



Tony Yarber
Mayor of the City of Jackson

May 30, 2014

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Re: DOJ No. 90-5-1-1-09841

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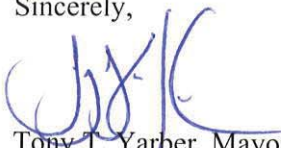
RE: City of Jackson
EPA Consent Decree
Gravity Line Preventative Maintenance Program

Dear Gentlemen:

Attached, please find the City of Jackson's Gravity Line Preventative Maintenance Program. This program was developed and submitted by the City of Jackson in accordance with EPA Consent Decree dated March 1, 2013. Paragraph 41 of the Consent Decree requires the City to submit to EPA for review and approval a gravity line preventative maintenance program.

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 gathered and evaluated the information submitted. Based on my inquiry of the 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.

Sincerely,



Tony T. Yarber, Mayor
City of Jackson Mississippi

Cc: Les Herrington, P.E., Mississippi Department of Environmental Quality
Gus McCoy, Chief Administrative Officer, City of Jackson
Monica Joiner, City Attorney, City of Jackson
Charles Williams, PhD., P.E., Interim Director, Department of Public Works, City of Jackson
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Public Depository, Eudora Welty Public Library

Gravity Line Preventative Maintenance Program



Department of Public Works
Wastewater Infrastructure Redevelopment Program

May 31, 2014

City of Jackson
Wastewater Infrastructure Redevelopment
Program

**Gravity Line Preventative Maintenance
Program**

May 31, 2014

Prepared for:

City of Jackson
Department of Public Works
P.O. Box 17
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Prepared by:

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City of Jackson, Mississippi Gravity Line Preventative Maintenance Program

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.






Tony T. Yarber
Mayor



Date



Charles Williams, Ph.D., P.E.
Interim Director of Public Works



Date

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1.0 Introduction

The City of Jackson entered into a Consent Decree with U.S. EPA on March 1, 2013 to address inadequacies of the City's wastewater collection and transportation system (WCTS). This report describes the ***Gravity Line Preventative Maintenance Program*** used by the City to operate the wastewater pumping stations. The report fulfills the requirements set forth in Consent Decree § VI (D)-41.

1.1 Consent Decree Requirements

As stated in the Consent Decree, the Gravity Line Preventative Maintenance Program shall contain the following, at a minimum:

1. A preventive hydraulic cleaning component which shall include protocols for implementing routine hydraulic cleaning component of the preventive maintenance program for Gravity Sewer Lines. This component shall include provisions for needs determination, establishing priorities and scheduling, number of crews and personnel (including, where appropriate, contract crews), hydraulic cleaning equipment to be used, standard hydraulic cleaning maintenance procedures, standard forms, records and performance measures, and an information management system.
2. A preventive mechanical cleaning component which shall include protocols for implementing routine mechanical cleaning component of the preventive maintenance program for Gravity Sewer Lines. This component shall include provisions for needs determination, establishing priorities and scheduling, number of crews and personnel (including, where appropriate, contract crews), mechanical cleaning equipment to be used, standard mechanical cleaning maintenance procedures, standard forms, records and performance measures, and an information management system.
3. A root control component which shall include protocols, methods, and approaches for implementing a root control component of the preventive maintenance program for Gravity Sewer Lines. This component shall include provisions for needs determination, establishing priorities and scheduling, number of crews and personnel (including, where appropriate, contract crews), root control methods and approaches, root control maintenance procedures, standard forms, records and performance measures, and an information management system.
4. A manhole preventive maintenance component which shall include protocols, methods, and approaches for implementing a routine inspection and maintenance component of the preventive maintenance program for Gravity Sewer Lines. This component shall include provisions for needs determination, establishing priorities and scheduling, number of crews and personnel (including, where appropriate, contract crews), inspection methods and approaches, standard maintenance procedures, standard forms, records and performance measures, and an information management system.

5. A prioritized and expedited schedule for implementation of the Program for the West Bank Interceptor.

1.2 Report Organization

An overview of the Jackson wastewater collection system is provided in Section 2. This section also describes the organization of the City's sewer maintenance workforce and maintenance equipment. Section 3 describes the City's maintenance approach for hydraulic sewer cleaning, mechanical sewer cleaning, root control, and manhole preventative maintenance, respectively. Collection system maintenance needs determination, establishment of priorities and scheduling, and crew and equipment assignment procedures are also discussed in this section. Section 4 describes performance measures used to self assess sewer maintenance activities and discusses implementation of the Gravity Line Preventative Maintenance Program throughout the City, including the West Bank Interceptor.

2.0 Sewer System Operation & Maintenance

The City of Jackson has close to 1,000 miles of sewers installed to provide wastewater service to its citizens. The system is maintained by the City of Jackson Public Works Department (JPWD). General characteristics of the wastewater system are described in this section, together with the current operation and maintenance organization and resources.

2.1 Sewer System Characteristics

The City of Jackson provides wastewater collection and treatment services to its citizens within the city limits and to several satellite communities that transfer wastewater to the Jackson system. Although there remain a few small isolated areas of the city still served by on-site treatment systems, most of the city is served by sewers. General characteristics of the Jackson wastewater system are summarized in **Table 2-1**.

Table 2-1			
City of Jackson			
Wastewater System Characteristics			
Characteristic		Unit	Quantity
Total sewer length installed (diameter) ¹			
	6-in	LF	1,000,000
	8-in	LF	1,250,000
	10-in and larger	LF	2,750,000
	Total	LF	5,000,000
Number of manholes ¹			17,000
Pump stations			98
Wastewater Treatment Plants			3
¹ Approximate			

Sewer system operation and maintenance is the responsibility of the Jackson Department of Public Works. The City is divided into four Sewer Districts, each with its own assigned maintenance crews, equipment, and resources. The boundaries of the four sewer districts are shown on **Figure 2-1**.

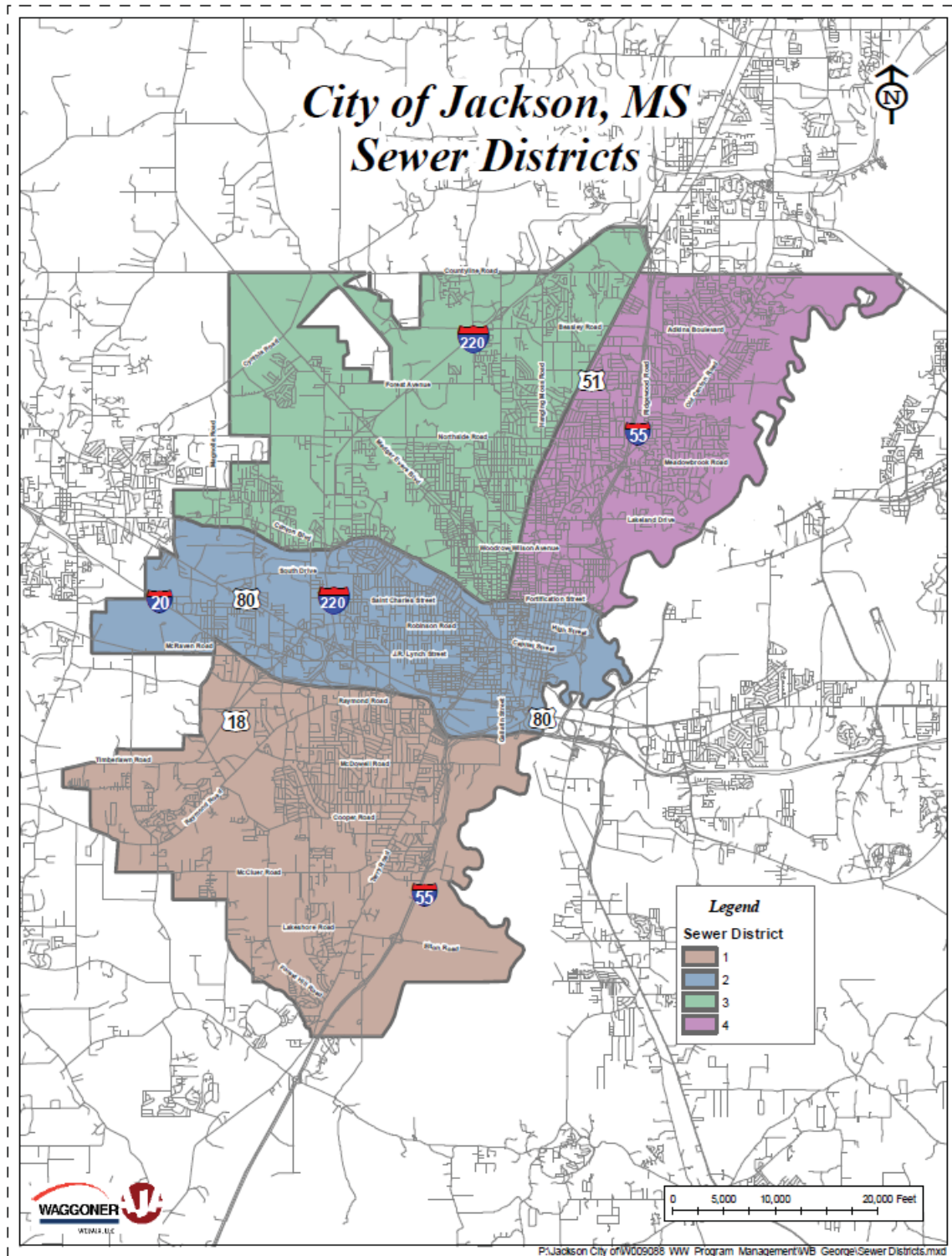


Figure 2-1
Jackson Sewer Maintenance Districts

2.2 Sewer Maintenance Organization

Each sewer district has four separate sewer maintenance crews. The overall sewer maintenance department organizational structure is shown on **Figure 2-2**.

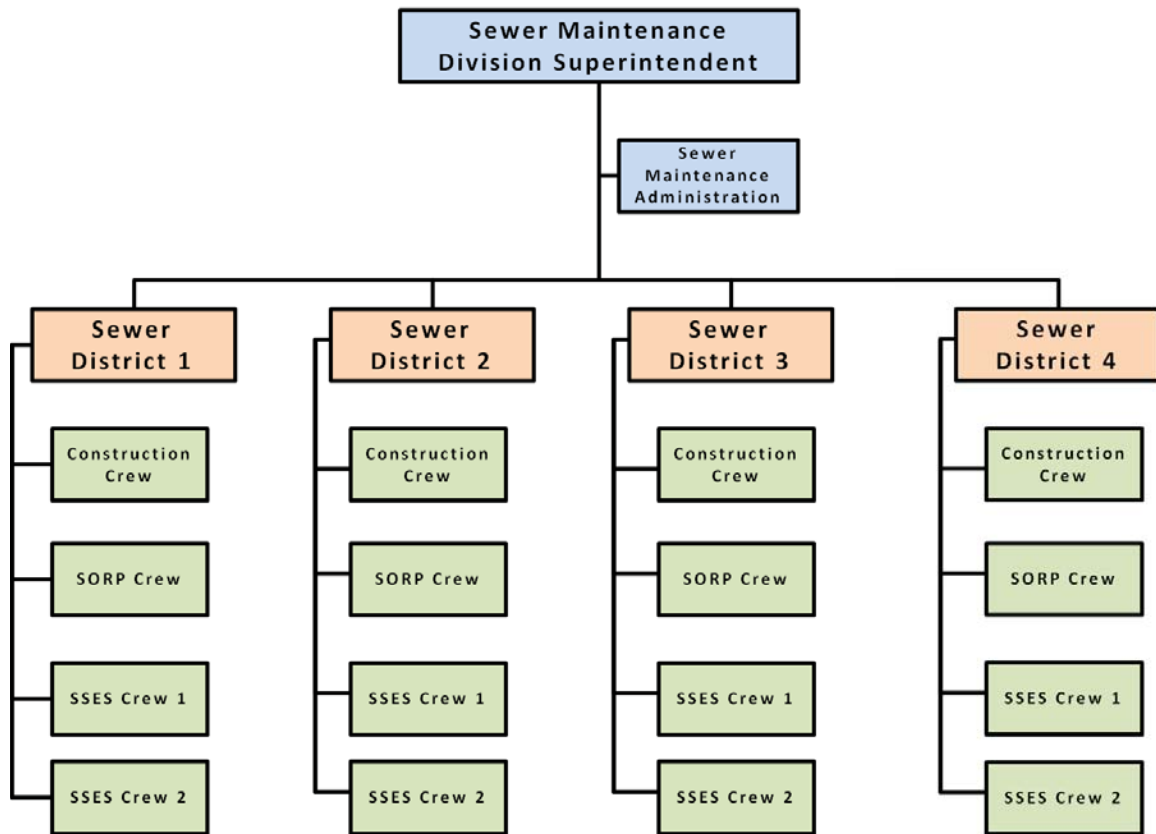


Figure 2-2
Sewer Maintenance Division Organization

The functions of each of the four District maintenance crews are:

- Construction Crew – Responsible for repairing line breaks, making required sewer modifications, laying new sewer lines, and performing related sewer construction work that is within the crew capabilities.
- SORP Crews – Conducts mitigation and environmental cleanup activities of sanitary sewer overflows as described in the City’s Sewer Overflow Response Plan (SORP). Also makes routine sewer taps for new customers and performs light repairs. Each district has two crews equipped with a jet/vacuum truck, backhoe, and dump truck.
- SSES Crews – The Sewer Maintenance Department organization also includes two SSES Crews for each District. The Sewer System Evaluation and Survey (SSES) crews use jet/vacuum trucks to perform hydraulic sewer cleaning, followed by CCTV inspection to assess the cleaning results as well as to locate and evaluate sewer defects. At present each District only has one SSES crew although plans are in place to expand to two SSES crews per District.

Organization of the District sewer maintenance crews is shown on **Figure 2-3**. This organization was developed for the ultimate staffing level required to fully implement the Gravity Line Preventative Maintenance Program. About 25 of the listed positions are vacant at present. JPWD plans to fill the vacant positions as rapidly as feasibly practical, recognizing that the process of advertising, interviewing, approving, offering, and processing new hire municipal personnel is inherently somewhat time consuming. However, all of the vacant positions have been budgeted.

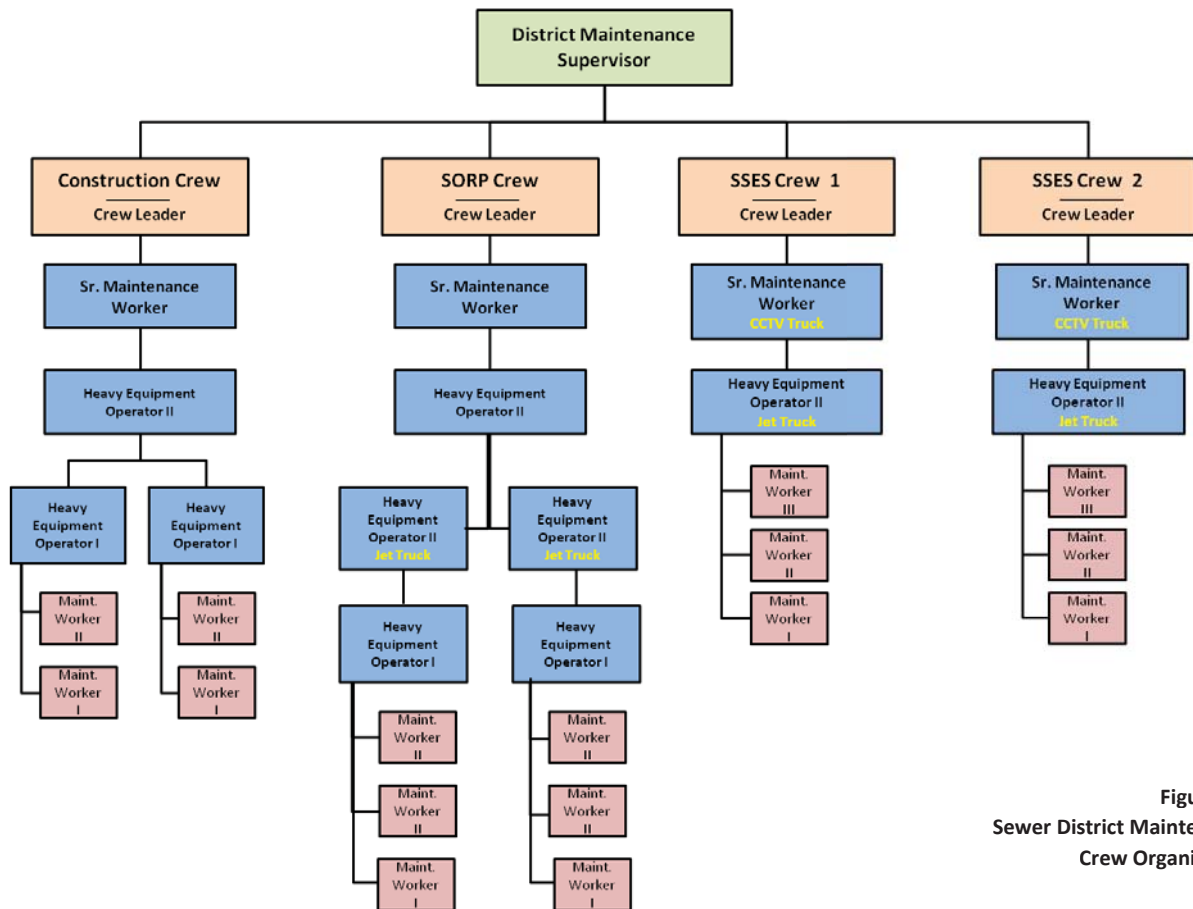


Figure 2-3
Sewer District Maintenance
Crew Organization

2.3 Sewer Maintenance Equipment and Resources

The current sewer maintenance capabilities of the JPWD are described below. Discussed are the sewer maintenance equipment, availability of contracted sewer maintenance services, and current maintenance practices.

Equipment

In general, the JDPWD Sewer Maintenance Division is adequately equipped to keep up with critical maintenance requirements, but recognizes that more personnel and equipment resources are needed to sustain a high quality preventative maintenance program for the entire collection system. **Table 2-2** lists the major maintenance equipment items currently on hand that are used by the crews, together with planned equipment purchases that will be made in order to properly equip each crew. When the equipment procurement process is complete, each of the four sewer maintenance districts will have two jet/vacuum hydraulic cleaning vehicles and the crews to man them, plus two additional jet/vacuum trucks to support the CCTV crews. Mechanical cleaning equipment and chemical root control equipment will be shared by each of the Districts.

Table 2-2			
City of Jackson			
Major Sewer Maintenance Equipment			
<i>Equipment</i>	<i>Current Quantity</i>	<i>Planned Additions</i>	<i>Planned Total</i>
SORP Crews			
Jet/Vacuum truck	8	--	8
SSES Crews			
Jet/Vacuum truck	2	--	2
CCTV truck	2	--	2
Other Sewer Cleaning Equipment			
Rodding machine	0	1	1
Mechanical cleaning winch	1	1	2
Chemical root control truck	1	--	1
Miscellaneous Equipment			
Large backhoe w/trailer	6	--	6
Small backhoe w/trailer	4	--	4
Dump trucks	13	2	15
Other trucks	7	--	7
Portable pumps	20	--	20
Air blowers	3	--	3

Contracted Services

To supplement the JPWD sewer maintenance capabilities, contracted services are also utilized. Outside contractors are used to perform large diameter pipe cleaning (≥ 20 -in diameter), when required. A private sewer evaluation company is also under contract to provide CCTV and sewer evaluation services (current cost is \$1.50/LF, each). An equipment rental company and a private liquid waste hauler are also available on a standby basis if a need arises for their services. A local general contractor is also available to assist with emergency repairs, if required.

Current Maintenance Practices

In general, the City's maintenance resources are focused on areas and sewer segments that historically have caused the most frequent and/or severe maintenance problems in terms of maintaining wastewater flow and preventing sanitary sewer overflows (SSOs). The recurring problem areas are most often caused by grease buildup, followed by root clogs. Based on experience, the high-problem areas are cleaned on a regular basis, sometimes weekly.

Like most cities, Jackson has its share of problems from fats, oils and grease (FOG). The City's Fats, Oils and Grease Control Program is being addressed in a separate CMOM report.

Manholes are not currently inspected on a systematic basis, but JPWD has a policy of rehabilitating all manholes whenever work is performed on the system. For example when an existing sewer is sliplined or repaired by another means all of the associated manholes are cleaned, repaired as required, and coated on the interior. Coatings that have been used on manholes include polyurethane/polymeric coatings (SpectraShield), epoxy coatings, cementitious linings, and fiberglass.

Control of sewer infiltration/inflow (I/I) is an ongoing objective of the SSES crews working in each sewer district. The SSES crews employ smoke testing and CCTV inspection to identify sources of I/I, and determine the required corrective action. Repairs or rehabilitation is then performed by the construction crews. Private contractors are generally used for large repair/rehabilitation projects.

2.4 Maintenance Planning and Documentation

Sewer maintenance planning and scheduling is performed by the Sewer Maintenance Division Superintendent assisted by the administrative staff and maintenance crew leaders. Sewer overflows or blockages reported by city residents receive the highest priority, followed by regularly scheduled maintenance in known problem areas, and then addressing the running list of known maintenance needs within the system. Two types of documentation are maintained by JPWD as described below.

Routine Maintenance Documentation

JPWD maintains records of daily personnel assignments, equipment use, and maintenance costs. Maintenance documentation records include:

- Daily Crew Sheets –Sewer maintenance staff complete work sheets that describe and account for the maintenance activity, personnel assigned, work location, daily work hours, and equipment use.
- Dispatcher Call Report – The Sewer Maintenance Division has its own dispatcher staff, who receive calls transferred from the City’s 311 service or from the department’s direct number. The sewer problem reported is categorized on a call report and then furnished to the maintenance superintendent for follow up.
- Sewer Work Order – A Sewer Work Order form is prepared for all maintenance crew callouts. The crew leader will complete the form which includes the nature of the problem and the required corrective action.
- Wastewater Overflow Assessment Form – The SSO response crews complete an overflow assessment form for every SSO callout. This form documents the cause of the SSO, provides an estimate of the spill volume, and an assessment of environmental impact. The form is used in SSO reporting required by MDEQ.

Sewer System Evaluation Documentation

Sewer evaluation activities are also documented by JPWD. This documentation includes:

- Smoke Testing Form –SSES crews routinely perform smoke testing to locate I/I sources and pipe defects. This form is used to document the results of the smoke testing and characterize the defect.
- Manhole Inspection Form – This form is used to describe manhole physical characteristics and to classify and rate observed defects.

Examples of the JPWD sewer maintenance and SSES documentation forms are provided in the **Appendix A**.

Information Management System

The Sewer Maintenance Division currently uses locally developed forms and procedures to document sewer maintenance activities and keep records of maintenance performed. However, the City intends to implement an integrated maintenance management platform that will incorporate sewer maintenance, such as the eRPortal™ computerized maintenance management system (CMMS) currently used for the wastewater treatment plants and pump stations. This system will be utilized as part of a department-wide asset management program being developed by JPWD. The new CMMS will be described in more detail in the Financing and Cost Analysis Program report that will be submitted in August 2014.



2.5 Standard Operating Procedures

JPWD is currently in the process of developing Standard Operating Procedures (SOPs) for its most important O&M activities. The JPWD Sewer Maintenance SOPs that are in effect and/or under development are listed in **Table 2-3**.

Table 2-3
Jackson Public Works Department
Sewer Maintenance Standard Operating Procedures

<i>Index</i>	
1	Wet Weather Sanitary Sewer Overflow
2	General Safety Requirements
3	Utility Vehicle Pre-Trip and Operating Procedures
4	Confined Space Entry Procedures
5	Hydraulic Sewer Cleaning
6	Rodding Machine Sewer Cleaning
7	Bucket Machine Sewer Cleaning
8	Chemical Root Control
9	Mechanical Root Control
10	Manhole Inspection
11	Sewer Main and Service Lateral Repair
12	Bypass Pumping
13	CCTV Operations
14	Smoke Testing
15	Dyed Water Testing
16	Sewer Line Location
17	Marking Procedures
18	Flow Meter Maintenance
19	Employee Orientation Packet

2.6 Sewer Maintenance Goals

Recognizing that more intensive sewer maintenance practices are required in the future, JPWD has established basic goals for the gravity sewer maintenance program. These are:

- **Cleaning** – Clean entire system every seven years. With approximately 1,000 miles of installed sewers and assuming 170 dry weather cleaning days per year, a cleaning rate of 4,400 L.F./day is required. Execute outside contracts for large diameter pipe cleaning and begin regular cleaning program for pipes 20-in diameter and larger.
- **Capacity** – Upgrade all existing 6-in sewer lines to 8-in. This is a JPWD long-range goal since 20% of the sewer system is 6-in size, or approximately 200 miles.

- **Manholes** – Inspect 1,700 manholes per year, or 10% of the total, and evaluate rehabilitation needs for each. Many of these inspections will be covered by planned SSES activities in Group 1 and Group 2 sewersheds.¹ JPWD is developing a regular manhole maintenance inspection program that will evaluate the remainder.
- **Personnel** – Fill current vacant staff positions as soon as practicable but no later than three years (2017). In the interim, execute contract(s) with private sewer cleaning contractors to provide additional routine cleaning as needed.
- **Equipment** – Procure remaining major maintenance equipment as soon as practicable but no later than three years (2017). In the interim, execute contract(s) with private sewer cleaning contractors to provide additional routine cleaning as needed. Additionally, replace all major sewer equipment older than 5 years or with more than 5,000 operating hours within five years.
- **Asset Management** – Develop a modern Asset Management program to aid in identifying, assessing, scheduling, performing, and evaluating operation and maintenance of the wastewater collection and transportation system. Develop a state-of-the-art Computerized Maintenance Management System (CMMS) for the Sewer Maintenance Department. Fully implement the Asset Management Program and CMMS by completion of the West Bank Interceptor cleaning program in 2018.

¹ Group 1 sewersheds are those that contribute 30% of total system I/I. Group 2 sewersheds are those that contribute the next 40% of total system I/I. The groupings will be defined in the 2016 Sewershed Prioritization Plan.

3.0 Sewer Maintenance Operations

Basic sewer maintenance operations include physical inspection to identify maintenance needs followed by hydraulic cleaning, mechanical cleaning, and/or root control depending on the corrective action required. The City's approach to each of these maintenance activities is described below. Also described are the procedures used for maintenance scheduling and a new program being implemented for systematic manhole evaluation.

3.1 Maintenance Scheduling

Needs Determination

The Sewer Maintenance Division keeps a master list of sewer maintenance needs that are identified and submitted by the SSES Crews and occasionally the other Crews. The ongoing program of regular visual and CCTV inspections of the sewer lines generates an ongoing inventory of sewer cleaning and repair needs. This system has worked well in the past for line maintenance. No changes are deemed required to the needs determination process at this time other than to adjust the personnel and resource commitments to achieve the 7-year cleaning cycle goal for the entire system. However, JPWD will develop a more intensive manhole inspection program to achieve the goal of inspecting and evaluating 10% of the system manholes per year.

Planning for major sewer rehabilitation is also being performed in the Group 1 and Group 2 sewersheds. A series of SSES studies will be performed by private contractors to identify and evaluate sewer rehabilitation needs and develop and implement rehabilitation plans.

Establishment of Priorities

Priorities for scheduling sewer line cleaning and repair are listed below. The highest priority cleaning needs take precedence over regularly scheduled routine cleaning activities.

1. Emergency cleaning to clear a blockage and relieve a surcharge condition.
2. Sewer pipes at risk of collapse.
3. Sewer lines prone to frequent blockages and require regular periodic cleaning.
4. Sewer lines contributing to dry weather SSOs or building backups.
5. Daily scheduled routine cleaning.

Daily Maintenance Planning

Maintenance scheduling is the responsibility of the Sewer Maintenance Division Superintendent and the District Maintenance Supervisors. A running account of maintenance needs is used to plan daily and weekly maintenance goals and activities based on the priorities above. For all assigned daily maintenance tasks, the Maintenance Crew Leaders will determine the proper sewer cleaning technique required based on the

corrective actions needed. Appropriate crew and equipment assignments will be made on this basis, and trucks will be loaded with the proper maintenance tools. The general procedure for maintenance planning, sewer cleaning, and sewer repair is shown on **Figure 3-1**.

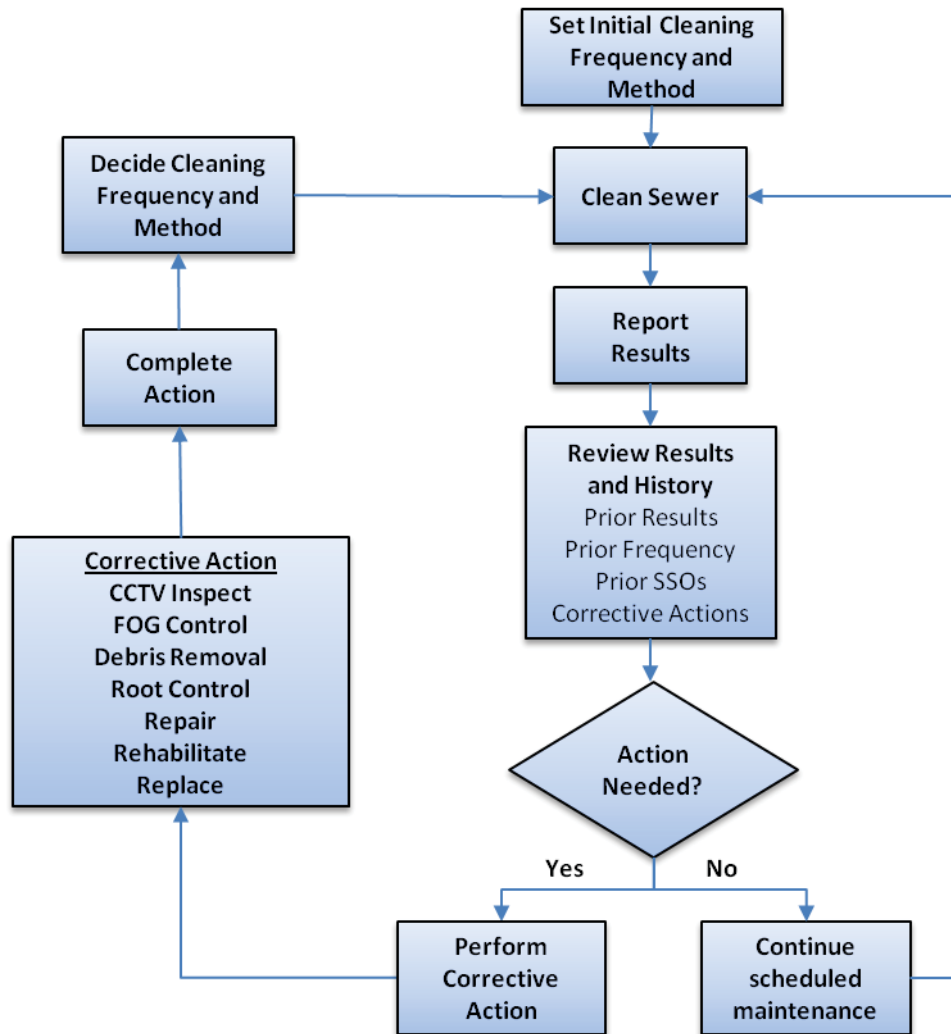


Figure 3-1
Sewer Maintenance Scheduling Flowchart

3.2 Physical Inspection

Systematic inspection of the collection system is performed by the Sewer Maintenance Division staff with the results used to schedule required cleaning and repair activities. Inspection provides the data necessary for managers to make informed decisions on all maintenance, repair, and rehabilitation actions. The inspections are performed primarily by the SSES crews assigned to each of the City's sewer districts. The purpose of the ongoing inspections is:

- Identify and evaluate sources of excess I/I.
- Identify and evaluate structural defects.
- Identify and assess potential for future problems.
- Verify pipe size, material, and location for sewer map updating.

Inspection provides a detailed inventory of the system that includes size, material, condition, line sags, joint types, elevations, slopes, location of manholes and pump stations, location of building lateral connections and other system attributes that are necessary for managing the entire O&M program and maintaining updated GIS data on the system.

Inspection data provide location information that allows more efficient O&M planning and scheduling and emergency response. During stoppages that involve overflows and/or backups, valuable time is lost if location information is not available, increasing the risk of regulatory violations, property and environmental damage, and threats to public health and safety.

The primary inspection and testing methods used include the following:

- Visual
- Closed-circuit television (CCTV)
- Smoke testing
- Dyed water testing
- Air and vacuum testing

Visual testing using manhole access both from above and below ground, sometimes with the use of mirrors, gives an inexpensive indication of blockages, pipe size, materials, and condition. CCTV inspection will indicate pipe conditions including breaks and leaks, leaking and protruding laterals, root intrusions and other blockages including the exact locations of all features and problems. The tapes provide a visual history of the sewer for future reference and can be put on CDs for integration into a GIS system. Smoke Testing indicates

sources of inflow and sometimes infiltration. Dyed water testing is used to determine sources of both I/I and permitted flow. Air testing and vacuum testing can test the integrity of the sewer main line, service laterals, and manholes.

Visual and CCTV inspections will provide verification that manholes and cleanouts are on proper grade and accessible for future use. Accurate tie information and tape measurements also are used to physically locate manholes and cleanouts in case they are paved over or are otherwise concealed. Inspection records are updated regularly to include the exact locations of service taps and property lines so that they can be located when maintenance is required in the future.

The City's inspection vehicles generally use CCTV only. When needed, a private contractor is employed to perform inspections with multi-sensor robotic platforms, especially for large diameter sewers. These platforms include a CCTV camera, a laser to accurately measure inside pipe diameter, sonar to accurately measure deposits of sand and debris, and other instruments including hydrogen sulfide gas and temperature detectors.



Uniform coding of the system is a requirement to track all future inspection results and compare current data to baseline data. Two JPWD Sewer Maintenance staff are currently certified under the National Association of Sewer Service Companies Pipeline Assessment and Certification Program (PACP) and Manhole Assessment and Certification Program (MACP) to classify and rate observed defects.

3.3 Hydraulic Cleaning

Hydraulic cleaning is an efficient and cost-effective method of removing material that interferes with the proper operation of the sewer. The objective is to remove all material clinging to the interior surface of the pipe so that the sewer pipe can carry full pipe flow without any restrictions that might result in blockages due to reduced pipe capacity. The City currently has a full component of 10 high-pressure combination jet/vacuum hydraulic cleaning trucks. Eight are assigned to maintenance crews in the four sewer districts, and two are used by the CCTV crews.

All tools required to route traffic, remove manhole covers, and for safety of the job site are carried on the combination jet/vacuum trucks, as are the various nozzles and hoses required for proper operation. The removal of debris from the sewer usually requires two operators on the normal high-velocity



machine. Dump trucks accompany the jet/vac trucks to carry debris removed by the unit to the wastewater treatment plant where it is processed.

Another advantage of the larger high pressure cleaners is the availability of root cutters, which are flat blades that attach to the end of the nozzle. Pressure from the high velocity stream of water spins the cutting blade causing it to cut through roots as it passes through the sewer. With the addition of root cutters, the combination units are capable of cleaning most every type of debris in a sewer main.

There are other devices (balls, kites, bags, parachutes, scooters, etc.) that can be used to improve performance of hydraulic cleaners, particularly in large gravity sewers where high-velocity cleaners are not as effective. These devices use water pressure behind the tool to develop hydraulic water pressure and scour the pipe as the tool moves through the pipe. In Jackson, a private contractor is generally used to clean large diameter sewers.

The protocols used by the City of Jackson for hydraulic cleaning and the standard operating procedure for performing the cleaning operation are provided in **Appendix B**.

3.4 Mechanical Cleaning

While the hydraulic jet/vacuum cleaning trucks are used for routine cleaning operations, the City has the capability to perform mechanical cleaning when the need arises.

The Sewer Maintenance Division has one trailer-mounted winch machine that can be fitted with a variety of tools, buckets, scrapers, and other devices for cleaning roots and debris. Plans are also in place to purchase a second mechanical cleaning winch machine.



The City has some older rodding machines that are no longer operational. A new rodding machine will be purchased in 2015. The power rodder will be used to remove roots and grease as well as cleaning or opening stoppages in the line. It will be especially effective on hardened grease and roots.

The winch machines and power rodding equipment will provide adequate mechanical cleaning capability required by the Sewer Maintenance Division for smaller diameter pipes. The City intends to continue outsourcing large diameter pipe cleaning to a private contractor.

The protocols used by the City of Jackson for mechanical cleaning and the standard operating procedure for performing the cleaning operations using the winch and rodding machines are provided in **Appendix B**.

3.5 Root Control

Like most cities, Jackson has a few areas of the city with persistent root problems. As a whole, line blockages caused by roots are not a severe problem in Jackson. When problem roots are encountered they are generally removed using a root cutting tool powered by the hydraulic cleaning truck. For severe root infestations the power rodder with a mechanical

root cutting tool must be used. Roots that are cut using these methods are removed from the pipe and not flushed down the system.

For smaller lines and less severe root problems the Sewer Maintenance crews deploy a trailer-mounted chemical applicator to inject a root control herbicide. Currently Vaporooter chemical root control products are being used. This product will kill the intruding roots over time.

The protocols used by the City of Jackson for mechanical and chemical root control and the standard operating procedure for performing root control operations are provided in **Appendix B**.



3.6 Manhole Evaluation

The Sewer Maintenance Division is implementing a program of regular manhole inspections to achieve the long-range goal of inspecting 10% or 1,700 manholes per year. Two staff members have become MACP certified to guide the manhole evaluation process, and



additional certification and training will be provided to develop qualified manhole evaluation teams. For this program, manholes will be inspected from the surface using mirrors and pole-mounted cameras and lights. The manhole inspection form used by the Sewer Maintenance Division is provided in **Appendix A**. The protocols and standard operating procedures used by the City of Jackson for manhole evaluation are provided in **Appendix B**.

4.0 Gravity Line PM Program Implementation

This section of the report describes the performance measures used by JPWD to track and self-assess maintenance success. Also described are the special maintenance measures being implemented on the City's West Bank Interceptor. A schedule for implementing the Gravity Line Preventative Maintenance Program is also provided.

4.1 Performance Measures

JPWD has developed a maintenance monitoring program to aid in measuring progress in achieving the long-term maintenance goals of the City and to measure the degree of success achieved. Principal elements of the sewer maintenance monitoring program are:

- Maintain relevant records and other information necessary to establish and prioritize maintenance program activities.
- Monitor implementation of the Gravity Line Preventative Maintenance Program
- Measure the effectiveness of the various PM elements as well as overall program success.
- Continue measuring SSO trends including frequency, location, and volume.
- Update program elements as appropriate, based on monitoring and performance evaluations.

4.2 Performance Indicators

The indicators that the City will use to measure the performance of its wastewater collection system and effectiveness of the Gravity Line PM Program are listed below. These performance indicators will be tracked and reported on an annual basis.

Sewer Maintenance Resources

- Number of Sewer Maintenance Division staff.
- Number of Sewer Maintenance Division staff vacancies.
- Percent of staff vacancies filled.
- New major maintenance equipment/vehicles approved for purchase.
- New major maintenance equipment/vehicles acquired.

Sewer Maintenance Performed

- Linear feet of gravity sewer inspected.
- Linear feet of gravity sewer cleaned.
- Number of manholes inspected.
- Number of defective manholes found.
- Percent of defective manholes repaired.

Sanitary Sewer Overflows

- SSO Rate, or number of SSOs per 100 miles of gravity sewer.
- Number of SSOs caused by:
 - Roots
 - Grease
 - Debris
 - Pipe failure
 - Capacity
 - Pump station failure
 - Other
- Percentage of SSOs greater than 100 gallons.
- Percentage of total volume spilled entering waters of the state.

Sewer Maintenance Program Improvements

- Identify all additional sewer maintenance equipment needs by August 1, 2014.
- Execute Purchase Orders for additional equipment by November 1, 2014.
- Organize manhole inspection team(s) and commence regular manhole inspection program.

Performance Tracking

The new gravity line performance indicators will be tracked on an annual basis in the future. The City has limited past performance data that can be used to examine comparative earlier historical trends. SSOs have been reported to MDEQ as required in the past, but these reports lack sufficient detail to reliably determine the volume contained vs. volume spilled and/or volume entering surface waters. SSO reporting required by the Consent

entered March 1, 2013 has been provided in greater detail as shown on **Figures 4-1** through **4-4**. Going forward, the new performance indicators will provide a good measure of the overall success of the Gravity Line PM Program.

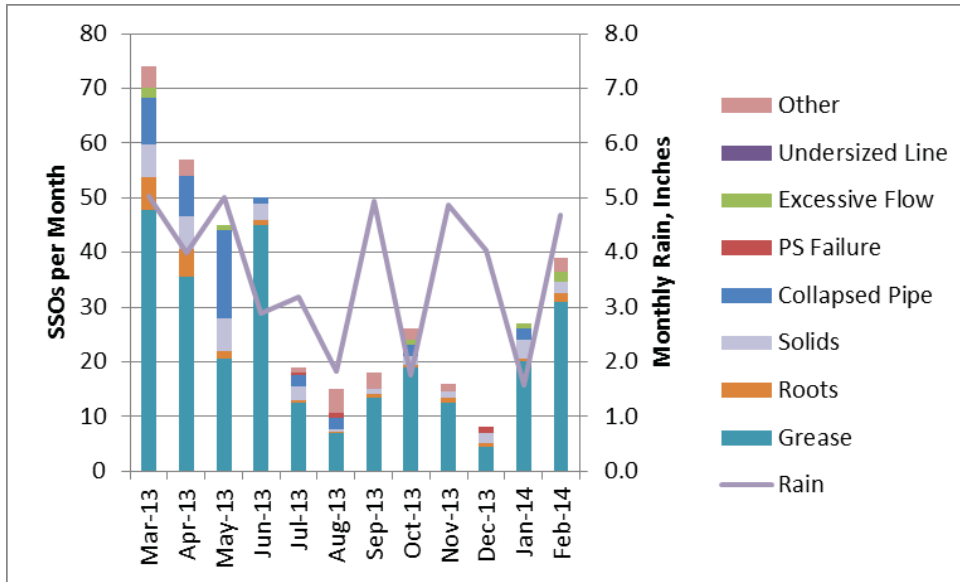


Figure 4-1
Collection System SSOs by Cause
March 2013 – February 2014

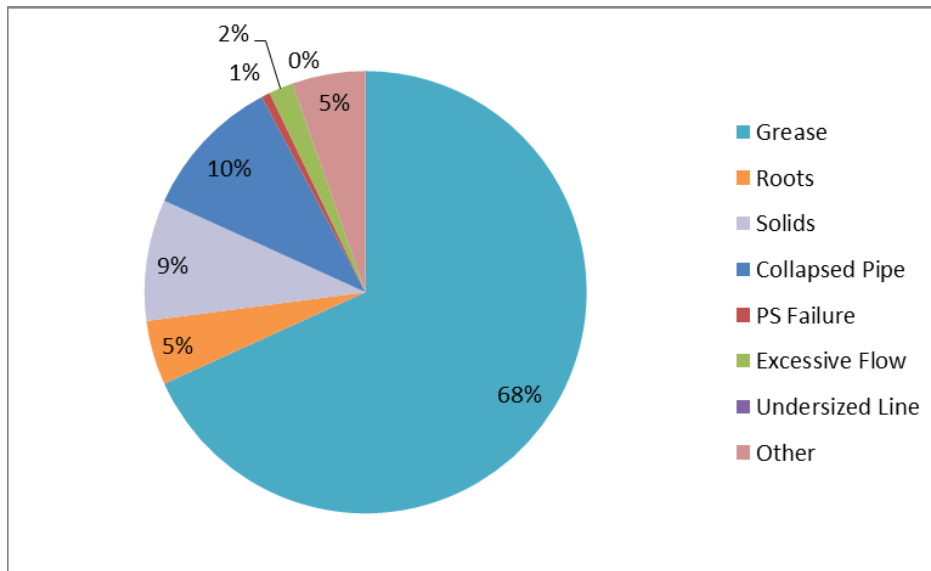


Figure 4-2
Percentage of Collection System SSOs by Cause
March 2013 – February 2014

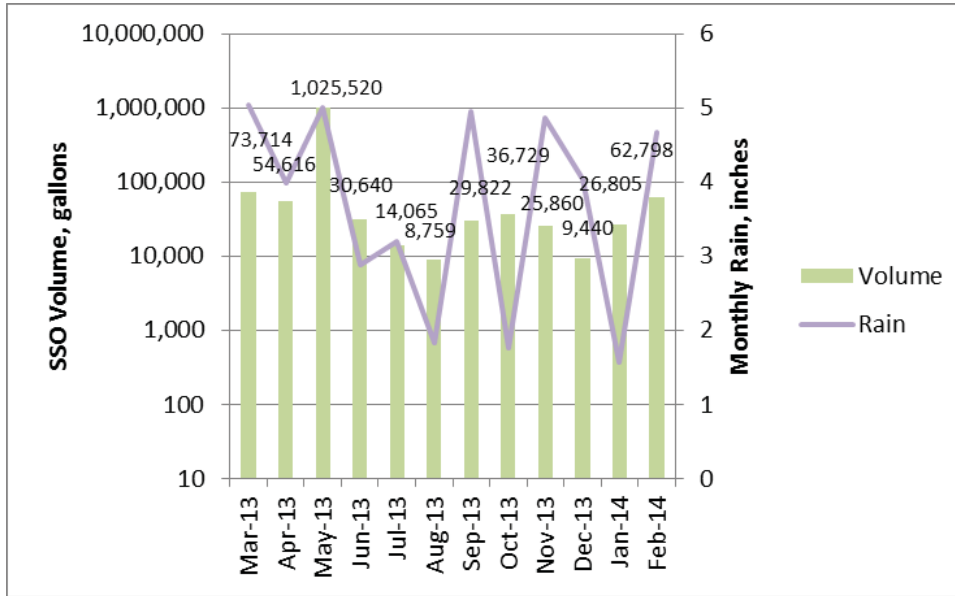


Figure 4-3
Collection System SSO Volume
March 2013 – February 2014

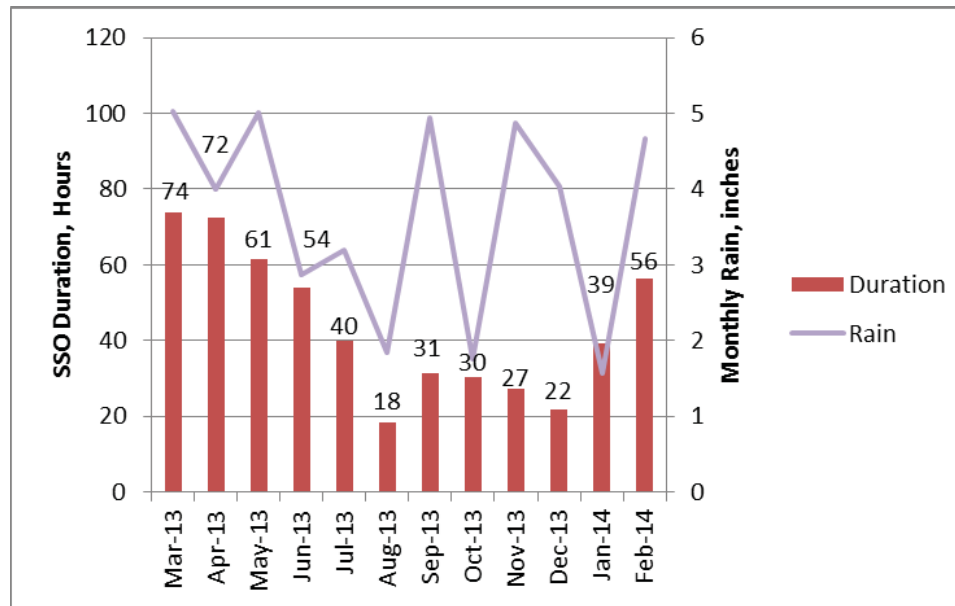


Figure 4-4
Collection System SSO Duration
March 2013 – February 2014

4.3 Program Updates

The City of Jackson Gravity Line Preventative Maintenance Program will be updated whenever required based on the performance indicators and the results achieved, but at a minimum of every 5 years. Updates would include any major program changes, such as new maintenance methods being adopted, that would need to be documented and promulgated to Sewer Maintenance Division staff. It is the intent of JPWD to follow a path of continuous improvement regarding gravity sewer maintenance, which will require periodic updates to the PM Program.

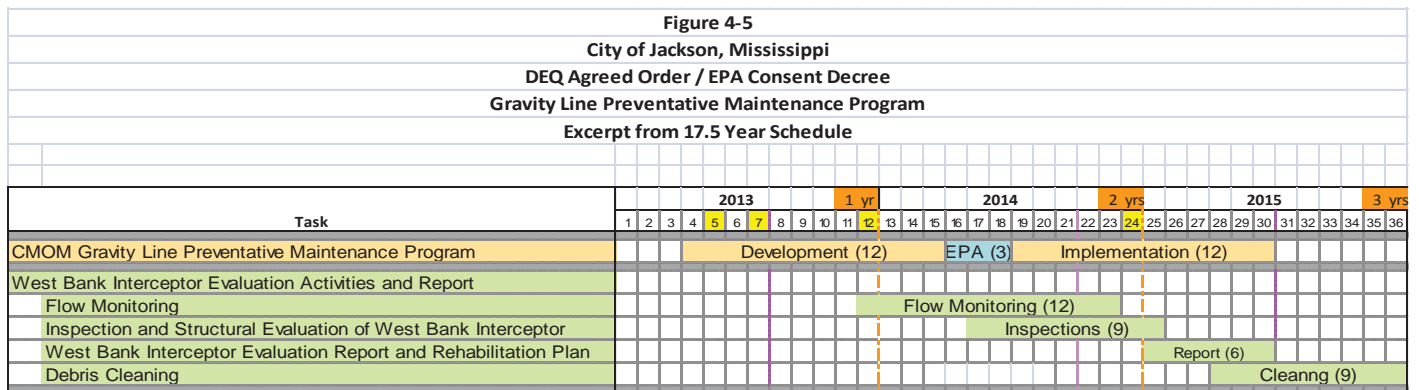
4.4 West Bank Interceptor

The West Bank Interceptor (WBI) is the major wastewater conveyance line in the City of Jackson. Ranging in size from 48-in to 96-in, it runs along the west bank of the Pearl River from the Madison County line to the Savanna Wastewater Treatment Plant. The WBI experiences significant infiltration/inflow, especially when river stages are high. For this reason the WBI has been identified for expedited evaluation, cleaning, and rehabilitation. The schedule for cleaning and restoring the WBI is indicated on the overall schedule below.

4.5 Implementation Schedule

Steps are already being taken by the City of Jackson to implement the Gravity Line Preventative Maintenance Program. These steps include acquiring the full complement of required major sewer maintenance equipment and vehicles, and filling the outstanding Sewer Maintenance Division personnel vacancies. Implementation will be complete by mid-2015. The overall implementation schedule for the Gravity Line Preventative Maintenance Program is shown on **Figure 4-5**.

City of Jackson
Gravity Line Preventative Maintenance Program



Appendix A

Sewer Maintenance Division Forms

- A-1 Daily Crew Sheet
- A-2 Dispatcher Call Report
- A-3 Overflow Inspection Form
- A-4 Sewer Work Order
- A-5 Sewer Cleaning Report
- A-6 Cleaning Results Rating Guide
- A-7 Manhole Inspection Form
- A-8 Manhole Evaluation Form
- A-9 Smoke Testing Form



SECTION: _____ (Code)

DATE _____

[illegible]

Code	Pre-Trip Inspection	Equipment Use at Job Site	City Equipment #	Starting Mileage	Ending Mileage	Price Per Day	Price Per Hour	Hours Used	Cost
	Oil	Jet Truck							
	Water	Automatic Rodder							
	Lights	Crew Cab							
	Brake	Dump Truck							
	Air in Tires	Dump Truck							
	Battery	Dump Truck							
	Power Steering	Backhoe							
	Wipers	Other							
	Horn	Other							
		Other							
							TOTAL \$		
TOTAL COST TO CITY MAINTENANCE \$									

REMARKS: _____

I certify that the above recorded information is true and accurate to the best of my knowledge.

CREW LEADER'S SIGNATURE _____

TIMEKEEPER'S SIGNATURE _____

SUPERVISOR'S SIGNATURE _____

DAILY CREW SHEET

Supplement Sheet

REMARKS:

I certify that the above recorded information is true and accurate to the best of my knowledge.

CREW LEADER'S SIGNATURE

TIMEKEEPER'S SIGNATURE _____

SUPERVISOR'S SIGNATURE

Pw106

REQUEST / LOCATION INFORMATION			
Request ID:	91666	Date Created:	2/22/2014 7:51:31 AM
Request Code:	SM_SEWERLEAKOUTSIDE	Request Description:	SEWER LEAK/OVERFLOW - OUTSIDE
Priority	High	Request Status:	Closed
Submit To:	SEWERMAINT,	Request Created By:	BRITTAI, CASITA
Dispatch To:	EUBANKS, L C		
Incident Address:	DANIELS ST & SAGAMORE ST		
Incident Apt Number:		Incident City:	JACKSON
Boundary:		Precinct:	3
Ward:	4		

CUSTOMER CONTACT INFORMATION			
First Name	Last Name	Address	Apt. #
	UNKNOWN	DANIELS ST & SAGAMORE ST	

City	Zip	Work Phone	Home Phone
JACKSON	39209		

QUESTIONS / ANSWERS	
Question	Answer
Is this a residence or business?	Residence
Where is the leak occurring?	Manhole (round top)
Does the leak have an odor?	YES

DETAILS /COMMENTS/LOCATION	
Request Details:	Manhole overflow
Request	By BRITTAI, CASITA: 2/22/2014 9:07:48 AM
Comments:	L.C. Eubanks PW-110; unhooked the main line. (S.S.O) DEQ notified.
Location:	

EMPLOYEE COMMENTS	



City of Jackson, Mississippi
Wastewater Overflow Assessment Form

City of Jackson, Mississippi
Department Of Public Works
Post Office Box 17
Jackson, MS 39205
601-960-2091

Notification Date _____ Time _____ AM PM Work Order Tracking# _____

Name of Person Reporting Overflow _____

House Number _____ Street _____ Phone _____

House Number of Overflow _____ Street _____ AM PM

SSO Location _____ Dispatch Date _____ Time _____ AM PM

Arrival Date _____ Time _____ AM PM Verification Date _____ Time _____ AM PM

Latitude _____ Longitude _____ Precinct _____

NPDES System Area (circle) Savannah St. Trahon Presidential Hills
(MS0024295) (MS0044059) (MS030295)

Receiving Waterway: Belhaven Carney Hanging Moss Purple Trahon
Big Creek Eastover Hardy Three Mile White Oak
(circle) Bogue Chitto Eubanks Lynch Town

Did overflow reach waterway? ☐ Yes ☐ No Line Ownership: ☐ Municipal ☐ Private

Overflow Source ☐ Manhole ☐ Constructed Bypass ☐ Pump Station

☐ Ground Surface (defective pipe underground) ☐ Cleanout

☐ Other _____

Date/Time Overflow Began _____ (circle) AM PM Date/Time Overflow End _____ AM PM

Estimated Volume of Discharge _____ Gallons Estimation Method _____

Cause of Overflow: ☐ Grease ☐ Roots ☐ Solids ☐ Collapsed Pipe

☐ Pump Station Failure ☐ Excessive Flow ☐ Undersized Line

☐ Other (Describe) _____

Temporary Corrective Action: (see Attached Photos) _____

MDEQ Notification Date _____ Time _____ AM PM

Number of Overflows at this Location within Past 12 Months (Including Dates of Overflows): _____

Actions taken to minimize environmental impact (See Attached Photos) _____

If Overflow Cause Due to Rainfall, Number of Inches of Rain _____

Planned Permanent Corrective Action – If Applicable – (Itemization and Schedule) – See attached Detailed Resource Report and Schedule Work Order No _____

Public Notification: ☐ Yes ☐ No If yes - ☐ Signs ☐ News Release ☐ Other

Customer Satisfaction Response/Additional Comments – If applicable, see Attached.

Signature of City Respondent _____

Signature of Authorized Supervisor _____

THIS SECTION TO BE COMPLETED BY SUPERVISOR

THIS SECTION TO BE COMPLETED IN THE FIELD



City Of Jackson, MS
Dept. Of Public Works
P.O. Box 17
Jackson, MS 39205
601-960-2091

SEWER SYSTEM WORK ORDER FORM

City Of Jackson, MS
Dept. Of Public Works
P.O. Box 17
Jackson, MS 39205
601-960-2091

Date: 4/6/14 Complaint #: 14-95015 Utility Locate # N/A

Reported By: Mr. Wilson Owners Name: Mr. Wilson

House #: 2641 Street: Idaho St Phone #: 601-366-8991

Served By: 112 Plumber On Site: NO Time In: 2:25 PM Time Out: 2:58 PM

Complaint Type	Complaint Type
<input checked="" type="checkbox"/> Sewer Stopped Up	<input type="checkbox"/> Clean Sewer Line
<input type="checkbox"/> Check Sewer Odor	<input type="checkbox"/> Sewer in Storm Drain
<input type="checkbox"/> Sewer Leak	<input type="checkbox"/> Roots In Line
<input type="checkbox"/> Sewer in House	<input type="checkbox"/> Hole in Street/Ground
<input type="checkbox"/> Toilet Overflow	<input type="checkbox"/> Cave In in Yard
<input type="checkbox"/> Sewer in Tub	<input type="checkbox"/> Cave In at Stub
<input type="checkbox"/> Sewer in Yard	<input type="checkbox"/> Cave In at Manhole
<input type="checkbox"/> Cleanout Overflow	<input type="checkbox"/> Cave In in Street
<input type="checkbox"/> Manhole Overflow	<input type="checkbox"/> Cave In in Easements/Woods
<input type="checkbox"/> Sewer in Ditch	<input type="checkbox"/> Repair/Replace Cleanout
<input type="checkbox"/> Sewer in Creek	<input type="checkbox"/> Install New Sewer Cleanout
	<input type="checkbox"/> MH Ring Broken

Account Type	Location	Problem Type	No City Problem
<input type="checkbox"/> Residential	<input type="checkbox"/> In House	<input type="checkbox"/> Sewer Main	<input type="checkbox"/> Main Line OK
<input type="checkbox"/> Business	<input type="checkbox"/> Under Bldg.	<input checked="" type="checkbox"/> Sewer Tap	<input checked="" type="checkbox"/> Service Line OK
<input type="checkbox"/> Gov. Federal	<input type="checkbox"/> Front Yard	<input type="checkbox"/> Manhole	<input type="checkbox"/> Advised Customer Needs Plumber
<input type="checkbox"/> Gov. State	<input type="checkbox"/> Back Yard	<input checked="" type="checkbox"/> Service Line	
<input type="checkbox"/> Gov. County	<input type="checkbox"/> Cleanout	<input type="checkbox"/> Turn Out	
<input checked="" type="checkbox"/> Gov. City	<input type="checkbox"/> Manhole	<input type="checkbox"/> Easement	
<input type="checkbox"/> Other	<input type="checkbox"/> Storm Drain	<input type="checkbox"/> ROW	
	<input type="checkbox"/> Ditch/Creek	<input type="checkbox"/> Force Main	
	<input type="checkbox"/> Other	<input type="checkbox"/> Other	

Description of Repairs	Description of Repairs
<input type="checkbox"/> Checked Sewer Odor	<input type="checkbox"/> Repaired/Replaced Cleanout
<input type="checkbox"/> Unstopped Sewer Main	<input type="checkbox"/> Repaired MH Cone/Wall
<input type="checkbox"/> Unstopped Service Line	<input type="checkbox"/> Repaired MH Invert
<input type="checkbox"/> Unstopped Main and Service	<input type="checkbox"/> Put Barricade At Hole
<input type="checkbox"/> Rodded Service Line	<input type="checkbox"/> Put Dirt/Asphalt In Hole
<input type="checkbox"/> Cleaned Main Line	<input type="checkbox"/> Televised Sewer Lines
<input type="checkbox"/> Point Repaired Sewer Line	<input type="checkbox"/> Smoke Tested Sewer Lines
<input type="checkbox"/> Replaced Section of Line	<input type="checkbox"/> Checked Air Release Valve
<input type="checkbox"/> Replaced Entire Line	<input type="checkbox"/> Checked Steam Crossing
<input type="checkbox"/> Installed New Sewer Line	<input type="checkbox"/> Located Sewer Line
	<input type="checkbox"/> Checked If Sewer Available

Pipe Material: ☒ Concrete ☐ PVC ☐ CIP ☐ DIP ☐ TRUSS ☐ HDPE ☐ Other: _____

Pipe Size: 8" ins Pipe Depth: 8' ft MH Size: 48" ins MH Depth: 8' ft

Other Needs/Explanation of Repairs: Manhole is full of rain water and will take time to go down.

Crew Leader: Ann Williams Supervisor: [Signature] Complainant's Signature: _____ Date: 4/6

Sewer Cleaning Report

Work Order Date: _____ Work Order #: _____

Crew Members: _____

REASON FOR MAINTENANCE: CCTV ☐ PM ☐ Service Call ☐ Other: _____

Map Sheet #: _____

Upstream Manhole: _____ Downstream Manhole: _____

USMH Depth: _____ feet

DSMH Depth: _____ feet

Indicated: Length: _____ feet Size: _____ inches Pipe Material: _____

Actual: Length: _____ feet Size: _____ inches Pipe Material: _____

Nearest Address: _____ (Downstream Structure)

Location Notes: _____ (e.g. Alley, Easement, Traffic)

Other Notes: _____

Cleaning Results: (Check appropriate box(s))

Type of Material	Clear 1	2	3	4	Heavy 5	Not Rated 0
Debris (sand grit, rock)						
Grease						
Roots						
Vermin						Rat/Roach/Other
Other						

Recommended Maintenance Actions:

Cleaning Frequency: 3 ☐ 6 ☐ 9 ☐ 12 ☐ 18 ☐ 60 ☐ months

Repair Required? Yes ☐ No ☐ Manhole Inspection
Required? Yes ☐ No ☐

Root Control Required? Yes ☐ No ☐ CCTV Required? Yes ☐ No ☐

Comments:

Completed by: _____ Date Completed: _____ Signature: _____

Supervisor Review: _____ Date: _____ Data Entry: _____ Date: _____

Cleaning Results Rating Guide

Next to cleaning the sewer line, effective observation of results is the most important work product of the field crew. The information the crews provide is the basis for defining future maintenance activities. Consistency is important. The standards for "results" for small diameter a (six and eight-inch) sewers are:

	Clear	Light	Moderate	Heavy
Debris/Grit	Code: <u>CL</u> No observable debris or grit	Code: <u>DL</u> Minor amount of debris 15 minutes or less to clean 1 pass	Code: <u>DM</u> Less than 5 gallons of debris 15-30 minutes to clean 2-3 passes required Requires cleaning twice or less per year Only fine grit	Code: <u>DH</u> More than 5 gallons of debris More than 30 minutes to clean More than 4 passes required Requires cleaning four times per year Operator concern for future stoppage
Grease	Code: <u>CL</u> No observable grease	Code: <u>GL</u> Minor amounts of grease 15 minutes or less to clean 1 pass	Code: <u>GM</u> Small chunks/no "logs" 15-30 minutes to clean 2-3 passes required Requires cleaning twice or less per year	Code: <u>GH</u> Big chunks/"logs" More than 30 inutes to clean More than 4 passess required Operator concern for future stoppage
Roots	Code: <u>CL</u> No observable roots	Code: <u>RL</u> Minor amounts of roots 15 minutes or less to clean 1 pass	Code: <u>RM</u> Thin/stringy roots present No large clumps 15-30 minutes to clean	Code: <u>RH</u> Thick roots present Large "clumps" More than 30 minutes to clean More than 4 passes required Operator concern for future stoppage
Other	Code: <u>CL</u> No observable materials	Code: <u>OL</u> Specify material Minor amounts of material	Code: <u>OM</u> Specify material Less than 5 gallons of material	Code: <u>OH</u> Specify material More than 5 gallons of material Operator concern for future stoppage
Criteria	Decrease maintenance frequency to next lower frequency after 2 consecutive CL results (with supporting CCTV results)	Continue maintenance frequency	Increase maintenance frequency to next higher frequency	Increase maintenance frequency to next higher frequency

Footnote: (a) Times shown are for typical manhole to manhole distance of 250 feet. Longer runs will require longer cleaning times. Judgment will need to be applied by the field crews for varying lengths and pipe diameters.

Manhole Evaluation Form

Manhole ID# _____ Date: _____ Crew: _____

Manhole Type: Regular ☐ Shallow ☐ End ☐ Drop ☐ Other: _____

Manhole Address and Street Name: _____

1st Cross Street: _____

2nd Cross Street: _____

Sewer District: 1 ☐ 2 ☐ 3 ☐ 4 ☐

Manhole Located in Intersection? Yes ☐ No ☐

Manhole Located in Easement? Yes ☐ No ☐

Manhole Material: Concrete ☐ Brick ☐

Manhole Depth: _____

Reason for Inspection: _____ PM Complaint: ☐ Other: _____

Recommended Re-inspection: 3 ☐ 6 ☐ 12 ☐ 18 ☐ 60 ☐

PM Priority: 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ Not Rated ☐

Conditional Assessment: Check appropriate box(s)

Condition Severity						
	None 1	2	3	4	Major 5	Not Rated 0
Structural						
Joints						
Debris						
Grease						
Roots						
Infiltration						
Odor						
Vermin						
Surcharge						

Project

Project ID

Map No

Crew Leader

Page
of

Date

Smoke Quality:

Good

Poor

No Test

Defects Located?

(Y/N)

Basin

Structure

Connecting
BasinConnecting
Structure

Pipe ID

Pipe
DiameterPipe
DepthPipe
LengthLength
Method

M/S/E

Segment Sketch

Location of
Smoke Blower

North

LOCATION

MH=Manhole
MM=Municipal Main
MS=Municipal Service
PS=Private Service

SEVERITY

0 = None
1 = Light
2 = Medium
3 = Heavy

DEFECT TYPE

MHS=MH Structure
MFC=MH Frame/Cover
HOL=Hole
MLK=Multiple Leaks
EXP=Exposed Pipe
STO=Stubout
MCC=Missing/Broken
Cleanout Cap
BCO=Broken Cleanout
ABS=Abandoned SVC
SSC=Storm Sewer Conn
RDN=Roof Drain
PIB=Plumbing in Building
PUB=Plumbing Under
OTH=Other

SURFACE

ST=Street
AL=Alley
YD=Yard
FD=Field
TW=Trees/Woods
DW=Driveway
GU=Gutter
SH=Shoulder
SW=Sidewalk
DD=Drainage Ditch
PL=Parking Lot
WB=Within Building
OT=Other

MATERIAL

P=Paved
U=Unpaved

FIXED OBJECT TYPES

UP=Utility Pole
BC=Building Corner
WM=Water Meter
UB=Utility Box
SL=Street Light
FH=Fire Hydrant
GL=Gas Yard Lamp
VA=Valve
OT=Other

DEFECTS

No. Loc Type Severity Surface Mat'l Photo 1 Photo 2 Attn. Req'd Dist 1 Fixed Obj 1 Dist 2 Fixed Obj 2 Dist From Structure Offset Dist Right Offset Dist Left

Defect Address

Defect Address

Defect Address

Defect Address

Defect Address

Comments:

Appendix B

Sewer Cleaning Standard Operating Procedures

- B-1 Hydraulic Cleaning
- B-2 Rodding Machine Cleaning
- B-3 Winch Machine Cleaning
- B-4 Mechanical Root Control
- B-5 Chemical Root Control
- B-6 Manhole Inspection

Jackson Public Works Standard Operating Procedure

Hydraulic Sewer Cleaning

SOP: 5

Effective: May 1, 2014

Issued By: Dan Thomas

Approved By: Bill Miley

Purpose:

Clean sewer pipe with high pressure flow to remove grit, roots, and debris. Used to clean pipes 6-inch to 24-inch in size

Performance Standard:

- Conduct routine line cleaning within easements
- Locate and remove blockages caused by debris and grease
- Perform regularly scheduled cleaning of known trouble spots
- Restore flow area to 95% of pipe capacity

Safety:

- Safety Equipment: Safety vest, hard hat, gloves, ear plugs
- Traffic Control Equipment: Cones, strobes, arrow boards, warning devices, flags

Tools & Equipment:

- | | | |
|--------------------------|-------------------------|------------------------|
| • Combo jet/vacuum truck | • Flashlight | • Grabber |
| • Sewer cleaning nozzles | • Manhole popper/puller | • Measuring wheel |
| • Map | • Shovel | • Storm drain cover |
| • Emergency contact list | • Sledge hammer | • Gas detector |
| • Radio | • Pick | • Chlorine testing kit |
| • Debris traps | • Wrenches | • Empty 5-gal buckets |

Procedures:

Prior to leaving yard

- 1 Operation of the combo jet/vacuum truck requires a 2-person crew. Determine need for extra crew members when cleaning high traffic, steep slope, or other difficult locations.
- 2 Plan the work so that it starts in the upstream portion of the area and moves downstream.
- 3 Wherever possible, plan to clean sewers from the downstream manhole.
- 4 Inspect the sewer cleaning nozzles for wear. Replace nozzles that are excessively worn.
- 5 Complete truck checklist: clean windows, inspect inside and outside of truck, ensure debris tank is empty, check fuel level, lubricate water pump, check equipment.
- 6 Review maps for location of easements.

At the jobsite

- 1 Wear proper personal protective equipment.
- 2 Fill the water tank at or near the first jobsite.
- 3 Determine and confirm location of upstream and downstream manholes (use street address, if possible).
- 4 Look for any overhead utilities that may come into contact with the vacuum boom during the cleaning operation.
- 5 Set up proper traffic control by placing warning signs, flags, cones, and other traffic control devices as needed.
- 6 Move the cleaning unit into the traffic controlled area and position the hose reel over the manhole.
- 7 Open the manhole and determine if it is safe to proceed with the cleaning operation.
- 8 Check manhole and pipe for debris or obstructions that would cause a backup in the downstream pipe. Remove excess debris prior to inserting nozzle into upstream pipe.
- 9 Determine cleaning nozzle required based on pipe conditions.

Cleaning Operation

- 1 Initiate proper procedure to place jet/vac truck in work mode.
- 2 Lower the hose, with a guide or roller to protect the hose, into the manhole and direct it into the sewer to be cleaned.
- 3 Start the high pressure pump and set the engine speed to provide adequate pressure for the sewer cleaning operation (1500-2200 psi). Note: Use low pressure if there is risk of flooding homes or businesses.
- 4 Open the water valve and allow the hose to proceed up the sewer. The hose speed should not exceed the manufacturer's recommendation.

Cleaning Operation (continued)

- 5 If applicable, allow the hose to proceed 25% of the length of the sewer (or 50 feet minimum) and pull the hose back.
- 6 Observe the nature and quantity of debris pulled back into the manhole.
- 7 If there is little or no debris, allow the hose to proceed to the upstream manhole.
- 8 If there is moderate to heavy debris, clean the remaining portion of the sewer in steps not to exceed 25% of the length of the sewer (or 50 feet minimum).
- 9 Open the upstream manhole and verify that the nozzle is at or past the manhole.
- 10 The sewer has been adequately cleaned when:
 - Successive passes with a cleaning nozzle do not produce any additional debris, and
 - The sewer is able to pass for its entire length.
- 11 Determine the nature and quantity of debris removed during the cleaning operation.
- 12 Remove the debris from the manhole using the vacuum unit.
- 13 Rewind the hose on the reel.
- 14 Clean the mating surface and close the manhole. Ensure the manhole is properly seated.
- 15 Enter the results in Daily Journal and complete Sewer Cleaning Work Order form.
- 16 Move the cleaning unit, break down and stow traffic control devices.
- 17 Proceed to next cleaning jobsite.

At End of Day

- 1 Inspect the equipment and tools for problems.
- 2 Report any problems with equipment, tools, or sewers that were cleaned to the Supervisor.
- 3 Submit daily work reports to the Supervisor at end of shift.

Jackson Public Works Standard Operating Procedure

Rodding Machine Sewer Cleaning

Effective: May 1, 2014

SOP: 7

Issued By: Dan Thomas

Approved By: Bill Miley

Purpose:

Clean sewer pipe with portable power rodding machine

Performance Standard:

- Remove blockages caused by roots and grease
- Restore flow area to 95% of pipe capacity

Safety:

- Safety Equipment: Safety vest, hard hat, gloves, ear plugs
- Traffic Control Equipment: Cones, strobes, arrow boards, warning devices, flags

Tools & Equipment:

- | | | |
|-----------------------------------|-------------------------|------------------------|
| • Trailer-mounted rodding machine | • Flashlight | • Grabber |
| • Rodding tools | • Manhole popper/puller | • Measuring wheel |
| • Map | • Shovel | • Storm drain cover |
| • Emergency contact list | • Sledge hammer | • Gas detector |
| • Radio | • Pick | • Chlorine testing kit |
| • Debris traps | • Wrenches | • Empty 5-gal buckets |

Procedures:

Prior to leaving yard

- 1 Operation of the portable power rodding machine requires a 2-person crew. Determine need for extra crew members when cleaning high traffic, steep slope, or other difficult locations.
- 2 Plan the work so that it starts in the upstream portion of the area and moves downstream.
- 3 Check out rodding machine and insure required tools are loaded.
- 4 Review maps for location of easements.

At the jobsite

- 1 Wear proper personal protective equipment.
- 2 Determine and confirm location of upstream and downstream manholes (use street address, if possible).
- 3 Set up proper traffic control by placing warning signs, flags, cones, and other traffic control devices as needed.
- 4 Move the rodding machine into the traffic controlled area and position over manhole.
- 5 Caution must be utilized while positioning the rodding machine to properly gain access to the sewer segment to be cleaned. Crew members must guide the driver to the best position to access sewer. A guide will always be used for backing the cleaning equipment.
- 6 Open the manhole and determine if it is safe to proceed with the cleaning operation.
- 7 Determine rodding machine tool required to perform cleaning.

Cleaning Operation

- 1 Normally the rodding operation is performed upstream against the flow.
- 2 Select proper tool to use for the cleaning job. The operator must have knowledge of the different rodding tools and the function of each. Selection of the wrong tool can cause damage to the rod, tool, pipe, rodding machine, or even the operator.
- 3 Boring Tools
 - Used to bore into materialsto remove stoppages, drill pilot holes for larger tools, and to retrieve objects.
 - Can be turned clockwise or counterclockwise.
 - Useful for removing roots and grease.
 - Operate at low RPM, typically between 20 and 30 RPM for best effectiveness.
- 4 Cutting Tools
 - Root saws come in a variety of shapes that are constructed for different uses.
 - Must select proper root saw for the removal task required.

Cleaning Operation (continued)

- Saws only turn clockwise. Move saw slowly in pipe. Most effective at speeds of 45-55 RPM.
 - Root saw should be preceded by a pilot auger.
 - Use in pull-back mode for heavy cutting to deliver maximum cutting power to the root mass.
- 5 Finishing Tools
- Last tool used in cleaning operation.
 - Designed to remove residue left by boring or cutting tools.
 - Sized to fit pipe and fit snugly to scour walls of grease and root materials.
-
- Use a rotation speed of 60-70 RPM with very slow movement in pipe to allow several revolutions per foot of travel.
 - Essential tool to use for heavy grease and root control.
- 6 Specialty Tools
- Specially designed tools for unique cleaning or pipe work situations.
 - Tools available to penetrate hardened slurry composites, pull back cables for cameras or bucket machines, locate buried manholes, and other uses.
- 7 Assemble rod using the correct rod coupling tool and attach selected rodding tool.
- 8 Proceed with deploying rodding assembly with attached tool and perform cleaning operation.
- 9 Retrieve and dispose of debris removed by rodding operation.
- 10 Dissassemble and stow the cleaning rod and tools, break down and stow traffic control devices.
- 11 Enter the results in Daily Journal and complete Sewer Cleaning Work Order form.
- 12 Proceed to next cleaning jobsite.

At End of Day

- 1 Inspect the equipment and tools for problems.
- 2 Report any problems with equipment, tools, or sewers that were cleaned to the Supervisor.
- 3 Submit daily work reports to the Supervisor at end of shift.

Jackson Public Works Standard Operating Procedure

Winch Machine Sewer Cleaning

SOP: 6

Effective: May 1, 2014

Issued By: Dan Thomas

Approved By: Bill Miley

Purpose:

Clean sewer pipe using a variety of tools pulled by the winch

Performance Standard:

- Remove blockages caused by grit, roots, debris and grease
- Restore flow area to 95% of pipe capacity

Safety:

- Safety Equipment: Safety vest, hard hat, gloves, ear plugs
- Traffic Control Equipment: Cones, strobes, arrow boards, warning devices, flags

Tools & Equipment:

- | | | |
|--------------------------|-------------------------|------------------------|
| • Two winch machines | • Flashlight | • Grabber |
| • Bucket and brush | • Manhole popper/puller | • Measuring wheel |
| • Map | • Shovel | • Storm drain cover |
| • Emergency contact list | • Sledge hammer | • Gas detector |
| • Radio | • Pick | • Chlorine testing kit |
| • Debris traps | • Wrenches | • Empty 5-gal buckets |

Procedures:

Prior to leaving yard

- 1 Operation of the winch machines requires a 3-person crew. Determine need for extra crew members when cleaning high traffic, steep slope, or other difficult locations.
- 2 Plan the work so that it starts in the upstream portion of the area and moves downstream.
- 3 Two winch machines are required. One machine pulls the tool and the other retrieves the tool.
- 4 Review maps for location of easements.

At the jobsite

- 1 Wear proper personal protective equipment.
- 2 Determine and confirm location of upstream and downstream manholes (use street address, if possible).
- 3 Set up proper traffic control by placing warning signs, flags, cones, and other traffic control devices as needed.
- 4 Move the winch machines into the traffic controlled area and position a machine over the upstream and downstream manholes. Each winch machine is equipped with steel cables designed to pull a bucket or brush from the first sewer segment opening to the second sewer segment opening.
- 5 Caution must be utilized while positioning the winch machine to properly gain access to the sewer segment to be cleaned. Crew members must guide the driver to the best position to access sewer. A guide will always be used for backing the cleaning equipment.
- 6 Open the manhole and determine if it is safe to proceed with the cleaning operation.
- 7 Determine winch machine tool required to perform cleaning.

Cleaning Operation

- 1 Perform cleaning operation with the flow. If flow rate is rapid cleaning may be performed against the flow.
- 2 Caution must be utilized while positioning the winch machine to properly gain access to the sewer segment to be cleaned.
- 3 Use the process of "lacing the sewer segment" to insert the cable into the sewer segment being cleaned.
 - Make a parachute by using plastic bags or plastic material.
 - Tie twine to the plastic bag or material to allow water to flow in, creating a parachute effect.
 - Place parachute in the upstream sewer segment opening and float to the downstream sewer segment opening.
 - When the parachute is in sight of the downstream opening, use a hook to retrieve the parachute.
 - At the upstream opening attach rope to the twine and attach cable to rope; the twine is pulled from the downstream opening until the rope and then the cable are retrieved.
 - Attach cable to winch machine.
 - Attach the bucket or brush to the cable at the first opening.

Cleaning Operation (continued)

- 4 To perform cleaning, operate the controls on the machine and move the cable and tool through the sewer segment. Use the hand controls to move the cable backwards or forwards as needed.
 - Detach the bucket or brush after it is retrieved in the second opening.
 - Operate the controls and move the cable back to the first segment.
 - Attach the bucket or brush and repeat the cleaning process until no material (sand, gravel, roots, or grease) is visible.
- 5 Enter the results in Daily Journal and complete Sewer Cleaning Work Order form.
- 6 Rewind and stow the winch machines, break down and stow traffic control devices.
- 7 Proceed to next cleaning jobsite.

At End of Day

- 1 Inspect the equipment and tools for problems.
- 2 Report any problems with equipment, tools, or sewers that were cleaned to the Supervisor.
- 3 Submit daily work reports to the Supervisor at end of shift.

Jackson Public Works Standard Operating Procedure

Mechanical Root Control

SOP: 8

Effective: May 1, 2014

Issued By: Dan Thomas

Approved By: Bill Miley

Purpose:

Mechanically saw and remove root growth in the sanitary sewer system

Performance Standard:

- Locate and remove blockages caused by roots
- Perform regularly scheduled cleaning of known trouble spots
- Restore flow area to 95% of pipe capacity

Safety:

- Safety Equipment: Safety vest, hard hat, gloves, ear plugs
- Traffic Control Equipment: Cones, strobes, arrow boards, warning devices, flags

Tools & Equipment:

- Rodding machine with root cutting tool(s), or
- Combo jet/vacuum truck and hydraulic root cutting tool
- Map
- Emergency contact list
- Radio
- Debris traps
- Manhole popper/puller
- Shovel
- Sledge hammer
- Pick
- Wrenches
- Grabber
- Gas detector

Procedures:

Prior to leaving yard

- 1 Refer to SOP for Rodding Machine or Combo Jet/Vacuum Truck depending on which root cutting tool is being used.
- 2 Review maps for location of easements.

At the jobsite

- 1 Wear proper personal protective equipment.
- 2 Determine and confirm location of upstream and downstream manholes (use street address, if possible).
- 3 If applicable, look for any overhead utilities that may come into contact with the vacuum boom.
- 4 Set up proper traffic control by placing warning signs, flags, cones, and other traffic control devices as needed.
- 5 Move the truck or rodding machine into the traffic controlled area and position over manhole.
- 6 Open the manhole and determine if it is safe to proceed with the cleaning operation.
- 7 Check manhole and pipe for debris or obstructions that would cause a backup in the downstream pipe. Remove excess debris prior to inserting tool into upstream pipe.
- 8 Determine root removal tool required based on nature of root blockage.
- 9 Reset footage meter so it can be used to locate a stucked tool, should it be necessary.

Cleaning Operation

- 1 When using rodding machine, set up rodding machine to pull rather than push, which can damage rods (may vary with type of tool).
- 2 When using combo jet/vacuum truck, use the proper sized skid for the tool being used.
- 3 Operate root saw at correct speed (50-60 RPM).
- 4 Avoid over-torquing root saw.
- 5 For dense root growth, use a smaller root saw than the diameter of the pipe for the initial pass.
- 6 Operate the tool slowly in the line. Slow operation allows the tool to work more effectively. Operating speed should be a minimum of half that used with nozzles.

Cleaning Operation (continued)

- 7 Use finishing tool such as three blade-cutter to scour pipe wall after root cutting. Operate finishing tool at 2/3 speed of main cutting tool.
- 8 Use three-blade cutter with a slow travel speed if root saw is being used for grease removal.

At End of Day

- 1 Inspect the equipment and tools for problems.
- 2 Report any problems with equipment, tools, or sewers that were cleaned to the Supervisor.
- 3 Submit daily work reports to the Supervisor at end of shift.

Jackson Public Works Standard Operating Procedure

Chemical Root Control

SOP: 8

Effective: May 1, 2014

Issued By: Dan Thomas

Approved By: Bill Miley

Purpose:

Chemically eliminate and retard root growth in the sanitary sewer system

Performance Standard:

- Locate and remove blockages caused by roots
- Perform regularly scheduled root control of known trouble spots
- Restore flow area to 95% of pipe capacity

Safety Equipment:

- Safety vest
- Hard hat
- Chemical resistant gloves
- Rubber boots
- Traffic Control Equipment: Cones, strobes, arrow boards, warning devices, flags
- Plastic or rubber apron
- Respirator and goggles
- Long pants
- Long sleeved shirt

Tools & Equipment:

- Root control chemical
- Chemical application equipment
- Map
- Emergency contact list
- Radio
- Flashlight
- Manhole popper/puller
- Shovel
- Sledge hammer
- Pick
- Grabber
- Measuring wheel
- Storm drain cover
- Gas detector
- Chlorine testing kit

Procedures:

Prior to leaving yard

- 1 Read chemical product label thoroughly.
- 2 Notify wastewater treatment plant of type, quantity and location of chemical being applied.
- 3 Obtain and carry a copy of the Material Safety Data Sheet for the chemical being applied.
- 4 Obtain and carry contingency spill clean-up materials and equipment.
- 5 Review maps for location of easements.

At the jobsite

- 1 Wear proper personal protective equipment.
- 2 Set up proper traffic control by placing warning signs, flags, cones, and other traffic control devices as needed.
- 3 Move the chemical application unit into the traffic controlled area and position over manhole.
- 4 Observe and take note of distance between sewer and adjacent buildings.
- 5 Observe and take note of invert elevation of building drains in relation to sewer elevation.
- 6 Evaluate risk of foam emergence into building from unprotected drains.

Cleaning Operation

- 1 Mix and dilute chemical into batch tank following manufacturer's instructions.
- 2 Lower the hose, with a guide or roller to protect the hose, into the manhole and direct it into the sewer to be cleaned.
- 3 Start the high pressure pump and set the engine speed to provide adequate pressure for the sewer cleaning operation (1500-2200 psi). Note: Use low pressure if there is risk of flooding homes or businesses.
- 4 Open the water valve and allow the hose to proceed up the sewer. The hose speed should not exceed the manufacturer's recommendation.

Cleaning Operation (continued)

- 5 If applicable, allow the hose to proceed 25% of the length of the sewer (or 50 feet minimum) and pull the hose back.
- 6 Observe the nature and quantity of debris pulled back into the manhole.
- 7 If there is little or no debris, allow the hose to proceed to the upstream manhole.

- 8 If there is moderate to heavy debris, clean the remaining portion of the sewer in steps not to exceed 25% of the length of the sewer (or 50 feet minimum).
- 9 Open the upstream manhole and verify that the nozzle is at or past the manhole.
- 10 The sewer has been adequately cleaned when:
 - Successive passes with a cleaning nozzle do not produce any additional debris, and
 - The sewer is able to pass for its entire length.
- 11 Determine the nature and quantity of debris removed during the cleaning operation.
- 12 Remove the debris from the manhole using the vacuum unit.
- 13 Rewind the hose on the reel.
- 14 Clean the mating surface and close the manhole. Ensure the manhole is properly seated.
- 15 Enter the results in Daily Journal and complete Sewer Cleaning Work Order form.
- 16 Move the cleaning unit, break down and stow traffic control devices.
- 17 Proceed to next cleaning jobsite.

At End of Day

- 1 Inspect the equipment and tools for problems.
- 2 Report any problems with equipment, tools, or sewers that were cleaned to the Supervisor.
- 3 Submit daily work reports to the Supervisor at end of shift.

Jackson Public Works Standard Operating Procedure

Manhole Inspection

SOP: 9

Effective: May 1, 2014

Issued By: Dan Thomas

Approved By: Bill Miley

Purpose:

To help prevent Sanitary Sewer Overflows by proactively inspecting manholes and sewers for possible stoppages and grease problems. To identify manhole problems before they become severe and schedule required maintenance.

Performance Standard:

- Identify buildups of grease and/or debris
- Identify and evaluate severity of structural or other manhole problems
- Procedure applicable to manholes up to 20-feet in depth

Safety:

- Safety Equipment: Safety vest, hard hat, gloves
- Traffic Control Equipment: Cones, strobes, arrow boards, warning devices, flags
- Manhole inspections will be performed from the surface; no manhole entry will be performed

Tools & Equipment:

- | | | |
|------------------------------|--------------------------|-----------------|
| • Map | • Telescoping pole | • Pick |
| • Hand held spotlight | • Emergency contact list | • Grabber |
| • Mirror to reflect sunlight | • Radio | • Sledge hammer |
| • Camera | • Manhole popper/puller | • Gas detector |

Procedures:

- 1 The Sewer Maintenance Manager will provide a work order and map showing the area where manhole inspections are to be performed. Inspection areas are selected based on past history of SSOs, stoppages and grease problems.
- 2 Set up proper traffic control by placing warning signs, flags, cones, and/or other traffic control devices as needed.
- 3 Using a multi-gas detector, place the tip of the hose into a vent hole. If there is no vent hole, crack the lid slightly using a pry bar and then pop the lid open just enough to insert the gas detector hose into the space. Observing the meter on the detector, note the reading for a minimum of 30 seconds. If no alarm sounds, remove the manhole cover using a manhole hook. If the lid is stuck, a sludge hammer should be used to break the seal. If an alarm sounds, **DO NOT REMOVE THE LID.**
- 4 Open manhole to be inspected and allow ventilation time. Leave gas detector in place. Safe working levels:
 - Carbon monoxide (CO): Below 25%
 - Hydrogen Sulfide (H₂S): Below 10 ppm
 - Lower Explosivity Limit (LEL): Below 10%
 - Oxygen: 19.5% - 23.5%

If natural ventilation does not clear space, install a blower to power ventilate and notify Supervisor.
- 5 While ventilating Crew will record manhole information including lid type, depth, incoming and outgoing mains, depth of flow, and type of manhole (standard or dropped).
- 6 Manually inspect manhole interior using high-level illumination. Digital photographs shall be taken of observed defects as well as all other relevant features.
- 7 Employ a pole mounted light and camera if required to properly document the manhole condition.
- 8 Obtain photographs of the following:
 - Above ground features and conditions in the vicinity of the manhole to be assessed – photo to be taken looking downstream with manhole in immediate foreground.
 - View from surface of manhole invert – outgoing pipe at 6:00 o'clock.
 - Photo of any structural defects, evidence of leakage, infiltration/inflow, obstructions, roots, mortar loss, evidence of hydrogen sulfide attack, or other identifiable problems.
- 9 Crew Leader will observe, evaluate, and code any deficiencies observed and record on Manhole Inspection Form.
- 10 Replace lid, stow traffic control devices, and proceed to next manhole to be inspected.
- 11 Submit daily work reports to the Supervisor at end of shift.

**EPA Comments on Gravity Line Preventative
Maintenance Program**

City of Jackson Response to EPA Comments

**EPA Gravity Line Preventative Maintenance
Program Approval Letter**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
ATLANTA FEDERAL CENTER
51 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

AUG 11 2014

CERTIFIED MAIL 7010 1060 0002 1705 3399
RETURN RECEIPT REQUESTED

City of Jackson
Attn.: The Honorable Tony T. Yarber
Mayor, City Hall
219 South President Street
Jackson, Mississippi 39205

Re: Gravity Line Preventive Maintenance Program
City of Jackson, Mississippi Consent Decree
Case No.: 3:12-cv-790 TSL-JMR

RECEIVED

AUG 15 2014

Dear Mayor Yarber:

OFFICE OF THE CITY ATTORNEY

The U.S. Environmental Protection Agency Region 4 has consulted with the Mississippi Department of Environmental Quality (MDEQ) upon reviewing the City of Jackson's (the City) Gravity Line Preventive Maintenance Program dated May 30, 2014, pursuant to Section V. of the subject Consent Decree above. The EPA and the MDEQ have identified the following questions and issues needing additional clarification.

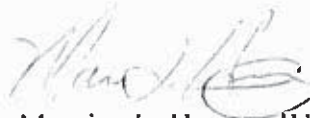
Gravity Line Preventive Maintenance Program Comments

1. Many of the resources needed to shift from a reactive to a preventive maintenance program (e.g. additional personnel on page 9; additional equipment on page 11 and the Computerized Maintenance Management System on page 13) either did not have a specific line item deadline in the Gantt chart on page 28 or were mentioned as taking longer than the 12 month full implementation requirement in the Consent Decree (e.g. hire personnel and buy equipment by 2017 and fully implement the CMMS by 2018). The EPA recognizes that the City plans to cover these resource shortfalls by outside contractors. Please explain as to whether these extra resources have already been contracted and if not, have these contracts already been budgeted for?
2. Section 3.2 (page 19): In the final paragraph of this Section, the City states that it has two employees that are already certified under the National Association of Sewer Service Companies (NASSCO) Pipeline Assessment and Certification Program (PACP) and NASSCO's Manhole Assessment and Certification Program (MACP). Does the City have plans to obtain two additional employees who are NASSCO certified in PACP and MACP so that there is a certified employee for each sewer "district," or will the current two employees divide their time between the four sewer "districts"?

3. There appears to be a typo in several locations where the City uses the acronym "ADEQ" when it is assumed the City meant to use MDEQ (Mississippi Department of Environmental Quality) (e.g. on page 13 – 4th bullet down and page 23 – bottom paragraph).

The EPA will approve the Gravity Line Preventive Maintenance Program pending a timely and complete response to the above comments. Pursuant to Section V, Paragraph 13 of the Consent Decree, please respond in writing within 30 days of receipt of this letter. If you should have any questions regarding the above comments, please contact Mr. Brad Ammons at (404) 562-9769 or via email at ammons.brad@epa.gov.

Sincerely,



Maurice L. Horsey, IV, Chief
Municipal & Industrial Enforcement Section
Clean Water Enforcement Branch

cc: Mr. Les Herrington, P.E.
Mississippi Department of Environmental Quality

Mr. Terry Williamson ✓
City of Jackson

Ms. Keisha Powell
City of Jackson

Department of Public Works



200 South President Street
Post Office Box 17
Jackson, Mississippi 39205-0017

December 30, 2014

By Mail and Email

Chief, Clean Water Enforcement Branch
Water Protection Division
U.S Environmental Protection Agency, Region 4
ATTN: Brad Ammons
61 Forsyth Street, S.W.
Atlanta, GA 30303
Ammons.Brad@epa.gov

RE: City of Jackson, Mississippi Consent Decree
Certifications for Responses to Comments on CMOM Program Deliverables

Dear Mr. Ammons:

This letter will serve as my certification under paragraph 16 of the Consent Decree for the City of Jackson's responses to EPA comments on the following Consent Decree deliverables:

- Gravity Line Preventive Maintenance Program (letter dated 9/12/2014);
- WWTP Operations and Maintenance Program (letter dated 9/12/2014);
- Comprehensive Performance Evaluation (letter dated 9/28/2014).

I certify under penalty of law that this document and the three (3) letters listed above 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.

Please contact me if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Kishia L. Powell".

Kishia L. Powell
Director, Department of Public Works

cc: Tony Yarber, Mayor
Monica Joiner, City Attorney
Terry Williamson, Consent Decree Manager
Karl Fingerhood, U.S. Department of Justice
Les Herrington, P.E., Mississippi Department of Environmental Quality

Department of Public Works



200 South President Street
Post Office Box 17
Jackson, Mississippi 39205-0017

September 12, 2014

Mr. Maurice L. Horsey, IV, Chief
Municipal & Industrial Enforcement Section
Clean Water Enforcement Branch
Region IV, U.S. Environmental Protection Agency
61 Forsyth Street
Atlanta, GA 30303-8960

Re: Gravity Line Preventative Maintenance Program Comments
City of Jackson, Mississippi Consent Decree
Case No.: 3:12-ev-790 TSL-JMR

Dear Mr. Horsey:

We are in receipt of your letter of August 11, 2014 providing review comments for the subject document. A response to each review comment is provided below.

1. Use of Outside Contractors – As noted, the City of Jackson will hire additional personnel and purchase additional equipment needed for gravity line maintenance by the end of 2017, and fully implement the planned Computerized Maintenance Management System by the end of 2018. In the interim, these resource shortfalls will be covered by outside contractors. In response to the review question, funds for the necessary outside maintenance contracting for the coming year are included in the FY 2015 budget.
2. Deployment of Certified Inspectors in Each Sewer District – It was noted that the City currently has only two inspectors certified by the National Association of Sewer Service Companies to cover four separate sewer maintenance districts, and asked if the City has plans to provide two additional certified inspectors so that one could be assigned to each sewer district. In response, the City is currently evaluating the benefit of having certified inspectors assigned to the sewer and manhole inspection teams, and if it is determined that having NASSCO certified personnel advances the maintenance mission then additional certified staff will be added.
3. The typographical edits listed by the reviewer are acknowledged.

Mr. Maurice L. Horsey, IV, Chief
September 12, 2014
Page 2

We are proceeding with implementation of the Gravity Line Preventative Maintenance Program in accordance with the report submitted. If you have any additional questions or require more information please let us know.

Sincerely,

Kishia Powell, P.E.
Director, Department of Public Works

cc: Mr. Les Herrington, P.E.
Mississippi Department of Environmental Quality

Mr. Terry Williamson, Legal Counsel
City of Jackson Department of Public Works



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

TW

APR 21 2015

CERTIFIED MAIL 7010 1060 0002 1703 8440
RETURN RECEIPT REQUESTED

RECEIVED

APR 23 2015

OFFICE OF THE CITY ATTORNEY

City of Jackson
Attn.: Ms. Kishia L. Powell
Director, Department of Public Works
200 South President Street
P.O. Box 17
Jackson, Mississippi 39205-0017

Re: Approval of the Gravity Line Preventive Maintenance Program,
WWTP Operations and Maintenance Program and the Comprehensive Performance Evaluation
City of Jackson, Mississippi Consent Decree
Case No.: 3:12-cv-790 TSL-JMR

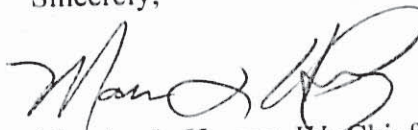
Dear Ms. Powell:

On behalf of the U.S. Environmental Protection Agency Region 4 and the Mississippi Department of Environmental Quality, the EPA has reviewed the responses to comments on the following submittals: (1) the Gravity Line Preventive Maintenance Program (GLPMP) (response dated 9/12/2014); (2) the WWTP Operations and Maintenance Program (WWTP O&MP) (response dated 9/12/2014) and (3) the Comprehensive Performance Evaluation (CPE) for the Savanna Street WWTP (response dated 9/28/2014) as well as the certification for these 3 responses dated 12/30/2014, for the City of Jackson (Jackson). The EPA hereby approves the revised GLPMP, the revised WWTP O&MP and the revised CPE for the Savanna Street WWTP.

Jackson shall place all documents related to the above submittals in the Public Document Repository. In addition, Jackson shall implement the above revised Programs and Evaluation in accordance with each revised submittal. Finally, Jackson shall certify the status of the implementation of each Program or Evaluation, including its completion, in the Semi-Annual Report or Annual Report pursuant to Section IX of the subject Consent Decree.

Please contact Mr. Brad Ammons at (404) 562-9769 or via email at ammons.brad@epa.gov, if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Maurice L. Horsey, IV". The signature is fluid and cursive, with the last name "Horsey" being particularly prominent.

Maurice L. Horsey, IV, Chief
Municipal & Industrial Enforcement Section
NPDES Permitting & Enforcement Branch

cc: Mr. Les Herrington, P.E.
Mississippi Department of Environmental Quality

Mr. Terry Williamson
City of Jackson