal use of copper-based algaecide may have contributed to the higher copper levels. All available equipment was in service.	The City was issued a draft permit on July 25, 2016. Upon issuance of the new permit, the discharge limitations for copper will be revised to: 0.039 mg/L for single grab, 0.0264 mg/L for 7-day average, and 0.013 mg/L (22 lbs./day) for daily average.
	2/6/2018 2/1-2/28/2018	The source of copper in the effluent is unknown.	The City was issued a draft permit on July 25, 2016. Upon issuance of the new permit, the discharge limitations for copper will be revised to: 0.039 mg/L for single grab, 0.0264 mg/L for 7-day average, and 0.013 mg/L (22 lbs./day) for daily average.
	7/24/2018 7/1-7/31/2018	The source of copper in the effluent is unknown.	The City was issued a draft permit on July 25, 2016. Upon issuance of the new permit, the discharge limitations for copper will be revised to: 0.039 mg/L for single grab, 0.0264 mg/L for 7-day average, and 0.013 mg/L (22 lbs./day) for daily average.
NH3	1/21/2015	Combination of hydraulic surge and out of service equipment. COH contractor for the Northside Relief Tunnel Rehab construction project opened the bypass gate, causing the Clinton Dr. lift station to start all pumps; this created a hydraulic surge to the plant. Train "F" was out of service for repair. The inadequate detention time resulting from multiple factors resulted in an elevated NH3-N concentration.	Operations staff is closely monitoring the plant and making process adjustments, as needed. The contractor was notified to avoid any action that may cause further recurrence.
NH3	4/1/-4/30/2015	Combined out of-service equipment (B train) and high solids due to sludge processing capabilities. Heavy rainfall of 2.35 inches on April 17, 2015 and 2.30 inches the day before may have contributed. These issues resulted in elevated NH3-N concentrations for several days which affected the calculated daily average concentration.	Operations staff is closely monitoring the plant and making process adjustments, as needed. Train B was put back in service.
NH3	5/1-5/31/2015	Combination of construction and equipment failure. Heavy rain during the month of May and historic flooding were also factors. Ongoing rehabilitation of Northside Relief Tunnel and out of service clarifiers (1B, 1D, and 1E) contributed to the problem. These factors affected the treatment process, resulting in elevated NH3-N concentrations for several days and accordingly the calculated daily average.	Operations staff is closely monitoring the plant and making process adjustments, as needed. Clarifiers 1D and 1E were put back in service.
NH3	6/1-6/30/2015	Combination of construction and equipment failure. Heavy rainfall had occurred several times during the month of June 2015 may have contributed to the problem. Ongoing rehabilitation of Northside Relief Tunnel and out of service B train and wasting pumps 2C/D, 2E and 2G. These factors affected the treatment process, resulting in elevated NH3-N concentrations for several days and accordingly the calculated daily average.	B train was put back into service and wasting pumps are scheduled for repair. Operations staff is closely monitoring the plant and making process adjustments, as needed.
NH3	7/05 to 7/11/2015	A combination of construction (installation of a suction valve on CSP #2, B Train out of service for installation of new electrical equipment), equipment failure (1D and 1H clarifiers down for repairs), and complete power failure to the WWTP (138 electrical sub-station power failure) caused elevated ammonia-nitrogen levels throughout the week.	Power was restored to the facility. Repairs were made to 1D and 1H clarifiers, and they were put back into service.
NH3	7/1-7/31/2015	Ongoing rehabilitation of the Northside Relief Tunnel and numerous active construction projects throughout the plant in combination with complete power failure on 7/11/2015. Heavy rain in the service area, during the month of July, may have contributed to the problem. These factors caused elevated ammonia-nitrogen levels throughout the month of July.	Operations staff is closely monitoring the plant and making process adjustments as needed.
NH3	9/1-9/30/2015	Ongoing rehabilitation of the Northside Relief Tunnel and numerous active construction projects throughout the plant. Periods of heavy rain in the service area may have contributed to the problem. These factors caused elevated ammonia concentrations throughout the month, affecting the calculated daily average.	Operations staff is closely monitoring the plant and making process adjustments, as needed.
NH3	2/6/2016	A combination out of-service equipment (D train) and excessive flow released from the Clinton lift station due to the removal of the stop logs at the ongoing tunnel rehabilitation construction project. These issues affected the treatment process and resulted in an elevated NH3-N concentration .	Plant was placed in feed forward mode to handle excessive flow.
NH3	3/24/2016	Equipment failure. The hydraulic valve system failed at the main lift, the H Train was out of service so contractors could perform work, and the removal of the stop logs at the ongoing rehabilitation of the Northside Relief Tunnel contributed to the exceedance. Heavy rainfall in the service area (1.2 inches recorded at the WWTP) may have also contributed to the exceedance.	The oxygen feed was increased.
NH3	4/24/2016 4/27/2016 4/28/2016 4/24-4/30/2016 4/1-4/30/2016	Equipment failure. One of the clarifier skimmer arms malfunctioned, and RAS pumps had stoppages. The onsite oxygen plant also failed. These factors affected the treatment process and resulted in an elevated NH3-N concentration.	Maintenance removed the stoppages from the RAS pumps, and the malfunctioning clarifier was drained for repairs. NOTE: The Northside WWF did not discharge.
NH3	5/1-5/7/2016	Equipment failure. One of the clarifier skimmer arms malfunctioned and RAS pumps had stoppages. The onsite oxygen plant also failed. These factors affected the treatment process and resulted in an elevated NH3-N concentration through the first week of May 2016.	Maintenance removed stoppages from the RAS pumps, and the malfunctioned clarifier was drained for repairs.
NH3	5/13/2016 5/14/2016 5/8-5/14/2016	Combination of equipment failure, RAS pumps had stoppages, and ongoing rehabilitation of the northside relief tunnel. 0.88 inch of rain in the service area may have contributed to the problem. These factors affected the treatment process and resulted in an elevated NH3-N concentration.	Maintenance groups are working for removing stoppages from the RAS pumps, and the malfunctioned clarifiers were drained for repairs.
NH3	5/25/2016	Combination of equipment failure, RAS pumps had stoppages, ongoing rehabilitation of the northside relief tunnel, and insufficient oxygen feed to 2G and 2H reactors due to contractor work to replace oxygen feed lines. These factors affected the treatment process and resulted in an elevated NH3-N concentration.	Maintenance groups are working for removing stoppages from the RAS pumps, and the malfunctioned clarifiers were drained for repairs.
NH3	5/26/2016 5/27/2016 5/22-5/28/2016	Combination of equipment failure, RAS pumps had stoppages, ongoing rehabilitation of the northsid relief tunnel, and insufficient oxygen feed to 2G and 2H reactors due to contractor work to replace oxygen feed lines. Multiple rain events (1.9 inches on 5/26 and 2.9" on 5/27/2016) during that week may have contributed to the problem. These factors affected the treatment process and resulted in the elevation of NH3-N concentrations for several days that affected the 7-day average.	Maintenance groups are working for removing stoppages from the RAS pumps, and the malfunctioned clarifiers were drained for repairs. New oxygen feed lines installation was completed.

NH3	5/1-5/31/2016 5/1-5/31/2016	A combination of equipment failure, RAS pump stoppages, ongoing rehabilitation of the Northside Relief Tunnel, a filtration system problem, and heavy rainfall affected the treatment process and resulted in an elevated NH3-N concentration throughout the month. This affected the calculated daily average concentration.	The maintenance group is working to remove stoppages from the RAS pumps, and the malfunctioning clarifiers were drained for repairs. New oxygen feed line installation has been completed.

NH3	5/29-6/4/2016	A combination of equipment failure, RAS pump stoppages, ongoing rehabilitation of the Northside Relief Tunnel, a filtration system problem, and heavy rainfall affected the treatment process and resulted in elevated NH3-N concentrations during the first week of June.	The maintenance group is working to remove the stoppages from the RAS pumps, and the malfunctioning clarifiers were drained for repairs. New oxygen feed line installation has been completed.
NH3	6/1-6/30/2016 6/1-6/30/2016	A combination of equipment failure (RAS pumps) and oxygen plant problems caused elevated NH3-N loadings during June.	Air Products continues to haul in oxygen to supply the reactors. The maintenance group is removing stoppages from the RAS and WAS pumps. NOTE: The Northside WWF did not discharge.
NH3	6/1/2016 6/2/2016 6/7/2016 6/5-6/11/2016	A combination of equipment failure, RAS pump stoppages, ongoing rehabilitation of the Northside Relief Tunnel, a filtration system problem, and heavy rainfall affected the treatment process and resulted in an elevated NH3-N concentration.	The maintenance group is working to remove stoppages from the RAS pumps, and the malfunctioning clarifiers were drained for repairs. New oxygen feed line installation has been completed.
NH3	6/27/2016 6/28/2016	A combination of equipment failures (RAS pumps) and oxygen plant problems caused incomplete NH3-N treatment.	Air Products continues to haul in oxygen to supply the reactors. The maintenance group is removing stoppages from the RAS and WAS pumps. NOTE: The Northside WWF did not discharge.
NH3	6/26-7/1/2016	A combination of equipment failures (RAS pumps), oxygen plant problems, and temporary elevated BOD loading from Anheuser Busch caused elevated NH3-N concentrations during the first week of July.	Air Products continues to haul in oxygen to supply the reactors. The maintenance group is removing stoppages from the RAS and WAS pumps. NOTE: The Northside WWF did not discharge.
NH3	7/2/2016 7/3/2016 7/5/2016 7/10/2016 7/7/2016 7/14/2016 7/3-7/9/2016 7/10-7/16/2016 7/1-7/31/2016	A combination of equipment failures (RAS pumps), oxygen plant problems, and temporary elevated BOD loading from Anheuser Busch caused an elevated NH3-N concentration.	Air Products continues to haul in oxygen to supply the reactors. The maintenance group is removing stoppages from the RAS and WAS pumps. NOTE: The Northside WWF did not discharge.
NH3	8/1-8/31/2016	A combination of oxygen plant failure, RAS/WAS pump stoppages, and heavy rainfall affected the treatment process and caused elevated NH3-N concentrations throughout the month.	Stoppages continue to be removed from the RAS and WAS pumps.
NH3	9/24/2016 9/18-9/24/2016 9/1-9/30/2016	A combination of equipment failure (mixers) and high solids due to stoppages in RAS and WAS pumps affected the treatment process and resulted in an elevated ammonia concentration.	Maintenance personnel removed stoppages from RAS and WAS pumps. Three mixer motors were also removed and sent out for repairs.
NH3	10/12/2016 10/13/2016 10/14/2016 10/15/2016 10/18/2016 10/19/2016 10/20/2016 10/21/2016 10/23/2016 10/24/2016 10/25/2016 10/27/2016 10/28/2016 10/29/2016 10/30/2016 10/1-10/31/2016 10/1-10/31/2016 10/16-10/22/2016 10/23-10/29/2016 10/30-11/5/2016 10/9-10/15/2016	A number of equipment failures (WAS lift station, RAS pump stoppages, sludge dryers) caused high solids in the WWTP, affecting the treatment process and resulting in an elevated ammonia concentration.	Maintenance removed WAS pumps for maintenance and repairs. Maintenance is also continuously removing stoppages from the RAS and WAS pumps.
NH3	11/4/2016 11/5/2016 11/18/2016 11/21/2016 11/22/2016 11/23/2016 11/6-11/12/2016 11/20-11/26/2016 11/1-11/30/2016	A number of equipment failures (WAS lift station, RAS pump stoppages, sludge dryers) caused high solids in the WWTP, affecting the treatment process and resulting in an elevated ammonia concentration.	Maintenance removed WAS pumps for maintenance and repairs. Maintenance is also continuously removing stoppages from the RAS and WAS pumps.
NH3	1/29-2/4/2017	A combination of out of service equipment (B Train for grit/debris removal) and continuous RAS pump stoppages caused an elevated solids inventory. As a result, an elevated concentration of NH3-N was discharged.	All available equipment was put into service, included B Train. NOTE: The Northside WWF did not discharge.
NH3	2/3/2017 2/4/2017 2/5/2017 2/6/2017 2/7/2017 2/8/2017 2/9/2017 2/10/2017 2/11/2017 2/5-2/11/2017	A combination of out of service equipment (B Train for grit/debris removal) and continuous RAS pump stoppages caused an elevated solids inventory. As a result, an elevated concentration of NH3-N was discharged.	All available equipment was put into service, included B Train. NOTE: The Northside WWF did not discharge.
NH3	2/14/2017 2/16/2017 2/17/2017 2/18/2017 2/19/2017 2/1-2/28/2017 2/12-2/18/2017 2/19-2/25/2017 2/26-3/4/2017	A combination of equipment failure (1G clarifier drive failure), out of service equipment (C Train for grit/debris removal), and continuous stoppages in the WAS/RAS pumps caused and elevated concentration of NH3-N in the effluent. Heavy rain in the service area may have contributed.	All available equipment was put into service, including the C Train which was out of service for maintenance. Maintenance is continuing to clear stoppages in the RAS/WAS pumps. NOTE: The Northside WWF did not discharge.

NH3	3/10/2017, 3/18/2017 3/19/2017, 3/22/2017 3/23/2007, 3/24/2017 3/25/2017, 3/26/2017 3/27/2017, 3/28/2017 3/31/2017, 3/5-3/11/2017 3/12-3/18/2017 3/19-3/25/2017 3/1-3/31/2017 3/26-4/1/2017 4/1/2017; 4/2/2017 4/3/2017; 4/4/2017 4/5/2017; 4/6/2017 4/8/2017; 4/9/2017 4/10/2017 4/2-4/8/2017; 4/9-4/15/2017; 4/1-4/30/2017;	A combination of out of service equipment (C Train for grit/debris removal) and continuous stoppages in the WAS/RAS pumps caused an elevated concentration of NH3-N in the effluent. Heavy rain (6.9 inches at the WWTP between March 5 and 11) in the service area may have contributed to the problem.	All available equipment was put into service, including the C Train which was out of service for maintenance. Maintenance is continuing to clear stoppages in the RAS/WAS pumps. NOTE: The Northside WWF did not discharge.
NH3	6/1-6/30/2017	A combination of RAS pump failures, out of service reactors for grit removal, and WAS pump stoppages caused incomplete treatment.	WAS pump stoppages were cleared; two RAS pumps were replaced; and contractors completed grit removal activities on A train reactors and placed the train back in service.
NH3	7/7/2017 7/8/2017 7/9/2017 7/2-7/8/2017 7/9-7/15/217 7/23-7/29/2017 7/1-7/31/2017	The sludge handling facility was out of service, preventing adequate wasting. In addition, the H Train was out of service for grit and debris removal, and the WAS/RAS pumps were experiencing continuous stoppages.	All available equipment was put into service. Maintenance continues to remove stoppages from WAS/RAS pumps.
NH3	8/27-9/2/2017	Hurricane Harvey related. Hydraulic overload for an extended period of time prevented complete nitrification.	All available equipment was put into service.
NH3	9/23/2017 9/24-9/30/2017 9/1-9/30/2017	The Clinton Drive lift station was out of service from 6:00 pm on 9/21/17 to 3:30 pm on 9/22/17, causing the raw wastewater in the wet well to become septic. When the Clinton Drive lift station came back online, a large amount of septic waste entered the WWTP at one time, disrupting the nitrification process. In addition, the F Train is out of service for grit/debris removal and some WAS/RAS pumps experienced stoppages.	All available equipment was put into service.
NH3	10/1-10/31/2017	A combination of high solids inventory (sludge drying facility operating on limited dryers), equipment failure (wasting station was down for two days), and reactors out of service (E and F trains down for grit/debris removal) affected the treatment process's ability to completely treat NH3-N.	Cleaning operations on the F train were completed, and the units were put back into service. The wasting station was repaired and put back in service. Additional dryers were put into service to process additional solids.
NH3	3/16/2018 3/17/2018	The E Train was out of service for inspection and bull gear repairs. Eight aeration mixers were out of service for repairs to the gearboxes. The sludge drying facility was operating at a limited capacity, resulted in a high solids inventory. These factors caused an elevated ammonia-nitrogen concentration.	Repairs are pending.
NH3	3/18/2018 3/19/2018 3/21/2018 3/24/2018 3/18-3/24/2018 3/25-3/31/2018 3/1-3/31/2018	Eight aeration mixers were out of service for repairs to the gearboxes. The sludge drying facility was operating at a limited capacity, resulted in a high solids inventory. These factors caused an elevated ammonia-nitrogen concentration.	Repairs are pending. An additional sludge dryer was put online 3/24/17
NH3	4/3/2018 4/4/2018 4/5/2018 4/6/2018 4/7/2018 4/8/2013 4/13/2018 4/27/2018 4/28/2018 4/29/2018 4/1-4/30/2018 4/1-4/30/2018 4/1-4/7/2018 4/8-4/14/2018 4/22-4/28/2018	Eight aeration mixers were out of service for repairs to the gearboxes. The sludge drying facility was operating at a limited capacity, resulting in a high solids inventory. These factors caused an elevated ammonia-nitrogen concentration.	Gearbox repairs are pending. Maintenance and contractors are working on equipment so that more sludge dryers can be put in service.
NH3	5/1/2018 5/2/2018 5/4/2018 4/29-5/5/2018	A series of equipment failures and out of service equipment in April caused elevated ammonia concentrations. The WWTP is still recovering from those issues.	Gearbox repairs are pending.
NH3	5/12/2018	The E Train is out of service due to damage to the clarifier bull gear, and eight aeration mixers were removed and sent for repair to the gearboxes. ***Review of laboratory data on 6/12/18 showed that the result is 10 mg/L.***	The sludge drying facility placed additional dryers in service. Mixers from the E Train were moved to replace the damaged mixers that are out for repairs.
NH3	5/19/2018 5/6-5/12/2018 5/13-5/19/2018 5/20-5/26/2018 5/1-5/31/2018	The E Train is out of service due to damage to the clarifier bull gear, and eight aeration mixers were removed and sent for repair to the gearboxes.	The sludge drying facility placed additional dryers in service. Mixers from the E Train were moved to replace the damaged mixers that are out for repairs.
NH3	6/1-6/30/2018 6/17-6/23/2018 6/24-6/30/2018	Excessive solids in the process caused by limited sludge plant production prevented complete treatment of ammonia-nitrogen.	Repairs to the sludge dryers are ongoing. Operations continues to make adjustments to balance the distribution of solids.
NH3	7/1-7/31/2018	High solids inventory due to limitations at the sludge drying facility caused elevated NH3-N concentrations throughout the month.	Maintenance and contractors and working on repairs to sludge drying equipment. Sludge is being wet-hauled to reduce the solids inventory. NOTE: The Northside WWF discharged on July 4, 2018.
TSS	3/9/2015 3/08 - 3/14/2015	Combination of hydraulic surge and high solids inventory in the plant. According to the rain gauge, it rained 1.8 inches on March 09, 2015 and 1.90 inches on the day before. The combination resulted in elevated TSS concentration, which affected the calculated 7-day average.	Operations staff is closely monitoring the plant and making process adjustments, as needed.
TSS	4/11/2015 4/16/2015 4/17/2015 04/12- 04/18/2015	Combination of hydraulic surge and high solids inventory in the plant. According to the rain gauge, it rained 1.9 inches on April 11, 2015 and 0.31 inches on the day before. it rained 2.35 inches on April 17, 2015 and 2.30 on April 16, 2015. 4/16 and 4/17: B train was out of service for repair. The combination resulted in elevated TSS concentrations in two days during the week, which affected the calculated 7-day average.	Operations staff is closely monitoring the plant and making process adjustments, as needed.
TSS	5/22-5/28/2016 5/29-6/4/2016	A combination of equipment failure, RAS pump stoppages, ongoing rehabilitation of the Northside Relief Tunnel, a filtration system problem, and 2.9 inches of heavy rain affected the treatment process and resulted in an elevated TSS concentration	The maintenance group is working to remove stoppages from the RAS pumps, and the malfunctioning clarifiers were drained for repairs. New oxygen feed line installation has been completed.

TSS	06/16/2015	Combination of construction and equipment failure. Heavy rainfall of 2.8 inches on June 16, 2015 and 0.74 inches the day before may have contributed to the problem. Ongoing rehabilitation of Northside Relief Tunnel and out of service B train and wasting pumps 2C/D, 2E and 2G. These factors affected the treatment process, resulting in elevated TSS concentration.	B train was put back in service and wasting pumps are scheduled for repair. Operations staff is closely monitoring the plant and making process adjustments, as needed.
TSS	10/24/2015	Severe rain in the service area. According to the rain gauge, it rained 8.8 inches on October 24. This resulted in elevated TSS concentration.	Operations staff is closely monitoring the plant and making process adjustments, as needed.
TSS	1/6/2016	Combination of removal of the stop logs at the ongoing rehabilitation of the Northside Relief Tunnel, B Train being down for contractors to inspect the drive on clarifier 1B, and heavy rain in the area (1.6 inches recorded at the 69th Street WWTP) may have contributed to the problem.	Operations staff is closely monitoring the plant and making process adjustments as needed.
TSS	3/24/2016	Equipment failure. The hydraulic valve system failed at the main lift, the H Train was out of service so contractors could perform work, and the removal of the stop logs at the ongoing rehabilitation of the Northside Relief Tunnel contributed to the exceedance. Heavy rainfall in the service area (1.2 inches recorded at the WWTP) may have also contributed to the exceedance.	Wasting rates were adjusted and are being monitored.
TSS	4/18/2016	A combination of equipment failure (RAS pumps) and the removal of the stop logs at the ongoing rehabilitation of the Northside Relief Tunnel. Heavy rainfall during the flooding on April 18, 2016 may have contributed. These factors affected the treatment process, resulting in an elevated TSS concentration in the effluent.	Operations and maintenance cleared the stoppages in the RAS pumps and equipment was placed back in service. On April 18, 2016, Governor Greg Abbott issued a Disaster Proclamation for Harris County and other areas of southeast Texas.
TSS	4/27/2016	Equipment failure. One of the clarifier skimmer arms malfunctioned, and RAS pumps had stoppages. The onsite oxygen plant also failed. These factors affected the treatment process and resulted in an elevated TSS concentration.	Maintenance removed stoppages from the RAS pumps, and the malfunctioning clarifier was drained for repairs. NOTE: The Northside WWF did not discharge.
TSS	5/27/2016	Combination of equipment failure, RAS pumps still have stoppages, ongoing rehabilitation of the northside relief tunnel, Filtration system problem . 2.9 inches of heavy rain may have contributed to the problem. These factors affected the treatment process and resulted in an elevated TSS concentration.	Maintenance groups are working for removing stoppages from the RAS pumps, and the malfunctioned clarifiers were drained for repairs. New oxygen feed lines installation is completed.
TSS	6/2/2016 6/3/2016	A combination of equipment failure, RAS pump stoppages, ongoing rehabilitation of the Northside Relief Tunnel, a filtration system problem, and heavy rainfall affected the treatment process and resulted in an elevated TSS concentration.	The maintenance group is working to remove stoppages from the RAS pumps, and the malfunctioning clarifiers were drained for repairs. New oxygen feed line installation has been completed.
TSS	11/5/2016 11/6/2016 11/23/2016 12/2/2016 12/4/2016 11/13-11/19/2016 11/20-11/26/2016 11/27-12/3/2016 12/4-12/10/2016 11/1-11/30/2016 12/1-12/31/2016	A number of equipment failures (WAS lift station, RAS pump stoppages, sludge dryers) caused high solids in the WWTP, affecting the treatment process and resulting in an elevated ammonia concentration.	Maintenance removed WAS pumps for maintenance and repairs. Maintenance is also continuously removing stoppages from the RAS and WAS pumps.
TSS	1/17/2017 1/18/2017	A combination of equipment failure and excessive sludge returning back into the filtration system from the sludge overflow line. In addition, the B Train is out of service for grit and debris removal and the WAS and RAS pumps are experiencing continuous stoppages. Heavy rain may have contributed to the problem.	All available equipment was put into service, including the B Train. NOTE: The Northside WWF discharged on January 17, 2017 and January 18, 2017.
TSS	1/20/2017 2/10/2017 2/11/2017	A combination of out of service equipment (B Train for grit/debris removal) and continuous RAS pump stoppages caused an elevated solids inventory. As a result, an elevated concentration of TSS was discharged.	All available equipment was put into service, included B Train. NOTE: The Northside WWF did not discharge.
TSS	1/15-1/21/2017 1/1-1/31/2017 1/1-1/31/2017	A combination of out of service equipment (B Train for grit/debris removal) and continuous RAS pump stoppages caused an elevated solids inventory. As a result, an elevated concentration of TSS was discharged.	All available equipment was put into service, included B Train.
TSS	2/5-2/11/2017	A combination of out of service equipment (B Train for grit/debris removal) and continuous RAS pump stoppages caused an elevated solids inventory. As a result, an elevated concentration of TSS was discharged.	All available equipment was put into service, included B Train. NOTE: The Northside WWF did not discharge.
TSS	2/14/2017 2/15/2017 2/16/2017 2/12-2/18/2017	A combination of equipment failure (1G clarifier drive failure), out of service equipment (C Train for grit/debris removal), and continuous stoppages in the WAS/RAS pumps caused and elevated concentration of TSS in the effluent. Heavy rain in the service area may have contributed.	All available equipment was put into service, including the C Train which was out of service for maintenance. Maintenance is continuing to clear stoppages in the RAS/WAS pumps. NOTE: The Northside WWF did not discharge.
TSS	2/1-2/28/2017	A combination of equipment failure (1G clarifier drive failure), out of service equipment (B and C Train for grit/debris removal), and continuous stoppages in the WAS/RAS pumps caused and elevated concentration of TSS in the effluent.	All available equipment was put into service, including the B and C Trains which were out of service for maintenance. Maintenance is continuing to clear stoppages in the RAS/WAS pumps. NOTE: The Northside WWF did not discharge.
TSS	3/5-3/11/2017 3/12-3/18/2017 3/19-3/25/2017 3/26-4/1/2017 4/2-4/8/2017 3/1-3/31/2017 3/1-3/31/2017 4/1-4/30/2017	A combination of out of service equipment (C Train for grit/debris removal) and continuous stoppages in the WAS/RAS pumps caused an elevated concentration of TSS in the effluent. Heavy rain (6.9 inches at the WWTP from March 5 to 11) in the service area may have contributed to the problem.	All available equipment was put into service, including the C Train which was out of service for maintenance. Maintenance is continuing to clear stoppages in the RAS/WAS pumps. NOTE: The Northside WWF did not discharge.
TSS	3/5/2017 3/11/2017	A combination of out of service equipment (C Train for grit/debris removal) and continuous stoppages in the WAS/RAS pumps caused an elevated concentration of TSS in the effluent. Heavy rain (4.5 inches at the WWTP on March 5 and 1.5 inches at the WWTP on March 11) in the service area may have contributed to the problem.	All available equipment was put into service, including the C Train which was out of service for maintenance. Maintenance is continuing to clear stoppages in the RAS/WAS pumps. NOTE: The Northside WWF did not discharge.
TSS	3/16/2017 3/31/2017	A combination of out of service equipment (C Train for grit/debris removal) and continuous stoppages in the WAS/RAS pumps caused an elevated concentration of TSS in the effluent.	All available equipment was put into service, including the C Train which was out of service for maintenance. Maintenance is continuing to clear stoppages in the RAS/WAS pumps. NOTE: The Northside WWF did not discharge.
TSS	4/2/2017	A combination of out of service equipment (C Train for grit/debris removal) and continuous stoppages in the WAS/RAS pumps caused an elevated concentration of NH3-N in the effluent.	All available equipment was put into service, including the C Train which was out of service for maintenance. Maintenance is continuing to clear stoppages in the RAS/WAS pumps. NOTE: The Northside WWF did not discharge.
TSS	6/24/2017	A combination of equipment failure, out of service equipment (A Train for grit/debris removal), and continuous stoppages in the WAS/RAS pumps caused poor settling in the clarifiers.	All available equipment was put into service, including the A Train.
TSS	7/13/2017	The sludge handling facility was out of service, preventing adequate wasting. In addition, the H Train was out of service for grit and debris removal, and the WAS/RAS pumps were experiencing continuous stoppages.	All available equipment was put into service. Maintenance continues to remove stoppages from WAS/RAS pumps.
TSS	12/16/2017	A hydraulic surge temporarily caused the contents of the main wet well to flow back up the filter return line.	All available equipment was put into service.
TSS	2/9/2018, 2/10/2018 2/4-2/10/2018 2/1-2/28/2018	A hydraulic surge temporarily caused the contents of the main wet well to flow back up the filter return line.	All available equipment was put into service, and process adjustments were made to minimize the effects.
TSS	4/22/2018	A hydraulic surge temporarily caused the contents of the main wet well to flow back up the filter return line.	All available equipment was put into service, and process adjustments were made to minimize the effects.

Plant Sagemont			
Permit Parameter	**Non-Compliance Date(s)**	**Initial Root Cause Assessment**	**CORRECTIVE ACTION**
E.Coli	5/13/2015	Near the sample collection time, there was sudden drop in flow from 15 MGD to 1.6 MD as operations made adjustments to accommodate wet weather conditions in the plant. The drop in flow affected the chlorine residual and detention time. The combination may have contributed to the E. coli violation.	Work order #1122357 was created for the chlorination group to thoroughly inspect the chlorination system to ensure proper operation.
	11/12/2015	Power failure in the plant. This caused insufficient bleach in the effluent impacting the E.Coli value.□ **This is a revision of a report submitted on November 19, 2015. The laboratory provided updated results on December 7, 2015.	Chlorination system was checked to ensure proper operation. Disinfectant levels were restored to adequate ranges.
	6/16/2016	Insufficient bleach feed in the chlorine contact basin due to communication failure with the control center to notify the operator on time to correct the problem. This caused the elevation of the E.coli value.	Work orders #1267679 and #1268019 were issued to check and repair the communication system.
	6/28/2016	Unknown. At the time of sampling, the SCADA trends indicate adequate chlorination.	The chlorination system was checked for problems. No issues were found.
	7/19/2016	The bleach pumps malfunctioned, causing insufficient chlorination.	The bleach pumps were repaired under Work Order 1278868.
	7/26/2016	Undetermined. According to SCADA trends, the chlorine residual was within an acceptable range for disinfection at the time of sample collection.	The chlorination system was checked for malfunction but was found to be working properly.
	11/3/2016	The bleach pump lost prime, resulting in inadequate disinfection.	The chlorination group was notified of the problem and troubleshooted the disinfection system.
NH3	10/12/2015	Insufficient air in the aeration basins due to electrical problem in one of the blowers. This resulted in an increased NH3-N in the effluent.	Work order # 1171925 was created to repair the blower. Operations staff is closely monitoring the aeration system to keep adequate aeration blowers in service.
	2/1/2016	The plant has been experiencing continuous issues with the aeration blowers, causing slightly elevated NH3-N concentrations throughout the month. This caused the daily average to exceed the permitted limit.	The blowers are being repaired under work order numbers 1219847 and 1219848.
	3/13/2016	The plant lost power from 4:00 pm on March 13, 2016 to 2:30 am on March 14, 2016. As a result there was no air to the plant for 10 hours.	Operations is working to improve the air supply to the plant.
	4/17/2016	The aeration blower tripped off, limiting the air supply to the plant.	The blower was repaired under work order #1247506.
	6/12/2016	The aeration blower tripped off, limiting the air supply to the plant. This caused elevated NH3-N concentration.	The blower was checked and the power was restored.
	6/1/2016	The aeration blower tripped off, limiting air supply to the plant and causing elevated NH3-N concentrations during the month of June.	The blower was checked, and power was restored.
	7/1/2016	A combination of air flow restrictions associated with old air filters and multiple air leaks in the distribution system caused elevated ammonia concentrations during the month of July.	Air filters will be replaced by Operations personnel. Air leaks are scheduled to be addressed under Work Order 934987.
	1/8/2017 1/9/2017	One of the blowers tripped off resulting in limited air supply for an undetermined period of time.	A work order was created to address the equipment failure.
	9/6/2017	Hurricane Harvey related. One of the blowers tripped off during the storm. The facility was flooded for several days, preventing access to the backup blower.	The backup blower was put into service, and the damaged blower is scheduled to be repaired.
	10/15/2017	A failure of the lift pump controls at the onsite lift station created a surge in flow when the lift pumps were activated again.	An electrician repaired the lift station controls.
	10/30/2017	The aeration blower tripped off, resulting in an inadequate air supply.	A work order was written, and a contractor repaired the blower.
	5/1/2018	Inadequate dissolved oxygen caused by a mechanical problem with a blower.	The contractor made repairs to the blower.
	5/27/2018	A power outage that occurred after hours caused the blowers to shut off.	The operator was called out by the Control Center. Power to the clarifiers and blowers was reset.
	5/28/2018	The previous day, a power outage that occurred after hours caused the blowers to shut off.	The operator was called out by the Control Center. Power to the clarifiers and blowers was reset.
	5/1/2018	Mechanical issues with a blower at the beginning of the month and a power outage at the end of the month combined to impact the daily average.	The blower was repaired. The Control Center called out an operator to reset blowers after the power outage.

Plant Northeast

Permit Parameter	Non-Compliance Date(s)	Initial Root Cause Assessment	CORRECTIVE ACTION
Enteroco	3/24/2015	The cause of the enterococci bacteria exceedance is unknown. According to the SCADA trends, the chlorine residual was in range during sample collection time.	Chlorination system was checked and evaluated under WO #1104944, and found working properly.
	05/13/2015	The cause of the enterococci bacteria exceedance is unknown. According to the records, the chlorine residual was at 2.3 mg/L during sample collection time. Rain events on May 11 (1.6 inches) and May 12 (3.45 inches) may have contributed to the Enterococci violation.	Work order #1122497 was generated for the chlorination group to thoroughly inspect the chlorination system to ensure proper operation.
	05/26/2015	Insufficient bleach feed in the system during severe thunderstorms in the Houston area that produced about 11 inches of rain on May 26, 2015 and 6.49 inches on the day before. These events contributed to the chlorine deficiency in the contact basin, allowing the Enterococci value to rise above the permitted amount.	None. Disinfection system was working normally.
	07/01/2015	Unknown. According to SCADA trends and operator logs, the chlorine residual was maintained above 1.0 mg/L and flows were normal at the time of sample collection.	None. Disinfection system was working normally.
	08/19/2015	Unknown. According to SCADA trends and operator logs, the chlorine residual was maintained above 1.0 mg/L, flows were stable, and the bleach feed was working properly at the time of sample collection.	The chlorination group was notified of the violation. After analysis, it was determined that the chlorination system was working properly.
	10/13/2015 10/21/2015	Unknown. According to the SCADA trends and flow reports, the flow conditions and chlorination feed were normal. The chlorine residual was at an acceptable level at the time of sample collection.	Operations and chlorination were informed of the violation. The disinfection system was checked for operational issues.
	1/7/2016	Unknown. The chlorination feed was performing normally, and the chlorine residual was within an acceptable range.	Operations and the chlorination group were notified of the violation. Both groups investigated, but the disinfection system was found to be operating properly.
	2/23/2016	Undeterminable. A review of the SCADA trends showed that at the time of sample collection the chlorination feed was working properly and the chlorine residual was in range. Heavy rainfall (2.13 inches at the WWTP on 2/22/16 and 2/23/16) in the area elevated the flow and may have contributed to the problem.	Operations and the chlorination group were notified of the violation. Both groups investigated, but the disinfection system was found to be operating properly.
	3/10/2016	Unknown. The SCADA trends at the sample collection time indicate that the chlorine feed and chlorine residual were in the normal range. Heavy rainfall on March 9, 2016 (3.5 inches recorded at the WWTP) elevated the flow and may have contributed to the Enterococci result.	Operations and the chlorination group were notified of the violation. Both groups investigated, by the disinfection system was found to be operating properly.
	1/18/2017	Undetermined. At the time of sample collection, the chlorine residual was within an acceptable range for disinfection. Elevated flow due to heavy rainfall may have contributed.	The chlorination system was troubleshooted but was found to be working properly.
	12/20/2017	The chlorine residual was not adequate for disinfection at the time of sample collection due to a chlorine leak on pump #1 and the loss of prime on pump #2.	The chlorination group was dispatched to make repairs on the leaking chlorine line.
	3/29/2018	Undetermined. According to SCADA trends, the flow conditions and chlorination feed were normal. The chlorine residual was within an appropriate range for disinfection.	The chlorination group troubleshooted the chlorination system.
	9/11/2018	Undetermined. At the time of sample collection, the chlorine residual was within an adequate range for disinfection. The disinfection system was operating normally.	The disinfection system was troubleshooted and found to be working properly.

Appendix F

List of SOPs

Appendix F

List of Standard Operating Procedures (SOPs)

1	Collection and Conveyance Management Plan
2	Lift/Pump Stations SOP
3	How to Create WMS Work Orders
4	Infrastructure Management System SOP
5	Facility Maintenance and Inspection SOP
6	Inflow and Infiltration Control Plan
7	IWS System to Track Compliance of Requirements (LINKO software)
8	Collection and Conveyance Plan with Sanitary Sewer Overflow (SSO) Plan
9	WWO SOP for Alarm Testing
10	PWE APP Safety Plan
11	Wastewater Treatment Plant Operation & SOP Manual
12	SOP 69th Street & Southwest Wastewater Treatment Plant Operating Manuals
13	Wet Weather Facilities Operating Manual
14	Almeda Sims Sludge Facility Operations Manual
15	WWTP Preventive Maintenance Schedule
16	SOP on Sludge Processing Facilities
17	Industrial Pretreatment Program
18	PUD SOP Wet Weather
19	Residuals Management Spill Control Plan
20	SOP Residual Management Aerobic Digesters Facilities
21	COH Policy 2-21, Employee Safety and Health
22	Collection System Repair Response to Stoppages
23	Collection System Repair Response to Sanitary Sewer Overflows
24	Clarifier solids

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I. Cover

Cover shall state that the report covers Consent Decree activities undertaken between July 1, XXXX and June 30, XXXX.

II. Certification Declaration

[Required certification, with language specified by the Consent Decree, signed by a responsible official of the City]

III. Table of Contents

[List of sections, tables, figures and appendices included in this report]

IV. SSO Reporting

The City shall provide a tabular summary of SSO information as described in Paragraph 63 generally in accordance with the column headings of the tables following:

Summary of Total Annual SSOs Occurring After the Effective Date

Fiscal Year	# of SSOs Caused by Grease	# of SSOs Caused by Capacity Constraints	# of SSOs Caused by Roots	# of SSOs Caused by Lift Station Failure	# of SSOs Caused by Other Factors	Total # of SSOs
XX	XX	XX	XX	XX	XX	XX
XX	XX	XX	XX	XX	XX	XX

Summary of Annual SSO Discharge Locations

Fiscal Year	# of SSOs discharging into/adjacent to waters[(1)]	# of SSOs that do not reach into or adjacent to waters[(2)]	Total # of SSOs
XX	XX	XX	XX
XX	XX	XX	XX

(1) As defined in Paragraph 83 of the Consent Decree
(2) As defined in Paragraph 84 of the Consent Decree

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Summary of Information Regarding SSOs Occurring After the Effective Date

Fiscal Year	Total SSO Discharge Volume	# of Media Reports Issued	# of repeat SSO locations [1]
XX	XX	XX	XX
XX	XX	XX	XX
[1] – Repeat SSOs as defined in Paragraph 63(e) of the Consent Decree			

Summary of SSOs and WWTP/WWF Effluent Reports of No Violation Pursuant to Affirmative Defense Under Tex. Water Code § 7.251

Fiscal Year	Date	Type of Report	Report ID#
XX	XX	XX	XX
XX	XX	XX	XX

V. Early Action Program

The City shall provide a tabular summary of the status of each Early Action Project (Lift Station, Force Main, Consolidation, and WWTP Early Action Projects) as described in Paragraph 64 and listed in Appendix B of the Consent Decree.

VI. Capacity Assessment

A. Capacity Remedial Measures Plan Progress

In Annual Reports following the approval of the Capacity Remedial Measures Plan(s), the City shall identify progress made in the previous year toward completing the remedial measures identified in the Capacity Remedial Measures Plan(s) as described in a format generally in accordance with the column and row headings of the table following:

Capacity Project Name and Area #	Project Start Date	Narrative of Project Status and Progress Made during Fiscal Year	EPA Approved Project Completion Deadline

B. Capacity Remedial Summary

The City shall identify areas with potential capacity constraints, provide remedial alternatives analysis for each area in the provide a tabular summary of results of

the identification of WCTS assets with potential capacity constraints generally in accordance with the column and row headings of the table following:

Potential Capacity Constraints Summary

Criteria	List of Assets Identified Meeting Criteria
Total wet weather volume from any single WCTS asset over the prior 3 years > 100,000 gallons	X
3 or more wet weather SSOs occur from any single WCTS asset over the prior 3 years	X

The City shall provide a list and map of new areas with capacity constraints generally in accordance with the column and row headings of the table following:

New Capacity Constraint Areas

Area Number	WCTS Assets in Area
X	X
X	X

For each new Capacity Constraint Area, the City shall provide the remedial alternative analysis, if complete, and timeline for completion of each remedial action taken or to be taken.

C. Capacity-Related Sewer Segment Replacements

The City shall identify all Sewer Segments renewed or replaced in the previous Fiscal Year due to capacity constraints and all Sewer Segments that are scheduled for renewal or replacement in the following year due to capacity constraints, generally in accordance with the column and row headings of the table following:

Capacity-Related Sewer Segment Replacements

Fiscal Year	Sewer Segment List
(Previous)	X
(Next)	X

D. Sanitary Sewer System Hydraulic Model Updates

The City shall provide a list of sanitary sewer system hydraulic models updated.

VII. Wet Weather Facilities

The City shall provide a summary of all activities performed in the previous Fiscal Year including, as appropriate, a summary of pilot study activities, LOA activities, sampling results and analysis, status of Pilot Testing Result Report, status of Full Scale Treatment Plan, and status of the Remedial Measures Plan. In addition, the City shall specify any non-effluent maintenance-related permit violations involving the WWFs. After any applicable deadline specified in Paragraphs 21(a) or 24(b), the City shall provide the number of discharges from the Scott Street WWF, if any.

	Date of Discharge(s), if any	Non-effluent permit violation(s), if any	Narrative of activity taken toward pilot study implementation, full-scale treatment implementation, or discharge elimination
WWF Name	X	X	

VIII. Condition Assessment

A. Condition Assessment Summary

The City shall provide a tabular summary of Gravity Sewer Mains and Manholes, Force Mains, and Lift Stations inspected generally in accordance with the column and row headings of the tables following:

Gravity Sewer Main Inspection Summary

Total Gravity Sewer miles	Unique miles inspected in Fiscal Year X	Cumulative unique miles inspected from Effective Date	Unique miles of inspections scheduled for next Fiscal Year	Unique miles remaining to be inspected within 10 years or (if after 10 years) within 15 years from Effective Date
XX	XX	XX	XX	XX

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Manhole Inspection Summary

Total manholes	Unique manholes inspected in Fiscal Year X	Cumulative unique manholes inspected from Effective Date	Unique manholes remaining to be inspected within 10 years or (if after 10 years) within 15 years from Effective Date
XX	XX	XX	XX

Early Year Targeted Inspection Summary

Total unique miles inspected in Fiscal Year X	Has requirement to inspect 1,500 unique miles within 2 years of Effective Date been met?
XX	Yes, No, or cumulative total from Effective Date

Preventive Inspection Summary

Total (repeat) miles inspected in Fiscal Year X	Has requirement to re-inspect 82.5 Miles been met?
XX	Yes or No

B. Force Main Assessment Program

The City shall provide a tabular summary of force main inspections performed in the Fiscal Year in accordance with the elements included in the following table:

Force Main Inspection Summary

Unique miles inspected in Fiscal Year X	Cumulative unique miles inspected from Effective Date	Miles of inspections scheduled for next Fiscal Year	Miles of inspections to be completed within 10 Years of Effective Date
XX	XX	XX	XX

C. Lift Station Assessment Program

The City shall provide a tabular summary of the lift stations inspected in the Fiscal Year generally in accordance with the column and row headings of the following table:

Lift Station Inspection Summary

	Inspections completed in Fiscal Year X	Cumulative inspections completed from Effective Date	Inspections scheduled for next Fiscal Year	Inspections to be completed within 10 Years of Effective Date
Number of Lift Stations	XX	XX	XX	XX

D. Condition Assessment Results

The City shall provide a tabular summary of results of the condition assessments by type of asset performed in the Fiscal Year generally in accordance with the column and row headings of the following table:

Condition Categorization Summary in Fiscal Year X

Condition Category	Miles of Gravity Sewer Mains	Number of Manholes
NASSCO Grade 1 – Very Good	XX	XX
NASSCO Grade 2 – Good	XX	XX
NASSCO Grade 3 – Fair	XX	XX
NASSCO Grade 4 – Poor	XX	XX
NASSCO Grade 5 – Very Poor	XX	XX

**Provide a list of the Force Main and Lift Station defects identified during the Fiscal Year, and a list and locational map of identified Category 4 and 5 Gravity Sewer Mains and manholes.*

Assets to be remediated based upon Condition Categorization Summary

	Miles of Gravity Sewer Main	Number of manholes	Miles of Force Mains	Number of Lift Stations
Fiscal Year	XX	XX	XX	XX

E. Condition Remedial Summary

The City shall provide a tabular summary of condition remedial measures completed and WCTS assets identified for condition remedial measures generally in accordance with the column and row headings of the tables following:

WCTS Asset Remedial Measures Completed

Miles of Gravity Sewer Mains	Number of Manholes	Miles of Force Mains	Number of Lift Stations
Fiscal Year	XX	XX	XX
Next Fiscal Year	XX	XX	XX

**Provide a list of the Force Main and Lift Station defects remediated during the Fiscal Year, and a list and locational map of remediated Category 4 and 5 Gravity Sewer Mains and manholes.*

Gravity Sewer and Lift Station Remediation Requirements

Percent of all Gravity Sewer Mains Remediated/Replaced in Fiscal Year X	Met CD Paragraph 36 requirement (2.5%)?	Percent of all Lift Stations Remediated/Replaced in Fiscal Year X	Met CD Paragraph 37 requirement (5%)?
XX	Y/N	XX	Y/N

IX. Wastewater Treatment Plants (WWTPs)

Provide a tabular summary of WWTP corrective actions scheduled and WWTP corrective actions completed during the previous Fiscal Year generally in accordance with the column and row headings of the tables following:

WWTP Corrective Actions Scheduled

WWTP	Corrective Action	Scheduled Date for Completion
XX	XX	XX

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WWTP Corrective Actions Completed

WWTP	Corrective Action	Scheduled Date for Completion	Completion Date
XX	XX	XX	XX

X. CMOM

A. Sewer Cleaning

The City shall provide a tabular summary of Sewer Cleaning activities performed in the Fiscal Year generally in accordance with the column and row headings of the tables following:

Small Diameter System-Wide Program Cleaning Summary

Total Small Diameter miles	Unique miles cleaned in Fiscal Year X	Cumulative unique miles cleaned from Effective Date	Unique miles remaining to be cleaned within 10 years or (if after 10 years) within 15 years from Effective Date	Percent of Small Diameter miles cleaned during Fiscal Year X
XX	XX	XX	XX	XX

Large Diameter System-Wide Program Cleaning Summary

Total Large Diameter Miles	Unique miles inspected in Fiscal Year X	Unique miles cleaned in Fiscal Year X	Unique Miles Remaining to be Inspected within 10 years or (if after 10 years) within 15 years from Effective Date	Percent of Large Diameter miles cleaned during Fiscal Year X
XX	XX	XX	XX	XX

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Preventive Cleaning Summary

Total miles cleaned in Fiscal Year X (repeat cleaning)	Has requirement to annually re-clean 275 miles in addition to Program Cleaning been met?
XX	Yes or No

Early Year Targeted Cleaning Summary

Total unique miles cleaned in Fiscal Year X	Has requirement to clean 1,500 unique miles within 2 Years of Effective Date been met?
XX	Yes, No, or Cumulative Total from Effective Date

B. Root Control

The City shall describe its yearly root control activities, including a map identifying Sewer Segments where root control activities were conducted.

C. Fats, Oils, and Grease (FOG) Program

The City shall provide a tabular summary of the FOG Program activities performed in the Fiscal Year generally in accordance with the column headings of the table following:

FOG Program Inspections and Enforcement Actions

Number of Permitted FOG Generators at End of FY	Number of FOG Program Interceptor Inspections During FY	Number of FOG Generators Not Inspected During Previous 3 FYs	Number of Enforcement Actions Initiated During FY
XX	XX	XX	XX

D. CMOM – Private Laterals

The City shall provide a tabular summary regarding Private Lateral wastewater releases that impact or threaten to impact the MS4 generally in accordance with the column and row headings of the table below:

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Private Lateral Wastewater Releases

Location of Private Lateral	Date of Wastewater Release
XX	XX
XX	XX

Private Lateral Wastewater Releases Remediated

Private Laterals Remediated from written/verbal Notification	Private Laterals Remediated from Inspections by HHD or BCE	Private Laterals Remediated from a Fine	Private Laterals Remediated from Suspension of Service	Private Laterals Not Remediated Despite City Efforts
XX	XX	XX	XX	XX

E. Standard Operating Procedures (SOPs)

The City shall provide copies of SOPs that were substantively updated in the Fiscal Year, if any, as described in Paragraph 88 of the Consent Decree.

F. Advanced Sewer System Monitoring

	Number of advanced Sewer System monitors installed during FY	Total number of advanced Sewer System monitors installed since Effective Date	Total number of advanced Sewer System monitors currently maintained by City
Fiscal Year	X	X	X

XI. Inaccessible/Nonexistent or Unlocatable Assets

The City shall provide a list identifying assets that the City was unable to inspect or clean because the asset was inaccessible, nonexistent, or not located.

XII. Modifications

The City shall provide a summary of written agreements pursuant to Section XXI of the Consent Decree.