

# City of Jackson Request for Proposals

## Professional Services for Operation, Maintenance and Management of O.B. Curtis Water Treatment Plant, J.H. Fewell Water Treatment Plant, Tanks, and Well Facilities of the City of Jackson, Mississippi

---

October 18, 2022



City of Jackson Department of Public Works  
Jordan Hillman, Interim Director

**PROPOSAL DUE DATE:**

November 7, 1:00 p.m., Central Time (CT)

**Point of Contact:**

Name	Position	Department	Phone	Email
Jordan Hillman	Interim Director	Public Works	601-720-6048	jhillman@jacksonms.gov

**Project Summary:** The RFP is to select a proposer that will provide full time operations, and maintenance of the City of Jackson, Mississippi, water treatment facilities and various components of the water system. The award will be for a one (1) year emergency contract and the successful proposer will be eligible for additional procurements made by the City of Jackson for similar services.

**Due Date:** November 7, 2022

**Due Time:** 1:00 PM CST

**Location:** City Hall, Office of Municipal Clerk, 219 South President Street,  
Jackson, Mississippi 39201

## **PART I - INTRODUCTION**

### **1.1 PURPOSE**

The City of Jackson, Mississippi invites the submittal of proposals from qualified firms interesting in providing **full service operations and maintenance services** for the City of Jackson, Mississippi, Water Treatment Facilities: the O.B. Curtis (OBC) Water Treatment Plant (WTP) located at 100 O.B. Curtis Drive, Ridgeland, MS 39157, the J.H. Fewell (JHF) WTP located at 2302 Laurel Street, Jackson, MS 39202, the City of Jackson Well System (COJ Well System) (a separate ground water-supplied system which serves portions of south Jackson and the adjacent City of Byram), related facilities for raw water intakes, metering, raw water chemical feed facility and related facilities and all elevated and ground storage tanks, associated wells and related equipment and appurtenances (cumulatively noted as City of Jackson Water Treatment Facilities in this document). The proposal does not include operation or maintenance of pipes, valves and other equipment and appurtenances in the distribution system.

This Request for Proposals (RFP) has been issued to provide proposers with information to prepare and submit a detailed proposal which must satisfy all criteria established in this RFP to qualify for consideration. The goal of this RFP is to identify a Proposer having the demonstrated experience and financial capability to effectively and efficiently assume the responsibilities outlined in this RFP. The emergency contract will be a **one-year Agreement** for the operations and maintenance of the City of Jackson Water Treatment Facilities with the proposer submitting the most advantageous proposal based on scores provided by the evaluation team. Proposers **must demonstrate to the satisfaction of the evaluation team** that they meet all the qualification requirements described herein. The term of the contract shall commence as soon as possible and legal requirements related to emergency procurements limit the term to one (1) year, but the City of Jackson reserves the right to solicit for continuing services in the spring of 2023 for up to five additional years with options to renew. The successful proposer will be eligible to compete for any longer-term solicitation. Pursuant to state law, award of a professional services contract for this project is subject to the availability of funds.

### **1.2 BACKGROUND**

The City of Jackson is the capital of Mississippi located in central Mississippi. The City of Jackson Water Treatment Facilities serve approximately 160,000 people through approximately 60,000 service connections within the City of Jackson and neighboring community of Byram.

### **1.3 SOURCE WATER OPERATIONS**

- The source water for OBC is the Ross Barnett Reservoir, managed by the Pearl River Valley Water Supply District (PRWSD). The PRWSD is the state agency created to construct and manage the 33,000-acre Barnett Reservoir and the 17,000 acres surrounding the lake.
- The source water for the JHF plant is the Pearl River.
- The well system draws water from the Sparta Aquifer.

### **1.4 DESCRIPTION OF THE FACILITIES**

#### **1.4.1 O.B. Curtis (OBC) Conventional WTP**

The OBC is comprised of three plants on a single site at 100 O.B. Curtis Drive, Ridgeland, MS 39157. The first plant on the OBC site is a 25 MGD facility constructed in 1993 that currently produces 12-18 MGD on average. The facility is a traditional conventional plant using aluminum chlorohydrate (ACH) as the coagulant. UV treatment is attached to filtration which is followed by chloramination for disinfection (Gaseous chlorine and ammonia for chloramine production).

#### **1.4.2 OBC Membrane WTP**

The second plant at OBC is a direct ultrafiltration membrane plant constructed in 2007 with a 25 MGD capacity. It is comprised of six (6) (ZeeWeed 500D) treatment trains and uses ACH for coagulation. Filtration is followed by chloramination for disinfection (Gaseous chlorine and ammonia for chloramine production).

#### **1.4.3 Corrosion Control and Chemicals Used at OBC**

Both plants use Cal-Flo Liquid Lime for corrosion control treatment. Other chemicals used on site for drinking water treatment include potassium permanganate, fluorosilicic acid, and a cationic polymer.

Water from both the conventional and membrane plants at OBC flows to on-site underground clear wells and is pumped into the distribution system through two (2) high service (HS) facilities.

Additional details on the OBC WTP can be found in Attachment A – (Mississippi State Department of Health, Bureau of Public Water Supply, Master Data Sheet), beginning on page 19.

#### **1.4.4 Residuals Handling Facility**

The third plant at OBC is the residuals handling facility. It is comprised of an equalization basin

that receives all reject waters from both drinking water plants, two (2) gravity thickeners/clarifiers and two (2) centrifuges. Dewatered solids are transported off-site to a landfill and centrate water is discharged to the Pearl River pursuant to a NPDES permit.

**1.4.5 J.H. Fewell (JHF) WTP**

JHF WTP is located at 2302 Laurel Street, Jackson, MS 39202. The JHF is a conventional WTP constructed in 1914 with a 20 MGD capacity and currently produces between 10-20 MGD as needed to supplement production at OBC. It uses alum as a main coagulant. Filtration is followed by chloramination for disinfection (Gaseous chlorine and ammonia for chloramine production). UV treatment is performed at High Service and corrosion control treatment is achieved using hydrated lime. Other chemicals used on site for drinking water treatment include potassium permanganate, fluorosilicic acid, a cationic polymer, polyphosphate (to protect UV components), and chlorine dioxide generation (optional for manganese treatment). Solids handling is through the sanitary sewer system. Additional details can be found at Attachment A – (Mississippi State Department of Health, Bureau of Public Water Supply, Master Data Sheet), beginning on page 18.

**1.4.6 Booster Stations**

Booster stations are located at Windsor Road and TV Road. Details can be found in Attachment A – (Mississippi State Department of Health, Bureau of Public Water Supply, Master Data Sheet), beginning on page 20.

**1.4.7 Storage Tanks**

<b>Location</b>	<b>Capacity (gallons)</b>
Riverside Drive	500,000
Suncrest Drive	200,000
Forest Avenue	1,000,000
Chastain Drive	1,500,000
Lynch Street	1,000,000
Livingston (Zoo)	500,000
Elaine Street	1,000,000
NW Industrial Park	1,000,000
Mill Street	1,500,000
Byram Industrial Park	1,000,000

Presidential Hills	250,000
Magnolia Road	500,000
Cedar Hills	250,000
Maddox Road (Ground)	3,000,000
Springridge Road (Ground)	2,000,000

Details can be found in Attachment A – (Mississippi State Department of Health, Bureau of Public Water Supply, Master Data Sheet), beginning on page 20.

#### **1.4.8 Well Information**

- Wiggins Road
- Willowood
- TV Road
- Siwell Road
- Highway 18
- Maddox Road & Highway 18

Details can be found in Attachment A – (Mississippi State Department of Health, Bureau of Public Water Supply, Master Data Sheet), beginning on page 21.

### **1.5 REFERENCE DOCUMENTS**

The City of Jackson has compiled reference documents for review and use by proposers in preparing their response to this RFP and provided as Attachments.

### **1.6 ACCURACY OF RFP AND RELATED DOCUMENTS**

The City of Jackson, the Unified Command for the 2022 Jackson Water Crisis, and the constituent organizations comprising the Unified Command for the 2022 Jackson Water Crisis assume no responsibility that the specified technical and background information presented in the RFP, or otherwise distributed or made available to proposers is complete or accurate. Without limiting the generality of the foregoing, the City will not be bound by or be responsible for any explanation or interpretation of the Proposal documents other than those given in writing as an addendum to this RFP. Should a recipient of the RFP find discrepancies in or omissions from this RFP and related documents, the recipient of this RFP shall immediately notify the designated Contact Person identified on page 1 in writing via email. If necessary, any discrepancies will be resolved in writing in an Addendum to this RFP.

The City of Jackson reserves the right to request additional information with respect to any proposal received. The City of Jackson reserves the right to accept proposals deemed to be in the best interest of the City, to reject any or all of the responses, to waive any irregularity or informalities, to continue the RFP process by seeking additional submissions, or to abandon the process altogether.

### **1.7.1 MANDATORY SITE VISITS**

Mandatory site visits have been scheduled as follows:

- O.B. Curtis WTP      Wednesday, October 26, 2022, starting promptly at 2 pm, Central
- J.H. Fewell WTP      Thursday, October 27, 2022, starting promptly at 9 am, Central

Each proposer is limited to three (3) participants per tour.

***Proposers must attend both water treatment plant site visits hosted by the City of Jackson. Proposals will not be accepted from proposers who fail to attend the site visits at these dates and times.***

### **1.7.2 OTHER FACILITIES**

Proposers are encouraged to visit the City of Jackson elevated and ground storage water tanks, the Windsor and TV Road Booster Stations and the six well locations for the groundwater portions of the system. These can be observed from outside the fence at any time. Information on wells, booster stations, and storage tanks is provided in Attachment A - (MSDH Inspection Report) and questions on wells, booster stations, and storage tanks will be answered by Department of Public Works staff during the water treatment plant tours.

### **1.7.3 CONFIDENTIALITY**

All observations and information provided at the required site visits are considered sensitive and must be kept confidential. Due to the sensitive nature of this solicitation, proposers are implored to uphold confidentiality through the entire request process. A demonstrated breach of confidentiality will be grounds for disqualification from this solicitation process.

## 1.7.4 SOLICITATION SCHEDULE

Listed below are the important dates for this Request for Proposals (RFP).

Event	Date
Date RFP Issued	October 18, 2022
Plant Site Visits (Both Required)	October 26, 2022, 2:00 P.M. (O.B. Curtis) October 27, 2020, 9:00 A.M. (J.H. Fewell)
Deadline for Questions	October 27, 2022
Proposals Due	November 7, 2022
Evaluation Period	November 8-10, 2022
Negotiation Period Begins	November 11
Contract Start Date	November 17, 2022

## PART II – SCOPE OF WORK

### 2.1.1 PERFORMANCE STANDARDS

- 2.1.1 The successful proposer shall operate and maintain the City of Jackson Water Treatment Facilities in compliance with all applicable City, Local, State and Federal laws and regulations. The successful proposer shall maintain full compliance at all times with national, regional, and state standards for the operation and maintenance of a public water supply system.
- 2.1.2 The successful proposer shall operate and maintain the City of Jackson Water Treatment Facilities to meet the goals and contract operations objectives listed in Section 1.10 of this document.
- 2.1.3 The successful proposer shall develop and implement procedures to ensure attainment of these goals.
- Protecting the public health and welfare;
  - Protecting the health and safety of the plant operating staff;
  - Complying with all applicable laws, rules, regulations, and ordinances, including without limitation, Local, State, and Federal water quality and supply requirements and safety requirements;
  - Protecting the environment;
  - Protecting and preserving the plant equipment and facilities;
  - Maximizing plant operational efficiency while achieving full regulatory compliance and



compliance with the contract operations objectives listed in Section 1.9; and

- Providing the necessary physical and cybersecurity protections to the prevent intrusions and/or attacks.

2.1.4 The successful proposer's achievement of the contract operations objectives will be subject to periodic review by the City, based in part on a review of: regulatory monitoring and oversight materials; plant data and reporting; and the data and information gathered from the City.

## **2.2. CONTRACT OPERATIONS OBJECTIVES**

2.2.1 During the term of the contract, the successful proposer shall be solely responsible for all aspects of operation and maintenance, including all labor, chemicals, materials, utilities, and all regulatory costs necessary to treat and deliver to the transmission system up to the Plant's maximum design capacity of water. The successful proposer shall be solely responsible for electric and gas and any other required utilities, including ancillary utilities and costs shall be incorporated in the contractor's quote. The successful Proposer will make arrangements with local utilities and/or suppliers to establish billing addresses that conform with the Proposer's accounts payable procedures. The successful proposer shall be solely responsible for all labor, materials, and costs associated with providing the operation and maintenance of the City of Jackson Water Treatment Facilities and will enter into an Agreement with the City of Jackson. The City plans to enter into an Agreement with the proposer that best demonstrates the ability to assume full responsibility for the safe, efficient, and cost-effective operation and maintenance of the City of Jackson Water Treatment Facilities in compliance with all applicable Federal and State Laws. Accordingly, the successful proposer shall assume all responsibilities associated with operating and maintaining the Water Treatment Facilities, to ensure reliability of operations, and to maintain the value of City of Jackson's investment in its Water Treatment Facilities and equipment. The successful proposer shall be required to provide all labor, materials, supplies, chemicals, fuel, vehicles, services, administration, reporting, monitoring, and other necessary items or services for compliant reliable uninterrupted, economical operation of the managed assets to ensure the continuous operations of the City of Jackson Water Treatment Facilities including electric, water, and sludge management. Specific responsibilities of the Proposer include, but are not limited to:

- Fulltime management of all persons, equipment, and facilities associated with the production of treated water from City of Jackson Water Treatment Facilities;
- Fulltime operation and maintenance of the City of Jackson Water Treatment Facilities by means of the proposer's employees and subcontractors;

- Full-time operation of the City of Jackson Water Treatment Facilities to treat water up to the design capacity of the plants, in compliance with all applicable laws and regulations;
- Delivery of potable water to the City and Co-participant transmission including Nissan and the City of Byram through high service pumps and wells;
- Regulatory compliance – successful proposer shall ensure that all employees comply with applicable federal, state, and local health and safety regulations and all employees are oriented to the safety, health, and environmental regulations specific to City of Jackson Water Treatment Facilities;
- Efficient and effective operation of the City of Jackson Water Treatment Facilities;
- Optimizing operation of facilities to provide cost efficient treatment within the plant design capacity including energy management
- Compliance with all permits and regulations;
- Power consumption;
- Facilities performance compliance;
- Facilities insurance;
- Sludge removal/dewatering and residual disposal;
- Facilities equipment upkeep and preventative maintenance;
- Alternating pumps and/or motors;
- Cleaning screens and clear and wet wells;
- Exercising emergency standby power systems;
- Adjusting packing glands;
- Testing SCADA and alarm systems;
- Operating and checking SCADA equipment;
- Checking motor voltage and current using hand meters;
- Servicing and lubrication of equipment;
- Tightening belts and adjusting equipment;
- Ordering and procurement of chemical, fuel and supplies
- Administrative and technical work related to NPDES permit renewals;
- Maintaining an inventory listing of all City of Jackson supplies and equipment under the Operator's control;
- Immediately responding and attending to emergency conditions;
- Diagnosing problems and requesting assistance to solve them if necessary;

- Providing input on design or upgrade efforts;
- Facility security checks;
- Assist in capital and operating budget preparation;
- Performing routine inspections and meeting with regulatory agencies;
- Responding to regulatory correspondence with City of Jackson where Operator input is needed;
- Provide properly licensed and certified operators and personnel to perform the duties outlined herein;
- Recording, interpreting, and reporting accurate information from flow and elapsed time meters;
- Verifying flow information;
- Providing City of Jackson Director of Public Works or her designee with daily, weekly, monthly, and annual reports regarding the performance of the facilities; and
- Monitoring for any needed improvements within the system.

At a minimum, the proposer shall meet the following regulatory requirements and any subsequent modifications:

- All applicable regulatory permits
- NPDES permit for each water treatment facility (Attachment C)
- Sludge Disposal Regulations (State and Federal)
- Storm water permit requirements and pollution prevention plans for the facility
- Federal and state Safe Drinking Water laws and regulations
- March 27, 2020, Emergency Administrative Order issued by the US EPA Region 4 (Attachment D)
- July 1, 2021, Administrative Compliance Order by Consent between the City of Jackson and US EPA Region 4 (Attachment E)
- Comprehensive Equipment Repair Plan (CERP) (Attachment F)
- February 21, 2021, Amendments to City of Jackson Optimal Corrosion Control Treatment Plan (Attachment G)

2.2.2 The proposer shall collect, remove, and dispose of all screenings, grit, trash, and debris from the Facilities to an appropriate disposal site.

2.2.3 The City of Jackson will assume responsibility for the cost of structural repairs to buildings and

grounds that are the result of deterioration, storm damage, and Acts of God exceeding \$5,000. The proposer shall be required to maintain the plant and equipment in a manner that preserves the managed assets and ensures the reliability and efficiency of the facilities and systems. All buildings, structures, property, and equipment shall be maintained in accordance with standards pursuant to maintenance requirements as established by the City of Jackson. Existing levels of redundancy must be maintained for the facility. The City of Jackson intends to, subject to the availability of funding and based upon a prioritized capital improvements list, undertake upgrading, repair, and replacement projects as recommended and authorized by the City of Jackson Public Works Department. The successful proposer may bid on any competitively procured work to be accomplished at any facility for which they are responsible for maintenance and operations.

The City will work in consultation with the successful proposer to refine and prioritize capital improvement investments to ensure that each project not already proceeding remains needed once the successful proposer has operated the plants for 60 days. All capital improvement projects shall be closely coordinated with the successful proposer to ensure maintenance of plant operations (MOPO) throughout any construction project without incurring undue additional operation costs.

The successful proposer may identify any additional potential capital improvement projects for the City of Jackson to consider.

- 2.2.4. The successful proposer shall perform all sampling and laboratory analyses required by City of Jackson permits and necessary for process control.
- 2.2.5. The successful proposer shall be required to develop and implement a program for employee training for operation and maintenance skills improvement related to the requirements of the contract operation, as well as development and implementation of a safety and security plan.
- 2.2.6. The successful proposer shall keep the City of Jackson informed of the operation and maintenance of the Facilities through daily, weekly, and monthly reports. The Proposer, if authorized by the City of Jackson, shall deal in a professional manner with individuals and community groups concerned with any aspect of the operation of the Facilities. The successful proposer shall submit a daily one-page report to include information on flow, loads, staffing, and significant events. The successful proposer shall submit weekly summary reports to include summary information on the previous seven (7) days. The successful proposer shall maintain records of operations, maintenance, repair, and improvement activities at the Facilities and shall prepare and submit to the City of Jackson a monthly report, delivered to the City of Jackson Director of Public Works

each month, including a narrative summary of operations and all data required for monthly reporting. The monthly report shall also include photographs and maintenance log reports of equipment breakdowns, process problems, potential problems, or any other issues or concerns.

### **2.3. REPORTING RECORD MANAGEMENT**

2.3.1 The proposer shall properly record all jar test results, dosage settings and/or changes, pump rates/times, laboratory/process control test results, all backwash run times and volumes, maintenance activities, QA/QC protocols, and any and all pertinent information. The City of Jackson has entered an Emergency Administrative Order (EAO) and an Administrative Compliance Order on Consent (AOC) with USEPA Region 4. The proposer shall be responsible for providing all relevant operational and equipment status reporting data and meeting all reporting dates to the City of Jackson Public Works Director or her designee. Reports related to the EAO and AOC shall be submitted to the Director of the Department of Public Works a minimum of 7 days prior to the dates required in the EAO and AOC with the exception of weekly operating reports (WORs), monthly operating reports (MORs), and National Primary Drinking Water Regulations compliance reports, which must be submitted prior to due dates as prescribed by state and federal regulations. The proposer shall record all data in the appropriate format (bench sheets/electronically) as prescribed by the regulatory agency and shall maintain all records for a minimum of ten (10) years. If there is a separation between parties and the Agreement is severed, all records related to City of Jackson Water Treatment Facilities operation, maintenance, and treatment are to be transferred to the City of Jackson and remain the sole custody of the City of Jackson.

Except for the AOC related reports which shall be filed as described herein, the proposer shall file all reports to the appropriate agency within the legal deadline and provide a copy of same to the Director of Public Works.

2.3.2 While the City of Jackson will maintain responsibility for long- and short-term planning for the City of Jackson treatment facilities, the successful proposer shall be required to participate in planning activities and provide information to the City of Jackson on a regular basis in support of City of Jackson's short- and long- term planning objectives for capital improvements and maintenance requirements as well as policy and regulatory matters, as follows:

- Capital Improvements.

The successful proposer shall be required to provide information and recommendations for

capital improvements to increase operating efficiency, improve quality of service and extend the useful life of assets including development of information to support capital financing plans.

- Maintenance.

The successful proposer shall be required to provide information and make recommendations to make updates to existing maintenance plans and support the development of a long-term maintenance strategy for the City of Jackson Water Treatment Facilities, including identification of cost-saving measures, cost-effective maintenance projects and routine/preventive maintenance program scheduling.

- Policy/Regulatory Issues.

The successful proposer shall be required to evaluate proposed or actual regulatory changes from an operations standpoint to determine their effect on City of Jackson Water Treatment Facilities capacity, management, operation and maintenance including any financial impacts or required changes to City of Jackson's policies and procedures. City of Jackson may also require input from the successful proposer to establish or challenge the appropriateness of permit limitations.

## **2.4. PROPOSER'S MANAGEMENT SERVICES**

### **2.4.1 General Management Requirements**

2.4.1.1 The City will be the proposer's primary contact for the duration of the contract. The City will facilitate any necessary discussions and interactions with other critical agencies such as the Mississippi State Department of Health (MSDH) or US EPA.

2.4.1.2 The proposer shall provide at least one office on-site at the OBC WTP for City staff to utilize during the contract period. The proposer shall provide access only to those authorized representatives of the MSDH and USEPA upon request during normal business hours with or without notice. The proposer will allow the City to audit and measure the performance of equipment at the City of Jackson Water Treatment Facilities at any time without notice, provided however, any audits or performance measurements by the City will be at their expense.

2.4.1.3 The proposer shall provide at the proposer's sole expense all labor, materials, both durable and consumable, and supplies, utilities, and management systems necessary to perform the proposer's obligations. The proposer will manage the facilities to ensure attainment of the specified general requirements and the performance objectives. The proposer's management responsibilities also include, the services set forth below at a minimum.

## **2.4.2 Transition Services**

**2.4.2.1 Transition Plan** - The proposer shall prepare a Transition Plan and submit it to the City within five (5) calendar days of the effective date of the Agreement. The Transition Plan will identify the coordination of all activities required for the orderly transfer of operations of the facilities from the City and any Unified Command or other resources to the proposer from the effective date of the Contract through the operational start date, which the transition period may not exceed twenty (20) calendar days. The Transition Plan will specifically identify activities that will be completed prior to the operational start date, the week after the operational start date, and for the remainder of the month after the operational start date.

At a minimum, the Transition Plan shall include all the items set forth in this section and the following items:

- transition schedule;
- Staffing and Training Plan;
- Linear Responsibility Chart; and
- Communications Plan

**2.4.2.2 Transition Management Requirements** – The proposer shall put in place the management structure, processes, and procedures required to complete the scope of services. The proposer shall complete any staff hiring or relocations required to fulfill the entire Staffing and Training Plan by the operational start date. All subcontracts and sourcing agreements for chemicals, utilities, equipment, materials, and supplies shall be in place and active prior to the operational start date to ensure a smooth transition.

**2.4.2.3 Inventory** – The proposer shall review and validate the existing inventory of all spare parts, equipment and other items owned by City and certify such inventory by signing jointly (proposer and the City) a schedule of all items in such inventory (“Initial Inventory”). The Initial Inventory will also include the existing chemical, fuel and other consumables on site as of the operational start date. The Initial Inventory shall be signed prior to the operational start date.

**2.4.2.4 Information Technology Systems** – during the transition period, the City will provide access to the SCADA information technology systems (software, firmware, hardware) that the proposer will use to provide the services delineated in the Agreement. Throughout the service term, the proposer will adhere to the policies and procedures concerning information technology systems duly issued and amended by the City from time to time. The proposer is expected to manage the information

networks in a secure manner and will include their approach and procedures to maintaining the security of these systems in their Information Technology Plan.

- 2.4.2.5 **Hands on Transition** - The proposer will monitor plant operations side-by-side with City plant operations staff and Unified Command resources for the period of time defined in the transition plan which must include multiple shifts prior to the proposer's assuming full operational responsibility.
- 2.4.2.6 **Management Oversight and Quality Assurance and Quality Control (QA/QC) Plan** – The QA/QC Plan shall identify how the proposer will ensure that all aspects of the Agreement, including reporting requirements, are fulfilled. The management oversight and QA/QC plan will describe the proposer's quality control and assurance program and identify the individuals responsible for documenting and monitoring QA/QC at the City of Jackson Water Treatment Facilities during the service term.
- 2.4.2.7 **Staffing and Training Plan** – The proposer will prepare a detailed Staffing and Training Plan for the operations and maintenance of the City of Jackson Water Treatment Facilities. The Staffing and Training plan will identify the plant manager(s), key operation, and maintenance positions and their roles along with the planned staffing, by position, for each shift which will be provided in an organization chart format. The Staffing and Training plan will also identify key management personnel, quality control, technical, safety and other available support staff, which must also include ongoing training and certification of its staff. The Staffing and Training Plan should also propose how the proposer could provide adequate training to sufficient staff to continue operating, maintaining, and managing the City of Jackson Water Treatment Facilities.
- 2.4.2.8 **Communications Plan** - The proposer shall prepare and maintain a Communication Plan that identifies key responsible individuals within the proposer's organization and the City. The plan shall provide a communication protocol for routine plant operations and required notifications, including notice of emergency conditions. The Communication Plan will include contact information for each key individual including e-mail and cell phone numbers for contact outside of normal working hours. The Communication Plan must also address the proposers' proposed plans for community engagement as approved by the City.
- 2.4.2.9 **Maintenance of Essential Data and Records Plan** – The proposer will develop and document its plan for protecting and maintaining essential data and records in the event of information technology system failure, other catastrophe or disaster, or information/data that may be compromised.



2.4.2.10 **Safety Program and Plan** – The proposer’s Safety Program and Plan will identify methods for ensuring compliance with OSHA safety regulations, as well as all other applicable safety regulations and requirements. These other safety requirements include, but are not limited to, local health and safety regulations and manufacturer’s safety procedures and recommendations. The Safety Program and Plan will specify the safety training that the proposer will provide, will describe how a safe work environment will be maintained at City of Jackson Water Treatment Facilities, and will prescribe the implementation and use of the directives of the Safety Program and Plan. The Safety Program and Plan must also address plant security and vulnerability protection.

2.4.2.11 **Emergency Operations Plan** – The proposer’s Emergency Operations Plan will address, **at a minimum**, procedures for responding to fires, floods, hurricanes, winter storms, tornadoes, chemical spills, and loss of electric power. The proposer’s Emergency Operations Plan shall also address operations during a pandemic and other health emergency that may have an impact on available on-site staffing, facility access, and other routine supply and maintenance procedures. The proposer’s Emergency Operations Plan will be coordinated with the City’s current emergency response plans. The proposer’s Emergency Operations Plan will also be coordinated with applicable City’s risk management and emergency plans. The proposer shall provide a general procedure for responding to gaseous chlorine emergencies and must have an acceptable response plan in place within thirty (30) days of contract award.

Responses to emergencies within or around facilities operated by the successful proposer shall include immediate notification to first responders, if warranted. Additionally, notification to the City of Jackson Department of Public Works Director or her designees and regulatory agencies should be made as appropriate at the earliest possible opportunity. It is imperative that all applicable occupational safety and health statutes be followed to ensure an appropriate response that protects the health and welfare of employees, visitors, on-site contractors and proposers, and the surrounding community. A plan and timeframe for integrating Emergency Response Plans (ERPs) should be included in the proposal. The City of Jackson will revise its ERP to ensure appropriate communication lines and contact information is readily available to both parties.

***NOTE: The City of Jackson will consider working with the successful proposer in evaluating alternative primary disinfection techniques, but no changes will be made***

*without the express written consent of the Director of Department of Public Works for the City of Jackson and all appropriate regulatory bodies.*

**2.4.2.12 Plant Operations and Process Control Plan** – The successful proposer shall operate and control the transmission of raw water, treatment through the WTPs and distribution of finished water to the City of Jackson’s distribution system. The proposer shall perform all necessary process control testing to provide optimum dosages for each chemical applied in the treatment trains, and provide proper disinfection of the water to meet all CT requirements and residual requirements. Operations of drinking water facilities must meet all applicable state and federal Safe Drinking Water Act (SDWA) Regulations. Operations of the residuals handling facility must meet NPDES permit requirements. Operations and process control must include winterization and resiliency needs in all facilities. The proposer’s plant operations and process control plan will prescribe how the available treatment units will be used to meet the capacity, performance, and regulatory requirements of the Agreement. The City of Jackson Water Treatment Facilities operations and process control plan will also describe the operation of each process unit under normal, maximum, and minimum flow/load conditions and will present the target operational parameters and metrics. The plan will also identify potential abnormal conditions and provisions to deal with changes in raw water quality and actual and potential plant upset conditions.

***NOTE: No changes to the treatment process can occur without the express written consent of the Director of the Department of Public Works for THE CITY OF JACKSON and until the appropriate approvals have been obtained from all regulatory agencies.***

**2.4.2.13 Compliance Monitoring, Sampling and Testing Plan** – The proposer’s Compliance Monitoring, Sampling, and Testing Plan will provide procedures for sampling and testing raw and treated water in conformance with all applicable laws. The Compliance Monitoring, Sampling, and Testing Plan will also provide the protocols, methodologies and information needed to enable the proposer to operate the facilities in accordance with the plant operations and process control plan to meet all permit requirements. The Compliance Monitoring, Sampling, and Testing Plan will include the quality assurance and quality control procedures for both in-house and contract laboratory procedures.

**2.4.2.14 Sludge Management Plan** – The proposer’s Sludge management Plan will delineate the proposer’s approach to managing sludge dewatering and disposal to meet the goals and objectives established by the City.

2.4.2.15 **Sustainability Plan** – The proposer’s Sustainability Plan must be consistent with the EPA’s Clean Water and Drinking Water Infrastructure Sustainability. The goal of the Sustainability Plan is to operate and maintain the City of Jackson Water Treatment Facilities to provide effective, efficient and sustainable use of the City of Jackson Water Treatment Facilities’ assets over their life cycle. The plan must provide for conservation and resource efficiency.

## **2.5 PROPOSER STAFFING**

2.5.1 The proposer shall staff the OBC and JHF WTPs 24 hours a day, 7 days a week and other City of Jackson Water Treatment Facilities as appropriate, and shall provide qualified management, supervision, and technical support personnel necessary to perform the services required by this Agreement in accordance with the approved Staffing and Training Plan. The proposer shall maintain the operations staff shown in the Staffing and Training Plan as approved and at a minimum consistent with the requirements of the State of Mississippi. Staffing must include at least one Mississippi Class “A” licensed Surface Water Operator or higher onsite during each shift who will be designated as the “Operator in Responsible Charge”. The Staffing and Training Plan must provide the names of the following key staff: plant manager(s), chief operator(s), and maintenance manager(s). Changes in key staff shall be made only with the written approval of the City.

2.5.2 The proposer's plant manager(s) shall have overall responsibility for the operation and maintenance of the City of Jackson Water Treatment Facilities and shall act as liaison between the proposer and the City. The resume of the proposer's plant manager(s) shall be provided to the City with the Staffing and Training Plan and the plant manager(s) must be approved in writing by the City on or before the notice to proceed. Accordingly, the proposer shall not replace or remove the approved OBC or JHF WTP manager(s) during the term of this Agreement without the prior written approval of the City. And further, any replacement plant manager must be approved in writing by the City Director of Public Works or her designee prior to starting work.

2.5.3 The proposer's staff shall include one chief operator (with a Mississippi Class "A" Water Operator's License or better) or equivalent of an operations manager (currently job classification used at the existing facility). The Mississippi State Department of Health can review and expeditiously process requests for out-of-state operator certification reciprocity. The chief operator(s) shall be responsible for all matters related to the operation of the City of Jackson Water Treatment Facilities. These chief operators will be full-time employees dedicated solely to

the assigned water treatment facility who will maintain responsibility for the water treatment facility and be available to respond to the facility's staff around the clock.

- 2.5.4 The proposer's maintenance manager(s) will work collaboratively with the maintenance schedulers, and operations management personnel to ensure all maintenance is performed to standards.
- 2.5.5 Proposer's technical and maintenance support team shall assist the proposer's on-site staff. Technical specialists shall provide support and training in areas of water treatment, process residual processing and disposal safety, instrumentation, and preventive and predictive maintenance, at no additional cost to the City. All the proposer's operations specialists shall be qualified to provide the technical assistance required under the Agreement. These qualified technical and maintenance support specialists shall be available during all shifts to respond to problems that may arise at the City of Jackson Water Treatment Facilities. Proposer's technical and maintenance support team(s) shall function to ensure regular operations of the City of Jackson Water Treatment Facilities by controlling water quality and maintenance.

## **2.6 HIRING OF EXISTING PLANT STAFF**

- 2.6.1 The successful proposer will be **required to make an offer to hire each existing City of Jackson employee** currently at the City of Jackson Water Treatment Facilities (positions listed in Attachment B). The offer must be at or above the current salary and the benefit package must be comparable to the current benefits, with the exception of the Public Employees Retirement System Plan Retirement. Retirement benefits shall be the standard retirement benefit afforded to all the proposer's employees. All employees hired under this provision shall remain employed by the proposer at or above the initial level of compensation for a minimum period of 6 months at either the OBC or JHF WTFs. Termination prior to the 6-month period may only be for cause with notice to the City of Jackson prior to termination.

## **2.7 PROPOSER COMMUNICATIONS**

- 2.7.1 The proposer shall implement and maintain the Communication Plan and provide communications on routine operations, required notifications, and emergency conditions.
- 2.7.2. While the City remains as the primary point of contact, the proposer may at times need to coordinate with other governmental entities. These communications shall be facilitated through the City.

2.7.3 The proposer shall have no direct contact with the public or media without the express consent of the City. All public and media contact should be immediately reported and referred to the city. The proposer will provide the City with information sufficient to allow the City to provide all required public notices associated with the operations and maintenance of the City of Jackson Water Treatment Facilities. The proposer may propose a community outreach program in the Communications Plan. Any community outreach effort must be approved in advance by the City.

## **2.8 PROPOSER NOTIFICATION AND REPORTING REQUIREMENTS**

- 2.8.1 The proposer shall provide all notifications, reports and presentations required to complete the Scope of Services detailed in this document.
- 2.8.2 The proposer will notify the City immediately following the procedures in the Communication Plan of any conditions that have or could lead to a regulatory notice or violation, major equipment failure, failure to meet minimum performance standards, security incidents, and reportable safety incidents.
- 2.8.3 The proposer will prepare and submit to the City monthly, quarterly, and annual operations and maintenance reports summarizing the City of Jackson Water Treatment Facilities production and maintenance activities and performance results.
- 2.8.4 The proposer will prepare and submit to MSDH or US EPA and copy the City on the monthly operating report and any other routine reports required by MSDH or US EPA and other regulatory authorities for the operations and maintenance of the City of Jackson Water Treatment Facilities. All required routine regulatory reports (like the MOR) shall be delivered to the City and the regulatory agency at least three (3) days in advance of their required due date. Non-routine regulatory correspondence and reporting shall be handled by the City, unless directed otherwise by the City of Jackson Department of Public Works Director.
- 2.8.5 The proposer shall meet with the City at least monthly to review operations, reports, and other data and information relating to the proposer's obligations under the Agreement. The proposer shall also provide as many as four presentations per year as requested by the City.

## **2.9 PROPOSER INFORMATION TECHNOLOGY SYSTEM REQUIREMENTS**

- 2.9.1 The proposer shall implement and administer the Information Technology Plan (ITP) and use the plan to meet all the requirements of the scope of services. The ITP will be updated periodically as required to reflect changes in software and hardware, process and procedures used to manage the technology systems at the City of Jackson Water Treatment Facilities.

- 2.9.2 The proposer will be required to use existing City SCADA software. The City will retain and update these software licenses. The proposer will be given access to the City software licenses for the proposer's use at the City of Jackson Water Treatment Facilities at no cost to the proposer.
- 2.9.3 The proposer will be responsible for operating and maintaining the City's existing plant SCADA and operations software. The City currently uses iFIX software to manage plant operations.
- 2.9.4 The proposer shall maintain a cybersecurity program and procedures for all information technology programs to meet the requirements and standards of the local, state and federal governments, and AWWA and ANSI standards, policies, and guidance.

## **2.10 PROPOSER SECURITY AND SAFETY REQUIREMENTS**

2.10.1 The proposer shall provide and maintain adequate security at the City of Jackson Water Treatment Facilities, including all systems, buildings, facilities and equipment inside the fence line. Security must be maintained at all times, which for the two water treatment plants is 24 hours a day, 7 days a week. Security must be consistent with City security policies and all applicable laws and regulations. At a minimum, the proposer will provide for continuous plant security as follows:

- Maintain and secure the City of Jackson Water Treatment Facilities continuous perimeter boundary protection fencing at all times.
- Provide a minimum of one (1) armed certified security person at OBC WTP and a minimum of one (1) armed certified security person at JHF WTP at all times.
- Control the Plant front entrance gate at all times at both OBC and JHF WTPs.
- Limit access to the City of Jackson Water Treatment Facilities to authorized and approved personnel only.
- Provide security personnel at the OBC and JHF WTP front gate at all times.
- The proposer and its security force shall cooperate fully with the City in the update and implementation of the City's vulnerability assessment and emergency response plans. The proposer must cooperate fully with the City during any emergency or security incident.
- The proposer must ensure that facility lighting and security camera networks are always working.

## **2.11 REQUIRED PLANT OPERATIONS SERVICES**

2.11.1 City of Jackson Water Treatment Facilities

2.11.1.1 The proposer shall assume responsibility for every aspect of operation of the City of Jackson Water Treatment Facilities to ensure their ability to treat and deliver up to 76 MGD of potable water that meets performance standards and in compliance with all applicable laws and

regulations. The proposer will be responsible for treating raw water and delivering potable water at the high service pump station to the City's distribution systems in response to their potable water demand requirements.

2.11.1.2 The proposer will incorporate the City's current corrosion control plan into its routine operations protocols. At the direction of the City, the proposer may be required to add additional chemicals from time to time as needed to address water quality problems in the City's water distribution system.

#### 2.11.2 Treated Water Performance Requirements

2.11.2.1 A major disruption in the supply or quality of water produced at the City of Jackson Water Treatment Facilities would have a significant impact on the City, the Nissan plant, and the City of Byram. The proposer is responsible for providing treated water to the customers up to the full 76 MGD capacity of the City of Jackson Water Treatment Facilities and the proposer must provide treated water in compliance with all public water supply laws and regulations.

2.11.2.2 The proposer shall comply with the treated water production rates, quality, and pressure requirements, in addition to meeting all laws and regulations applicable to publicly owned treatment works and public drinking water supplies, including but not limited to the public water supply laws and regulations for treated water quality and the water quality performance standards.

- **Annual Water Production** - While the proposer will operate and maintain the City of Jackson Water Treatment Facilities to produce up to the capacity of 76 MGD at all times, historical production records indicate that the average annual production rate at the City of Jackson Water Treatment Facilities is 20,440MG per year or an average of 56 MGD.
- **Plant Delivery Pressure** - The proposer shall deliver the amount of potable water required by the City on a daily basis and shall coordinate with the City through the Communication Plan to meet customer demands. The goal is to meet a minimum delivery point pressure of at least 35 psi at each delivery point. To achieve this goal, the proposer should maintain a discharge pressure at the high service pump station in the range of 85 psi to 95 psi.
- **Treated Water Quality** –The proposer shall deliver at all times treated water that meets the performance requirements, which include conformance with the City's current corrosion control plan and the requirements of the safe drinking water laws and regulations.

2.11.2.3 The selected treated water performance requirements listed below will constitute Key Performance Indicators (KPI) for proper operation and maintenance of the Plant.

KPI No.	Parameter	Performance Indicator
1	Turbidity	Consistent with Federal SDWA, Surface Water Treatment Rule
2	Disinfection - Wells	Wells – not to exceed 4.0 mg/l leaving the wells and >0.2 mg/l at ends of distribution
3	Disinfection – OBC and JHF WTPs	Consistent with Federal SDWA, Surface Water Treatment Rule Chloramines – >3.0 mg/l leaving the plants
4	pH	8.5 - 9.5 for both OBC and JHF WTPs, subject to change based on treatment modifications scheduled to be implemented within 12 months for corrosion control
5	HS Discharge Pressure	85-95 psi

2.11.3 Proposer Non-Performance

2.11.3.1 Proposer’s failure to comply with any applicable local, state or federal regulation that may result in a reprimand, notice of violation, fine, or penalty is a non-compliance event. Failure to comply with applicable State and Federal regulations includes failure to submit required data and reports on time as specified herein, *to wit*, three (3) days before the due date. Proposer non-performance also comprises failure to provide data requested by the City within 24 hours. This includes, but is not limited to, internal communications, laboratory data, and SCADA operational data.

2.11.3.2 Any of the following events caused by the proposer would be considered a catastrophic non-performance event and may subject the proposer to liquidated damages based on actual cost to City of Jackson at the discretion of the Director of Public Works:

- Failure to maintain a HSPS discharge pressure above 50 psi for more than 6 hours;
- Plant shut down for more than 6 hours;
- A Plant produced water quality parameter that results in the issuance of a boil water notice; and
- Maintaining or submitting falsified data or records on site as determined in any regulatory proceeding.



#### 2.11.4 Proposer Sampling and Testing Requirements

2.11.4.1 The proposer shall implement and maintain the compliance monitoring, sampling and testing plan and obtain certified laboratory services to ensure compliance with all applicable laws and regulations. The proposer shall monitor and manage the treatment process, including the sampling and testing required for the corrosion control plan and the requirements of the safe drinking water laws and regulations. The proposer's compliance with monitoring, sampling, and testing requirements will be included in an appropriate QA/QC Plan as described in the compliance monitoring, sampling, and testing Plan.

2.11.4.2 The proposer shall conduct all the raw and treated water sampling and testing required under state and federal law. As required under state regulations, certain testing and analysis shall be conducted at the Mississippi State Department of Health Public Health Laboratory or a NELAC laboratory certified by the State. The proposer is responsible for all sampling and laboratory testing costs.

#### 2.11.5 Proposer's Chemical System Supply

2.11.5.1 The proposer will be responsible for all costs, materials, and personnel related to the procurement, supply, safe storage, use, and disposal of all chemicals required to operate and maintain the City of Jackson Water Treatment Facilities in full regulatory compliance. The City maintains contracts with chemical suppliers for the routine delivery of required chemicals to the City of Jackson Water Treatment Facilities. At the request of the proposer, the City will work with the proposer to assign the existing chemical contracts with the existing pricing to the proposer. The existing contracts expire July 31, 2023. The proposer will assume responsibility for the procurement, supply, storage, and disposal of chemicals used for City of Jackson Water Treatment Facilities operations and maintenance on the operational start date.

2.11.5.2 Chemicals will be inventoried during the transition period prior to the operational start date. At the Agreement termination date, the chemicals will again be inventoried and reconciled with the inventories at the operational start date.

2.11.5.3 The proposer shall comply with all the regulatory requirements for chemical storage and feed systems including without limitation maintaining sufficient chemical bulk storage for at least a 15-day supply of all chemicals needed to operate the City of Jackson Water Treatment Facilities. In addition, any lubricants or bulk chemicals proposed to be utilized at the City of Jackson Water Treatment Facilities must comply with applicable industry standards including without limitation ANSI/NSF Standards 61 and 60, respectively.

2.11.5.4 Chemical Costs are a specified component of the proposer's fixed fee.

2.11.5.5 Any lubricants or other bulk chemicals proposed to be utilized by the proposer at the Plant must comply with ANSI/NSF standards.

***NOTE: No changes to the treatment process can occur without the express written consent of the Director of the Department of Public Works for THE CITY OF JACKSON and until the appropriate approvals have been obtained from all regulatory agencies.***

2.11.6 Proposer Fuel Supply

The proposer will be responsible for all the costs, material, and personnel related to the procurement, supply, safe storage, use and disposal of fuel required to operate the proposer's vehicles and other equipment on the Water Treatment Facilities sites.

2.11.7 Emergency Operations

2.11.7.1 Natural or man-made disasters that threaten the safe and routine operation and maintenance of the City of Jackson Water Treatment Facilities may constitute emergency conditions. Emergency conditions may include raw water quality events that threaten the OBC and JHF WTPs full production of safe drinking water. The proposer shall implement and maintain an Emergency Operations Plan consistent with the City's Emergency Operations Plan. The proposer's Emergency Operations Plan shall include provisions for dealing with a pandemic or other health emergency that may limit the availability of the proposer's on-site staff. The proposer's Emergency Operations Plan shall also include provisions to address winter storm conditions and the associated increases in water demand. The proposer shall respond immediately to emergency conditions and shall maintain adequate on-site staffing and materials to operate the City of Jackson Water Treatment Facilities and provide safe drinking water to customers during emergencies.

2.11.7.2 If an emergency exists or an emergency is threatened, the proposer shall maintain close coordination and communication with the City, using the protocols established in the Emergency Operations Plan. While the proposer is responsible for fully staffing the City of Jackson Water Treatment Facilities during emergency conditions, the City may dispatch technical and operations personnel to assist the proposer to resolve an emergency condition. Pursuant to the Emergency Operations Plan, the proposer shall work cooperatively with City staff to resolve any emergency conditions.

## 2.11.8 Proposer's Sludge Handling and Disposal

2.11.8.1 The proposer shall assume responsibility for all costs, personnel and materials for the dewatering, transport and disposal of all plant sludge associated with the operation of the City of Jackson Water Treatment Facilities. Dewatering, transport and disposal includes, among other things, operation and maintenance of the sludge transfer pumps, sludge thickeners and the on-site sludge mono-fill. The proposer will assume the responsibilities of "generator," relative to sludge disposal and will be responsible for the ultimate disposal of all sludge and waste residuals resulting from the contract operations. The proposer will implement and maintain the sludge management plan and will provide supervision, labor, parts, tools, materials, equipment, supplies, and transportation necessary to dewater, transport, and dispose of approximately 2,000 to 3,000 dry tons of water treatment sludge per year.

2.11.8.2 The existing OBC plant sludge facilities include sludge transfer pumps, sludge clarifiers and thickeners and the on-site sludge centrifuges/monofil for disposal. The proposer will have to secure all facilities needed to manage sludge related to water treatment.

2.11.8.3 Sludge handling, dewatering and disposal are critical to the ongoing operation of OBC. The proposer will maintain all sludge thickeners so that all sludge thickeners are available for service at all times.

2.11.8.4 The proposer shall transport and dispose of the generated sludge properly at an off-site landfill registered and permitted by MDEQ or other appropriate state regulatory agency to accept water treatment sludge. All plans related to sludge disposal must be presented to the City for approval by the Director of the Department of Public Works.

## **2.12 REQUIRED PLANT MAINTENANCE SERVICE REQUIREMENTS**

### 2.12.1 General Maintenance Requirements

2.12.1.1 The proposer accepts the City of Jackson Water Treatment Facilities "as is" and shall assume responsibility for all aspects of Facilities maintenance, including corrective, preventative, and predictive maintenance to meet all the requirements of the scope of services. Required maintenance may include emergency repairs, replacement of certain equipment and City-funded capital improvements. The proposer shall use existing City of Jackson Water Treatment Facilities operations and maintenance manuals and schedules, sound engineering, and industry best practices to determine if additional maintenance is appropriate or necessary.

2.12.2.2 Facility and equipment maintenance is an essential duty and responsibility of the proposer and will be subject to routine audits by the City.

2.12.2.3 The proposer will be responsible for maintaining the City of Jackson Water Treatment Facilities' library of manufacturer operations and maintenance manuals, plant drawings and other documents associated with the operations and maintenance of the City of Jackson Water Treatment Facilities.

### 2.12.3 Proposer's Computerized Maintenance Management System (CMMS)

2.12.3.1 The proposer will implement and maintain the Information Technology Plan that will include a computerized maintenance management system for all City of Jackson Water Treatment Facilities assets. The system will include an inventory of Water Treatment Facilities assets and incorporate the preventive, predictive and corrective maintenance standards and schedules for all major operational equipment in accordance with the manufacturer's O&M manuals. The proposer will be responsible for updating and maintaining the accuracy of the information contained in the software for the City of Jackson Water Treatment Facilities as equipment is repaired, added, or replaced.

2.12.3.2 Using the CMMS, the proposer shall produce monthly preventive maintenance reports showing the number of preventive, predictive, and corrective maintenance work orders generated, completed, and open. The proposer is expected to complete all the maintenance work orders issued each month within 30 days of being issued. The proposer shall complete all work orders in a timely manner and shall not defer or postpone required maintenance activities. The proposer's work order history will be subject to routine City audits.

### 2.12.4 Proposer's Preventive Maintenance Requirements

2.12.4.1 Preventive maintenance is the routine maintenance typically performed by on-site maintenance staff to reduce the likelihood of failure of an asset. The proposer shall implement and maintain the preventive maintenance program for all assets of the City of Jackson Water Treatment Facilities. The preventive maintenance work in the CMMS generally follows manufacturer's recommendations for preventive maintenance on each equipment item.

2.12.4.2 Plant preventive maintenance includes specific requirements for completing and closing preventive maintenance work orders and associated corrective maintenance identified in the routine preventive maintenance activities. The proposer is responsible for all preventive maintenance costs including labor, parts, supplies, and materials.

### 2.12.5 Proposer's Predictive Maintenance Requirements

2.12.5.1 The proposer shall implement and maintain the predictive maintenance program for major mechanical and electrical equipment at the City of Jackson Water Treatment Facilities. Predictive maintenance requirements generally include vibration, temperature, and oil analyses that assess

asset condition, predict future failure, and prescribe repair or replacement maintenance activities. The proposer shall implement a predictive maintenance program through the proposer CMMS which includes, at a minimum, manufacturer's preventive maintenance schedules. Predictive maintenance activities shall be reported in the proposer's monthly reports.

2.12.5.2 The proposer is responsible for all predictive maintenance costs including labor, equipment, parts, supplies, and materials.

#### 2.12.6 Proposer's Corrective Maintenance Requirements

2.12.6.1 City of Jackson Water Treatment Facilities assets may require corrective maintenance to repair, replace or rehabilitate the asset to maintain required service levels.

2.12.6.2 The proposer will purchase equipment, goods and services for corrective maintenance following sound industry practices and all applicable local, State and Federal law.

2.12.6.3 Minor Corrective Maintenance – The proposer will assume the responsibility and cost for managing all routine scheduled maintenance and replacements for small equipment such as pumps, instrumentation, and other light equipment used in the operation of the City of Jackson Water Treatment Facilities where individual components cost \$5,000 or less. As an example, this would cover a repair that required the replacement of two pumps that each cost \$3,000 plus the labor to install. The total repair would exceed \$5,000, but would be included in the proposer's lump sum bid. Costs in this section are capped at \$500,000 annually, without additional approval by the City. Corrective maintenance that can be completed at a cost of \$5,000 or less for an individual asset shall be considered minor corrective maintenance. The proposer is responsible for completing all minor corrective repairs and replacements. Minor repairs and replacements can be made by the proposer without City prior approval. The proposer will notify the City of all corrective maintenance and will include a description of the maintenance activity in the monthly report.

2.12.6.4 Major Corrective Maintenance – Repairs and replacements that can be completed at a cost of more than \$5,000 for an individual asset shall be considered major corrective maintenance and will be funded separately from costs under this contract by the City of Jackson. The proposer shall present a proposed authorization for all major corrective maintenance repair or replacements including; 1) justification for the asset repair or replacement; 2) total costs for completing the maintenance including all material and labor costs; 3) for individual contract labor and material items in excess of \$5,000 provide competitive bids from three suppliers, RSMeans cost guide data,

or other reference material to justify the cost for each item; and 4) a cost-benefit analysis to justify the expense. Requests for funds for these items must be submitted in advance and shall be based on the unit prices for labor and equipment and material mark-up included in the quote. The proposer must obtain the City's approval in writing before initiating a major corrective maintenance repair or replacement. In the event of emergency, work-authorization may be provided verbally by the Director of the Department of Public Works. All approved major corrective maintenance repairs and replacements shall be included as a separate category of expense in the proposer's monthly invoice.

2.12.6.5 The City of Jackson will not be responsible for the cost to repair or replace any equipment or physical plant that is damaged as a result of negligence, intentional abuse, misuse, misapplication, or any such use of equipment that is not in conformity with manufacturer's specifications and guidelines or health and safety regulations.

#### 2.12.7 Emergency or Unscheduled Corrective Maintenance; Discretionary Maintenance

2.12.7.1 The goal of the proposer's predictive and preventive maintenance programs is to implement corrective maintenance on a planned and scheduled basis. However, it is anticipated that City of Jackson Water Treatment Facilities assets may fail, requiring emergency or unscheduled corrective maintenance. Emergency or unscheduled maintenance requires the proposer to coordinate closely with the City, using the communication protocols established in the Communications Plan to minimize the impact on plant performance and capacity.

2.12.7.2 The proposer shall conduct a root cause analysis on any and all major asset failures requiring emergency or unscheduled corrective maintenance. The City may elect to conduct its own independent failure analysis, at the City's cost, to determine the cause of the asset failure.

2.12.7.3 The City, in its sole discretion, may elect to make discretionary corrective maintenance repairs and replacements of assets of the Water Treatment Facilities. The City may request the proposer to make a City-discretionary improvement, repair or replacement of a given City of Jackson Water Treatment Facilities asset. All discretionary improvements, repairs, or replacements shall be completely funded through the City, at no cost to the proposer.

#### 2.12.8 Buildings, Grounds, Spare Parts, and Inventory Control

2.12.8.1 The proposer will assume responsibility for general maintenance and upkeep of the Water Treatment Facilities and grounds related to all facilities within the scope of this RFP. This will include, but not necessarily be limited to, the following:

- a) All janitorial duties.

- b) Snow removal for driveways, access roads, and parking lots within a reasonable time period to permit employee access to all related work sites without interrupting work schedules.
- c) Grass cutting and lawn maintenance, including the removal of fall leaves in critical areas to maintain safe working conditions.
- d) Cleaning of floor surfaces on a regular basis to maintain cleanliness and safe conditions.
- e) General cleaning and dusting of surfaces and windows as needed.

2.12.8.2 Ownership of all materials, equipment and supplies purchased by proposer for operation and maintenance of the City of Jackson Water Treatment Facilities shall vest in the City upon delivery. The proposer shall promptly pay all its subcontractors and suppliers, and provide evidence of all payments made to subcontractors and suppliers in its monthly invoices

2.12.8.3 The proposer and the City shall conduct an inventory of the spare parts, chemicals and supplies, and shall both sign a schedule listing all items in such inventories at the operational start date of the Agreement. Thereafter, proposer shall assume custody of all items in such inventories and shall be responsible for replenishing such inventories and maintaining such inventories to at least their initial stock levels. The proposer shall submit any suggested modifications to the inventoried items to the City for approval. Upon completion of the service term, such inventories shall have the same stock levels as the Initial Inventory, subject to changes approved in writing by the City.

#### 2.12.9 Basin Draining and Cleaning Plan

2.12.9.1 The proposer will be responsible for draining and cleaning the flocculation and sedimentation basins in a rotating schedule. Until automated sedimentation removal is complete at OBC WTP, flocculation and sedimentation basins should be drained and cleaned every two weeks or in accordance with a method approved by the Director of Public Works that provides similar results. Flocculation and sedimentation basins at JHF WTP must be drained and cleaned once during the contract term. The proposer shall plan and schedule basin draining and cleaning, and it must be approved by the City prior to initiating the work. This maintenance activity is normally scheduled during periods of low water demand to enable process units to be taken offline for cleaning. Basin draining, and cleaning generally includes dewatering the flocculation basin, washing accumulated sludge, but not sand, into the drain. Sand must be removed by vacuum truck or shoveled out.

2.12.9.2 The proposer will be responsible for the proper disposal of all waste – wash-water and residual sludge from the basin cleaning process.

## 2.12.10 General Site and Facility Maintenance

2.12.10.1 Proposer shall maintain the buildings, grounds, and landscaping of the City of Jackson Water Treatment Facilities in an attractive and neat manner in accordance with industry and City standards. The Water Treatment Facilities sites and buildings should be maintained to accommodate a Water Treatment Facilities open house and plant tours during normal business hours upon reasonable notice. The City may inspect the Plant and grounds at any time to confirm that maintenance is up to standards.

## 2.13 END OF SERVICE TERM AND CONTRACT CLOSE OUT

- 2.13.1. Thirty (30) days prior to the end of the service term, the proposer will develop a departure transition plan along with timeframes and submit to the City for approval. The transition plan must ensure continuous operations of City of Jackson Water Treatment Facilities during the transition. At the end of the service term, the proposer shall return the City of Jackson Water Treatment Facilities to its condition, or better than as of the operational start date, less normal wear and tear during the service term. The proposer shall ensure all equipment is fully operational in accordance with the manufacturer's equipment specifications. The proposer shall replenish inventory levels to the levels that existed at the time the proposer commenced its maintenance of the City of Jackson Water Treatment Facilities following the transition period.
- 2.13.2. Upon expiration or termination of the service Agreement, Proposer is permitted ten (10) days within which to remove all proposer-owned material and equipment from the City's premises. The City shall make such material and equipment readily available to proposer during the 10-day end of the Service Term period.

## 2.14 MEETINGS

Proposer must participate in meetings, general discussion, and consultations with City of Jackson Department of Public Works relative to this project throughout the period of engagement at no additional cost to City of Jackson Department of Public Works.

## 2.15 INSURANCE AND PERFORMANCE BONDS

2.15.1 Insurance—At all times during the term of the Agreement, the proposer shall maintain in force the following minimum levels of coverage and limits of liability for insurance or self-insurance (“Insurance”):

COMMERCIAL GENERAL LIABILITY (CGL) Insurance including coverage for:



Premises/Operations

Products/Completed Operations

Pollution – On-Site and Off-Site (Pollution Liability Insurance minimum limits of liability may be evidenced with separate coverage)

Personal/Advertising Injury

Contractual

Independent Contractors

Stop Gap/Employers Liability

Such Insurance must provide the following minimum limits of liability:

\$1,000,000	each occurrence Combined Single Limit bodily injury and property damage (CSL)
\$2,000,000	Products/completed operations aggregate
\$2,000,000	General aggregate
\$1,000,000	each accident/disease/policy limit

BUSINESS AUTOMOBILE LIABILITY INSURANCE for owned, non-owned, hired, and leased vehicles, as applicable, written on a form CA 00 01 or equivalent. Such insurance must provide a minimum limit of liability of \$1,000,000 CSL.

WORKERS' COMPENSATION INSURANCE as required by the laws of the state of Mississippi.

UMBRELLA/EXCESS/BUMBERSHOOT LIABILITY INSURANCE over CGL and automobile liability minimum limit shall be \$5,000,000 CSL (\$6,000,000 total limits requirement).

The limits of liability specified above may be satisfied with primary limits of liability or any combination of primary limits and excess/umbrella limits.

12.15.2 Insurance Terms and Conditions—City of Jackson as Additional Insured: The CGL, Auto, and excess/umbrella insurance shall include “the City of Jackson” as an additional insured for primary

and non-contributory limits of liability.

**No Limitation of Liability:** Insurance coverage and limits of liability as specified herein are minimum coverage and limit of liability requirements only; they shall not be construed to limit the liability of the proposer or any insurer for any claim that is required to be covered hereunder to less than the applicable limits of liability stated in the declarations. Moreover, the City shall be an additional insured, where additional insured status is required, for the full available limits of liability maintained by vendor, whether those limits are primary, excess, contingent or otherwise. The proposer expressly understands and agrees that this provision shall override any limitation of liability or similar provision in any agreement or statement of work between the City and the proposer.

**Required Separation of Insured Provision; Cross-Liability Exclusion and other Endorsements Prohibited:** The proposer's insurance policy shall include a "separation of insureds" or "severability" clause that applies coverage separately to each insured and additional insured, except with respect to the limits of the insurer's liability. The proposer's insurance policy shall not contain any provision, exclusion or endorsement that limits, bars, or effectively precludes the City of Jackson from coverage or asserting a claim under the proposer's insurance policy on the basis that the coverage or claim is brought by an insured or additional insured against an insured or additional insured under the policy. The proposer's CGL policy shall NOT include any of the following Endorsements (or their equivalent endorsement or exclusions): (a) Contractual Liability Limitation, (CGL Form 21 39 or equivalent), b) Amendment Of Insured Contract Definition, (CGL Form 24 26 or equivalent), (c) Limitation of Coverage to Designated Premises or Project, (CGL Form 21 44 or equivalent), (d) any endorsement modifying or deleting the exception to the Employer's Liability exclusion, (e) any "Insured vs. Insured" or "cross-liability" exclusion, and (f) any type of punitive, exemplary or multiplied damages exclusion. The proposer's failure to comply with any of the requisite insurance provisions shall be a material breach of, and grounds for, the immediate termination of the Contract with the City of Jackson; or if applicable, and at the discretion of the City, shall serve as grounds for the City to procure insurance coverage with any related costs of premiums to be repaid by the proposer or reduced and/or offset against the Contract.

**Claims Made Form:** If any policy is written on a claims made form, the retroactive date shall be prior to or coincident with the effective date of the Agreement. Claims made coverage shall be maintained by the proposer for a minimum of three (3) years following the expiration or earlier

termination of this contract, and the proposer shall provide the City with evidence of insurance for each annual renewal. If renewal of the claims made form of coverage becomes unavailable or economically prohibitive, the proposer shall purchase an extended reporting period (“tail”) or execute another form of guarantee acceptable to the City to assure financial responsibility for liability assumed under the contract.

**Deductibles and Self-Insured Retentions:** Any self-insurance retention or deductible in excess of \$ 25,000 that is not “fronted” by an insurer and for which claims the vendor or its third-party administrator is directly responsible for defending and indemnifying must be disclosed on the certificate of liability insurance. The proposer agrees to defend and indemnify the City under its self- insured or deductible layer and upon City’s request advise the full delivery address of the individual or department to whom a tender of a claim should be directed.

**Notice of Cancellation:** The City, as a certificate holder for the insurance requirements specified herein and an additional insured, has an interest in any loss which may occur; written notice of cancellation shall be actually delivered or mailed to the City not less than 30 days prior to cancellation (10 days as respects non-payment of premium). As respects surplus lines placements, written notice of cancellation shall be delivered not less than 30 days prior to cancellation (10 days as respects non- payment of premium).

**Qualification of Insurers:** Insurers shall maintain A.M. Best’s ratings of A- VII unless procured as a surplus lines placement, or as may otherwise be approved by the City.

**Changes in Insurance Requirements:** The City shall have the right to periodically review the adequacy of coverages and/or limits of liability in view of inflation and/or a change in loss exposures and shall have the right to require an increase in such coverages and/or limits upon ninety (90) days prior written notice to the proposer. Should the proposer, despite its best efforts, be unable to maintain any required insurance coverage or limit of liability due to deteriorating insurance market conditions, it may upon thirty (30) days prior written notice request a waiver of any insurance requirement, which request shall not be unreasonably denied.

**Evidence of Insurance:** The proposer must provide the following evidence of insurance:

A certificate of liability insurance evidencing coverages, limits of liability and other terms and conditions as specified herein;

An attached City of Jackson designated additional insured endorsement or blanket additional insured wording to the CGL/MGL (and if required Pollution Liability insurance policy).

A copy of all other amendatory policy endorsements or exclusions of the proposer's insurance CGL/MGL policy that evidences the coverage required.

In the event that the City tenders a claim or lawsuit for defense and indemnity invoking additional insured status, and the insurer either denies the tender or issues a reservation of rights letter, the proposer shall also cause a complete copy of the requested policy to be timely furnished to the City.

### 2.15.3 Performance Bond, Contractor Guarantee and Indemnification

2.15.3.1 Performance Bond—Prior to the award, the selected proposer shall be required to post a surety (performance) bond in the contract amount. The surety (performance) bond shall guarantee the faithful performance of the terms and conditions of the contract awarded. The City will entertain other forms of performance security that will ensure equal or better protection against non-performance, but reserves the right to require the posting of a performance bond in the contract amount.

2.15.3.2 Indemnity—To the extent permitted by law, the proposer will agree to protect, defend, indemnify and hold the City harmless from and against all claims, demands, damages, costs, actions and causes of actions, liabilities, fines, penalties, judgments, expenses and attorney fees, resulting from the injury or death of any person or the damage to or destruction of property, or the infringement of any patent, copyright, or trademark, or trade secret arising out of the work performed or goods provided under the Agreement, or the proposer's violation of any law, ordinance or regulation, contract provision or term, or condition of regulatory authorization or permit, except for damages resulting from the sole negligence of the City.

To the extent permitted by Mississippi law, the City agrees to hold harmless and defend all claims, demands, damages, costs, actions and causes of actions, liabilities, fines, penalties, judgments, expenses and attorney fees, arising from or related to the operation of the City of Jackson Water Treatment facilities prior to the effective date of the Agreement.

## 2.1 PAYMENT TERMS AND ASSURANCES

2.15.1 Payment Terms—The City will comply with the requirements of Section 31-7-301 thru -309 of the Mississippi Code of 1972, as amended, requiring payment of invoices within forty-five (45) days of receipt and the accrual of interest for undisputed late payments. The City will endeavor to present undisputed invoices for payment immediately upon receipt and will endeavor to approve claims for payment within thirty (30) days.

2.15.2 Payment Assurances—The City will consider proposals that include reasonable assurances for timely and full payment for services performed under the Agreement, provided such assurances comply with Mississippi law and any other pre-existing contractual obligations of the City. Such assurances may include propositions to place a portion of the appropriated funds in escrow or negotiating detailed invoicing and payment procedures.

## **PART III – EVALUATION AND SELECTION PROCESS**

### **3.1 EVALUATION COMMITTEE**

An evaluation team from the City of Jackson shall evaluate proposers' submissions in accordance with the evaluation criteria listed in Item D, Evaluation Criteria below. Upon completion of the evaluation, the team may develop a short list of proposer(s) meeting the technical competence requirements. The shortlisted proposer(s) may be scheduled for a structured oral presentation, demonstration, and interview. Following any meetings with proposers, the evaluation team will summarize their findings and recalculate their scores, if deemed necessary. However, the evaluation team reserves the right to issue letter(s) of clarification when deemed necessary to any or all proposer. The oral presentations, demonstrations, or interviews may be recorded or videotaped.

### **3.2 SELECTION PROCESS**

3.2.1 Technical Proposals—The City evaluation team intends to select the most advantageous proposal that best meets the needs of the City following the current response and recovery effort. The City evaluation team reserves the right to check any and all references on any projects performed by the proposer, whether provided by the proposer or not. Upon review of all information submitted by proposers, the evaluation team, (1) will determine whether each proposal meets the minimum qualifications (2) will determine whether each proposal is responsive and (3) will score the remaining qualified, responsive technical proposals. The evaluation team will include three scoring members, two (2) from the City of Jackson Department of Public Works staff, and one (1) subject matter expert from the U.S. Water Alliance. The evaluation team will also include two advisory members who will not score, but will provide technical assistance to the evaluation team, one (1) subject matter expert from the U.S. EPA Region IV Office and one (1) subject matter expert from the Mississippi State Department of Health.

3.2.2 Cost Proposals—The cost proposals of the qualified, responsive proposers will be opened following receipt of the scored technical proposals from the evaluation team. The cost proposals will be scored by the Deputy Director for Fiscal Administration of the Department of Public Works. The Public Works Director will combine the evaluation team scoring of the technical proposals with the cost proposal scoring and determine the highest scored proposal, which the Director will recommend for selection to the City of Jackson as the most advantageous proposal. The recommended proposer will be notified as soon as possible. The recommended proposer should be prepared to enter into negotiations within twenty-four (24) hours of being notified of the recommendation. Upon reaching an agreement, the City will tender to the recommended proposer the Agreement, which the proposer will be expected to execute and return to the City for execution with all due haste, time being of the essence. The effective date of the Agreement will be the date on which it is fully executed.

If negotiations with the highest-ranking proposer fail, solely at the City’s election, negotiations may be initiated with the next highest-ranking proposer, and so on, until an agreement is reached. The City reserves the right to reject all offers and cancel this solicitation without executing a Contract.

### **3.3 BEST AND FINAL OFFER (“BAFO”)**

The City reserves the right to request a BAFO from one or more finalist.

### **3.4 EVALUATION CRITERIA**

#### **3.4.1 Responsiveness of Proposal (Pass/Fail)**

The Proposal shall be responsive to all material requirements that will enable the evaluation committee to evaluate it in accordance with the evaluation.

#### **3.4.2 Technical Competence/Requirements (65 Points)**

The Proposal shall be evaluated based on the extent to which the proposed solution meets the needs of the City evaluation team including but not limited to: Proposer experience and personnel, and Project understanding and approach, as expressed in this RFP.

3.4.2.1 **Firm Qualifications (20 Points)**: Qualifications and specialized experience of the firm to successfully provide management, operations, and maintenance services to operate and maintain the 76 MGD City of Jackson Water Treatment Facilities as evidenced by experience with projects of similar scope and magnitude. The following sub-factors will be considered during evaluation of the Proposal:

- 3.4.2.1.1 The general qualifications of the prime firm including its size, years in business, history of contract operations, related technical resources and support services, performance history, innovation and safety along with the general qualification of any key subcontractors.
- 3.4.2.1.2 The proposer's experience in ongoing and completed contract operations projects for large surface water treatment facilities serving municipal public water supply systems, including systems with multiple owners or wholesale customers.
- 3.4.2.1.3 The number and size of current and recently completed water and wastewater contract operations projects for municipal entities.
- 3.4.2.2 **Team Member Qualifications (25 Points)**: The qualifications and specialized experience of key team members that will operate, and maintain the 76 MGD City of Jackson Water Treatment Facilities.

The following sub-factors will be considered in evaluating the proposed key team members:

- 3.4.2.2.1 The qualifications of the project sponsor or lead executive(s) responsible for overall management of the project along with the qualifications and experience of the firm's corporate management resources that will support the project.
- 3.4.2.2.2 The qualifications and specialized experience of the firm's off-site technical staff that will support the operations and maintenance of the facility.
- 3.4.2.2.3 The qualifications and specialized experience of the key on-site plant staff who will have the primary responsibility for the day-to-day operations and management of the City of Jackson Water Treatment Facilities including the Plant Manager(s), Chief Operator(s), Maintenance Manager(s), and other proposed key plant staff along with the proposer's plan to fully staff the facility prior to transition.
- 3.4.2.2.4 The qualification and experience of any proposed subcontractors that will support the operations and maintenance of the Facility.
- 3.4.2.3 **Project Approach (20 Points)**: The proposer's demonstrated understanding of the requirements in the Scope of Work and their approach to delivering up to 76 MGD of high-quality drinking water on a 24 hour per day, seven days a week basis.
  - 3.4.2.3.1 Demonstrated understanding of the requirements of the Scope of Work including the raw water quality, performance and production requirements, final water quality requirements and the proper management and disposal of Plant sludge.
  - 3.4.2.3.2 Demonstrated understanding of the state and federal regulatory compliance requirements for the City of Jackson water treatment facilities including a sampling and testing plan to fulfill those requirements.

- 3.4.2.3.3 The firm's plan to minimize the life cycle costs for all assets at the City of Jackson water treatment facilities including equipment repair and preventive, predictive, and corrective maintenance.
- 3.4.2.3.4 The firm's management plans, policies, procedures, and resources to manage the operations and maintenance of the City of Jackson water treatment facilities and effectively communicate with the City including reporting, document management, plant security, safety, quality control and assurance, and training.
- 3.4.2.3.5 The proposer's Transition Plan for the efficient transfer of operations and maintenance responsibilities from the City to the proposer.
- 3.4.2.3.6 Demonstrated understanding of the proposer's responsibilities to operate and maintain the City of Jackson Water Treatment Facilities under emergency operating conditions consistent with an Emergency Operations Plan.
- 3.4.2.3.7 Demonstrated understanding of the information technology requirements to operate and maintain the City of Jackson water treatment facilities and the proposer's approach to using information technology to enhance overall City of Jackson water treatment facilities performance.
- 3.4.2.3.8 The proposer's approach to innovation for enhancing the operating efficiency and the City of Jackson water treatment facilities sustainability and resiliency.

### **3.4.3 Financial Stability of the Proposer (Pass/Fail)**

**If proposer is an entity that is required to prepare audited financial statements**, proposer shall submit an annual report that includes:

- 3.4.3.1 Last two years of audited accrual-basis financial statements, including an income statement, cash flow statement, and balance sheet;
- 3.4.3.2 If applicable, last two years of consolidated statements for any holding companies or affiliates;
- 3.4.3.3 An audited or un-audited accrual-basis financial statement of the most recent quarter of operation; and
- 3.4.3.4 A full disclosure of any events, liabilities, or contingent liabilities that could affect Proposer's financial ability to perform this contract.

**If Proposer is a privately-owned entity or sole proprietorship for which audited financial statements are not required**, Proposer shall submit an annual report that includes:

- 3.4.3.5.1 Last two years of un-audited accrual-basis financial statements, including an income statement, cash flow statement, and balance sheet;
- 3.4.3.5.2 An audited or un-audited accrual-basis financial statement of the most recent quarter of



operation; and

3.4.3.5.3 A full disclosure of any events, liabilities, or contingent liabilities that could affect proposer’s financial ability to perform this contract.

**3.4.4 Price Proposal (35 Points)**

**THE PRICE PROPOSAL MUST BE SUBMITTED IN A SEPARATE SEALED ENVELOPE** that is clearly marked with the RFP title and solicitation number and the label “Price Proposal”. The proposer shall use the Price Proposal Form found in Exhibit IV to submit their Price Proposal. The price proposal score will be calculated as follows:

3.4.4.1 The lowest Year One (1) Total Fixed Monthly Service Fee (Lowest Fee) will be the base and receive 20 points. The other price proposal will be scored to the Lowest Fee as follows:

$$20*(1 - (\text{Year Total Fixed Monthly Fee} - \text{Lowest Fee})/\text{Lowest Fee})$$

**3.4.5 EVALUATION MATRIX**

<b>Evaluation Criteria</b>	<b>Max Points</b>
1 Responsiveness of Proposal	Pass/Fail
2 Technical Competence/Requirements	65 Points
2.1 Firm Qualifications	
2.2 Team Member Qualifications	
2.3 Project Approach	
3. Financial Stability of the Proposer	Pass/Fail
4. Price Proposal	35 Points
<b>TOTAL MAX AVAILABLE POINTS</b>	<b>100 POINTS</b>

**3.5 ADDITIONAL RELATED SERVICES**

In submitting its Proposal, proposer shall indicate a willingness to negotiate future potential additional services deemed appropriate for the operation and maintenance of the City of Jackson Water Treatment Facilities, as provided herein, or deemed necessary or desirable by the City.

**PART IV – SUBMISSION OF PROPOSAL**

**4.1 Instructions for Submission**

4.1.1 Number of Copies—Submit **five (5)** printed copies of the Proposal excluding Price, **one (1)** printed original signed in BLUE ink, and five (5) electronic copies of the Proposal on five (5) **separate thumb drives (Non-Password Protected)** sealed in a separate single envelope bearing the assigned solicitation number (located on the first page of this RFP document) to:

Tianna Whitsett  
Department of Public Works Administration  
Warren A. Hood Administration Building, 5<sup>th</sup> Floor  
Jackson, Mississippi 39201

- 4.1.2 Price Proposal, and Financial Stability documents—In a separate envelope submit **one (1)** printed copy of the Price Proposal, and Financial Stability documents bearing the assigned solicitation number (located on the first page of this RFP document) and clearly identifying the content as the “Price Proposal, and Financial Stability documents.” Delivery of the Price Proposal and Financial Stability documents should also be delivered to the addresses above.
- Neither the City nor the Unified Command for the 2022 Jackson Water Crisis shall bear responsibility for submitting responses on behalf of any proposer. Proposer(s) may submit their Proposal to the City any time prior to the stated deadline.
- 4.1.3 Time for Submission. Proposals shall be submitted no later than the date and time indicated for submission in this RFP. Late submittals will not be considered and will be returned unopened. With the exceptions of state holidays, the normal business hours for the City of Jackson are Monday through Friday, 8:00am to 5:00pm (Central).
- 4.1.4 Format—Proposals must be left-bound with information on both sides of the page when appropriate. Material should be organized following the order of the submission requirements separated by labeled tabs and shall be securely bound. Submission materials will not be returned to proposers.
- 4.1.5 Complete Submission—Proposers are advised to carefully review all the requirements and submit all documents and information as indicated in this RFP. Incomplete proposals may lead to a proposal being deemed non-responsive. Non-responsive proposals will not be considered.
- 4.1.6 Packaging and Labeling; Submission of Price Proposal—The outside wrapping/envelope of the printed Technical Proposal shall clearly indicate the RFP title, date, time for submission, and the name of the proposer. The required number of thumb drives containing the Technical Proposal shall be submitted in a separate sealed envelope and marked in the same manner as the printed Technical Proposal. The outside wrapping/ envelope of the Price Proposal shall clearly identify the content as “Price Proposal” and shall clearly indicate the RFP title, date, time for submission, and name of the Proposer. All other submission requirements shall be included with the proposer’s Technical Proposal.
- 4.1.7 Delivery of Proposals—The Proposal, including the Technical Proposal, all required forms, and the Price Proposal must be delivered by hand or mailed to the address shown on the cover sheet of

this RFP. If using an express delivery service, the package must be addressed and delivered specifically to the City of Jackson. Packages delivered by express mail services to other locations may not be re-delivered to its final destination by the deadline hour.

- 4.1.8 Proposers Responsible for Timely Submission—Proposer remains responsible for ensuring that its Proposal is received at the time, date, place, and office specified. The City assumes no responsibility for any Proposal not received, regardless of whether the delay is caused by the U.S. Postal Service, a courier delivery service, or some other act or circumstance.

## 4.2 Submission Requirements

- 4.2.1 Cover Letter—The cover letter shall be signed by an authorized representative of the Proposer. The letter should indicate the Proposer’s commitment to provide the services proposed.
- 4.2.2 Executive Summary—The executive summary should include a brief overview of the proposed approach for a partnership with the city for the operations and maintenance of the City of Jackson Water Treatment Facilities. It should include a summary of the overall strategy for implementation and the key personnel who will be responsible for the successful operation and maintenance of the Plant.
- 4.2.3 Offer and Submittal Form—The Offer and Submittal form must be **signed and notarized in BLUE ink** by an authorized representative(s) of the Proposer, which must be the actual legal entity that will perform the contract if awarded. Proposers should complete and submit EXHIBIT I - OFFER AND SUBMITTAL, EXHIBIT II - REFERENCES, EXHIBIT III - PROPOSED SUBCONTRACTORS, provided in the solicitation.
- 4.2.4 Firm Knowledge and Experience—Qualifications and specialized experience of the firm to successfully provide operations and maintenance services to operate and maintain the 76 MGD City of Jackson Water Treatment Facilities as evidenced by experience with projects of similar scope and magnitude.
- 4.2.4.1 Provide a general description of the firm’s qualification relative to the operations and maintenance of a large public water supply surface water treatment plant and any membrane water treatment plant experience.
- 4.2.4.2 Provide a detailed description of at least three similar contract operations and maintenance projects that are either ongoing or have been completed within the last five (5) years.
- 4.2.4.3 Provide a list of all contract operations and maintenance contracts initiated within the last ten years. The list should be limited to municipal water and wastewater treatment facilities located

within the United States of America. This list should include: Client, location, facility type, size, start date, status, contact name, contact phone number. The list shall include contracts completed or terminated.

#### 4.2.5 Project Staffing and Training Plan

- 4.2.5.1 Project Staffing and Training Plan Overview—Provide an overview of how the proposer plans to staff the management, operations, and maintenance of the City of Jackson Water Treatment Facilities on a 24-hours a day, seven days a week basis. Include a description of the number and length of each shift with the number of personnel on-site during each shift. Also include a description of how off-site management and technical support would be provided on a 24-hour a day, seven day a week basis. City of Jackson positions listed in Attachment B should be included in the plan.
- 4.2.5.2 Project Organization Charts—Provide the following organization charts for the Project:
- 4.2.5.3 Management Team – This organization chart should show the proposer’s executive leadership team responsible for the project and their relationship to the proposed Plant Manager(s). Identify the project sponsor or lead executive responsible for the project with the authority to legally and contractually commit the proposer on all aspects of this Project. Include corporate functions that will directly support the management of the Project including financial, Human Resources, Safety, training, etc.
- 4.2.5.4 Technical Support Team – This organization chart should show off-site technical resources available to support the operations and maintenance of the Facility. Technical support resources should include regulatory, water quality, and laboratory; process, electrical, mechanical, structural, pipeline, and instrumentation/controls engineering; safety; information technology; asset management; and maintenance management. Key individuals including any subcontractors should be identified in this organization chart.
- 4.2.5.5 Plant Staff – This organization chart should show only on-site City of Jackson Water Treatment Facilities staff. The organization chart should provide the names of key personnel including the Plant Manager(s), Chief-Operator(s), and maintenance Manager(s) as a minimum. The organization should show all full-time positions of the on-site staff for 24 hour a day, seven days a week management, operations, and maintenance of the Facility. All on-site staff positions that will be filled by subcontractors should be indicated including the name of the proposed subcontractors.
- 4.2.5.6 Sub-contract Support – This organization chart should show all proposed subcontractors that the Proposer plans to utilize in the management operations and maintenance of the Facility. The chart should indicate the areas of responsibility and relationship to the proposer and other

subcontractors on the project.

4.2.5.7 Staffing Plan—Based on the proposed Plant Staff Organization Chart above, describe the number of proposed on-site staff that are currently employed by the proposer or subcontractors and the number of proposed on-site staff that will have to be hired for the Project. Describe the process, resources and timing required to fully staff the Project.

4.2.5.8 Resumes of Key Personnel—Provide resumes of key personnel listed in the organization chart. Include position, years of relevant experience, education, licenses and registrations, location, and relevant experience.

### **4.3 Project Approach**

4.3.1 The Project Approach section should clearly describe the proposer’s understanding of the City of Jackson Water Treatment Facilities and the operations and maintenance requirements for 24 hours a day, seven days a week operation in full compliance with regulatory drinking water requirements. The proposer’s approach to the following should be included in the Project Approach:

4.3.1.1 Performance Requirements

4.3.1.2 Regulatory Compliance and Reporting Requirements

4.3.1.3 Sampling and Testing Plan including a Laboratory Plan

4.3.1.4 Water Quality Requirements

4.3.1.5 Plant Operations and Process Control

4.3.1.6 Energy and Chemical Efficiency

4.3.1.7 Asset Management Including Preventive, Predictive and Corrective Maintenance

4.3.1.8 Spare Part Requirements and Inventory Control

4.3.1.9 Emergency Operations

4.3.1.10 Sludge Handling and Disposal

4.3.1.11 Safety Program and Plan

4.3.1.12 Security

4.3.1.13 Information Technology

4.3.1.14 Sustainability and Resiliency

4.3.1.15 Training

4.3.1.16 Management, Reporting, and Communication Requirements

4.3.1.17 Document and Records Management

4.3.1.18 Quality Control and Quality Assurance

#### 4.3.1.19 Capital Project Coordination

#### 4.3.1.20 Transition Plan

**4.5 Client References (EXHIBIT II)**—Provide reference name and contact information for five (5) clients for whom Proposer has provided similar contract operations and maintenance services to municipalities within the past five (5) years. Provide size and scope of each project with brief descriptions of the projects. Specifically, provide the following:

4.5.1 Name and location of project(s);

4.5.2 “CURRENT” reference contact name, telephone numbers, and e-mail addresses;

4.5.3 Size and duration of the Contract Operations assignment;

4.5.4 Key personnel involved

**4.6 Legal Actions**—Provide a list of any pending litigation and include a brief description of the reason for legal action.

**4.7 Conflict of Interest**—Provide information regarding any real or potential conflict of interest(s). Failure to disclose any potential conflict of interest at the outset may be cause for rejection of the Proposal.

**4.8 Forms and Certifications**—Complete and return all forms and certifications provided in PART VIII– REQUIRED FORMS TO BE SUBMITTED WITH PROPOSAL.

**4.10 Price Proposal and Financial Stability Documents**—In a separate sealed envelope, please submit Exhibit IV Price Proposal with the level of detail provided in Section 3.

#### Financial Stability:

4.10.1 If proposer is an entity that is required to prepare audited financial statements, then proposer shall submit an annual report containing the information provided in E. Evaluation Criteria, Section 4 Financial Stability of Proposal (Pass/Fail) 3.1 – 3.4 of this document.

4.10.2 If proposer is a privately-owned entity or sole proprietorship for which audited financial statements are not required, proposer shall submit an annual report containing the information provided in E. Evaluation Criteria, Section 4 Financial Stability of Proposal (Pass/Fail) 3.5 – 3.8 of this document.

## **Part V – EXCEPTIONS TO TERMS AND CONDITIONS**

Sample contracts will be shared during the mandatory visit to OBC WTP. All exceptions to the Sample Agreement shall be submitted in a clearly identified separate section of the Proposal in which the proposer clearly cites the specific paragraphs within the Sample Agreement where the exceptions occur. Any exceptions not included in such a section shall be without force and effect in any resulting contract unless such exception is specifically approved by the City in a written statement. The proposer's preprinted or standard terms will not be considered as a part of any resulting contract.

## **Part VI – SPECIAL CONDITIONS**

### **6.1 No Contact Period**

Neither proposer(s) nor any person acting on proposer(s)'s behalf shall attempt to influence the outcome of the award by the offer, presentation or promise of gratuities, favors, or anything of value to any appointed or elected official or employee of the City or the Unified Command for the 2022 Jackson Water Crisis, their families or staff members. All inquiries regarding the solicitation are to be directed to the designated Representatives identified on the first page of the solicitation.

With the exception of proposer's formal response to the solicitation and written requests for clarification during the period officially designated for such purpose by the City Representative, neither proposer(s) nor persons acting on their behalf shall communicate with any appointed or elected official or employee of the City, their families, or staff through written or oral means in an attempt to persuade or attempt to persuade or influence the outcome of the award or to obtain or deliver information intended to or which could reasonably result in an advantage to any proposer from the time of issuance of the solicitation through the pre-award phase and up to the date the City publicly posts notice of any applicable award.

The Mississippi Emergency Management Agency (MEMA) issued a Request for Qualifications (RFQ) on October 14, 2022 attempting to procure identical services using the City's funds, which was issued without the City's authorization. The City does not intend to fund the MEMA RFQ and intends to fund only this RFP being issued directly by the City. As an exception to the No Contact Period, proposers with any questions about responding to the City's RFP should contact the City Attorney, Catoria P. Martin, Esq. at the Office of the City Attorney by telephone, 601-960-1799, or by email, [cmartin@jacksonms.gov](mailto:cmartin@jacksonms.gov). Likewise, the City Attorney or her representative may contact potential vendors solely for the purpose of inquiring about their intent to respond to the City's RFP and to clarify that of the two solicitations, this RFP issued by the City is the only RFP the City intends to fund.

## **6.2 Cancellation**

The City has sole discretion and reserves the right to cancel this RFP, or to reject any or all proposals received prior to contract award.

## **PART VII – INSTRUCTIONS TO PROPOSERS**

### **7.1 Mandatory Site Visits**

A Pre-Proposal Conference and tours of both OBC and JHF WTPs will be held as listed in Section 1.7 of this document. It will be assumed that potential proposer(s) attending this meeting have reviewed the RFP in detail and are prepared to bring up any substantive questions not already addressed by the City. The scheduled Plant site visits will be limited to no more than **three (3) representatives from each Prime Proposer**. Interested parties are responsible for their own transportation to OBC and JHF WTPs.

### **7.2 Examination of Documents and Requirements**

- 7.2.1 Each proposer shall carefully examine all RFP documents and familiarize themselves with all requirements prior to submitting a Proposal to ensure that the Proposal meets the intent of this RFP.
- 7.2.2 Before submitting a Proposal, each proposer shall be responsible for making all investigations and examinations that are necessary to ascertain conditions and affecting the requirements of this RFP. Failure to make such investigations and examinations shall not relieve the Proposer from obligation to comply, in every detail, with all provisions and requirements of the RFP.

### **7.3 Post-Proposal Discussions with Proposer(s)**

It is the City's intent to commence final negotiation with the proposer deemed most advantageous to the City. The City reserves the right to conduct post-Proposal discussions with any proposer(s).

## **PART VIII – REQUIRED FORMS TO BE SUBMITTED WITH PROPOSAL**

- 8.1 Offer and Submittal (Exhibit I)
- 8.2 List of References (Exhibit II)
- 8.3 List of Proposed Subcontractors (Exhibit III)
- 8.4 Price Proposal (Exhibit IV)



**EXHIBIT I – OFFER AND SUBMITTAL**

***NOTE:** Proposal must be signed and notarized by an authorized representative(s) of the proposer, which must be the actual legal entity that will perform the contract if awarded and the total fixed price contained therein shall remain firm for a period of sixty (60) days.*

"The proposer warrants that no person or selling agency has been employed or retained to solicit or secure this contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees. For breach or violation of this warranty, the City shall have the right to annul this agreement without liability or, at its discretion, to deduct from the contract prices or consideration, or otherwise recover the full amount of such commission, percentage, brokerage or contingent fee."

<b>Respectfully Submitted:</b>	
Full Company Name: (Print or Type Name of Proposer)	
Address of Proposer: Street Address or P.O. Box City, State and Zip Code	
Telephone Number of Proposer:	(    )
Federal Identification Number:	
Signature of Authorized Officer or Agent:	
Printed Name:	
Title:	
Date Signed:	/  /

**MISSISSIPPI NOTARY ACKNOWLEDGMENT**

THE STATE OF MISSISSIPPI - COUNTY OF \_\_\_\_\_

Personally appeared before me, the undersigned authority in and for the said county and state, on this \_\_\_\_\_ day of \_\_\_\_\_ in the year 20\_\_\_\_, within my jurisdiction, the within named \_\_\_\_\_, who acknowledged that he/she executed the above and foregoing instrument.

\_\_\_\_\_  
Notary Public Signature

Print \_\_\_\_\_

(Seal)

**EXHIBIT II – REFERENCES**

<b>Reference 1</b>	
Name:	
Address:	
Phone Number:	
Contract Award Date:	
Contract Completion Date:	
Contact Name/Title:	
Telephone Number:	
Email Address:	
Project Description: <i>(Include size and duration of the Contract Operations assignment and key personnel involved)</i>	

**EXHIBIT II – REFERENCES**

<b>Reference 2</b>	
Name:	
Address:	
Phone Number:	
Contract Award Date:	
Contract Completion Date:	
Contact Name/Title:	
Telephone Number:	
Email Address:	
Project Description: <i>(Include size and duration of the Contract Operations assignment and key personnel involved)</i>	

**EXHIBIT II – REFERENCES**

<b>Reference 3</b>	
Name:	
Address:	
Phone Number:	
Contract Award Date:	
Contract Completion Date:	
Contact Name/Title:	
Telephone Number:	
Email Address:	
Project Description: <i>(Include size and duration of the Contract Operations assignment and key personnel involved)</i>	

**EXHIBIT II – REFERENCES**

<b>Reference 4</b>	
Name:	
Address:	
Phone Number:	
Contract Award Date:	
Contract Completion Date:	
Contact Name/Title:	
Telephone Number:	
Email Address:	
Project Description: <i>(Include size and duration of the Contract Operations assignment and key personnel involved)</i>	

**EXHIBIT II – REFERENCES**

<b>Reference 5</b>	
Name:	
Address:	
Phone Number:	
Contract Award Date:	
Contract Completion Date:	
Contact Name/Title:	
Telephone Number:	
Email Address:	
Project Description: <i>(Include size and duration of the Contract Operations assignment and key personnel involved)</i>	



## EXHIBIT IV

### PRICE PROPOSAL, AND FINANCIAL STABILITY DOCUMENTS

**NOTE:** EXHIBIT IV and Financial Stability Documents shall be in a separate envelope clearly identifying the content as the “**Price Proposal, and Financial Stability documents.**” Delivery of the Price Proposal and Financial Stability documents should be to:

Office of the Municipal Clerk, City Hall, Jackson, Mississippi 39201

#### PRICE PROPOSAL:

The price proposal shall be submitted to include each identified component listed below and shall be complete in every detail. The price proposal shall identify all terms and conditions associated with the price proposal. All pricing exceptions shall be noted. Failure to do so will be considered cause for disqualification. The format outlined in this exhibit is to be followed by proposers in order to allow for the proper evaluation and comparison of Cost Proposals. Legibility, clarity and completeness of the Price Proposal are essential. All information in this exhibit must be readable and understandable. Any erasures or other changes in the Price Proposal must be initialed by a person with the authority to commit the proposer to such change. In cases where total amounts do not agree with the amounts identified for individual items, the amounts presented for the individual items may be added to compute the correct total amount.

1. Price should be submitted as a monthly and lump sum for Operations:  
**1A: Monthly: \$** \_\_\_\_\_ **1B: Lump Sum: \$** \_\_\_\_\_
  
2. Price should be submitted as a monthly and lump sum for Maintenance:  
**2A: Monthly: \$** \_\_\_\_\_ **2B: Lump Sum: \$** \_\_\_\_\_
  
3. Maintenance items more than \$5,000 (to be approved individually as needed) shall be priced according to the unit prices as proposed below:
  - a) Hourly rates are fully burdened – no additional mark up for benefits and/or overtime.
  - b) Equipment rates include operator and associated transportation to work site.
  - c) Material mark-up will be applied to actual invoices (open book).



*No work is guaranteed under the Agreement nor is there a limit on the total quantities that could be approved and required to be performed.*

ITEM	UNIT	BID AMOUNT
WTP Maintenance Technician	\$/Hour	
WTP Maintenance Foreman	\$/Hour	
Pipefitter	\$/Hour	
Welder	\$/Hour	
Plumber	\$/Hour	
Electrician	\$/Hour	
Industrial Controls Technician	\$/Hour	
Industrial Controls Programmer	\$/Hour	
Rigger	\$/Hour	
Equipment Operator	\$/Hour	
Laborer	\$/Hour	
Maintenance Planner	\$/Hour	
Process Engineer	\$/Hour	
Engineering Technician	\$/Hour	
Crane	\$/Hour	
Vac Truck	\$/Hour	
Excavator	\$/Hour	
Backhoe	\$/Hour	
Dump Truck	\$/Hour	
Material Mark Up	%	

**TOTAL BID:** 1B (Operations Lump Sum) + 2B (Maintenance Lump Sum) = \$ \_\_\_\_\_

**CERIFICATION** We, the undersigned, agree to perform the services outlined in this RFP for the preceding as proposed above.

Full Company Name and Address:	
Signature:	
Name Printed:	
Title / Phone Number	



MISSISSIPPI STATE DEPARTMENT OF HEALTH

REPORT OF INSPECTION OF DRINKING WATER SUPPLY

PWS: 0250008 Class: A

An inspection of the CITY OF JACKSON water supply in HINDS county was made on 11/08/2021. Present at the time of inspection was MARY D CARTER, OPERATOR; CHARLES E WILLIAMS JR, OWNER; WRITER. Official CHARLES E WILLIAMS JR Address PO BOX 17 JACKSON MS 39205 W.W. Operator MARY D CARTER Address 1053 WHITSETT WALK JACKSON MS 39206 No. Connections 71486 No. Meters \_\_\_ Population Served 173514 Field Chemical Analysis: pH \_\_\_ Cl2(free) \_\_\_ Cl2(total) \_\_\_ H2S N/A Iron \_\_\_ Fluoride \_\_\_ Point of Sampling DISTRIBUTION Water Rates \_\_\_ This inspection included a sanitary survey for compliance with the Ground Water Rule.

COMMENTS

Technical: 1 Managerial: 4 Financial: 4

OVERALL CAPACITY RATING: 3.0 / 5.0

1. The plants were inspected on November 8, 2021. Present at JH Fewell were Terence Byrd, James Perry, Chris Ward, Charles Williams, and Keith Allen. Present at OB Curtis were Robert Loftin, LaTanya Thomas, Richard Harper, Hekemia Lawrence, and Keith Allen. The wells and tanks were inspected on November 9, 2021. Present were Terence Byrd and James Perry. The records at the Hood Building were inspected on November 10, 2021. Present were Dr. Charles Williams, Mary Carter, Marlin King, and Tim Cage.

2. The following deficiencies noted in the November 2020 Sanitary Survey have been resolved:
  - a.) The walkway replacement project at JH Fewell.
  - b.) The claritrac system was fully operational at JH Fewell.
  - c.) The TV Road tank is designated as inactive will be inspected once the City is able to use that booster station.
  - d.) The chlorine weight indicator had been replaced and the ammonia feed line has been replaced. The disinfection system is able to run in automatic, but it was reported by Mr. Allen that it runs better in manual.
3. The following deficiencies noted in the February 2020 Sanitary Survey were underway, but not yet fully resolved:
  - a.) Only one basin at OB Curtis had a claritrac system functioning. It was reported that the City plans to work on these units one basin at a time in the spring of 2022. Due to the claritrac system not functioning, operators must drop the three basins on a routine basis to clean the sludge from them. Constantly doing this leads to issues with treatment chemical dosing, thus affecting filter effectiveness.
  - b.) The cover for the membrane system at OB Curtis was under construction at the time of inspection.
  - c.) The last two flow meters to be replaced at JH Fewell are part of the upcoming corrosion control project. OB Curtis was lacking one total chlorine analyzer and a 24" flow meter. Both plants now have instruments techs and all analyzers/monitors are being cleaned and calibrated on a routine basis.
  - d.) The corrosion control study at JH Fewell has been completed and accepted. Treatment recommendations have been made, funding has been secured, and the design phase is underway.
  - e.) The Membrane Integrity Testing (MIT) is the GE/Suez Zeeweed Z500D system's method of proving the fibers are achieving LT2 Log Removal Values (LRV) for cryptosporidium removal. If a train fails MIT, and the LRV is not reported, then the City cannot assure their customers and MSDH that they are properly treating the water to Safe Drinking Water Act Standards. There are various reasons as to why the MIT fails, but according to the CFR, none of those matter for regulation purposes. The MIT must be functioning for all trains in order to stay online. If they cannot pass MIT, then the train must be taken offline immediately. This item has improved in the last year, but there are remaining issues with valves and the timing of their opening/closing that cause the system to kick out. It was reported that new valves and sequence timing will be part of Train 5 fiber replacement in 2022.
  - f.) JH Fewell conventional filters #24, 26, 28 have a plan in place to be put back in service. Filter #28 needs an actuator and has been ordered. Filters #24 & 26 are planned for rehabilitation in 2022. All other filters at JH Fewell and OB Curtis have a Scope of Work set up for SRF Loan #3, as reported by Dr. Williams.
4. The following deficiencies noted in the February 2020 Sanitary Survey have not had action at the time of inspection:
  - a.) The intake building at the reservoir is in failing condition with holes in the roof. The potassium permanagate feed system at this location is inoperable.
5. While there are still so many outstanding issues with the water system, MSDH requests that the Weekly Operating Reports with logbook entries continue.

6. The following deficiency was noted during the November 2021 Sanitary Survey:
  - a.) Pumps & Controls (OB Curtis) - The fire on April 30, 2021 caused all of the High Service #2 pumps to be taken out of service. At the time of inspection there was no target date to have the pumps repaired and put back in service. The loss of these five pumps has caused multiple elevated tanks to be low or empty and has caused certain areas of the distribution to have sustained low pressure. The loss has also caused the City's design capacity to go from 78% in 2020 to 93% in 2021.
  
7. The following comments outline the changes made to the Design Capacity Calculations from the 2020 Calculations. If at any time filters, trains, or pumps are brought back online, we will recalculate the Design Capacity upon request.
  - a.) JH Fewell: Only the online filters were included in the calculations. This includes four 2.0 MGD filters and nine 2.5 MGD filters. This did not affect the plant's ability to treat their assigned 20 MGD. It did affect the contact time in the online filters and put more importance on the chlorine dosage and the UV light disinfection.
  
  - b.) OB Curtis Conventional: Credit was given for the four online filters, bringing that side's capacity from 25 MGD to 16.8 MGD. The CT calculations were not changed. If CT is met at 25 MGD, it is met at the lower flow of 16.8 MGD.
  
  - c.) OB Curtis Membrane: Credit was given for the four trains that are consistently passing MIT and online at the time of inspection, bringing that side's capacity from 25 MGD to 16.8 MGD. If CT is met at 25 MGD, it is met at the lower flow of 16.8 MGD.
  
  - d.) OB Curtis Pumps: The electrical fire on April 30, 2021 caused all High Service #2 pumps to be taken out of service until repairs can be made. At the time of inspection there was no estimated date in which they would be back in service. All HS2 pumps, plus HS1 pump #2 which has been out of service over a year, have been taken out of the calculations.
  
  - d.) The 1.0 MG Byram tank, 0.2 MG Suncrest tank, and 1.0 MG Elaine tank are not included in the elevated tank capacity. The Byram tank has been offline for over a year. The Suncrest and Elaine tanks were empty at the time of inspection. Weekly Operating Reports show that these two tanks are often empty.
  
  - e.) Due to the above items, the City is now serving 93% of the capacity it was designed to serve. It is vital to the continued operations of the City that projects stay on track to increase the City's supply capacity.
  
8. All online conventional filters at both plants had turbidities less than 0.3 NTU at the time of inspection. Membrane train #1 passed MIT with 5.168, train #2 passed MIT with 5.203, #3 had passed MIT with 5.031 and train #6 had passed MIT with 4.878. All trains had turbidities less than 0.15 NTU.
  
9. Mr. Allen discussed an upcoming winterization project at OB Curtis. They plan to move the soda ash pumps into the old lime pump room, insulate above-ground piping at the raw water station and pre-ox basin, and install a new soda ash tank.
  
10. Mr. Loftin reported trouble with the level indicator in Soda Ash Silo 1 at OB Curtis.

11. Based on operator comments, the Membrane treatment trains are not being properly cleaned due to the inability of the trains to perform Tank Deconcentrations (Tank Decon) and daily Maintenance cleans (M Cleans) as required by the vendor. Additionally, faulty feed valves on Trains 1, 3, and 4 are remaining open and not allowing the sludge to be completely drained from the trains during cleans causing ineffective cleans. Recovery Cleans (R-Cleans) are also poorly conducted in manual due to the system having failing valves attached to the Clean In Place (CIP) tanks and piping. These cleanings are needed to maintain the overall system health and to prolong the life of the train fibers and other attached equipment.
12. The yard at the Forest tank had trees that have limbs hitting the tank. These limbs need to be cut back to prolong the life of the exterior paint.
13. The Chastain tank yard has a pine tree leaning toward the fence and apartments next door. This tree needs to be removed.
14. The gate on the fence surrounding the Zoo tank needs to be repaired to prevent unauthorized access.
15. The Windsor Rd Booster Station fence has some erosion at the back side of the fence that needs to be addressed. It was also observed that some of the block is eroding.
16. Beginning July 1, 2021 the target for pH is 9.0 - 9.5 leaving the plants and the current for alkalinity is 15 mg/L or greater. At the time of inspection, only OB Curtis HS #1 was meeting pH target and all entry points were meeting the alkalinity target. (T1, T2-1)
17. The lab equipment at JH Fewell should mirror the equipment at OB Curtis. Currently JH Fewell can run all water quality parameters except color, iron, free ammonia, and monochloramine. Since the City uses chloramines as their disinfectant, each plant should be able to check all four parameters (free chlorine, total chlorine, free ammonia, monochloramine) to be assured treatment is adequate. (T2-2)
18. The two tanks inspected this year were Magnolia & NW Industrial. By the next MSDH inspection, a plan should be presented to address the recommendations on these two tanks plus the five tanks inspected in 2020 (the two ground tanks at JH Fewell, Maddox Rd, Cedar Hills, and Chastain). (T2-3)
19. The water loss report presented at the inspection showed an annual water loss of greater than 40%. (T4-1)
20. Due to OB Curtis not being able to pump enough water to maintain water all elevated storage tanks, this results in calls of low pressure. (T4-3)
21. Credit was not given for T5-1 because the system does not have the ability to provide water during a prolonged power outage. In order to get credit, the City will need to obtain generators capable of operating enough of the plant capacity to keep pressure in the system during a prolonged power outage.

- 22. Credit was not given for T5-2 because the City needs both treatment plants and the wells to provide water for all customers. If any of them were to go offline, the others could not compensate.
- 23. Ms. Carter reported that while a cut-off list is generated each billing cycle, the City is still not cutting off delinquent accounts. (F3)
- 24. Below is a breakdown of the water quality parameters recorded during the inspection:

	JHF	OBC HS #1	OBC HS #2
pH	9.8	9.4	9.6
Cl2 free	0.1 mg/L	0.1 mg/L	0.2 mg/L
Cl2 total	3.1 mg/L	2.7 mg/L	2.8 mg/L
Free ammonia	0.3 mg/L	0.0 mg/L	0.01 mg/L
Monochloramine	2.64 mg/L	2.36 mg/L	2.53 mg/L
Iron	0.01 mg/L	0.0 mg/L	0.00 mg/L
Manganese	0.03 mg/L	0.004 mg/L	0.007 mg/L
Turbidity	0.14 NTU	0.117 NTU	0.140 NTU
Alkalinity	26 mg/L	35.4 mg/L	43.1 mg/L
Hardness	55 mg/L	19.4 mg/L	16.3 mg/L
Color	2	2	3
Fluoride	1.2 mg/L	1.8 mg/L	0.8 mg/L

Completed by Amy L. McLeod, E.I. on 12/09/2021.

Reviewed by Greg Caraway, P.E. on 12/13/2021.

If you have any questions, please call (601)576-7518.

pc:

CHARLES E WILLIAMS JR, OFFICIAL  
 MARY D CARTER, OPERATOR  
 HONORABLE CHOKWE ANTAR LUMUMBA, MAYOR  
 EPA REGION 4

**Mississippi State Department of Health  
Bureau of Public Water Supply**

**STANDARD FORM**

**FY 2022 Public Water System Capacity Assessment Form**

**NOTE:** This form must be completed whenever a routine sanitary survey of a public water system is conducted by a regional engineer of the Bureau of Public Water Supply

PWS ID#: 0250008 Class: A Survey Date: 11-08-2021 County: HINDS  
 Public Water System: CITY OF JACKSON Conn: 71486  
 Certified Waterworks Operator: MARY D CARTER Pop: 173514

**CAPACITY RATING DETERMINATION**

Technical (T) Capacity Rating: [ 1 ] Managerial (M) Capacity Rating [ 4 ] Financial (F) Capacity Rating [ 4 ]

$$\text{Capacity Rating} = \frac{T+M+F}{3} = \frac{9}{3} = 3$$

**Overall Capacity Rating = 3.0**

Completed by Amy L. McLeod, E.I. on 11/30/2021

Reviewed by Greg Caraway, P.E. on 12/13/2021

**Comments:** \_\_\_\_\_

Technical Capacity Assessment	Point Scale	Point Award
[T1] Does the water system have any significant deficiencies? <input checked="" type="radio"/> Y <input type="radio"/> N ]	N - 1pt. Y - 0pt.	0
[T2] 1) Was the water treatment process functioning properly? <input type="radio"/> Y <input checked="" type="radio"/> N ] (i.e. Is pH, iron, chlorine, fluoride, etc. within acceptable range?) 2) Was needed water system equipment in place and functioning properly at the time of survey? <input type="radio"/> Y <input checked="" type="radio"/> N ] (NOTE: Equipment deficiencies must be identified in survey report.) 3) Were records available to the regional engineer clearly showing that all water storage tanks have been inspected and cleaned or painted (if needed) within the past 5 years? <input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> NA ] (NOTE: All YESs required to receive point)	All Y - 1 pt. Else - 0 pt.	0
[T3] 1) Was the certified waterworks operator or his/her authorized representative present for the survey? <input type="radio"/> Y <input checked="" type="radio"/> N ] 2) Was PWS Operations record up to date and properly maintained? <input type="radio"/> Y <input checked="" type="radio"/> N ] (Are minimum days being met based on system classification) 3) Was the water system properly maintained at the time of survey? <input type="radio"/> Y <input checked="" type="radio"/> N ] 4) Did operator/system personnel satisfactorily demonstrate to the regional engineer that he/she could fully perform all water quality tests required to properly operate this water system? <input type="radio"/> Y <input checked="" type="radio"/> N ] (NOTE: All YESs required to receive point)	All Y - 1 pt. Else - 0 pt.	1
[T4] 1) Does water system routinely track water loss and were acceptable record available for review? <input type="radio"/> Y <input checked="" type="radio"/> N ] 2) Is water system overloaded? (i.e. serving customers in excess of MSDH approved design capacity)? <input type="radio"/> Y <input checked="" type="radio"/> N ] 3) Was there any indication that the water system is/has been experiencing pressure problems in any part(s) of the distribution system? <input type="radio"/> Y <input checked="" type="radio"/> N ] (based on operator information, customer complaints, MSDH records, other information) 4) Are well pumping tests performed routinely? <input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> NA ] (NOTE: YES FOR #1 & YES OR N/A FOR #4 AND NOs FOR #2 & #3 required to receive point)	1)Y - pt. 2)N - pt. 3)N - pt. 4)Y - pt.	0
[T5] 1) Does the water system have the ability to provide water during power outages? (i.e. generator, emergency tie-ins, etc.) <input type="radio"/> Y <input checked="" type="radio"/> N ] 2) Does the water system have a usable backup source of water? <input type="radio"/> Y <input checked="" type="radio"/> N ] (NOTE: Must be documented on survey report)	All Y - 1 pt. Else - 0 pt.	0
<b>TECHNICAL CAPACITY RATING = [ <u>1</u> ] (Total Points)</b>		

<b>Managerial Capacity Assessment</b>	<b>Point Scale</b>	<b>Point Award</b>
[M1] Were all SDWA required records maintained in a logical and orderly manner and available for review by the regional engineer during the survey? <input checked="" type="radio"/> Y <input type="radio"/> N	Y - 1pt. N - 0pt.	1
[M2] 1) Have acceptable written policies and procedures for operating this water system been formally adopted and were these policies available for review during the survey? <input checked="" type="radio"/> Y <input type="radio"/> N 2) Have all board members (in office more than 12 months) completed Board Member Training? <input type="radio"/> Y <input type="radio"/> N <input checked="" type="radio"/> NA 3) Does the Board of Directors meet monthly and were minutes of Board meetings available for review during the survey? <b>(NOTE: Quarterly meetings allowed if system has an officially designated full time manager)</b> <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA <b>(NOTE: ALL YESs or NAs required to receive point. NA - Not Applicable)</b>	All Y - 1 pt. Else - 0 pt.	1
[M3] Has the water system had any SDWA violations since the last Capacity Assessment? <input checked="" type="radio"/> Y <input type="radio"/> N	N - 1pt. Y - 0pt.	0
[M4] Has the water system developed a long range improvements plan and was this plan available for review during the survey? <input checked="" type="radio"/> Y <input type="radio"/> N	Y - 1pt. N - 0pt.	1
[M5] 1) Does the water system have an effective cross connection control program in compliance with MSDH regulations? <input checked="" type="radio"/> Y <input type="radio"/> N 2) Was a copy of the MSDH approved bacti site plan and lead/copper site plan available for review during the survey and do the bacti results clearly show that this approved plan is being followed? <input checked="" type="radio"/> Y <input type="radio"/> N <b>(NOTE: All YESs required to receive point)</b>	All Y - 1 pt. Else - 0 pt.	1
<b>MANAGERIAL CAPACITY RATING = [ <u>4</u> ] (Total Points)</b>		

<b>Financial Capacity Assessment</b>	<b>Point Scale</b>	<b>Point Award</b>
[F1] Has the water system raised water rates in the past 5 years? <input checked="" type="radio"/> Y <input type="radio"/> N <b>(NOTE: Point may be awarded if the water system provides acceptable financial documentation clearly showing that a rate increase is not needed, i.e. revenue has consistently exceeded expenditures by at least 10%, etc.)</b>	Y - 1pt. N - 0pt.	1
[F2] Does the water system have an officially adopted policy requiring that water rates be routinely reviewed and adjusted as appropriate and was this policy available for review during the survey? <input checked="" type="radio"/> Y <input type="radio"/> N	Y - 1pt. N - 0pt.	1
[F3] Does the water system have an officially adopted cut-off policy for customers who do not pay their water bills, was a copy of this policy available for review by the regional engineer, and do system records (cut-off lists, etc.) clearly show that the water system effectively implements this cut-off policy? <input type="radio"/> Y <input checked="" type="radio"/> N	Y - 1pt. N - 0pt.	0
[F4] Was a copy of the water system's officially adopted annual budget available for review by the regional engineer and does the water system's financial accounting system clearly and accurately track the expenditure and receipt of funds? <input checked="" type="radio"/> Y <input type="radio"/> N	Y - 1pt. N - 0pt.	1
[F5 - Municipal Systems] 1) Was a copy of the latest audit report available for review at the time of the survey? <input checked="" type="radio"/> Y <input type="radio"/> N 2) Does this audit report clearly show that water and sewer fund account(s) are maintained separately from all other municipal accounts? <input checked="" type="radio"/> Y <input type="radio"/> N <b>(NOTE: Yes answer to all questions required to receive point.)</b>	All Y - 1 pt. Else - 0 pt.	1
[F5 - Rural Systems] 1) Was the latest financial report / audit report available for review? <input type="radio"/> Y <input type="radio"/> N 2) Does the latest financial report show that receipts exceeded expenditures? <input type="radio"/> Y <input type="radio"/> N <b>(NOTE: Yes answer to both questions required to receive point)</b>	All Y - 1 pt. Else - 0 pt.	1
<b>FINANCIAL CAPACITY RATING = [ <u>4</u> ] (Total Points)</b>		



**MISSISSIPPI STATE DEPARTMENT OF HEALTH**



**MISSISSIPPI DEPARTMENT OF HEALTH  
BUREAU OF PUBLIC WATER SUPPLY  
DESIGN CAPACITY SHEET**

Attachment A, Page 8

System: **CITY OF JACKSON**  
ID: **0250008** Class: **A** County: **HINDS**

Date Completed: **12/08/2021**  
Connections - Actual: **71486** Equivalent: **82355**  
Design Capacity: **88750** Percent Design Capacity: **82355/88750 = 92.8%**

---

## J H FEWELL WATER TREATMENT PLANT

\*\*\*\* CT calculations for FEWELL \*\*\*\*

There are four disinfection segments at Fewell, and the contact time must be determined for each segment to achieve 4-log inactivation of viruses, 3-log inactivation of Giardia, and 3.5-log inactivation of Crypto.

Fewell is required to achieve 0.3 turbidity units 95% of the time to comply with the SWTR. If this treatment is achieved, credit can be given for 2-log removal of viruses & Crypto and 2.5-log removal of Giardia. Free chlorine, chloramination, and UV disinfection must then attain the remaining 2-log inactivation of viruses, 0.5-log inactivation of Giardia, and 1.5-log of Crypto.

## Book values:

CT required for 0.5-log inactivation of giardia at 10C and pH at 6.5 = 19 mg/L min

CT required for 2-log inactivation of viruses at 10C and pH at 6.5 = 3 mg/L min

The first segment is free chlorine contact between the point of chlorine injection (at the head of the outlet pipe from the sedimentation basin) and the point of ammonia injection (at the end of the outlet pipe just prior to ammonia injection).

The second is the contact time of free chlorine in the filters during normal filter operation.

The third is the contact time in the clearwell.

The fourth is the UV disinfection.

**\*\*BASED ON THE TURBIDITY FILTER DATA SUBMITTED ON MONTHLY OPERATING REPORTS, MSDH IS SETTING A MAXIMUM TREATMENT CAPACITY OF 20 MGD. THE 6/14 MGD SPLIT BETWEEN BASINS IS BASED ON STANDARD OPERATION WHEN 20 MGD IS BEING TREATED.\*\***

**\*\*CHLORINE RESIDUALS AND FLOW RATES UPDATED TO REFLECT WHAT THE PLANT WAS TREATING ON 11/08/21\*\***

## CT SEGMENT 1 (pipes between sed basins and ammonia injection):

The free chlorine is measured by chlorine analyzers which communicate with the ammonia feed system. The concentration of free chlorine in the pipe between Sed Basin #3 and the filters was 3.4 mg/L. The concentration of free chlorine in the pipe between Sed Basin #4 and the filters was 3.3 mg/L.

Calculating the free chlorine contact time between chlorine injection and ammonia injection (at maximum design flows):

Sed basin #3: Pipe dimensions: Length = 351 ft; Diameter = 42 in = 3.5 ft.

Volume in pipe =  $0.785 \times 3.5 \times 3.5 \times 351 \times 7.48 = 25,247$  gallons

Estimated flow through Sed basin #3 train: 6 MGD

Contact time =  $25,247 \text{ gallons} / 6,000,000 \text{ gal/day} \times 1440 \text{ min/day} = 6.1 \text{ min}$

Sed basin #4: Pipe dimensions: Length = 357 ft; Diameter = 48 in = 4 ft.

Volume = 33,540 gallons

Estimated flow through Sed basin #4 train: 14 MGD

Contact time =  $33,540 / 14,000,000 \times 1440 = 3.4 \text{ min}$

CT SEGMENT 1 (using shortest contact time of 3.22 min) =  $3.4 \text{ mg/L} \times 3.3 \text{ min}$   
= 11.2 mg/L min

**MISSISSIPPI DEPARTMENT OF HEALTH  
BUREAU OF PUBLIC WATER SUPPLY  
DESIGN CAPACITY SHEET**

Attachment A, Page 9

CITY OF JACKSON 12/08/2021

(Note: Virus inactivation is achieved in Segment 1; 11.2 mg/L min > 3 mg/L min)

SEGMENT 1 LOG INACTIVATION = 11.2 mg/L min / 19 mg/L min \* (0.5 log) = 0.3 log

CT SEGMENT 2 (Disinfection in filters):

Disinfectant contact time between filters and clearwell/storage outlet:

Calculate volume of water in filters and estimated residence time:

Volume = L X W X D (where D = depth of water above filter media)  
 = (20 ft x 10 ft x 1.5 ft) \* 7.48 gal/cu.ft. \* 9 filters +  
 (25 ft x 28 ft x 3 ft) \* 7.48 gal/cu.ft. \* 4 filters  
 = 20,196 gallons + 62,832 gallons  
 = 83,028 gallons

Residence time = (83,028 gallons / 20,000,000 gallons/day) \* 1440 min/day

Residence time = 6.0 minutes

CT SEGMENT 2 (assuming chlorine concentration = finished water chlorine concentration = 0.1 mg/L)

CT SEGMENT 2 = 0.1 mg/L \* 6.0 minutes = 0.6 mg/L min

SEGMENT 2 LOG INACTIVATION = 0.6 mg/L min / 19 mg/L min \* (0.5 log) = 0.016 log

CT SEGMENT 3 (Disinfection in the clearwell):

Using the clearwell volume of 3.8 MG and a pre-determined baffling factor of 0.233:

Contact time = 3.8 MG / 20 MGD x 1440 minutes/day x 0.233 = 63.7 minutes

Free chlorine measured in finished water = 0.1 mg/L

CT SEGMENT 3 = 63.7 minutes x 0.1 mg/L = 6.4 mg/L min

SEGMENT 3 LOG INACTIVATION = 6.4 mg/L min / 19 mg/L min \* (0.5 log) = 0.17 log

Total CT using free chlorine = (11.2 + 0.6 + 6.4) mg/L min = 18.2 mg/L min

Total LOG INACTIVATION using free chlorine = SEGMENT 1 + SEGMENT 2 + SEGMENT 3

Total LOG INACTIVATION using free chlorine = 0.3 + 0.016 + 0.17 = 0.486 log

CT SEGMENT 4 (UV Disinfection):

At the time of the inspection, Pump 2 was pumping 8 MGD and dosing 22 mJ/sq.cm and Pump 4 was pumping 7 MGD and dosing 25 mJ/sq.cm.

According to 40 CFR 141.720 (d)(1), a dose of 3.9 mJ/sq.cm. will achieve a 1.5 log inactivation of Crypto and 1.5-log inactivation of Giardia. Therefore, the UV disinfection more than adequately achieves the remaining inactivation of Giardia & Crypto.

NOTE: Any time that the UV disinfection is offline on any service pump, that service pump MUST be taken offline as free chlorine is not enough to achieve the log credit removal for Crypto.

\*\*\* FEWELL DESIGN CAPACITY \*\*\*\*

Rated treatment capacity of plant = 20 MGD (limiting factor)

Clearwell volume = 3.8 MG

2 additional ground storage tanks @ 5MG each = 10 MG

Total storage located at the plant = 3.8 MG + 10 MG = 13.8 MG

Usable storage (volume filled in 6 hours) = 20 MGD / 24 hrs/day x 6 hrs = 5 MG

Plant capacity = rated treatment capacity of plant + usable storage / 200 minutes

Plant capacity = 20 MGD + (5 MG / 200 min \* 1440 min/day) = 56 MGD

Service pump capacity = (9+9+9+7) = 34 MGD

Plant capacity exceeds service pump capacity so:

**MISSISSIPPI DEPARTMENT OF HEALTH  
BUREAU OF PUBLIC WATER SUPPLY  
DESIGN CAPACITY SHEET**

CITY OF JACKSON    12/08/2021

---

FEWELL DESIGN CAPACITY = 34 MGD

FEWELL DESIGN CAPACITY = 34,000,000 gal/day/1440 min/day = 23,611 GPM

---

O B CURTIS WATER TREATMENT PLANT

\*\*\*\* CT calculations for OB Curtis \*\*\*\*

This plant must meet 4-log inactivation of viruses, 3-log inactivation of Giardia, and 3.5-log inactivation of Crypto.

The conventional side is required to achieve 0.3 turbidity units 95% of the time to comply with the SWTR, so credit can be given by default for 2-log removal of viruses & Crypto and 2.5-log removal of Giardia. Free chlorine, chloramination, and UV disinfection must then attain the remaining 2-log inactivation of viruses, 0.5-log inactivation of Giardia, and 1.5-log of Crypto.

The membrane system is required to achieve <0.15 turbidity units 95% of the time to comply with the SWTR, so credit can be given by default for 2-log removal of viruses, 3-log inactivation of Giardia, and 2-log inactivation of Crypto. Free chlorine must achieve the remaining 2-log of viruses. Maintaining membrane integrity must achieve the remaining 1.5-log inactivation of Crypto.

**\*\*MEMBRANE INTEGRITY TESTING (MIT) MUST BE COMPLETED EVERY 24 HOURS, PER THE CFR. IF THE TRAIN FAILS MIT, IT MUST BE TAKEN OFFLINE UNTIL IT PASSES. IF TRAIN TURBIDITIES EXCEED 0.15 NTU, THAT TRAIN \*MUST\* BE TAKEN OFFLINE UNTIL IT PASSES MIT.\*\***

**\*\*THE CONVENTIONAL SIDE OF THE PLANT HAS 4 FILTERS ONLINE AND THE MEMBRANE SIDE OF THE PLANT HAS 4 TRAINS THAT CONSISTENTLY PASS MIT. CAPACITY OF THE PLANT HAS BEEN LOWERED TO REFLECT WHAT THE PLANT CAN ACTUALLY TREAT. EACH SIDE WAS RATED AT 25 MGD.**

25 MGD / 6 (FILTERS & TRAINS) = 4.2 MGD/FILTER OR TRAIN

CONVENTIONAL: 4.2 MGD \* 4 FILTERS = 16.8 MGD

MEMBRANE: 4.2 MGD \* 4 TRAINS = 16.8 MGD (online on 11-08-2021)

TOTAL PLANT CAPACITY: 33.6 MGD

CT CALCULATIONS WILL REMAIN AT MAX CAPACITY OF 25 MGD

Book values:

CT required for 0.5-log inactivation of giardia at 10C and pH at 6.5 = 19 mg/L min

CT required for 2-log inactivation of viruses at 10C and pH at 6.5 = 3 mg/L min

The clearwell is divided into two separate zones based on their baffling. The conventional and membrane treatment trains feed mirror image clearwells, so the T and CT values below apply to each treatment process.

Zone 1:

Volume = 1.989 MG; BF = 0.7

T = [(1.989 MG / 25 MGD)\*0.7] \* 1440 min/day = 80.2 min @ 25 MGD

Zone 2:

Volume = 1.658 MG; BF = 0.3

T = [(1.658 / 25 MGD)\*0.3] \* 1440 min/day = 28.7 min @ 25 MGD

Total T = 80.2 + 28.7 = 108.9 min

**MISSISSIPPI DEPARTMENT OF HEALTH  
BUREAU OF PUBLIC WATER SUPPLY  
DESIGN CAPACITY SHEET**

Attachment A, Page 11

CITY OF JACKSON 12/08/2021

The free chlorine residual measured from High Service 1 (conventional side) finished water = 0.1 mg/L

Ct<sub>25</sub> = 0.1 mg/l \* 108.9 minutes = 10.89 mg/L min

Virus inactivation achieved at 0.1 mg/L free chlorine at 25 MGD;  
10.89 mg/L min > 3 mg/L min

Giardia log inactivation = 10.89 mg/L min / 19 mg/L min \* (0.5) = 0.29 log  
Remaining 0.5-log Giardia inactivation not achieved by free chlorine contact time in clearwell.

UV disinfection - UV unit attached to each filter

Each UV unit must be dosing a minimum of 4 mJ/sq.cm. to achieve the final 1.5-log removal of Crypto and the remaining 0.21-log removal of Giardia.

\*All four online filters had UV units dosing 23.3 - 31.3 mJ/sq.cm. at the time of inspection

\*IF AT ANY TIME A UV UNIT IS OUT OF SERVICE, THE CORRESPONDING FILTER MUST BE TAKEN OUT OF SERVICE. CRYPTO AND GIARDIA REMOVAL IS NOT ACHIEVED WITHOUT UV DISINFECTION\*

Full CT credit for the conventional side at maximum treatment capacity of 25 MGD can be given, so full CT credit at decreased capacity of 16.8 MGD can be given.

The free chlorine residual measured from High Service 2 (membrane side) finished water = 0.2 mg/L.

Using this minimum concentration throughout the clearwell and flow rate of 25 MGD, the contact time is:

T = 108.9 min

CT = 0.2 mg/L \* 108.9 minutes = 21.78 mg/L min

Virus inactivation achieved at 0.3 mg/L free chlorine at 25 MGD;  
21.78 mg/L min > 3 mg/L min

Giardia & Crypto log inactivation achieved by maintaining turbidities <0.15 NTU 95% of the time. Any time turbidities exceed 0.15 NTU, that train must be taken offline.

Full CT credit for the membrane side at maximum treatment capacity of 25 MGD can be given, so full CT credit at decreased capacity of 16.8 MGD can be given.

Treatment capacity is not limited on either side by CT.

TOTAL TREATMENT CAPACITY AT OB CURTIS = Conventional (16.8 MGD) + Membrane (16.8 MGD)  
= 33.6 MGD

\*\*\* OB CURTIS DESIGN CAPACITY \*\*\*

Raw water pump capacity = (9+8+9+8+8+17+8+17) MGD = 84 MGD

Rated treatment capacity of plant = 33.6 MGD (limiting factor)

Service pump capacity = (8+8+22) = 38 MGD

\*\*HS2 pumps taken out since they have been offline since 04/30/2021; HS1 pump #2 taken out since it has been offline for over a year.)

Total storage located at the plant (clearwell capacity) = 10 MG

Usable storage (volume filled in 6 hours) = 33.6 MGD/24 hrs/day x 6 hrs = 8.4 MG

Total plant capacity = rated treatment capacity of plant + usable storage/200 minutes

Total plant capacity = 33.6 MGD + (8.4 MG/200min \* 1440 min/day) = 94 MGD

This does exceed the service pump capacity of 38 MGD, so:

OB CURTIS DESIGN CAPACITY = 38 MGD

**MISSISSIPPI DEPARTMENT OF HEALTH  
BUREAU OF PUBLIC WATER SUPPLY  
DESIGN CAPACITY SHEET**

CITY OF JACKSON 12/08/2021

---

TOTAL SYSTEM DESIGN CAPACITY

TOTAL CAPACITY OF FEWELL AND OB CURTIS PLANTS = 34 MGD + 38 MGD = 72 MGD  
72,000,000 gpd / 1440 min/day = 50,000 CONNECTIONS

TOTAL ELEVATED STORAGE ON SYSTEM:

0.5 MG + 1.0 + 0.5 + 1.5 + 1.0 + 0.5 + 1.0 + 0.25 + 1.5 = 7.75 MG

\*1.0 MG Byram tank taken out of calculations due to being offline (11-09-2020)

\*0.2 MG Suncrest tank & 1.0 MG Elaine tank taken out of calculations due to being empty on 11-08-2021

FINAL DESIGN CAPACITY FOR ENTIRE SYSTEM:

Final design capacity = 50,000 + (7,750,000 gal/200 min) = 88,750 CONNECTIONS

EQUIVALENT CONNECTIONS CALCULATIONS:

COMMERCIAL/INDUSTRIAL USAGE FACTOR CALCULATIONS:

Ciu = Average total CI use(gal)/avg total use (gal)

The Ciu factor calculated from 2019 data = 0.5

Number of Actual Connections = 54,679

Apartment Adjusted = # Units X 2/3 = 16,807 x 2/3 = 11,205

Total Adjusted Connections = Actual + Apartment Adjusted  
= 54,679 + 11,205 = 65,884

Eq. connections = # of adjusted conn + (# of adjusted conn x Ciu factor x 0.5)  
= 65,884 + (65,884 x 0.5 x 0.5)  
= 82,355

Total final equivalent connections = 82,355

THEREFORE THIS SYSTEM IS CURRENTLY AT 82,355/88,750 = 93% CAPACITY.



MISSISSIPPI STATE DEPARTMENT OF HEALTH

**REPORT OF INSPECTION OF DRINKING WATER SUPPLY**

**PWS:** 0250012 **Class:** D

An inspection of the CITY OF JACKSON-MADDOX RD. water supply in HINDS county was made on 11/09/2021. Present at the time of inspection was MARY D CARTER, OPERATOR; CHARLES E WILLIAMS JR, OWNER; TERENCE BYRD, CERTIFIED OPERATOR; JAMES PERRY, CERTIFIED OPERATOR; WRITER. Official CHARLES E WILLIAMS JR Address PO BOX 17 JACKSON MS 39205 W.W. Operator MARY D CARTER Address 1053 WHITSETT WALK JACKSON MS 39206 No. Connections 5762 No. Meters \_\_\_ Population Served 16555 Field Chemical Analysis: pH \_\_\_ Cl2(free) 3.8 Cl2(total) \_\_\_ H2S N/A Iron \_\_\_ Fluoride 0.8 Point of Sampling SIWELL RD FD Water Rates \_\_\_ This inspection included a sanitary survey for compliance with the Ground Water Rule.

**COMMENTS**

Technical: 1 Managerial: 5 Financial: 4

**OVERALL CAPACITY RATING: 3.3 / 5.0**

1. This annual inspection also served as a Sanitary Survey as required under the Ground Water Rule. The significant deficiency from the March 2020 Sanitary Survey has been partially completed. The TV Road ground tank is inactive and the work needed on that site will be done once the City is ready to re-activate that site. The Maddox Road tank portion of that significant deficiency is still active and is outlined below in 'e.' A new significant deficiency was cited and it relates to multiple sites. Details are in the following comments. (T1, T2-2, T3-3)
  - a. The fence at Well #2 needs some work near the gate.
  - b. At Well #3, the old well materials need to be hauled off and the site should be graded so that water does not stand near the well foundation. The well insulation should either be removed completely or redone.
  - c. It was reported by field staff that when the well was initially repaired and brought back online, the contractor failed to fully replace the fence to the pre-repair state. Two sides of the fence are missing barbed wire.
  - d. At Well #7, the fencing along Hwy 18 has become severely overgrown with vegetation. It all needs to be removed and kept away from the fence line.
  - e. The Maddox Rd tank needs drainage work done around the base. It appeared that the tank had been overflowing and water was holding near the base. Work needs to be done so that water flows away from the tank.

2. The system is conducting triggered monitoring to comply with the Ground Water Rule.
3. Since the last inspection, all well houses have been painted and have had all doors replaces. All doors were locked at the time of inspection.
4. The water loss report presented at the inspection showed an annual water loss of greater than 40%.
5. Credit was not given for T5-1 because the system does not have the ability to provide water during a prolonged power outage. In order to get credit next year, the City will need to obtain generators capable of operating enough of the wells to keep pressure in the system during a prolonged power outage.
6. Ms. Carter reported that while a cut-off list is generated each billing cycle, the City is still not cutting off delinquent accounts. (F3)

GENERAL & REMINDER COMMENTS:

7. Whenever system pressure is lost, even for brief periods of time, contaminants may be introduced to the system through back flow or back-siphonage. When this occurs, Officials should notify all customers in the affected area to boil their drinking water until clear bacteriological samples have been obtained.
8. All dead-end water lines should be flushed on a routine schedule to clear the lines of sediment and stagnant water.
9. When repairs are made on the water distribution system, all lines affected should be properly chlorinated and flushed before they are placed back in service.
10. To prevent unauthorized entrance, Officials should ensure that all gates, doors, latches on tanks, etc. are kept locked at all time

Completed by Amy L. McLeod, E.I. on 11/24/2021.

Reviewed by Greg Caraway, P.E. on 11/29/2021.

If you have any questions, please call (601)576-7518.

pc:

CHARLES E WILLIAMS JR, OFFICIAL  
MARY D CARTER, OPERATOR

**Mississippi State Department of Health  
Bureau of Public Water Supply**

STANDARD FORM

**FY 2022 Public Water System Capacity Assessment Form**

**NOTE:** This form must be completed whenever a routine sanitary survey of a public water system is conducted by a regional engineer of the Bureau of Public Water Supply

PWS ID#: 0250012 Class: D Survey Date: 11-09-2021 County: HINDS  
 Public Water System: CITY OF JACKSON-MADDOX RD. Conn: 5762  
 Certified Waterworks Operator: MARY D CARTER Pop: 16555

**CAPACITY RATING DETERMINATION**

Technical (T) Capacity Rating: [ 1 ] Managerial (M) Capacity Rating [ 5 ] Financial (F) Capacity Rating [ 4 ]

$$\text{Capacity Rating} = \frac{T+M+F}{3} = \frac{10}{3} = 3.3$$

**Overall Capacity Rating = 3.3**

Completed by Amy L. McLeod, E.I. on 11/21/2021

Reviewed by Greg Caraway, P.E. on 11/29/2021

**Comments:** \_\_\_\_\_

<b>Technical Capacity Assessment</b>		<b>Point Scale</b>	<b>Point Award</b>
[T1] Does the water system have any significant deficiencies? <input checked="" type="radio"/> Y <input type="radio"/> N ]		N - 1pt. Y - 0pt.	0
[T2] 1) Was the water treatment process functioning properly? <input checked="" type="radio"/> Y <input type="radio"/> N ] (i.e. Is pH, iron, chlorine, fluoride, etc. within acceptable range?) 2) Was needed water system equipment in place and functioning properly at the time of survey? <input checked="" type="radio"/> Y <input type="radio"/> N ] (NOTE: Equipment deficiencies must be identified in survey report.) 3) Were records available to the regional engineer clearly showing that all water storage tanks have been inspected and cleaned or painted (if needed) within the past 5 years? <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA ] (NOTE: All YESs required to receive point)		All Y - 1 pt. Else - 0 pt.	0
[T3] 1) Was the certified waterworks operator or his/her authorized representative present for the survey? <input checked="" type="radio"/> Y <input type="radio"/> N ] 2) Was PWS Operations record up to date and properly maintained? <input checked="" type="radio"/> Y <input type="radio"/> N ] (Are minimum days being met based on system classification) 3) Was the water system properly maintained at the time of survey? <input checked="" type="radio"/> Y <input type="radio"/> N ] 4) Did operator/system personnel satisfactorily demonstrate to the regional engineer that he/she could fully perform all water quality tests required to properly operate this water system? <input checked="" type="radio"/> Y <input type="radio"/> N ] (NOTE: All YESs required to receive point)		All Y - 1 pt. Else - 0 pt.	0
[T4] 1) Does water system routinely track water loss and were acceptable record available for review? <input checked="" type="radio"/> Y <input type="radio"/> N ] 2) Is water system overloaded? (i.e. serving customers in excess of MSDH approved design capacity)? <input checked="" type="radio"/> Y <input type="radio"/> N ] 3) Was there any indication that the water system is/has been experiencing pressure problems in any part(s) of the distribution system? <input checked="" type="radio"/> Y <input type="radio"/> N ] (based on operator information, customer complaints, MSDH records, other information) 4) Are well pumping tests performed routinely? <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA ] (NOTE: YES FOR #1 & YES OR N/A FOR #4 AND NOs FOR #2 & #3 required to receive point)		1)Y - pt. 2)N - pt. 3)N - pt. 4)Y - pt.	1
[T5] 1) Does the water system have the ability to provide water during power outages? (i.e. generator, emergency tie-ins, etc.) <input checked="" type="radio"/> Y <input type="radio"/> N ] 2) Does the water system have a usable backup source of water? <input checked="" type="radio"/> Y <input type="radio"/> N ] (NOTE: Must be documented on survey report)		All Y - 1 pt. Else - 0 pt.	0
<b>TECHNICAL CAPACITY RATING = [ <u>1</u> ] (Total Points)</b>			



<b>Managerial Capacity Assessment</b>	<b>Point Scale</b>	<b>Point Award</b>
[M1] Were all SDWA required records maintained in a logical and orderly manner and available for review by the regional engineer during the survey? <input checked="" type="radio"/> Y <input type="radio"/> N	Y - 1pt. N - 0pt.	1
[M2] 1) Have acceptable written policies and procedures for operating this water system been formally adopted and were these policies available for review during the survey? <input checked="" type="radio"/> Y <input type="radio"/> N 2) Have all board members (in office more than 12 months) completed Board Member Training? <input type="radio"/> Y <input type="radio"/> N <input checked="" type="radio"/> NA 3) Does the Board of Directors meet monthly and were minutes of Board meetings available for review during the survey? (NOTE: Quarterly meetings allowed if system has an officially designated full time manager) <input type="radio"/> Y <input type="radio"/> N <input checked="" type="radio"/> NA (NOTE: ALL YESs or NAs required to receive point. NA - Not Applicable)	All Y - 1 pt. Else - 0 pt.	1
[M3] Has the water system had any SDWA violations since the last Capacity Assessment? <input type="radio"/> Y <input checked="" type="radio"/> N	N - 1pt. Y - 0pt.	1
[M4] Has the water system developed a long range improvements plan and was this plan available for review during the survey? <input checked="" type="radio"/> Y <input type="radio"/> N	Y - 1pt. N - 0pt.	1
[M5] 1) Does the water system have an effective cross connection control program in compliance with MSDH regulations? <input checked="" type="radio"/> Y <input type="radio"/> N 2) Was a copy of the MSDH approved bacti site plan and lead/copper site plan available for review during the survey and do the bacti results clearly show that this approved plan is being followed? <input checked="" type="radio"/> Y <input type="radio"/> N (NOTE: All YESs required to receive point)	All Y - 1 pt. Else - 0 pt.	1
<b>MANAGERIAL CAPACITY RATING = [ <u>5</u> ] (Total Points)</b>		

<b>Financial Capacity Assessment</b>	<b>Point Scale</b>	<b>Point Award</b>
[F1] Has the water system raised water rates in the past 5 years? <input checked="" type="radio"/> Y <input type="radio"/> N (NOTE: Point may be awarded if the water system provides acceptable financial documentation clearly showing that a rate increase is not needed, i.e. revenue has consistently exceeded expenditures by at least 10%, etc.)	Y - 1pt. N - 0pt.	1
[F2] Does the water system have an officially adopted policy requiring that water rates be routinely reviewed and adjusted as appropriate and was this policy available for review during the survey? <input checked="" type="radio"/> Y <input type="radio"/> N	Y - 1pt. N - 0pt.	1
[F3] Does the water system have an officially adopted cut-off policy for customers who do not pay their water bills, was a copy of this policy available for review by the regional engineer, and do system records (cut-off lists, etc.) clearly show that the water system effectively implements this cut-off policy? <input type="radio"/> Y <input checked="" type="radio"/> N	Y - 1pt. N - 0pt.	0
[F4] Was a copy of the water system's officially adopted annual budget available for review by the regional engineer and does the water system's financial accounting system clearly and accurately track the expenditure and receipt of funds? <input checked="" type="radio"/> Y <input type="radio"/> N	Y - 1pt. N - 0pt.	1
[F5 - Municipal Systems] 1) Was a copy of the latest audit report available for review at the time of the survey? <input checked="" type="radio"/> Y <input type="radio"/> N 2) Does this audit report clearly show that water and sewer fund account(s) are maintained separately from all other municipal accounts? <input checked="" type="radio"/> Y <input type="radio"/> N (NOTE: Yes answer to all questions required to receive point.)	All Y - 1 pt. Else - 0 pt.	1
[F5 - Rural Systems] 1) Was the latest financial report / audit report available for review? <input type="radio"/> Y <input type="radio"/> N 2) Does the latest financial report show that receipts exceeded expenditures? <input type="radio"/> Y <input type="radio"/> N (NOTE: Yes answer to both questions required to receive point)	All Y - 1 pt. Else - 0 pt.	1
<b>FINANCIAL CAPACITY RATING = [ <u>4</u> ] (Total Points)</b>		



**MISSISSIPPI STATE DEPARTMENT OF HEALTH**

**MISSISSIPPI DEPARTMENT OF HEALTH  
BUREAU OF PUBLIC WATER SUPPLY  
DESIGN CAPACITY SHEET**

System: **CITY OF JACKSON-MADDOX RD.**  
ID: **0250012** Class: **D** County: **HINDS**

Date Completed: **11/21/2021**  
Connections - Actual: **5762** Equivalent: **5506**  
Design Capacity: **8486** Percent Design Capacity: **5506/8486 = 64.9%**

---

**WELL CAPACITY:**

Well #1 Capacity = 627 GPM  
Well #2 Capacity = 446 GPM  
Well #3 Capacity = 548 GPM  
Well #4 Capacity - ABANDONED  
Well #5 Capacity = 1080 GPM  
Well #6 Capacity = 771 GPM  
Well #7 Capacity = 771 GPM  
Total Well Capacity = 4,243 GPM  
\*All pump tests April 2021

**STORAGE CAPACITY:**

3,000,000 gallon Ground Storage Tank  
250,000 gallon Elevated Tank at Cedar Hills  
2,000,000 gallon Standpipe on Springridge Rd  
Total Storage = 5,250,000 gallons

**DESIGN CAPACITY:**

Total Design Capacity = Total Well Pump Capacity + Total Storage/200 minutes  
= 4243 + 5,250,000/200  
= 30,493

This value exceeds two times the total well pump capacity ( $4,243 \times 2 = 8,486$ ), therefore

**TOTAL DESIGN CAPACITY = 8,486 CONNECTIONS**

**CALCULATE ADJUSTED CONNECTIONS FOR UN-METERED APARTMENTS/MOBILE HOMES:**

Total number of unmetered connections (assumed to be apartment units/mobile homes) = 776  
Apartment Adjusted Connections =  $(776 \times 0.67) = 520$  connections  
(need to subtract total number of meters to calculate more accurately)

**CALCULATE EQUIVALENT CONNECTIONS TAKING INTO ACCOUNT HIGH COMMERCIAL/INDUSTRIAL USAGE:**

No high users reported. All connections are considered residential.

Number of Actual Connections = metered connections + unmetered connections  
Number of Actual Connections =  $4986 + 776 = 5762$

**FINAL EQUIVALENT CONNECTIONS = metered + apartment adjusted =  $4986 + 520 = 5,506$**

**THEREFORE THIS SYSTEM IS CURRENTLY AT  $5506/8486 = 65\%$  CAPACITY.**

---

**GROUND WATER RULE CALCULATIONS:**

System is conducting triggered monitoring to comply with the Ground Water Rule.

**MISSISSIPPI STATE DEPARTMENT OF HEALTH  
BUREAU OF PUBLIC WATER SUPPLY  
MASTER DATA SHEET**

Name of Supply City of Jackson Owner \_\_\_\_\_ City \_\_\_\_\_  
 County Hinds Class A Date of Last Inspection 11 - 08 - 2021  
 Master Meter Yes PWS ID Number MS0250008

Supply Source: Purchase \_\_\_\_\_ Surface X Ground \_\_\_\_\_  
***Fewell Plant***

**Intake Data:**

<u>Well ID NO.</u>	<u>Location</u>	<u>Number of pumps</u>	<u>Cap. (MGD)</u>
250008-71	Raw water intake pumps #5 and #6-(Square Building)	2	24 (each)
	Raw water intake pumps #1, 2, 3 and 4 (Round Building)	4	10, 10, 10, and 8

Treatment: Iron \_\_\_\_\_ Surface X Corrosion \_\_\_\_\_ Chloramines X Fluoride X

	<u>NO.</u>	<u>TYPE</u>	<u>CAPACITY</u>	<u>REMARKS</u>
<b>Rapid Mix</b>	2	Concrete	30 MGD & 22 MGD	
<b>Flocculator</b>	8	Walking Beam (60% side)	30 MGD total	
<b>Flocculator</b>	4	Turbine Mixers (40% side)	each 22 MGD	out of service
<b>Gravity Filter</b>	6	Sand	2 MGD	2 of 6 out of service (#14, 16)
<b>Gravity Filter</b>	12	Sand	2.5 MGD	3 of 12 out of service (#24, 26, 28)
<b>Chlorinator</b>	6	W&T SFCSC	1000 PPD each	Basin 3 = 220 ppd Basin 4 = 605 ppd
<b>Fluoridator</b>	2	USGI Fluorosilicic Acid solution pumps	18 L/hr	Str set on 55%
<b>Chemical Feeder</b>	3	Watson Marlow 624-U solution pumps for lime		Set @ 23% concentration
<b>Chemical Feeder</b>	4	Encore 700 pumps	180 GPH	Set on 93% stroke for Alum
<b>Chemical Feeder</b>	2	US Filter solution pumps for Clarifloc 308P polymer		Str set on 25%
<b>Chemical Feeder</b>	2	solution pumps feeding 1mg/l solution of Potassium Permanganate (offline)		
<b>Chemical Feeder</b>	4	W&T Ammoniators for anhydrous ammonia (Basin 3 = 55 ppd; Basin 4 = 150 ppd)		
<b>Chemical Feeder</b>	1	LMI 0.21 gph pump for Calcquest to prevent lime scale on UV		Sp/Str=30/60
<b>Chemical Feeder</b>	2	Chlorine Dioxide system (used when needed for T/O control and Mn oxidation)		
<b>UV Disinfection</b>	1	Trojan Brand UV unit installed on each service pump		

<u>Storage:</u>	<u>Location</u>	<u>Material</u>	<u>Capacity</u>	<u>Remarks</u>
Clearwell	Plant	Concrete	3.8 MG	
Ground	Plant	Concrete	2 @ 5 MG each (10 MG total)	

<u>Service Pumps:</u>	<u>No.</u>	<u>Location</u>	<u>Capacity (MGD)</u>	
	3	HS #2 building	15 (#7, #8 and #9)	all out of service
	3	HS #1 building	9 (#1, #2, #3)	
	1	HS #1 building	7 (#4)	
	2	HS #1 building	12 (#5, #6)	permanently out of service

**MISSISSIPPI STATE DEPARTMENT OF HEALTH  
BUREAU OF PUBLIC WATER SUPPLY  
MASTER DATA SHEET**

Name of Supply City of Jackson Owner City  
 County Hinds Class A Date of Last Inspection 11-08-2021  
 Master Meter Yes PWS ID Number 0250008

Supply Source: Purchase      Surface X Ground       
*OB Curtis (NOTE: C = conventional, M = membrane)*

<u>Well ID NO.</u>	<u>Location</u>	<u>Year Const.</u>	<u>Capacity (MGD)</u>
250008-72	Raw Water Intake	1991	Pump #1 = 9 MGD; #2 = 8 MGD; #3 = 9 MGD; #4 = 8 MGD
	Raw Water Intake	2007	Pump #5 = 8 MGD; #6 = 17 MGD #7 = 8 MGD; #8 = 17 MGD

Note: Pumps #1-4 pump to conventional side, #5-8 to membrane side  
 #4 offline

Treatment: Iron      Surface X Corrosion      Chloramines X Fluoride X

	<u>NO.</u>	<u>TYPE</u>	<u>CAPACITY</u>	<u>REMARKS</u>
Flash Mix	4C 6 M	Concrete basins with rapid mixers		
Flocculator	3	3-stage paddle wheel flocculation basins		
Settling	3	Concrete Basins	25 MGD Total	
Gravity Filter	6C	Concrete Basins; <b>Media:</b> Anthracite & Sand		2 offline (#4, 5)
UV Disinfection	6C	Trojan Brand UV unit installed after each filter		
Membrane	6M	ZeeWeed Membranes		1 offline (#5)
Chlorinator	5	W&T V Notch		C: 500 PPD M: 575 PPD
		2@3000 PPD; 1@2000 PPD; 2@1000 PPD		
Chemical Feeder	3	W&T V notch Ammoniators		C: 100 PPD M: 100 PPD
Fluoridator	2	Watson Marlow 620U solution pumps for fluoride (acid)		C only: manual
Chemical Feeder	4C 4M	Encore 700 soln pumps for soda ash		C: 45.5% str/300 gph
		Each side: feeds only to clearwell		M: 25.8% str/170 gph
Chemical Feeder	2	Pulsatron 500 gpd solution pumps for polymer		C only: Sp/Str = 40/60
Chemical Feeder	2	RDP Batch Mixer for Potassium Permanganate		offline at intake
	2C 2M	WM 620U pumps for KMnO4 @ pre-oxidation		C: 85 L/hr M: 114 L/hr
Chemical Feeder	2C 3M	WM 620U pumps for ACH		C: 85 L/hr M: 290 L/hr
Chemical Feeder	2	W&T 44-122 solution pumps for chlorine dioxide		(offline at inspection)
Chemical Feeder	3	Chlorine Dioxide generators (1 W&T & 2 Sabre)		(offline at inspection)
Chemical Feeder	2	CalFlo liquid lime feeding each clearwell		offline as of 11/12/19

<u>Storage:</u>	<u>Location</u>	<u>Material</u>	<u>Capacity</u>	<u>Remarks</u>
Clearwell	Plant	Concrete	2 @ 5 MG (each)	

<u>Service Pumps:</u>	<u>No.</u>	<u>Location</u>	<u>Capacity (MGD)</u>	<u>Head</u>	<u>Controls</u>
	4	HS 1	#1: 8 MGD; #2: 12 MGD; #3: 22 MGD; #5: 8 MGD		
	5	HS 2	#7: 12 MGD; #8: 16 MGD; #10: 22 MGD; #11: 16 MGD; #12: 12 MGD		
			*all HS 2 pumps offline; HS 1 pump #2 offline		
Backwash	2	Plant	26		Auto
Surface Wash	2	Plant	2		Auto

**MISSISSIPPI STATE DEPARTMENT OF HEALTH  
BUREAU OF PUBLIC WATER SUPPLY  
MASTER DATA SHEET**

Name of Supply City of Jackson Owner City  
 County Hinds Class A Date of Last Inspection 11 - 08 - 2021  
 Master Meter Yes PWS ID Number 0250008

Supply Source: Purchase        Surface X Ground         
**OB Curtis Chemical Storage Tanks**

Storage:	Location	Material	Capacity	Remarks
Day Tank	Chemical Bldg	Fiberglass	1,200 gallons	Caustic Soda (not in use)
Ground	Tank Yard	Fiberglass	14,100 gallons	Caustic Soda(not in use)
Gravity Tank	Tank Yard		10,000 gallons	Caustic Soda(not in use)
Day Tank	Chemical Bldg	Fiberglass	600 gallons	Fluorosilicic Acid
Ground	Tank Yard	Fiberglass	4,700 gallons	Fluorosilicic Acid
Gravity Tank	Tank Yard		20,000 gallons	ACH
2 Day Tanks	Chemical Bldg	Fiberglass	2,300 gallons	ACH
2 Ground	Tank Yard	Fiberglass	19,500 gallons	ACH
2 Ground	Tank Yard	Fiberglass	6,500 gallons	Sodium Chlorite
Day Tank	Chemical Bldg	Fiberglass	400 gallons	Sodium Chlorite
Ground	Chemical Bldg	Fiberglass	3,000 gallons	PAC (not in use)
Day Tank	Chemical Bldg	Fiberglass	2,300 gallons	PAC (not in use)
2 Bulk Storage	Near Plant Entrance	Steel	10,000 gallons	Anhydrous Ammonia

Storage:	Location	Material	Capacity	Remarks
Elevated (1946)	Riverside	Steel	500,000 gals	486.05' OFE
Elevated (1961)	Suncrest	Steel	200,000 gals	479.58' OFE
Elevated (1964)	Forest Ave	Steel	1.0 MG	476.36' OFE; 80' to Bottom
Elevated (1968)	Magnolia	Steel	500,000 gals	541.77' OFE
Elevated (1975)	Chastain	Steel	1.5 MG (spheroid)	492' OFE; 105' to Bottom
Elevated (1977)	Byram*	Steel	1.0 MG (spheroid)	486.92' OFE; 86.5' to Bot
Elevated	JSU Tank (Lynch)	Steel	1.0 MG	
Elevated	Zoo Tank (Livingston)	Steel	500,000 gals	466.05' OFE
Elevated	Elaine	Steel	1.0 MG	476.14' OFE
Elevated (1996)	NW Industrial Park	Steel	1.0 MG (spheroid)	482' OFE; 75.5' to Bot
Elevated	Presidential Hills	Steel	250,000 gals	100' to Bottom
Elevated (2013)	Mill St	Composite	1.5 MG	177' to OF; 137'6" to Bottom

\*Byram tank offline

**Booster Stations:**

Location	Collector Tank	Pumps	Storage Tank
Windsor Rd		3: 25 hp at 800 gpm	2.1 MG
TV Rd*	5 MG	3: 200 hp at 4100 gpm	3.0 MG

\*2 500 kW generators; offline at inspection

**MISSISSIPPI STATE DEPARTMENT OF HEALTH  
BUREAU OF PUBLIC WATER SUPPLY  
MASTER DATA SHEET**

Name of Supply City of Jackson – Maddox Road Owner City  
 County Hinds Class D Date of Last Inspection 11 – 09 – 2021  
 Master Meter Yes PWS ID Number 0250012  
 Supply Source: Purchase      Surface      Ground X Number of Wells 6 (active)

**Well Data:**

<u>Well ID NO.</u>	<u>Location</u>	<u>Year Const.</u>	<u>Cap. (GPM)</u>	<u>Pres.</u>	<u>Casing</u>	<u>Screen</u>	<u>Depth</u>	<u>Controls</u>
250012-01	Wiggins Rd	1967	703	AT 60 psi	16"		1026'	AUTO
250012-02	Willowood	1972	500	AT 80 psi	16"		1440'	AUTO
250012-03	TV Road	1968	680	AT 60 psi	16"		1126'	AUTO
250012-04	Cedar Hills	*** ABANDONED ***						
250012-05	Siwell Rd	1980	1281	AT 80 psi	16"		1410'	AUTO
250012-06	Hwy 18	1984	1200	AT 65 psi	16"		1436'	AUTO
250012-07	Maddox Road & Hwy 18	2002	1100	AT 80 psi	16"	100' of 10"	1290'	AUTO

Pump test results (April 2021): Well #1: 627 GPM @ 35 psi; Well #2: 446 GPM @ 70 psi;  
 Well #3: 548 GPM @ 55 psi; Well #5: 1080 GPM @ 75 psi; Well #6: 771 GPM @ 55 psi;  
 Well #7: 771 GPM @ 10 psi

Treatment: Iron      Softening      Corrosion      Chlorine X Fluoride X

	<u>NO.</u>	<u>TYPE</u>	<u>CAPACITY</u>	<u>REMARKS</u>
<b>Chlorinator</b>	1	US Filter S10K	100 PPD	70 PPD at Well 1
<b>Fluoridator</b>	1	Pulsatron	60 gpd	Sp/Str set on 72/65 at Well 1
<b>Chlorinator</b>	1	W&T V-100	100 PPD	55 PPD at Well 2
<b>Fluoridator</b>	1	Pulastron	60 gpd	Sp/Str set on 52/58 at Well 2
<b>Chlorinator</b>	1	W&T V-100	100 PPD	50 PPD at Well 3
<b>Fluoridator</b>	1	Pulastron	60 gpd	Sp/Str set on 70/85 at Well 3
<b>Chlorinator</b>	1	US Filter S10K	200 PPD	Set on 150 ppd at Well 5
<b>Fluoridator</b>	1	Pulsatron	60 gpd	Sp/Str set on 90/90 at Well 5
<b>Chlorinator</b>	1	W&T V-100	200 PPD	Set on 90 ppd at Well 6
<b>Fluoridator</b>	1	Pulsatron	60 gpd	Sp/Str set on 94/90 at Well 6
<b>Chlorinator</b>	1	US Filter S10K	200 PPD	Set on 90 ppd at Well 7
<b>Fluoridator</b>	1	Pulsatron	60 gpd	Sp/Str set on 58/80 at Well 7

<u>Storage:</u>	<u>Location</u>	<u>Material</u>	<u>Capacity</u>	<u>Remarks</u>
Elevated (1972)	Cedar Hills	Steel	250,000 gal	80' to Bottom (512.45' OFE)
Ground (1981)	Well 7	Concrete	3 MG	56.46' Height
Ground (2002)	Spring Ridge Road	Concrete	2 MG	

Service Pumps: No. Location Capacity (GPM) Head Controls

# Attachment B

## Current Staffing - COJ

Number	Job Class	Location	Personnel Status	Pay Freq	Hourly	Annual
<a href="#">100829</a>	WATER PLANT OPERATOR II	JHF	PART TIME	WEEKLY	\$ 17.46	\$ 9,081.02
<a href="#">106896</a>	WATER PLANT OPERATOR I	OBC	FULL TIME	BIWEEKLY	\$ 16.68	\$ 34,698.82
<a href="#">101601</a>	LABORATORY TECHNICIAN	OBC	FULL TIME	BIWEEKLY	\$ 12.72	\$ 26,449.28
<a href="#">99545</a>	WATER PLANT OPERATIONS SUPERVI	FWP	FULL TIME	BIWEEKLY	\$ 25.33	\$ 52,679.12
102866	WATER PLANT OPERATOR II	OBC	FULL TIME	BIWEEKLY	\$ 17.46	\$ 36,323.82
<a href="#">105571</a>	WATER PLANT MAINTENANCE SUPERV	OBC	FULL TIME	BIWEEKLY	\$ 22.00	\$ 45,753.76
<a href="#">104515</a>	MAINTENANCE WORKER II	JHF	FULL TIME	WEEKLY	\$ 9.89	\$ 20,579.52
<a href="#">98477</a>	OFFICE COORDINATOR	OBC	FULL TIME	BIWEEKLY	\$ 15.15	\$ 31,518.24
<a href="#">103693</a>	SENIOR WATER PLANT OPERATOR	JHF	FULL TIME	BIWEEKLY	\$ 21.02	\$ 43,721.60
<a href="#">106894</a>	WATER PLANT OPERATOR I	OBC	FULL TIME	BIWEEKLY	\$ 16.68	\$ 34,698.82
<a href="#">101464</a>	SENIOR WATER PLANT OPERATOR	OBC	FULL TIME	BIWEEKLY	\$ 19.15	\$ 39,822.38
<a href="#">106742</a>	INSTRUMENT TECHNICIAN	OBC	FULL TIME	BIWEEKLY	\$ 13.91	\$ 28,936.44
<a href="#">106189</a>	OFFICE COORDINATOR	JHF	FULL TIME	BIWEEKLY	\$ 14.55	\$ 30,273.10
<a href="#">97857</a>	SENIOR WATER PLANT OPERATOR	OBC	FULL TIME	BIWEEKLY	\$ 21.02	\$ 43,727.84
<a href="#">106039</a>	WATER PLANT OPERATOR I	JHF	FULL TIME	BIWEEKLY	\$ 16.68	\$ 34,698.56
<a href="#">102227</a>	UTILITY MAINTENANCE MECHANIC	JHF	FULL TIME	BIWEEKLY	\$ 14.60	\$ 30,360.20
<a href="#">106895</a>	WATER PLANT OPERATOR I	OBC	FULL TIME	BIWEEKLY	\$ 16.68	\$ 34,698.82
<a href="#">100971</a>	WATER PLANT MAINTENANCE SUPERV	JHF	FULL TIME	BIWEEKLY	\$ 24.17	\$ 50,276.20
<a href="#">106726</a>	WATER PLANT OPERATOR I	OBC	FULL TIME	BIWEEKLY	\$ 16.68	\$ 34,698.82
<a href="#">105099</a>	WATER PLANT OPERATOR I	OBC	FULL TIME	BIWEEKLY	\$ 16.68	\$ 34,698.56
<a href="#">102884</a>	WATER PLANT OPERATIONS SUPERVI	OBC	FULL TIME	BIWEEKLY	\$ 25.33	\$ 52,679.12
<a href="#">98664</a>	CHEMIST	OBC	FULL TIME	BIWEEKLY	\$ 15.91	\$ 33,101.12
<a href="#">105144</a>	WATER PLANT OPERATOR I	OBC	FULL TIME	BIWEEKLY	\$ 16.68	\$ 34,698.56
<a href="#">103400</a>	SENIOR WATER PLANT OPERATOR	JHF	FULL TIME	BIWEEKLY	\$ 21.02	\$ 43,727.84
<a href="#">105413</a>	WATER PLANT OPERATOR I	JHF	FULL TIME	BIWEEKLY	\$ 16.68	\$ 34,698.56
<a href="#">97464</a>	LABORATORY TECHNICIAN	OBC	FULL TIME	BIWEEKLY	\$ 13.61	\$ 28,312.96

Currently most employees are earning some amount of overtime. It should be noted that when planning offers to current staff, both overtime and salary should be taken into consideration. The following overtime expenses were paid at each location for FY 22.

Fewell - \$155,526.03  
 OB Curtis- \$233,010.12

ORIGINAL

# ATTACHMENT C

Madison Co.  
Attachment C, Page 1  
A1-#4369

EPA Identification Number		NPDES Permit Number MS0046906	Facility Name O>B> Curtis	Form Approved 03/05/19 OMB No. 2040-0004	
Form 1 NPDES		U.S. Environmental Protection Agency Application for NPDES Permit to Discharge Wastewater <b>GENERAL INFORMATION</b>			
<b>SECTION 1. ACTIVITIES REQUIRING AN NPDES PERMIT (40 CFR 122.21(f) and (f)(1))</b>					
Activities Requiring an NPDES Permit	1.1	<b>Applicants Not Required to Submit Form 1</b>			
	1.1.1	Is the facility a new or existing publicly owned treatment works? If yes, STOP. Do NOT complete Form 1. Complete Form 2A. <input checked="" type="checkbox"/> No	1.1.2	Is the facility a new or existing treatment works treating domestic sewage? If yes, STOP. Do NOT complete Form 1. Complete Form 2S. <input checked="" type="checkbox"/> No	
	1.2	<b>Applicants Required to Submit Form 1</b>			
	1.2.1	Is the facility a concentrated animal feeding operation or a concentrated aquatic animal production facility? <input type="checkbox"/> Yes → Complete Form 1 and Form 2B. <input checked="" type="checkbox"/> No	1.2.2	Is the facility an existing manufacturing, commercial, mining, or silvicultural facility that is currently discharging process wastewater? <input checked="" type="checkbox"/> Yes → Complete Form 1 and Form 2C. <input type="checkbox"/> No	
	1.2.3	Is the facility a new manufacturing, commercial, mining, or silvicultural facility that has not yet commenced to discharge? <input type="checkbox"/> Yes → Complete Form 1 and Form 2D. <input checked="" type="checkbox"/> No	1.2.4	Is the facility a new or existing manufacturing, commercial, mining, or silvicultural facility that discharges only nonprocess wastewater? <input type="checkbox"/> Yes → Complete Form 1 and Form 2E. <input checked="" type="checkbox"/> No	
1.2.5	Is the facility a new or existing facility whose discharge is composed entirely of stormwater associated with industrial activity or whose discharge is composed of both stormwater and non-stormwater? <input type="checkbox"/> Yes → Complete Form 1 and Form 2F unless exempted by 40 CFR 122.26(b)(14)(x) or (b)(15). <input checked="" type="checkbox"/> No				
<b>SECTION 2. NAME, MAILING ADDRESS, AND LOCATION (40 CFR 122.21(f)(2))</b>					
Name, Mailing Address, and Location	2.1	<b>Facility Name</b> O.B. Curtis Water Treatment Plant			
	2.2	<b>EPA Identification Number</b> MS 0046906			
	2.3	<b>Facility Contact</b>			
		Name (first and last) Mousetta Spann	Title Water Systems Manager	Phone number (601) 960-2463	
		Email address mspann@jacksonms.gov			
	2.4	<b>Facility Mailing Address</b>			
Street or P.O. box P.O. Box 17					
City or town Jackson		State Ms	ZIP code 39205		

RECEIVED

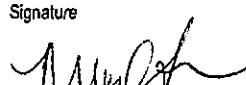
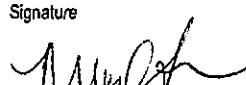
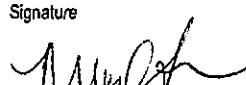
MAY 07 REC'D

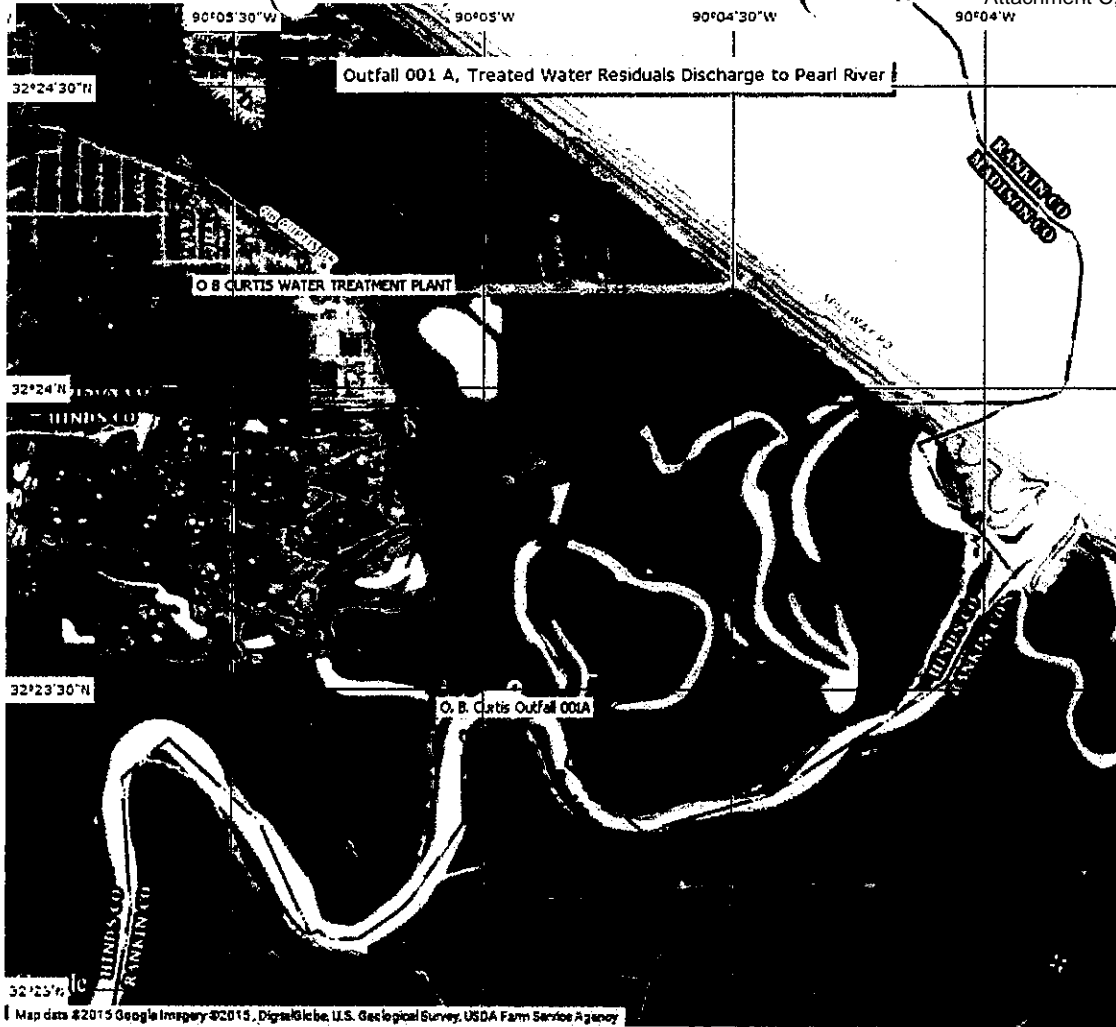
Dept. of Environmental Quality



EPA Identification Number		NPDES Permit Number MS0046906		Facility Name O>B> Curtis		Form Approved 03/05/19 OMB No. 2040-0004	
Name, Mailing Address, and Location Continued	2.5	<b>Facility Location</b>					
		Street, route number, or other specific identifier 100 O.B. Curtis Drive					
		County name Madison		County code (if known) 45			
		City or town Ridgeland		State Ms		ZIP code 39157	
<b>SECTION 3. SIC AND NAICS CODES (40 CFR 122.21(f)(3))</b>							
SIC and NAICS Codes	3.1	<b>SIC Code(s)</b>		<b>Description (optional)</b>			
		4941		Water Supply			
	3.2	<b>NAICS Code(s)</b>		<b>Description (optional)</b>			
<b>SECTION 4. OPERATOR INFORMATION (40 CFR 122.21(f)(4))</b>							
Operator Information	4.1	<b>Name of Operator</b>					
		City Of jackson Ms					
	4.2	Is the name you listed in Item 4.1 also the owner? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					
	4.3	<b>Operator Status</b> <input type="checkbox"/> Public—federal <input type="checkbox"/> Public—state <input checked="" type="checkbox"/> Other public (specify) City <input type="checkbox"/> Private <input type="checkbox"/> Other (specify) _____					
Operator Information Continued	4.4	<b>Phone Number of Operator</b>					
		(601) 960-2463					
Operator Information Continued	4.5	<b>Operator Address</b>					
		Street or P.O. Box P.O.Box 17					
		City or town Jackson		State Ms		ZIP code 39205	
		Email address of operator mspann@jacksonms.gov					
<b>SECTION 5. INDIAN LAND (40 CFR 122.21(f)(5))</b>							
Indian Land	5.1	Is the facility located on Indian Land? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					

EPA Identification Number		NPDES Permit Number MS0046906	Facility Name O>B> Curtis	Form Approved 03/05/19 OMB No. 2040-0004	
<b>SECTION 6. EXISTING ENVIRONMENTAL PERMITS (40 CFR 122.21(f)(6))</b>					
Existing Environmental Permits	6.1	Existing Environmental Permits (check all that apply and print or type the corresponding permit number for each)			
	<input checked="" type="checkbox"/>	NPDES (discharges to surface water) MS0046906	<input type="checkbox"/>	RCRA (hazardous wastes)	
	<input type="checkbox"/>	PSD (air emissions)	<input type="checkbox"/>	Nonattainment program (CAA)	
<input type="checkbox"/>	Ocean dumping (MPRSA)	<input type="checkbox"/>	Dredge or fill (CWA Section 404)	<input checked="" type="checkbox"/>	UIC (underground injection of fluids)
<input type="checkbox"/>		<input type="checkbox"/>	NESHAPs (CAA)	<input checked="" type="checkbox"/>	Other (specify) MS0250008 Public Water Supp
<b>SECTION 7. MAP (40 CFR 122.21(f)(7))</b>					
Map	7.1	Have you attached a topographic map containing all required information to this application? (See instructions for specific requirements.) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> CAFO—Not Applicable (See requirements in Form 2B.)			
<b>SECTION 8. NATURE OF BUSINESS (40 CFR 122.21(f)(8))</b>					
Nature of Business	8.1	Describe the nature of your business. Treatment of surface water for municipal usage with a capacity of 50 MGD. Raw water from the Ross Barnett Reservoir undergoes either conventional flocculation/Sedimentation/filtration utilizing ACH or Flocculation/Membrane ultrafiltration utilizing ACH. Treated water supplies the City Of Jackson and adjacent areas within Hinds, and Madison Counties. Discharges are sedimentation Basin Residuals, filters backwash water and discharges from membrane recovery cleaning which have been treated via gravity thickening and centrifuge processing.			
<b>SECTION 9. COOLING WATER INTAKE STRUCTURES (40 CFR 122.21(f)(9))</b>					
Cooling Water Intake Structures	9.1	Does your facility use cooling water? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No → SKIP to Item 10.1.			
	9.2	Identify the source of cooling water. (Note that facilities that use a cooling water intake structure as described at 40 CFR 125, Subparts I and J may have additional application requirements at 40 CFR 122.21(r). Consult with your NPDES permitting authority to determine what specific information needs to be submitted and when.)			
<b>SECTION 10. VARIANCE REQUESTS (40 CFR 122.21(f)(10))</b>					
Variance Requests	10.1	Do you intend to request or renew one or more of the variances authorized at 40 CFR 122.21(m)? (Check all that apply. Consult with your NPDES permitting authority to determine what information needs to be submitted and when.) <input type="checkbox"/> Fundamentally different factors (CWA Section 301(n)) <input type="checkbox"/> Water quality related effluent limitations (CWA Section 302(b)(2)) <input type="checkbox"/> Non-conventional pollutants (CWA Section 301(c) and (g)) <input type="checkbox"/> Thermal discharges (CWA Section 316(a)) <input checked="" type="checkbox"/> Not applicable			

EPA Identification Number		NPDES Permit Number MS0046906	Facility Name O>B> Curtis	Form Approved 03/05/19 OMB No. 2040-0004								
<b>SECTION 11. CHECKLIST AND CERTIFICATION STATEMENT (40 CFR 122.22(a) and (d))</b>												
Checklist and Certification Statement	11.1	In Column 1 below, mark the sections of Form 1 that you have completed and are submitting with your application. For each section, specify in Column 2 any attachments that you are enclosing to alert the permitting authority. Note that not all applicants are required to provide attachments.										
		Column 1	Column 2									
	<input checked="" type="checkbox"/>	Section 1: Activities Requiring an NPDES Permit	<input type="checkbox"/>	w/ attachments								
	<input checked="" type="checkbox"/>	Section 2: Name, Mailing Address, and Location	<input type="checkbox"/>	w/ attachments								
	<input checked="" type="checkbox"/>	Section 3: SIC Codes	<input type="checkbox"/>	w/ attachments								
	<input checked="" type="checkbox"/>	Section 4: Operator Information	<input type="checkbox"/>	w/ attachments								
	<input checked="" type="checkbox"/>	Section 5: Indian Land	<input type="checkbox"/>	w/ attachments								
	<input checked="" type="checkbox"/>	Section 6: Existing Environmental Permits	<input type="checkbox"/>	w/ attachments								
	<input checked="" type="checkbox"/>	Section 7: Map	<input checked="" type="checkbox"/>	w/ topographic map <input type="checkbox"/> w/ additional attachments								
	<input checked="" type="checkbox"/>	Section 8: Nature of Business	<input type="checkbox"/>	w/ attachments								
	<input checked="" type="checkbox"/>	Section 9: Cooling Water Intake Structures	<input type="checkbox"/>	w/ attachments								
	<input checked="" type="checkbox"/>	Section 10: Variance Requests	<input type="checkbox"/>	w/ attachments								
	<input checked="" type="checkbox"/>	Section 11: Checklist and Certification Statement	<input type="checkbox"/>	w/ attachments								
11.2	<p><b>Certification Statement</b></p> <p><i>I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.</i></p> <table border="1" style="width: 100%;"> <tr> <td>Name (print or type first and last name)</td> <td>Official title</td> </tr> <tr> <td>Mousetta Spence</td> <td>Water Systems Manager</td> </tr> <tr> <td>Signature</td> <td>Date signed</td> </tr> <tr> <td></td> <td>4/30/21</td> </tr> </table>				Name (print or type first and last name)	Official title	Mousetta Spence	Water Systems Manager	Signature	Date signed		4/30/21
Name (print or type first and last name)	Official title											
Mousetta Spence	Water Systems Manager											
Signature	Date signed											
	4/30/21											



Map data ©2015 Google Imagery ©2015, DigitalGlobe, U.S. Geological Survey, USDA Farm Service Agency

Map completed using:



Developed by:

Emergency Response Division  
National Oceanic and Atmospheric Administration



Office of Emergency Management  
U.S. Environmental Protection Agency



ORIGINAL

RECEIVED  
MAY 7 2021

MDEQ

EPA Identification Number		NPDES Permit Number MS0046906		Facility Name O.B.Curtis	
Form 2C NPDES		U.S. Environmental Protection Agency Application for NPDES Permit to Discharge Wastewater EXISTING MANUFACTURING, COMMERCIAL, MINING, AND SILVICULTURE OPERATIONS			
<b>SECTION 1. OUTFALL LOCATION (40 CFR 122.21(g)(1))</b>					
Outfall Location	1.1	Provide information on each of the facility's outfalls in the table below.			
		Outfall Number	Receiving Water Name	Latitude	Longitude
		001A	Pearl River	32° 23' 30"	90° 4' 56"
				" "	" "
<b>SECTION 2. LINE DRAWING (40 CFR 122.21(g)(2))</b>					
Line Drawing	2.1	Have you attached a line drawing to this application that shows the water flow through your facility with a water balance? (See instructions for drawing requirements. See Exhibit 2C-1 at end of instructions for example.) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
<b>SECTION 3. AVERAGE FLOWS AND TREATMENT (40 CFR 122.21(g)(3))</b>					
Average Flows and Treatment	3.1	For each outfall identified under Item 1.1, provide average flow and treatment information. Add additional sheets if necessary.			
		**Outfall Number** 001A			
		Operations Contributing to Flow			
		Operation	Average Flow		
		Discharge from Residuals Handling Facility	3.12 mgd		
			mgd		
			mgd		
			mgd		
		Treatment Units			
		Description (include size, flow rate through each treatment unit, retention time, etc.)	Code from Table 2C-1	Final Disposal of Solid or Liquid Wastes Other Than by Discharge	
	Gravity Thickening and Centrifuge dewatering	5-L, 5-D	Hauled to Landfill		

RECEIVED  
MAY 7 2021

MDEQ

EPA Identification Number		NPDES Permit Number MSD046906	Facility Name O.B.Curtis	Form Approved 03/05/19 OMB No. 2040-0004	
Average Flows and Treatment Continued	3.1 cont.	<b>**Outfall Number**</b>			
		Operations Contributing to Flow			
		Operation	Average Flow		
					mgd
					mgd
					mgd
					mgd
		Treatment Units			
		Description (include size, flow rate through each treatment unit, retention time, etc.)	Code from Table 2C-1	Final Disposal of Solid or Liquid Wastes Other Than by Discharge	
		<b>**Outfall Number**</b>			
Operations Contributing to Flow					
Operation	Average Flow				
			mgd		
			mgd		
			mgd		
			mgd		
Treatment Units					
Description (include size, flow rate through each treatment unit, retention time, etc.)	Code from Table 2C-1	Final Disposal of Solid or Liquid Wastes Other Than by Discharge			
System Users	3.2	Are you applying for an NPDES permit to operate a privately owned treatment works? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No → SKIP to Section 4.			
	3.3	Have you attached a list that identifies each user of the treatment works? <input type="checkbox"/> Yes <input type="checkbox"/> No			

<b>EPA Identification Number</b>	<b>NPDES Permit Number</b> MSD046906	<b>Facility Name</b> O>B> Curtis	<b>Form Approved 03/05/19</b> OMB No. 2040-0004	
<b>SECTION 4. INTERMITTENT FLOWS (40 CFR 122.21(g)(4))</b>				
<b>Intermittent Flows</b>	4.1 Except for storm runoff, leaks, or spills, are any discharges described in Sections 1 and 3 intermittent or seasonal? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No → SKIP to Section 5.			
	4.2 Provide information on intermittent or seasonal flows for each applicable outfall. Attach additional pages, if necessary.			
	<b>Outfall Number</b>	<b>Operation (list)</b>	<b>Frequency</b>	<b>Flow Rate</b>
			<b>Average Days/Week</b>	<b>Average Months/Year</b>
				<b>Long-Term Average</b>
				<b>Maximum Daily</b>
				<b>Duration</b>
	001A	Membrane Ultrafiltration	0.625 days/week	12 months/year
		system recovery cleaning	days/week	months/year
		using sodium hypochlorite	days/week	months/year
	treated thru gravity	days/week	months/year	
	thickeners and centrifuges	days/week	months/year	
		days/week	months/year	
		days/week	months/year	
		days/week	months/year	
		days/week	months/year	
<b>SECTION 5. PRODUCTION (40 CFR 122.21(g)(5))</b>				
<b>Applicable ELGs</b>	5.1 Do any effluent limitation guidelines (ELGs) promulgated by EPA under Section 304 of the CWA apply to your facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No → SKIP to Section 6.			
	5.2 Provide the following information on applicable ELGs.			
	<b>ELG Category</b>	<b>ELG Subcategory</b>	<b>Regulatory Citation</b>	
<b>Production-Based Limitations</b>	5.3 Are any of the applicable ELGs expressed in terms of production (or other measure of operation)? <input type="checkbox"/> Yes <input type="checkbox"/> No → SKIP to Section 6.			
	5.4 Provide an actual measure of daily production expressed in terms and units of applicable ELGs.			
	<b>Outfall Number</b>	<b>Operation, Product, or Material</b>	<b>Quantity per Day</b>	
			<b>Unit of Measure</b>	

EPA Identification Number	NPDES Permit Number MS0046906	Facility Name O.B.Curtis	Form Approved 03/05/19 OMB No. 2040-0004
---------------------------	----------------------------------	-----------------------------	---

**SECTION 6. IMPROVEMENTS (40 CFR 122.21(g)(6))**

Upgrades and Improvements	6.1	Are you presently required by any federal, state, or local authority to meet an implementation schedule for constructing, upgrading, or operating wastewater treatment equipment or practices or any other environmental programs that could affect the discharges described in this application? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No → SKIP to Item 6.3.			
	6.2	Briefly identify each applicable project in the table below.			
		Brief Identification and Description of Project	Affected Outfalls (list outfall number)	Source(s) of Discharge	Final Compliance Dates Required      Projected
	6.3	Have you attached sheets describing any additional water pollution control programs (or other environmental projects that may affect your discharges) that you now have underway or planned? (optional item) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not applicable			




**SECTION 7. EFFLUENT AND INTAKE CHARACTERISTICS (40 CFR 122.21(g)(7))**

Effluent and Intake Characteristics	See the instructions to determine the pollutants and parameters you are required to monitor and, in turn, the tables you must complete. Not all applicants need to complete each table.				
	<b>Table A. Conventional and Non-Conventional Pollutants</b>				
	7.1	Are you requesting a waiver from your NPDES permitting authority for one or more of the Table A pollutants for any of your outfalls? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No → SKIP to Item 7.3.			
	7.2	If yes, indicate the applicable outfalls below. Attach waiver request and other required information to the application. Outfall Number _____ Outfall Number _____ Outfall Number _____			
	7.3	Have you completed monitoring for all Table A pollutants at each of your outfalls for which a waiver has not been requested and attached the results to this application package? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No; a waiver has been requested from my NPDES permitting authority for all pollutants at all outfalls.			
	<b>Table B. Toxic Metals, Cyanide, Total Phenols, and Organic Toxic Pollutants</b>				
	7.4	Do any of the facility's processes that contribute wastewater fall into one or more of the primary industry categories listed in Exhibit 2C-3? (See end of instructions for exhibit.) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No → SKIP to Item 7.8.			
	7.5	Have you checked "Testing Required" for all toxic metals, cyanide, and total phenols in Section 1 of Table B? <input type="checkbox"/> Yes <input type="checkbox"/> No			
	7.6	List the applicable primary industry categories and check the boxes indicating the required GC/MS fraction(s) identified in Exhibit 2C-3.			
		Primary Industry Category	Required GC/MS Fraction(s) (Check applicable boxes.)		
		<input type="checkbox"/> Volatile	<input type="checkbox"/> Acid	<input type="checkbox"/> Base/Neutral	<input type="checkbox"/> Pesticide
		<input type="checkbox"/> Volatile	<input type="checkbox"/> Acid	<input type="checkbox"/> Base/Neutral	<input type="checkbox"/> Pesticide
		<input type="checkbox"/> Volatile	<input type="checkbox"/> Acid	<input type="checkbox"/> Base/Neutral	<input type="checkbox"/> Pesticide



EPA Identification Number		NPDES Permit Number MS0046906		Facility Name O.B.Curtis		Form Approved 03/05/19 OMB No. 2040-0004		
Effluent and Intake Characteristics Continued	7.7	Have you checked "Testing Required" for all required pollutants in Sections 2 through 5 of Table B for each of the GC/MS fractions checked in Item 7.6? <input type="checkbox"/> Yes <input type="checkbox"/> No						
	7.8	Have you checked "Believed Present" or "Believed Absent" for all pollutants listed in Sections 1 through 5 of Table B where testing is not required? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No						
	7.9	Have you provided (1) quantitative data for those Section 1, Table B, pollutants for which you have indicated testing is required or (2) quantitative data or other required information for those Section 1, Table B, pollutants that you have indicated are "Believed Present" in your discharge? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
	7.10	Does the applicant qualify for a small business exemption under the criteria specified in the instructions? <input type="checkbox"/> Yes → Note that you qualify at the top of Table B, then SKIP to Item 7.12. <input checked="" type="checkbox"/> No						
	7.11	Have you provided (1) quantitative data for those Sections 2 through 5, Table B, pollutants for which you have determined testing is required or (2) quantitative data or an explanation for those Sections 2 through 5, Table B, pollutants you have indicated are "Believed Present" in your discharge? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
	<b>Table C. Certain Conventional and Non-Conventional Pollutants</b>							
	7.12	Have you indicated whether pollutants are "Believed Present" or "Believed Absent" for all pollutants listed on Table C for all outfalls? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No						
	7.13	Have you completed Table C by providing (1) quantitative data for those pollutants that are limited either directly or indirectly in an ELG and/or (2) quantitative data or an explanation for those pollutants for which you have indicated "Believed Present"? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No						
	<b>Table D. Certain Hazardous Substances and Asbestos</b>							
	7.14	Have you indicated whether pollutants are "Believed Present" or "Believed Absent" for all pollutants listed in Table D for all outfalls? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No						
	7.15	Have you completed Table D by (1) describing the reasons the applicable pollutants are expected to be discharged and (2) by providing quantitative data, if available? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
<b>Table E. 2,3,7,8-Tetrachlorodibenzo-p-Dioxin (2,3,7,8-TCDD)</b>								
7.16	Does the facility use or manufacture one or more of the 2,3,7,8-TCDD congeners listed in the instructions, or do you know or have reason to believe that TCDD is or may be present in the effluent? <input type="checkbox"/> Yes → Complete Table E. <input checked="" type="checkbox"/> No → SKIP to Section 8.							
7.17	Have you completed Table E by reporting qualitative data for TCDD? <input type="checkbox"/> Yes <input type="checkbox"/> No							
<b>SECTION 8. USED OR MANUFACTURED TOXICS (40 CFR 122.21(g)(9))</b>								
Used or Manufactured Toxics	8.1	Is any pollutant listed in Table B a substance or a component of a substance used or manufactured at your facility as an intermediate or final product or byproduct? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No → SKIP to Section 9.						
	8.2	List the pollutants below.						
		1.	4.	7.				
		2.	5.	8.				
		3.	6.	9.				

EPA Identification Number		NPDES Permit Number MS0046906	Facility Name O>B> Curtis		Form Approved 03/05/19 OMB No. 2040-0004	
<b>SECTION 9. BIOLOGICAL TOXICITY TESTS (40 CFR 122.21(g)(11))</b>						
Biological Toxicity Tests	9.1	Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made within the last three years on (1) any of your discharges or (2) on a receiving water in relation to your discharge? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No → SKIP to Section 10.				
	9.2	Identify the tests and their purposes below.				
		Test(s)	Purpose of Test(s)	Submitted to NPDES Permitting Authority?		Date Submitted
				<input type="checkbox"/> Yes <input type="checkbox"/> No		
		<input type="checkbox"/> Yes <input type="checkbox"/> No				
		<input type="checkbox"/> Yes <input type="checkbox"/> No				
<b>SECTION 10. CONTRACT ANALYSES (40 CFR 122.21(g)(12))</b>						
Contract Analyses	10.1	Were any of the analyses reported in Section 7 performed by a contract laboratory or consulting firm? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No → SKIP to Section 11.				
	10.2	Provide information for each contract laboratory or consulting firm below.				
			Laboratory Number 1	Laboratory Number 2	Laboratory Number 3	
		Name of laboratory/firm	Waypoint Analytical			
		Laboratory address	235 Highpoint drive Ridgeland, Ms 39157			
		Phone number	(601) 957-1887			
Pollutant(s) analyzed	BOD, COD, TOC, TSS, TDS, Ammonia, (as N), Color, Total Iron, Total Manganese, Fluoride, Total Aluminum					
<b>SECTION 11. ADDITIONAL INFORMATION (40 CFR 122.21(g)(13))</b>						
Additional Information	11.1	Has the NPDES permitting authority requested additional information? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No → SKIP to Section 12.				
	11.2	List the information requested and attach it to this application.				
		1.				4.
		2.				5.
3.				6.		

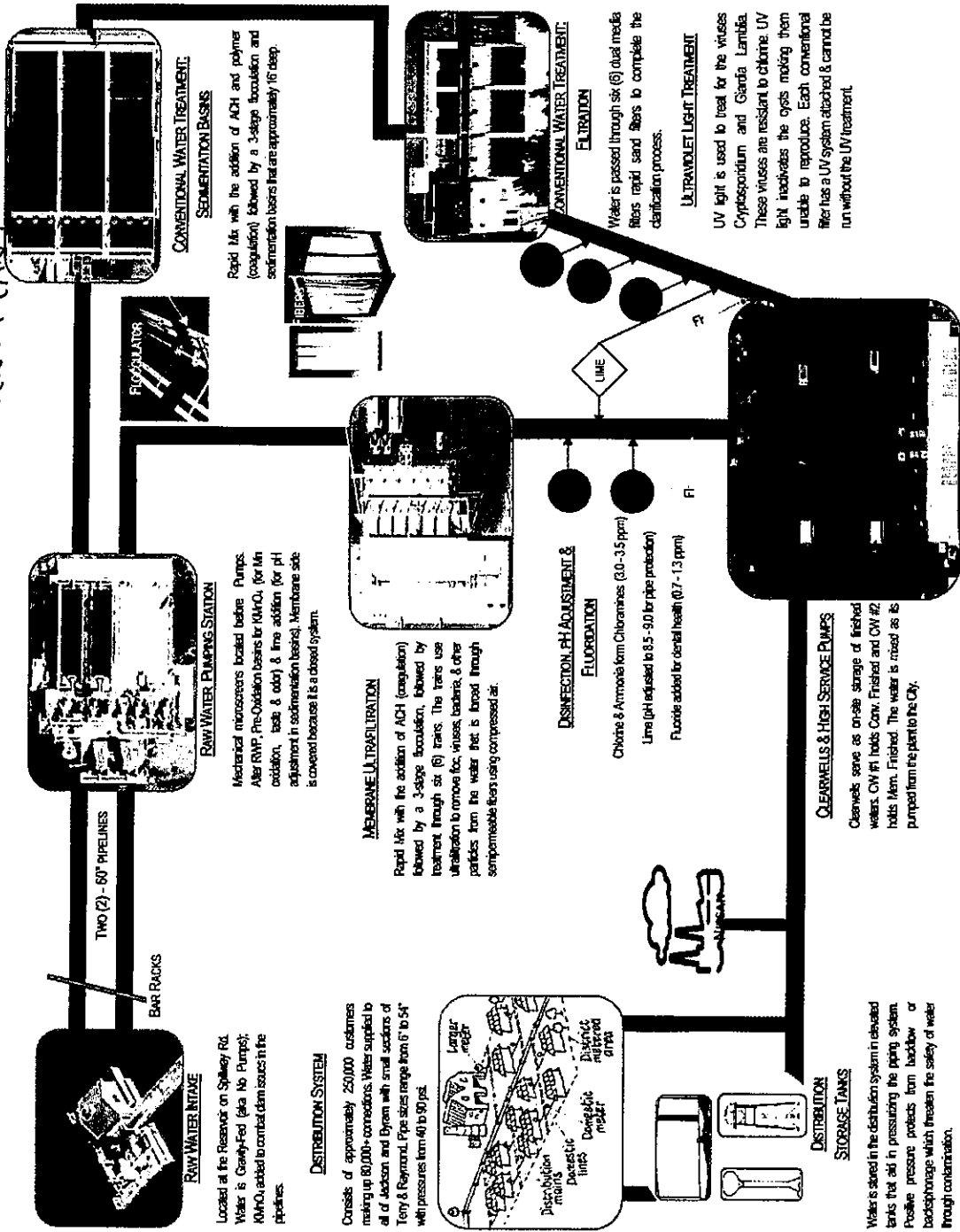
EPA Identification Number	NPDES Permit Number	Facility Name O.B. Curtis	Form Approved 03/05/19 OMB No. 2040-0004																																			
<b>SECTION 12. CHECKLIST AND CERTIFICATION STATEMENT (40 CFR 122.22(a) and (d))</b>																																						
<b>Checklist and Certification Statement</b>	12.1	<p>In Column 1 below, mark the sections of Form 2C that you have completed and are submitting with your application. For each section, specify in Column 2 any attachments that you are enclosing to alert the permitting authority. Note that not all applicants are required to complete all sections or provide attachments.</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:50%; text-align:center;">Column 1</th> <th style="width:50%; text-align:center;">Column 2</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/> Section 1: Outfall Location</td> <td><input type="checkbox"/> w/ attachments</td> </tr> <tr> <td><input checked="" type="checkbox"/> Section 2: Line Drawing</td> <td><input checked="" type="checkbox"/> w/ line drawing      <input type="checkbox"/> w/ additional attachments</td> </tr> <tr> <td><input checked="" type="checkbox"/> Section 3: Average Flows and Treatment</td> <td><input type="checkbox"/> w/ attachments      <input type="checkbox"/> w/ list of each user of privately owned treatment works</td> </tr> <tr> <td><input checked="" type="checkbox"/> Section 4: Intermittent Flows</td> <td><input type="checkbox"/> w/ attachments</td> </tr> <tr> <td><input checked="" type="checkbox"/> Section 5: Production</td> <td><input type="checkbox"/> w/ attachments</td> </tr> <tr> <td><input checked="" type="checkbox"/> Section 6: Improvements</td> <td><input type="checkbox"/> w/ attachments      <input type="checkbox"/> w/ optional additional sheets describing any additional pollution control plans</td> </tr> <tr> <td rowspan="5"><input checked="" type="checkbox"/> Section 7: Effluent and Intake Characteristics</td> <td><input type="checkbox"/> w/ request for a waiver and supporting information</td> <td><input type="checkbox"/> w/ explanation for identical outfalls</td> </tr> <tr> <td><input type="checkbox"/> w/ small business exemption request</td> <td><input type="checkbox"/> w/ other attachments</td> </tr> <tr> <td><input checked="" type="checkbox"/> w/ Table A</td> <td><input type="checkbox"/> w/ Table B</td> </tr> <tr> <td><input checked="" type="checkbox"/> w/ Table C</td> <td><input type="checkbox"/> w/ Table D</td> </tr> <tr> <td><input type="checkbox"/> w/ Table E</td> <td><input type="checkbox"/> w/ analytical results as an attachment</td> </tr> <tr> <td><input checked="" type="checkbox"/> Section 8: Used or Manufactured Toxics</td> <td><input type="checkbox"/> w/ attachments</td> </tr> <tr> <td><input checked="" type="checkbox"/> Section 9: Biological Toxicity Tests</td> <td><input type="checkbox"/> w/ attachments</td> </tr> <tr> <td><input checked="" type="checkbox"/> Section 10: Contract Analyses</td> <td><input type="checkbox"/> w/ attachments</td> </tr> <tr> <td><input checked="" type="checkbox"/> Section 11: Additional Information</td> <td><input type="checkbox"/> w/ attachments</td> </tr> <tr> <td><input checked="" type="checkbox"/> Section 12: Checklist and Certification Statement</td> <td><input type="checkbox"/> w/ attachments</td> </tr> </tbody> </table>		Column 1	Column 2	<input checked="" type="checkbox"/> Section 1: Outfall Location	<input type="checkbox"/> w/ attachments	<input checked="" type="checkbox"/> Section 2: Line Drawing	<input checked="" type="checkbox"/> w/ line drawing <input type="checkbox"/> w/ additional attachments	<input checked="" type="checkbox"/> Section 3: Average Flows and Treatment	<input type="checkbox"/> w/ attachments <input type="checkbox"/> w/ list of each user of privately owned treatment works	<input checked="" type="checkbox"/> Section 4: Intermittent Flows	<input type="checkbox"/> w/ attachments	<input checked="" type="checkbox"/> Section 5: Production	<input type="checkbox"/> w/ attachments	<input checked="" type="checkbox"/> Section 6: Improvements	<input type="checkbox"/> w/ attachments <input type="checkbox"/> w/ optional additional sheets describing any additional pollution control plans	<input checked="" type="checkbox"/> Section 7: Effluent and Intake Characteristics	<input type="checkbox"/> w/ request for a waiver and supporting information	<input type="checkbox"/> w/ explanation for identical outfalls	<input type="checkbox"/> w/ small business exemption request	<input type="checkbox"/> w/ other attachments	<input checked="" type="checkbox"/> w/ Table A	<input type="checkbox"/> w/ Table B	<input checked="" type="checkbox"/> w/ Table C	<input type="checkbox"/> w/ Table D	<input type="checkbox"/> w/ Table E	<input type="checkbox"/> w/ analytical results as an attachment	<input checked="" type="checkbox"/> Section 8: Used or Manufactured Toxics	<input type="checkbox"/> w/ attachments	<input checked="" type="checkbox"/> Section 9: Biological Toxicity Tests	<input type="checkbox"/> w/ attachments	<input checked="" type="checkbox"/> Section 10: Contract Analyses	<input type="checkbox"/> w/ attachments	<input checked="" type="checkbox"/> Section 11: Additional Information	<input type="checkbox"/> w/ attachments	<input checked="" type="checkbox"/> Section 12: Checklist and Certification Statement	<input type="checkbox"/> w/ attachments
	Column 1	Column 2																																				
	<input checked="" type="checkbox"/> Section 1: Outfall Location	<input type="checkbox"/> w/ attachments																																				
	<input checked="" type="checkbox"/> Section 2: Line Drawing	<input checked="" type="checkbox"/> w/ line drawing <input type="checkbox"/> w/ additional attachments																																				
	<input checked="" type="checkbox"/> Section 3: Average Flows and Treatment	<input type="checkbox"/> w/ attachments <input type="checkbox"/> w/ list of each user of privately owned treatment works																																				
	<input checked="" type="checkbox"/> Section 4: Intermittent Flows	<input type="checkbox"/> w/ attachments																																				
	<input checked="" type="checkbox"/> Section 5: Production	<input type="checkbox"/> w/ attachments																																				
	<input checked="" type="checkbox"/> Section 6: Improvements	<input type="checkbox"/> w/ attachments <input type="checkbox"/> w/ optional additional sheets describing any additional pollution control plans																																				
	<input checked="" type="checkbox"/> Section 7: Effluent and Intake Characteristics	<input type="checkbox"/> w/ request for a waiver and supporting information	<input type="checkbox"/> w/ explanation for identical outfalls																																			
		<input type="checkbox"/> w/ small business exemption request	<input type="checkbox"/> w/ other attachments																																			
		<input checked="" type="checkbox"/> w/ Table A	<input type="checkbox"/> w/ Table B																																			
		<input checked="" type="checkbox"/> w/ Table C	<input type="checkbox"/> w/ Table D																																			
		<input type="checkbox"/> w/ Table E	<input type="checkbox"/> w/ analytical results as an attachment																																			
	<input checked="" type="checkbox"/> Section 8: Used or Manufactured Toxics	<input type="checkbox"/> w/ attachments																																				
<input checked="" type="checkbox"/> Section 9: Biological Toxicity Tests	<input type="checkbox"/> w/ attachments																																					
<input checked="" type="checkbox"/> Section 10: Contract Analyses	<input type="checkbox"/> w/ attachments																																					
<input checked="" type="checkbox"/> Section 11: Additional Information	<input type="checkbox"/> w/ attachments																																					
<input checked="" type="checkbox"/> Section 12: Checklist and Certification Statement	<input type="checkbox"/> w/ attachments																																					
12.2	<p><b>Certification Statement</b></p> <p><i>I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.</i></p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:60%;">Name (print or type first and last name)</td> <td>Official title</td> </tr> <tr> <td style="text-align:center;"><i>Mausetta Spann</i></td> <td style="text-align:center;"><i>Water Systems Manager</i></td> </tr> <tr> <td>Signature</td> <td>Date signed</td> </tr> <tr> <td style="text-align:center;"></td> <td style="text-align:center;"><i>4/30/21</i></td> </tr> </table>		Name (print or type first and last name)	Official title	<i>Mausetta Spann</i>	<i>Water Systems Manager</i>	Signature	Date signed		<i>4/30/21</i>																												
Name (print or type first and last name)	Official title																																					
<i>Mausetta Spann</i>	<i>Water Systems Manager</i>																																					
Signature	Date signed																																					
	<i>4/30/21</i>																																					

This page intentionally left blank.

ORIGINAL

Section 2  
Attachment 1

O.B. Curtis Water Treatment Plant



**CONVENTIONAL WATER TREATMENT - SEDIMENTATION BASINS**  
Rapid Mix with the addition of ACH and polymer (coagulation) followed by a 3-stage flocculation and sedimentation basins that are approximately 16 deep.

**CONVENTIONAL WATER TREATMENT - FILTRATION**  
Water is passed through six (6) dual media filters rapid sand filters to complete the clarification process.

**ULTRAVIOLET LIGHT TREATMENT**  
UV light is used to treat for the viruses Cryptosporidium and Giardia Lamblia. These viruses are resistant to chlorine UV light inactivates the cysts making them unable to reproduce. Each conventional filter has a UV system attached & cannot be run without the UV treatment.

**RAW WATER PUMPING STATION**  
Mechanical microstrainers located before pumps. After RMP, Pre-Oxidation basins for KMnO<sub>4</sub>, for Mn oxidation, taste & odor) & lime addition (for pH adjustment in sedimentation basins). Membrane side is covered because it is a closed system.

**MEMBRANE ULTRAFILTRATION**  
Rapid Mix with the addition of ACH (coagulation) followed by a 3-stage flocculation, followed by treatment through six (6) tanks. The tanks use ultraviolet to remove floc, viruses, bacteria, & other particles from the water that is forced through semipermeable filters using compressed air.

**DISINFECTION, PH ADJUSTMENT & FLUORIDATION**  
Chlorine & Armonia form Chloramines (0.0 - 3.5 ppm)  
Lime (pH adjusted to 8.5 - 9.0 for pipe protection)  
Fluoride added for dental health (0.7 - 1.3 ppm)

**CONVENTIONAL WATER TREATMENT - FILTRATION**  
Water is passed through six (6) dual media filters rapid sand filters to complete the clarification process.

**ULTRAVIOLET LIGHT TREATMENT**  
UV light is used to treat for the viruses Cryptosporidium and Giardia Lamblia. These viruses are resistant to chlorine UV light inactivates the cysts making them unable to reproduce. Each conventional filter has a UV system attached & cannot be run without the UV treatment.

**CONVENTIONAL WATER TREATMENT - SEDIMENTATION BASINS**  
Rapid Mix with the addition of ACH and polymer (coagulation) followed by a 3-stage flocculation and sedimentation basins that are approximately 16 deep.

**CONVENTIONAL WATER TREATMENT - FILTRATION**  
Water is passed through six (6) dual media filters rapid sand filters to complete the clarification process.

**ULTRAVIOLET LIGHT TREATMENT**  
UV light is used to treat for the viruses Cryptosporidium and Giardia Lamblia. These viruses are resistant to chlorine UV light inactivates the cysts making them unable to reproduce. Each conventional filter has a UV system attached & cannot be run without the UV treatment.

**CONVENTIONAL WATER TREATMENT - SEDIMENTATION BASINS**  
Rapid Mix with the addition of ACH and polymer (coagulation) followed by a 3-stage flocculation and sedimentation basins that are approximately 16 deep.

**CONVENTIONAL WATER TREATMENT - FILTRATION**  
Water is passed through six (6) dual media filters rapid sand filters to complete the clarification process.

**ULTRAVIOLET LIGHT TREATMENT**  
UV light is used to treat for the viruses Cryptosporidium and Giardia Lamblia. These viruses are resistant to chlorine UV light inactivates the cysts making them unable to reproduce. Each conventional filter has a UV system attached & cannot be run without the UV treatment.

**CONVENTIONAL WATER TREATMENT - SEDIMENTATION BASINS**  
Rapid Mix with the addition of ACH and polymer (coagulation) followed by a 3-stage flocculation and sedimentation basins that are approximately 16 deep.

**CONVENTIONAL WATER TREATMENT - FILTRATION**  
Water is passed through six (6) dual media filters rapid sand filters to complete the clarification process.

**ULTRAVIOLET LIGHT TREATMENT**  
UV light is used to treat for the viruses Cryptosporidium and Giardia Lamblia. These viruses are resistant to chlorine UV light inactivates the cysts making them unable to reproduce. Each conventional filter has a UV system attached & cannot be run without the UV treatment.

**CONVENTIONAL WATER TREATMENT - SEDIMENTATION BASINS**  
Rapid Mix with the addition of ACH and polymer (coagulation) followed by a 3-stage flocculation and sedimentation basins that are approximately 16 deep.

RECEIVED  
MAY 7 2021

MDEQ

Form Approved 03/05/19  
OMB No. 2040-0004

EPA Identification Number	NPDES Permit Number	Facility Name O.B. Curtis	Order Number
---------------------------	---------------------	------------------------------	--------------

**TABLE A. CONVENTIONAL AND NON-CONVENTIONAL POLLUTANTS (40 CFR 122.21(g)(7) (iii))**

Pollutant	Waiver Requested (if applicable)	Units (specify)	Effluent			Intake (Optional)	
			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value
<input type="checkbox"/> Check here if you have applied to your NPDES permitting authority for a waiver for all of the pollutants listed on this table for the noted outfall.							
1. Biochemical oxygen demand (BOD <sub>5</sub> )	<input type="checkbox"/>	Concentration	MG/L	10.0			53
		Mass	PPD	108.4			53
2. Chemical oxygen demand (COD)	<input type="checkbox"/>	Concentration	MG/L	18.0			2
		Mass	PPD	63.1			2
3. Total organic carbon (TOC)	<input type="checkbox"/>	Concentration	MG/L	7.1			2
		Mass	PPD	25.0			2
4. Total suspended solids (TSS)	<input type="checkbox"/>	Concentration	MG/L	13.0			52
		Mass	PPD	146.4			52
5. Ammonia (as N)	<input type="checkbox"/>	Concentration	MG/L	0.975			51
		Mass	PPD	11.0			51
6. Flow	<input type="checkbox"/>	Rate	MGD	1.35			257
7. Temperature (winter)	<input type="checkbox"/>	°C	°C	18.5			20
7. Temperature (summer)	<input type="checkbox"/>	°C	°C	28.0			20
8. pH (minimum)	<input type="checkbox"/>	Standard units	s.u.	6.35			257
8. pH (maximum)	<input type="checkbox"/>	Standard units	s.u.	7.89			257

<sup>1</sup> Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR chapter I, subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

This page intentionally left blank.

Form Approved 03/05/19  
OMB No. 2040-0004

EPA Identification Number	NPDES Permit Number	Facility Name O. B. Curtis	Outfall Number
---------------------------	---------------------	-------------------------------	----------------

**TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(17)(v))**

Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)	Effluent			Intake (optional)	
		Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value

Check here if you qualify as a small business per the instructions to Form 20 and, therefore, do not need to submit quantitative data for any of the organic toxic pollutants in Sections 2 through 5 of this table. Note, however, that you must still indicate in the appropriate column of this table if you believe any of the pollutants listed are present in your discharge.

<b>Section 1. Toxic Metals, Cyanide, and Total Phenols</b>									
1.1	Antimony, total (7440-36-0)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass				
1.2	Arsenic, total (7440-38-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass				
1.3	Beryllium, total (7440-41-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass				
1.4	Cadmium, total (7440-43-9)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass				
1.5	Chromium, total (7440-47-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass				
1.6	Copper, total (7440-50-8)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass				
1.7	Lead, total (7439-92-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass				
1.8	Mercury, total (7439-97-6)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass				
1.9	Nickel, total (7440-02-0)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass				
1.10	Selenium, total (7782-49-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass				
1.11	Silver, total (7440-22-4)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass				



Form Approved 030519  
OMB No. 2040-0004

EPA Identification Number	NPDES Permit Number	Facility Name O.B. Curtis	Outfall Number
---------------------------	---------------------	------------------------------	----------------

**TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(iv))<sup>1</sup>**

Pollutant/Parameter (and CAS Number, if available)	Presence or Absence (click one)		Units (specify)	Effluent			Intake (optional)			
	Testing Required	Believed Present		Believed Absent	Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses
1.12 Thallium, total (7440-28-0)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
1.13 Zinc, total (7440-66-6)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
1.14 Cyanide, total (57-12-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
1.15 Phenols, total	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
<b>Section 2. Organic Toxic Pollutants (GC/MS Fraction—Volatile Compounds)</b>										
2.1 Acrolein (107-02-8)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
2.2 Acrylonitrile (107-13-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
2.3 Benzene (71-43-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
2.4 Bromoform (75-25-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
2.5 Carbon tetrachloride (66-23-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
2.6 Chlorobenzene (108-90-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
2.7 Chlorodibromomethane (124-48-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
2.8 Chloroethane (75-00-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						

Form Approved 03/05/19  
OMB No. 2040-0004

EPA Identification Number	NPDES Permit Number	Facility Name O.B. Curtis	Outfall Number
---------------------------	---------------------	------------------------------	----------------

**TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g), (h)(1))**

Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)	Effluent			Intake (optional)		
		Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses
2.9 2-chloroethoxyvinyl ether (110-75-8)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
2.10 Chloroform (67-66-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
2.11 Dichlorobromomethane (75-27-4)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
2.12 1,1-dichloroethane (75-34-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
2.13 1,2-dichloroethane (107-06-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
2.14 1,1-dichloroethylene (75-35-4)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
2.15 1,2-dichloropropane (78-87-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
2.16 1,3-dichloropropylene (542-75-6)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
2.17 Ethylbenzene (100-41-4)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
2.18 Methyl bromide (74-83-9)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
2.19 Methyl chloride (74-87-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
2.20 Methylene chloride (75-09-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
2.21 1,1,2,2-tetrachloroethane (79-34-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						

EPA Identification Number	NPDES Permit Number	Facility Name O.B. Curtis	Outfall Number
---------------------------	---------------------	------------------------------	----------------

**TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(vi))**

Pollutant/Parameter (and CAS Number, if available)	Presence or Absence (check one)		Units (specify)	Effluent			Intake (optional)			
	Testing Required	Believed Present		Believed Absent	Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses
2.22 Tetrachloroethylene (127-18-4)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
2.23 Toluene (108-88-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
2.24 1,2-trans-dichloroethylene (156-60-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
2.25 1,1,1-trichloroethane (71-55-6)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
2.26 1,1,2-trichloroethane (79-00-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
2.27 Trichloroethylene (79-01-6)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
2.28 Vinyl chloride (75-01-4)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
<b>Section 3. Organic Toxic Pollutants (GC/MS Fraction -Ackt Compounds)</b>										
3.1 2-chlorophenol (95-57-8)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
3.2 2,4-dichlorophenol (120-83-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
3.3 2,4-dimethylphenol (105-67-9)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
3.4 4,6-dinitro-o-cresol (534-52-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
3.5 2,4-dinitrophenol (51-28-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						

Form Approved 03/05/19  
OMB No. 2040-0004

EPA Identification Number	NPDES Permit Number	Facility Name O.B. Curtis	Outfall Number
---------------------------	---------------------	------------------------------	----------------

**TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS 140 CFR 122.21(g)(7)(vi)\***

Pollutant/Parameter (and CAS Number, if available)	Presence or Absence (check one)		Testing Required	Units (specify)			Effluent			Intake (optional)	
	Believed Present	Believed Absent		Concentration	Maximum Daily Discharge (if available)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses	
3.6 2-nitrophenol (88-75-5)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concentration							
3.7 4-nitrophenol (100-02-7)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concentration							
3.8 p-chloro-m-cresol (69-50-7)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concentration							
3.9 Pentachlorophenol (87-86-5)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concentration							
3.10 Phenol (108-95-2)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concentration							
3.11 2,4,6-trichlorophenol (88-05-2)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concentration							
<b>Section 4. Organic Toxic Pollutants (GC/MS Fraction—Base Neutral Compounds)</b>											
4.1 Acenaphthene (83-32-9)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concentration							
4.2 Acenaphthylene (208-96-8)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concentration							
4.3 Anthracene (120-12-7)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concentration							
4.4 Benzidine (92-87-5)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concentration							
4.5 Benzo (a) anthracene (56-55-3)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concentration							
4.6 Benzo (a) pyrene (50-32-5)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concentration							

Form Approved O30519  
OMB No. 2040-0004

EPA Identification Number	NPDES Permit Number	Facility Name O. B. Curtis	Occult Number
---------------------------	---------------------	-------------------------------	---------------

**TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(1)(v))**

Pollutant/Parameter (and CAS Number, if available)	Presence or Absence (check one)		Units (specify)	Effluent			Intake (optional)		
	Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
4.7 3,4-benzofluoranthene (205-99-2)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
4.8 Benzo (ghi) perylene (191-24-2)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
4.9 Benzo (k) fluoranthene (207-08-9)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
4.10 Bis (2-chloroethoxy) methane (111-91-1)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
4.11 Bis (2-chloroethyl) ether (111-44-4)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
4.12 Bis (2-chloroisopropyl) ether (102-90-1)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
4.13 Bis (2-ethoxyethyl) phthalate (117-91-7)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
4.14 4-bromophenyl phenyl ether (101-55-3)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
4.15 Butyl benzyl phthalate (85-68-7)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
4.16 2-chloronaphthalene (91-58-7)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
4.17 4-chlorophenyl phenyl ether (7005-72-3)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
4.18 Chrysene (218-01-9)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
4.19 Dibenzo (a,h) anthracene (53-70-3)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						

Form Approved 03/05/19  
OMB No. 2040-0004

EPA Identification Number	NFDES Permit Number	Facility Name O.B.Curtis	Outlet Number
---------------------------	---------------------	-----------------------------	---------------

**TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))**

Pollutant/Parameter (and CAS Number, if available)	Presence or Absence (check one)		Units (specify)	Effluent			Intake (optional)		
	Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
4.20 1,2-dichlorobenzene (95-50-1)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
4.21 1,3-dichlorobenzene (941-73-1)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
4.22 1,4-dichlorobenzene (106-46-7)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
4.23 3,3-dichlorobenzidine (91-94-1)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
4.24 Diethyl phthalate (84-66-2)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
4.25 Dimethyl phthalate (131-11-3)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
4.26 Di-n-butyl phthalate (84-74-2)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
4.27 2,4-dinitrotoluene (121-14-2)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
4.28 2,6-dinitrotoluene (606-20-2)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
4.29 Di-n-octyl phthalate (117-94-0)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
4.30 1,2-Diphenylhydrazine (as azobenzene) (122-66-7)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
4.31 Fluoranthene (206-44-0)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
4.32 Fluorene (86-73-7)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						

Form Approved 03/05/19  
OMB No. 2040-0094

EPA Identification Number: NPDES Permit Number: Facility Name: O.B. Curtis Outfall Number:

TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))

Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)	Effluent			Intake (optional)			
		Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses	
4.33 Hexachlorobenzene (118-74-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass							
4.34 Hexachlorobutadiene (87-68-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass							
4.35 Hexachlorocyclopentadiene (77-47-4)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass							
4.36 Hexachloroethane (67-72-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass							
4.37 Indeno (1,2,3-cd) pyrene (193-39-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass							
4.38 Isophorone (78-59-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass							
4.39 Naphthalene (91-20-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass							
4.40 Nitrobenzene (98-95-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass							
4.41 N-nitrosodimethylamine (62-75-9)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass							
4.42 N-nitrosod-n-propylamine (621-64-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass							
4.43 N-nitrosodiphenylamine (86-30-6)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass							
4.44 Phenanthrene (85-01-6)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass							
4.45 Pyrene (129-00-0)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass							

EPA Identification Number  
NPDES Permit Number  
Facility Name  
O.B. Curtis  
Outfall Number

Form Approved 03/05/19  
OMB No. 2040-0004

**TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(iv))**

Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)	Effluent			Intake (optional)		
		Believed Present	Believed Absent		Maximum Daily Discharge (required)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses	
4.46 1,2,4-trichlorobenzene (120-82-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
<b>Section 5. Organic Toxic Pollutants (GC/MS Fraction—Pesticides)</b>										
5.1 Aldrin (309-00-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
5.2 $\alpha$ -BHC (319-84-6)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
5.3 $\beta$ -BHC (319-85-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
5.4 $\gamma$ -BHC (58-89-9)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
5.5 $\delta$ -BHC (319-86-8)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
5.6 Chlordane (57-74-9)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
5.7 4,4'-DDT (50-29-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
5.8 4,4'-DDE (72-55-9)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
5.9 4,4'-DDD (72-54-8)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
5.10 Dieldrin (60-57-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
5.11 $\alpha$ -endosulfan (115-29-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						



Form Approved 03/05/19  
OMB No. 2040-0004

EPA Identification Number: NPDES Permit Number: Facility Name: O.B.Curtis Outfall Number:

TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(iv))

Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)	Effluent			Intake (optional)		
		Believed Present	Believed Absent		Maximum Daily Discharge (required)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses	
5.12 β-endosulfan (115-29-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
5.13 Endosulfan sulfate (1031-07-8)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
5.14 Endrin (72-20-8)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
5.15 Endrin aldehyde (7421-93-4)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
5.16 Heptachlor (76-44-8)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
5.17 Heptachlor epoxide (1024-57-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
5.18 PCB-1242 (53469-21-9)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
5.19 PCB-1254 (11097-69-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
5.20 PCB-1221 (11104-28-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
5.21 PCB-1232 (11141-16-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
5.22 PCB-1248 (12672-29-6)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
5.23 PCB-1260 (11096-82-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
5.24 PCB-1016 (12674-11-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						

EPA Form 3510-2C (Revised 3-19)

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number						
		O.B.Curtis							
TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(1) <sup>1</sup> ) <sup>1</sup>									
Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Effluent			Intake (optional)		
		Believed Present	Believed Absent	Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Long- Term Average Value	Number of Analyses	
5.25 Toxaphene (8001-35-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>						

<sup>1</sup> Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR chapter I, subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

This page intentionally left blank.

EPA Identification Number  
 NPDES Permit Number  
 Facility Name  
 O.B. Curtis  
 Outfall Number

Form Approved 0305/19  
 OMB No. 2040-0004

**TABLE C. CERTAIN CONVENTIONAL AND NON CONVENTIONAL POLLUTANTS (40 CFR 122.21(g)(17)(vii))**

Pollutant	Presence or Absence (check one)		Units (specify)	Effluent			Intake (Optional)	
	Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Long-Term Average Value	Number of Analyses
<input type="checkbox"/> Check here if you believe all pollutants on Table C to be present in your discharge from the noted outfall. You need <i>not</i> complete the "Presence or Absence" column of Table C for each pollutant.								
<input type="checkbox"/> Check here if you believe all pollutants on Table C to be absent in your discharge from the noted outfall. You need <i>not</i> complete the "Presence or Absence" column of Table C for each pollutant.								
1. Bromide (24999-67-9)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass					
2. Chlorine, total residual	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concentration Mass	MG/L	0.80			257
3. Color	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concentration Mass	PPD	9.01			257
4. Fecal coliform	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass	Hazen	10			2
5. Fluoride (16984-48-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concentration Mass	MG/L	0.100			2
6. Nitrate-nitrite	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass	PPD	0.350			2
7. Nitrogen, total organic (as N)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass					
8. Oil and grease	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass					
9. Phosphorus (as P), total (7723-14-0)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass					
10. Sulfate (as SO <sub>4</sub> ) (14808-79-8)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass					
11. Sulfide (as S)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass					

Form Approved 03/05/19  
OMB No. 2040-0004

EPA Identification Number	NIPDES Permit Number	Facility Name O.B.Curtis	Outfall Number
---------------------------	----------------------	-----------------------------	----------------

**TABLE C. CERTAIN CONVENTIONAL AND NON-CONVENTIONAL POLLUTANTS (40 CFR 122.21(g)(1)(vii))**

Pollutant	Presence or Absence (check one)		Units (specify)	Effluent				Intake (Optional)	
	Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
12. Sulfite (as SO <sub>3</sub> ) (14265-45-3)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
13. Surfactants	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
14. Aluminum, total (7429-90-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concentration Mass	MG/L	0.520				2
15. Barium, total (7440-39-3)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
16. Boron, total (7440-42-6)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
17. Cobalt, total (7440-48-4)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
18. Iron, total (7439-89-6)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concentration Mass	MG/L	0.137				2
19. Magnesium, total (7439-85-4)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
20. Molybdenum, total (7439-98-7)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
21. Manganese, total (7439-96-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concentration Mass	MG/L	0.100				2
22. Tin, total (7440-31-5)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						
23. Titanium, total (7440-32-6)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass						

Form Approved 03/06/19  
OMB No. 2040-0004

EPA Identification Number	NPDES Permit Number	Facility Name O.B. Curtis	Outfall Number
---------------------------	---------------------	------------------------------	----------------

Pollutant	Presence or Absence (check one)		Units (specify)	Effluent			Intake (Optional)	
	Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Long-Term Average Value	Number of Analyses
<b>24. Radioactivity</b>								
Alpha, total	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass					
Beta, total	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass					
Radium, total	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass					
Radium 226, total	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concentration Mass					

<sup>1</sup> Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR chapter I, subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

This page intentionally left blank.

Form Approved 0305/19  
OAR No. 2040-0004

EPA Identification Number	NPDES Permit Number	Facility Name O.B. Curtis	Outfall Number
---------------------------	---------------------	------------------------------	----------------

**TABLE D. CERTAIN HAZARDOUS SUBSTANCES AND ASBESTOS (40 CFR 122.21(g)(7)(vii))<sup>1</sup>**

Pollutant	Presence or Absence (check one)		Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
	Believed Present	Believed Absent		
1. Asbestos	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
2. Acetaldehyde	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
3. Allyl alcohol	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4. Allyl chloride	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
5. Amyl acetate	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
6. Aniline	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
7. Benzotrifluoride	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
8. Benzyl chloride	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
9. Butyl acetate	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
10. Butylamine	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
11. Captan	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
12. Carbaryl	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
13. Carbofuran	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
14. Carbon disulfide	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
15. Chlorpyrifos	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
16. Coumaphos	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
17. Cresol	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
18. Crotonaldehyde	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
19. Cyclohexane	<input type="checkbox"/>	<input checked="" type="checkbox"/>		



Form Approved 0305/19  
OMB No. 2010-0004

EPA Identification Number	NPDES Permit Number	Facility Name O. B. Curtis	Outfall Number
---------------------------	---------------------	-------------------------------	----------------

TABLE D. CERTAIN HAZARDOUS SUBSTANCES AND ASBESTOS (40 CFR 122.21(g)(7)(viii))

Pollutant	Presence or Absence (check one)		Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
	Believed Present	Believed Absent		
20. 2,4-D (2,4-dichlorophenoxyacetic acid)	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
21. Diazinon	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
22. Dicamba	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
23. Dichlobenil	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
24. Dichloro	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
25. 2,2-dichloropropionic acid	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
26. Dieldrin	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
27. Diethyl amine	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
28. Dimethyl amine	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
29. Dinitrobenzene	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
30. Diquat	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
31. Disulfoton	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
32. Diuron	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
33. Epichlorohydrin	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
34. Ethion	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
35. Ethylene diamine	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
36. Ethylene dibromide	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
37. Formaldehyde	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
38. Furfural	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

Form Approved 0305/19  
OMB No. 2040-0004

EPA Identification Number	NPDDES Permit Number	Facility Name O.B.Curtis	Outfall Number
---------------------------	----------------------	-----------------------------	----------------

TABLE D. CERTAIN HAZARDOUS SUBSTANCES AND ASBESTOS (40 CFR 122.21(g)(7)(iii))

Pollutant	Presence or Absence (check one)		Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
	Believed Present	Believed Absent		
39. Guthion	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
40. Isoprene	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
41. Isopropanolamine	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
42. Keltane	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
43. Kepone	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
44. Malathion	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
45. Mercaptodimethur	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
46. Methoxychlor	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
47. Methyl mercaptan	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
48. Methyl methacrylate	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
49. Methyl parathion	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
50. Mevinphos	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
51. Mexacarbale	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
52. Monoethyl amine	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
53. Monomethyl amine	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
54. Neled	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
55. Naphthenic acid	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
56. Nitrotoluene	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
57. Parathion	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

Form Approved 03/05/19  
OMB No. 2040-0094

EPA Identification Number	NPDES Permit Number	Facility Name O. B. Curtis	Outfall Number
---------------------------	---------------------	-------------------------------	----------------

TABLE D: CERTAIN HAZARDOUS SUBSTANCES AND ASBESTOS (49 CFR 122.21(g)(7)(vi))<sup>1</sup>

Pollutant	Presence or Absence (check one)		Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
	Believed Present	Believed Absent		
58. Phenolsulfonate	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
59. Phosgene	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
60. Propargite	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
61. Propylene oxide	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
62. Pyrethrin	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
63. Quinoline	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
64. Resorcinol	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
65. Strontium	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
66. Strychnine	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
67. Styrene	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
68. 2,4,5-T (2,4,5-trichlorophenoxyacetic acid)	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
69. TDE (tetrachlorodiphenyl ethane)	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
70. 2,4,5-TP [2-(2,4,5-trichlorophenoxy) propanoic acid]	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
71. Trichloro[on]	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
72. Triethanolamine	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
73. Triethylamine	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
74. Trimethylamine	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
75. Uranium	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
76. Vanadium	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

Form Approved 03/05/19  
OMB No. 2040-0004

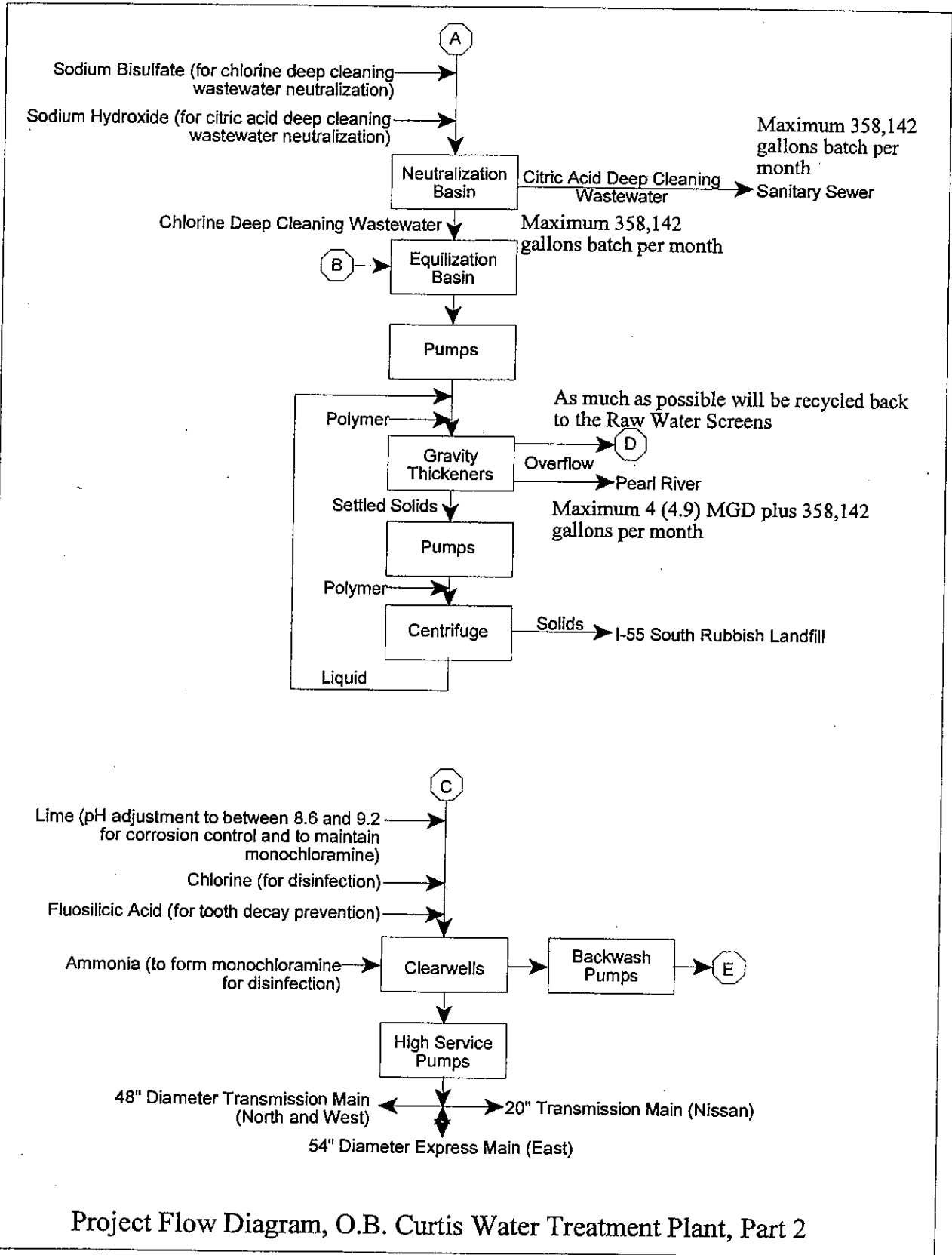
EPA Identification Number		NPDDES Permit Number		Facility Name		Outfall Number	
				O.B. Curtis			
Pollutant	Presence or Absence (check one)		Reason Pollutant Believed Present in Discharge		Available Quantitative Data (specify units)		
	Believed Present	Believed Absent					
77. Vinyl acetate	<input type="checkbox"/>	<input checked="" type="checkbox"/>					
78. Xylene	<input type="checkbox"/>	<input checked="" type="checkbox"/>					
79. Xylenol	<input type="checkbox"/>	<input checked="" type="checkbox"/>					
80. Zirconium	<input type="checkbox"/>	<input checked="" type="checkbox"/>					

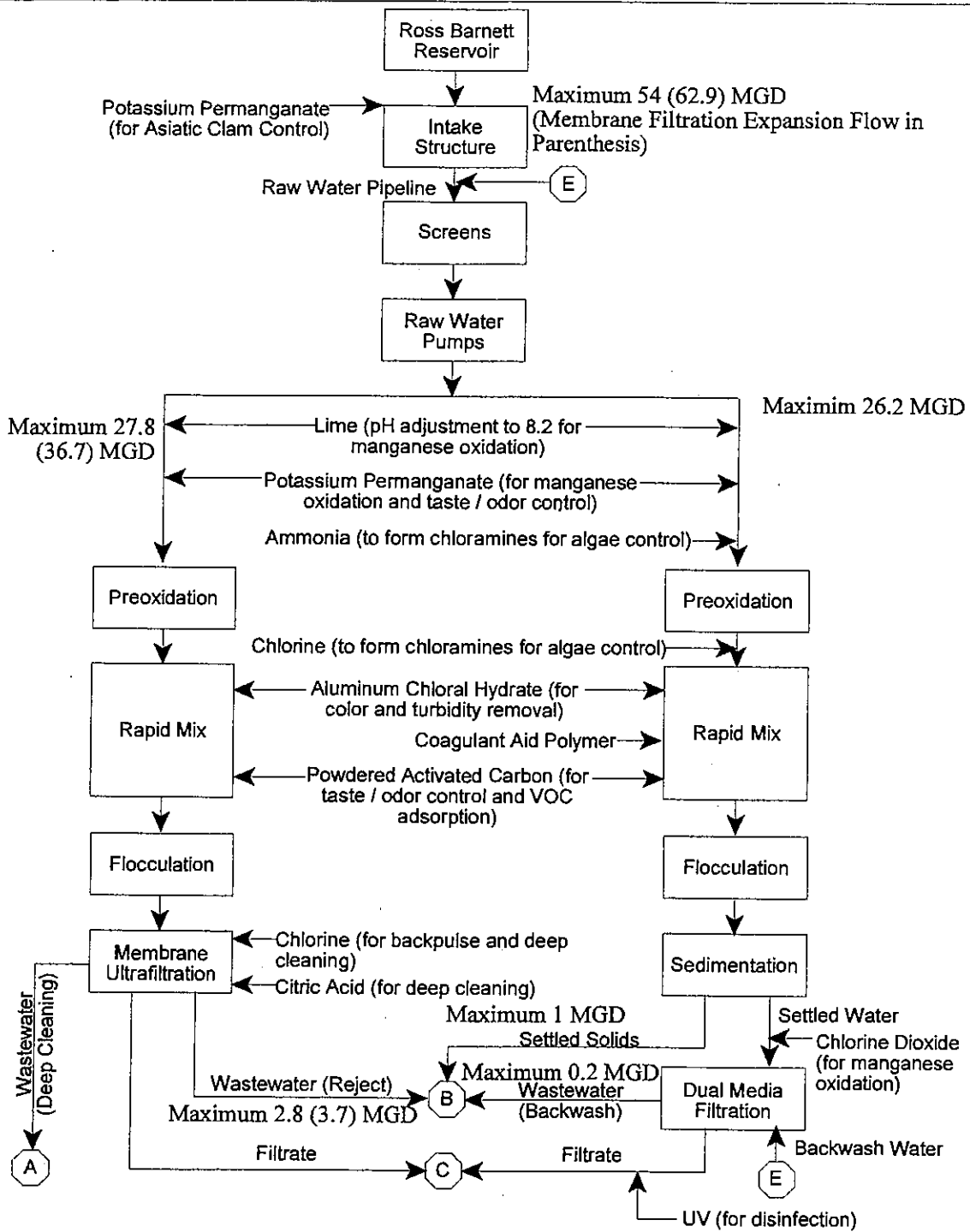
\* Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR chapter I, subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

This page intentionally left blank.

Form Approved 03/05/19  
OMB No. 2040-0004

EPA Identification Number	NPDES Permit Number	Facility Name O.B. Currtis	Outfall Number	
<b>TABLE E. 2.3.7.8 TETRACHLORODIBENZO P DIOXIN (2.3.7.8 TCDD) (40 CFR 122.21(g),(7)(viii))</b>				
Pollutant	TCDD Congeners Used or Manufactured	Presence or Absence (check one)		Results of Screening Procedure
		Believed Present	Believed Absent	
2,3,7,8-TCDD	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	





Project Flow Diagram, O.B. Curtis Water Treatment Plant, Part 1



PERMIT RATIONALE FOR REISSUANCE  
O B Curtis Water Treatment Plant  
Madison County  
Ridgeland, Mississippi  
Water NPDES No. MS0046906  
July 2021

I. FACILITY INFORMATION

Facility Name: O B Curtis Water Treatment Plant  
Facility Address: 100 O B Curtis Drive  
Ridgeland, MS 39157

Permit No.: MS0046906  
SIC: 4941  
Permit Writer: Dmitriy Asanov  
EPD Branch: Municipal and Private Facilities Branch

II. NATURE OF BUSINESS

Treatment of drinking water.

III. EFFLUENT AND RECEIVING STREAM FLOW DATA

Application states that wastewater consists of gravity thickening and centrifuge dewatering. Before discharge the wastewater is combined with citric acid deep cleaning wastewater used in the neutralization process. The average flow is 3.12 MGD.

IV. RECEIVING WATERS

The receiving stream is the Pearl River, located in the Pearl River Basin. The Pearl River is classified as Fish and Wildlife. This discharge is listed in the TMDLs for pH and Nutrients. The permit complies with the conditions of pH TMDL because the effluent is required to comply with water quality criteria before discharging. Total Nitrogen and Total Phosphorus limitations are included in the permit to comply with the nutrient TMDL.

V. TYPE OF WASTEWATER TREATMENT:

Application details no treatment for wastewater.

VI. EPA CATEGORICAL GUIDELINES

Not Applicable.

## VII. APPLICABLE GUIDELINES

Mississippi Wastewater Regulations (11 Mississippi Admin code, part 6, Chapter 1), State of Mississippi Water Quality (11 Mississippi Admin code, part 6, Chapter 1), Wasteload Allocation (WLA), Total Maximum Daily Load (TMDL)

## VIII. SUMMARY OF LIMITATIONS

### Proposed Limitations

<u>Parameter</u>	<u>Flow</u>	<u>Basis</u>
Flow	Report	WLA
BOD <sub>5</sub>	Report	WLA
Ammonia	Report	WLA
TSS	45 mg/l (Monthly Average)	Technology
TDS	Report	11 MS Admin Code
Chlorine, Total Residual	Report	WLA
pH	6.0 – 9.0 SU	11 MS Admin Code
Total Nitrogen	Report lbs/day (Monthly Avg.)	TMDL
Total Phosphorus	Report lbs/day (Monthly Avg.)	TMDL

The Pearl River Nutrient TMDL gives opportunity for TP load to be adjusted in combination and divided between the three (3) Jackson facilities (Trahan/Big Creek, Savannah Street and OB Curtis) for a total of 1297 lbs/day. These effluent values are combined together to meet the TMDL combined load in the Jackson POTW, Savanna Street permit. In addition, the Total Nitrogen load can also be adjusted in combination and divided between the three (3) Jackson facilities (Trahan/Big Creek, Savannah Street and OB Curtis) for a total of 6031 lbs/day. In order to establish the effluent values, monitoring requirements for TN and TP have been included in the permit.

A reopener clause has been added to the permit which states that the NPDES Permit MS0046906, shall be reopened and modified, or alternately revoked and reissued, accordingly to reflect any additional, or otherwise updated limitations, and any additional monitoring determined to be necessary to be consistent with the findings of any additional stream monitoring performed as a requirement of the approval of the 2015 Pearl River Nutrient TMDL of which this facility is a part.



STATE OF MISSISSIPPI  
TATE REEVES, GOVERNOR  
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY  
CHRIS WELLS, EXECUTIVE DIRECTOR

**MEMORANDUM**

**To:** Sandeepa Gill Project Engineer, EPD  
**From:** Taylor White Project Engineer, Modeling and TMDL Branch  
**Date:** July 14, 2021

**WASTELOAD ALLOCATION FOR NPDES PERMIT LIMITS**

**Facility:** O B Curtis Water Treatment Plant **Agency ID:** 4369  
**NPDES Permit Number:** MS0046906 **Outfall Number:** 001  
**City:** Ridgeland **County:** Madison **Basin:** Pearl River  
**Receiving Water:** Pearl River **Life Change:** Yes

**7Q10:** 66 cfs **IWC:** #VALUE! % **Ammonia Toxicity:** #VALUE! mg/L  
fresh water only #VALUE! draft future

**Please consider the following limits in the NPDES permit:**

	Annual	Summer (May - Oct)	Winter (Nov - Apr)	
<b>Discharge (MGD)</b>	Report			#VALUE! cfs
<b>CBOD<sub>5</sub> (mg/l)</b>	Report			#VALUE! lbs.
(Total Ammonia Nitrogen) <b>TAN (mg/l)</b>	Report			#VALUE! lbs.
<b>Minimum DO (mg/l)</b>	6			
<b>e. coli (col/100ml)</b>	126			
<b>Cl<sub>2</sub> (mg/l) calculated chronic</b>	Report			
<b>TN (lbs/day)</b>	Report			
<b>TP (lbs/day)</b>	Report			
<b>pH</b>	6-9			

**Comments:** 1. Permit reissuance. No change to existing discharge or location 2. Nutrient limits consistent with Pearl River Nutrient TMDL.  
Discharge point \_\_\_\_\_  
Latitude \_\_\_\_\_  
32°23'28" \_\_\_\_\_  
Longitude \_\_\_\_\_  
90°05'04" \_\_\_\_\_

**Branch Chief:** Shawn Clark, P.E.

**CC:** \_\_\_\_\_

# ATTACHMENT D

Attachment D, Page 1

1431



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

MAR 27 2020

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

The Honorable Chokwe A. Lumumba  
Mayor of City of Jackson  
219 South President Street  
Jackson, Mississippi 39205

Re: Emergency Administrative Order under SDWA Section 1431, 42 U.S.C. § 300i  
Public Water System: City of Jackson Public Water System  
PWS ID Number: MS0250008  
Docket No.: SDWA-SDWA-04-2020-2300

Dear Mayor Lumumba:

Enclosed is an Emergency Administrative Order (Order) issued by the U.S. Environmental Protection Agency to the City of Jackson, Mississippi (Respondent), as the owner/operator of the City of Jackson Public Water System (System), pursuant to section 1431 of the Safe Drinking Water Act (SDWA), 42 U.S.C. § 300i.

Based on observations made by the EPA during its inspection conducted the week of February 3, 2020, and review of the documents provided by Respondent in response to the EPA's request for information issued pursuant to its authority under section 1445 of the SDWA, 42 U.S.C. § 300j-4, the EPA has determined that conditions exist at the System that present an imminent and substantial endangerment to the persons served by the System. Based on evidence of turbidity exceedances, disinfection treatment concerns, and/or the condition of the distribution system, the System has the potential to have the presence of *E. Coli*, *Cryptosporidium*, or *Giardia* in the drinking water being served to its customers. Therefore, pursuant to section 1431 of the SDWA, 42 U.S.C. § 300i, the EPA is authorized to take actions necessary to protect human health. The Order and its requirements are necessary to ensure adequate protection of public health.

The enclosed Order sets forth the actions that must be taken to ensure that the people served by the System are provided with safe drinking water. The Order requires the System to, among other things: (1) develop and implement a plan to address all monitoring equipment and appurtenant treatment equipment repairs and/or replacements; (2) address dosing processes for disinfection and pH control; (3) develop and implement a plan to provide alternative drinking water when specific triggers are met; and (4) take additional total coliform bacteria samples under prescribed conditions.

The Order constitutes a final agency action and under Section 1448(a) of the SDWA, 42 U.S.C. § 300j-7(a) you may seek federal judicial review. If you have any questions or wish to discuss this Order, please contact Amanda Driskell at (404) 562-9735 or [Driskell.Amanda@epa.gov](mailto:Driskell.Amanda@epa.gov). For legal inquiries,

please have your attorneys contact Suzanne Armor, Associate Regional Counsel, at (404) 562-9701 or Armor.Suzanne@epa.gov. Thank you for your attention to this matter.

Sincerely,

A handwritten signature in cursive script that reads "Carol L. Kemker".

Carol L. Kemker  
Director  
Enforcement and Compliance Assurance Division

Enclosure

cc: Robert K Miller, Director, City of Jackson Department of Public Works  
Lester Herrington, Director of Office of Environmental Health,  
Mississippi State Department of Health



8. Pursuant to SDWA Section 1413, 42 U.S.C. § 300g-2, the Mississippi State Department of Health (“MSDH”) has primary responsibility for the implementation and enforcement of the public water supply program in Mississippi.
9. The System consists of two water treatment plants, known as the O.B. Curtis Water Treatment Plant (“O.B. Curtis WTP”)<sup>1</sup> and the J.H. Fewell Water Treatment Plant (“J.H. Fewell WTP”),<sup>2</sup> a number of groundwater wells,<sup>3</sup> and appurtenant collection, treatment, storage, and distribution facilities.<sup>4</sup>
10. Portions of the System can be supplied by both ground and surface water sources, while others are served only by surface water sources. The surface water sources are the Ross Barnett Reservoir and the Pearl River. The ground water source is the Sparta Aquifer.
11. The O.B. Curtis and J.H. Fewell WTPs, both of which treat the surface water portions of the System, employ conventional filtration with ultraviolet (“UV”) systems to inactivate pathogens. Finished water at the WTPs is disinfected using chloramines.
12. UV disinfection treatment is installed on each individual filter effluent (“IFE”) flow at both the O.B. Curtis and J.H. Fewell WTPs to treat for viruses, including *Cryptosporidium* and *Giardia*.
13. Respondent’s PWS is required to provide filtration pursuant to 40 C.F.R. §§ 141.73 and 141.173, and disinfection pursuant to 40 C.F.R. §§ 141.72(b) and 141.172.
14. Ground water from the wells is treated at the point of withdrawal using gaseous chlorine.
15. The term “contaminant” means any physical, chemical, biological, or radiological substance or matter in water.” 42 U.S.C. § 300f(6).
16. Turbidity is a measure of the cloudiness of water. It is used to indicate water quality and filtration effectiveness (such as whether disease-causing organisms are present). Higher turbidity levels are often associated with higher levels of disease-causing microorganisms.
17. *E. coli*, *Cryptosporidium*, and *Giardia* are contaminants under the meaning of 42 U.S.C. § 300f(6), and are or may be present in the System.
18. On November 22, 2019, the EPA issued a Request for Information to Respondent, pursuant to Section 1445 of the SDWA, 42 U.S.C. § 300j-4, and 40 C.F.R. § 141.31, seeking information to determine Respondent’s compliance with federal drinking water regulations.
19. On December 23, 2019, Respondent provided its response to the EPA’s Request for Information.

<sup>1</sup> To the EPA’s knowledge and belief, the O.B. Curtis WTP was initially constructed in or around 1992.

<sup>2</sup> To the EPA’s knowledge and belief, the J.H. Fewell WTP was initially constructed in or around 1914.

<sup>3</sup> Respondent maintains at least six active groundwater wells (T.V. Road Well, Willo-O-Wood Well, Wiggins Road Well, Siwell Road Well, Highway 18 Well, and Maddox Road Well), along with three inactive groundwater wells (Forest Hill Road Well, Rainey Road Well, and Presidential Hill Well).

<sup>4</sup> Until approximately October 2014, there were two separately identified public drinking water systems owned by the City of Jackson, Mississippi. One was supplied entirely by groundwater and identified under the PWS ID No. MS0250012; the other was supplied by surface water and identified under the PWS ID No. MS0250008.

20. On January 15 and 16, 2020, consistent with the requirements of Section 1445(b)(1), 42 U.S.C. § 300j-4(b)(1), the EPA notified MSDH and Respondent, respectively, of its intent to inspect the PWS.
21. On February 3 to 7, 2020, representatives of the EPA conducted an inspection of the PWS, pursuant to its authority under Section 1445(b)(1) of the SDWA, 42 U.S.C. § 300j-4(b)(1).

### **Bacterial Contamination and Proper Disinfection**

22. During the inspection, the EPA identified the following preliminary concerns related to bacterial contamination and proper disinfection:
  - a. The necessary chemical dosing of coagulant to address turbidity is determined by the streaming current detectors (“SCDs”); however, Respondent’s SCDs were not properly calibrated at either the O.B. Curtis or J.H. Fewell WTPs, thus failing to provide accurate dosing for proper treatment of drinking water;
  - b. Continuous monitoring equipment at the O.B. Curtis WTP has not been repaired or calibrated for approximately three years since the instrument technician position was vacated. This equipment includes pH meters, flow measurement devices, turbidimeters, and the SCDs. Comparisons of operator laboratory bench sheet results indicated that the readouts from the continuous pH meters are off by up to 2 units in some instances. It was indicated on the monthly operating reports submitted in response to the EPA’s November 22, 2019 Request for Information, that this equipment was used as the basis for the values reported for compliance.
  - c. Jar tests are commonly used in the industry as “bench-scale” simulations of full-scale coagulation/flocculation/sedimentation water treatment processes. Respondent does not follow the industry standard of conducting regular jar tests at both the O.B. Curtis and J.H. Fewell WTPs. Because the SCDs are used as the basis for those coagulant dosing decisions without having been calibrated, the lack of jar testing is an additional indicator in evaluating the ability of the WTPs to deliver safe drinking water to the System’s users.
  - d. Respondent conducts membrane cleaning cycles without the use of automatic monitoring equipment for pH and chlorine levels. Excess chlorine levels can damage and reduce membrane efficiency. In addition, membrane cleaning is partially dependent on pH, requiring either higher or lower pH cleaning regimes based on the foulants present. This automatic monitoring equipment has been nonfunctional for several years.
  - e. Respondent cannot currently perform membrane integrity testing at O.B. Curtis WTP due to wear and breakage of the system components and compressor. This is concerning due to the inability of the Respondent to evaluate the membrane filters’ mechanical integrity during times of turbidity exceedance.
  - f. Respondent has failed to perform filter maintenance at O.B. Curtis WTP and J.H. Fewell. Considering the recent turbidity exceedances, it is crucial that Respondent maintain the System filters to perform in optimal condition for protection of human health.
  - g. NDPWRs require a system's combined filtered water at each plant be less than or equal to 0.3 NTU in at least 95% of the measurements taken each month, and the turbidity level of a



system's combined filtered water at each plant must at no time exceed 1 NTU. Turbidity exceedances were reported at both the O.B. Curtis and J.H. Fewell WTPs in the January 2020 monthly operating report ("MOR"). Finished water turbidity reached 1.35 NTU at the O.B. Curtis WTP and 3.00 NTU at the J.H. Fewell WTP. Additionally, at the O.B. Curtis WTP, 93.5% of turbidity samples were equal to or less than the turbidity limit of 0.3 NTU. The EPA's inspectors observed that the continuous turbidity monitoring equipment at the O.B. Curtis WTP has read inaccurately for approximately three years due to a lack of calibration and maintenance, and that turbidity samples were taken during this time period at a frequency of once per shift, for a total of three times per day. Given that the turbidity monitoring equipment was not operational, the system, to maintain compliance with NDPRWs, should have conducted grab sampling every four hours in lieu of continuous monitoring, but for no more than five working days following the nonoperation of the equipment.

- h. UV disinfection devices were found to be offline for significant periods of time at both the O.B. Curtis and J.H. Fewell WTPs. UV disinfection devices are to be operated continuously. In its January 2020 MOR, Respondent reported the following:
- i. At the J.H. Fewell WTP:
    - UV Reactor 1 was offline for the entire month of January 2020 (and had been offline since October 16, 2019);
    - UV Reactor 2 was offline for 15 of 31 days;
    - UV Reactor 3 was offline for 17 of 31 days; and
    - UV Reactor 4 was offline for 17 of 31 days.
  - ii. At the O.B. Curtis WTP:
    - UV Reactor 1 was offline for two of 31 days;
    - UV Reactor 2 was offline for four of 31 days;
    - UV Reactor 3 was offline for one of 31 days;
    - UV Reactor 4 was offline for three of 31 days; and
    - UV Reactor 5 was offline for 10 of 31 days.

23. MSDH provided the EPA with a list of all Boil Water Notices ("BWNs") issued between January 2, 2016 and February 1, 2020, to provide notice to the public of the potential to have serious adverse effects on human health as a result of short-term exposure pursuant to 40 C.F.R. § 141.202. The majority of the BWNs issued were due to loss of pressure from leaks and/or line breaks. Low-pressure and loss of pressure in a drinking water distribution system may cause a net movement of water from outside the pipe to the inside through cracks, breaks, or joints in the distribution system. Crack, breaks and joints are common in all water systems. Backsiphonage occurs when pressure is lost in pipes creating a negative pressure and a partial vacuum that pulls water from a contaminated source outside the pipe into the treated, potable water inside the pipe. This creates a suitable environment for bacteriological contamination and other disease-causing organisms, including *E. coli*, to enter the water distribution system downstream of the WTPs, which is then delivered to users.

24. High levels of turbidity increase the likelihood that drinking water may contain disease-causing organisms, such as *Cryptosporidium*, *Giardia*, *Legionella*, and *E. coli* because particles of turbidity provide shelter for microbes and reduce the microbes' exposure to disinfectants. If particulate material is not removed, a high turbidity event can provide shelter for and promote regrowth of pathogens in the water, leading to an outbreak of waterborne diseases.
25. Pathogens, such as *Giardia*, *Cryptosporidium*, and *Legionella*, are often found in water. If consumed, these pathogens can cause gastrointestinal illness (e.g., diarrhea, vomiting, cramps) and other health problems. These illnesses may be severe and sometimes fatal for people with weakened immune systems. *Cryptosporidium* is a significant concern in drinking water because it is resistant to chlorine and other disinfectants.
26. *E. coli* are bacteria, that when present, indicate the water may have been contaminated with human and/or animal wastes. Human and/or animal wastes may contain pathogens that can cause short-term health impacts, such as diarrhea, cramps, nausea, headaches, or other symptoms. Pathogens may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems.

#### **MSDH Actions and the EPA's Coordination with MSDH**

27. MSDH has pursued informal enforcement actions against Respondent for Lead and Copper Rule ("LCR") treatment technique violations and Long-Term Enhanced Surface Water Treatment Rule violations due to turbidity exceedances. Additionally, MSDH issued a compliance plan to Respondent on February 12, 2016, to address the LCR violations that occurred starting in June 2015. However, these actions have not been effective in adequately protecting the health of the System's users with respect to the findings above.
28. EPA consulted with the City of Jackson and MSDH, to the extent practicable in light of the imminent endangerment, to confirm the correctness of the information on which this Order is based and to ascertain the action which such authorities were or would be taking.
29. Based on the findings above, the EPA has determined that the System has numerous SDWA violations, including violations of the NPDWRs.
30. Based on the findings above, and despite actions taken by MSDH, the local authorities have not undertaken all actions necessary to protect the public health and conditions exist at the System that may present an imminent and substantial endangerment to the health of persons served by the System. On February 28, 2020, MSDH submitted a written request for the EPA to assist with addressing the System's SDWA noncompliance. Therefore, this Order is necessary to protect human health.
31. The EPA has therefore determined that the actions specified in this Order are necessary to protect the health of persons.

### III. ORDER

Based on the foregoing findings and conclusions, and pursuant to Section 1431 of the Act, 42 U.S.C. § 300i, it is ordered:

#### Intent to Comply

32. Within 72 hours of receipt of this Order, Respondent must notify the EPA in writing of its intent to comply with the terms of this Order. To satisfy this requirement, Respondent shall email the EPA point of contact identified below in Paragraph 44.

#### Public Notification

33. Effective immediately upon the Effective Date of this Order, Respondent shall carry out the public notice requirements as required by 40 C.F.R. Part 141, Subpart Q for all future violations of NPDWRs. Additionally, Respondent must treat any exceedances of maximum allowable turbidity levels and breaks in water lines or other low pressure or loss of pressure events likely to cause contamination in the System's distribution system as requiring Tier I public notification as required by 40 C.F.R. § 141.202 until notified by the EPA that this is no longer necessary.

#### Treatment and Distribution System Management

34. Notwithstanding the requirements of this Order, Respondent shall continue to implement all applicable monitoring and reporting requirements of the SDWA and NPDWRs in accordance with 40 C.F.R. Part 141.
35. Dosing Process Repair. Within one week of the Effective Date of this Order, Respondent shall fix dosing process for disinfection and pH control.
36. Repair and/or Replacement of Equipment.
- a. Within one week of the Effective Date of this Order, Respondent shall provide to the EPA and MSDH a status of all monitoring equipment and appurtenant treatment equipment (including, but not limited to, pH meters, flow measurement devices, turbidimeters, SCDs, chlorine analyzers, raw water screens, UV reactors, automatic sludge removal system, membrane filtration treatment train flocculator motors, membrane integrity testing system, and filters). This must include, at a minimum, descriptions of the conditions of the equipment, identify in which facility this equipment is located, any needed repairs, and status of calibration.
  - b. Within 30 days of the Effective Date of this Order, Respondent shall submit a comprehensive plan, including a schedule of implementation, for the EPA's review and approval, to repair and/or replace monitoring equipment and repair, replace, and/or perform maintenance on the appurtenant treatment equipment to ensure the System has the appropriate treatment equipment and appropriate information to make treatment decisions, and that the water quality is properly measured for compliance with the NPDWRs. All future MORs and weekly data, as required pursuant to Paragraph 43(43.a), shall include the date of last calibration and any repairs and/or replacement of monitoring equipment done since the last report was provided, until further notice by the EPA.

- c. Until such time as the monitoring equipment has been repaired and/or replaced and properly maintained, Respondent shall conduct monitoring by collecting grab samples every four hours in lieu of the continuous monitoring. For any instance where grab sampling is conducted in lieu of the required continuous monitoring, Respondent shall identify this deviation in the weekly MORs provided in accordance with Paragraph 43(43.a) of this Order.

37. CFE Turbidity Exceedance Events.

- a. In the event of CFE turbidity measurements exceeding 1.0 NTU, Respondent shall implement the following:
- i. Comply with all requirements of NPDWRs, including 40 C.F.R. §§ 141.170 -- 141.175.
  - ii. Notify the EPA and MSDH within 24 hours. If cause of the exceedance is known, include this information with notice. However, do not hold or delay the notification in instances where the cause of the exceedance is not known.
  - iii. Consult with MSDH on the exceedance and the appropriate BWN.
  - iv. Respondent shall issue a Tier 1 public notice as required by 40 C.F.R. § 141.202.
  - v. Within 24 hours after the CFE turbidity is less than 0.3 NTU, Respondent shall collect consecutive daily (one sample per calendar day) special purpose samples (bacteriological and microbial) (defined in 40 C.F.R. § 141.21(a)(6)) from the entry point to the distribution system of the treatment plant that had the turbidity exceedance, as well as any other distribution sampling location deemed necessary as identified by MSDH. Respondent shall ensure that each sample is analyzed for total coliform, *E. coli* (if sample is total coliform positive), and chlorine residual.
  - vi. Provide the EPA with chlorine residual results as measured at the entry point to the System and in the System's distribution for 10 calendar days preceding and following the event.
- b. In the event of CFE turbidity measurements exceeding 2.0 NTU, Respondent shall implement the following:
- i. Comply with all requirements of NPDWRs, including 40 C.F.R. §§ 141.170 -- 141.175.
  - ii. Immediately issue an appropriate BWN, provide notice and consult with MSDH within 24 hours, and provide notice to the EPA within 24 hours.
  - iii. Respondent shall issue a Tier 1 public notice as required by 40 C.F.R. § 141.202.
  - iv. Within 24 hours after the CFE turbidity is less than 0.3 NTU, the System shall collect consecutive daily (one sample per calendar day) special purpose samples (bacteriological and microbial) (defined in 40 C.F.R. § 141.21(a)(6)) from the entry point to the distribution system of the treatment plant that had the turbidity

exceedance as well as any other distribution sampling location deemed necessary, as identified by MSDH. Respondent shall ensure that each sample is analyzed for total coliform, *E. coli* (if sample is total coliform positive), and chlorine residual.

- v. Provide the EPA with chlorine residual results as measured at the entry point to the System and in the System's distribution for 10 calendar days preceding and following the event.
  - vi. Respondent shall provide the EPA and MSDH a self-assessment evaluation of CFE and IFE to include: (1) assessment of filter performance; (2) development of a filter profile; (3) identification and prioritization of factors limiting filter performance; and (4) corrective action plan to address the issue.
38. Low Pressure/Loss of Pressure Events. In the future event that Respondent experiences breaks in water lines or other low pressure or loss of pressure events likely to cause contamination in the System's distribution system, Respondent will take the following actions:
- a. Respondent shall consult with MSDH within 24 hours to determine if a BWN is required and provide notification to the EPA within 24 hours.
  - b. Respondent shall issue a Tier 1 public notice as required by 40 C.F.R. § 141.202.
  - c. Respondent shall immediately repair the line break or cause of the low pressure/loss of pressure. When satisfied that system pressure will be maintained and there is adequate chlorine residual, Respondent shall begin sampling from the affected area as described below. MSDH typically recommends a free chlorine residual of 0.5 mg/l at the ends of your distribution system.
  - d. Within 24 hours after making repair(s) to the water line(s) as required above, Respondent shall begin collecting special purpose samples (bacteriological and microbial) (defined in 40 C.F.R. § 141.21(a)(6)) from the System's distribution system. The chart, in Attachment I to this Order, lists the number of samples required based on the number of customers affected. If the entire system is placed on BWN, samples should be collected from sites representing the entire water system. Respondent shall ensure that each sample is analyzed for total coliform, *E. coli* (if the sample is total coliform positive), and chlorine residual. Respondent shall continue sampling until results from two consecutive rounds are total coliform negative.

39. Alternative Water Source Plan Development and Implementation.

- a. Within 14 days of the Effective Date of this Order, Respondent shall develop, and submit to the EPA for review and approval, an Alternative Water Source Plan ("AWSP"). In the AWSP, Respondent shall detail how and where it will provide at least one gallon of potable water per day, per person to every person served by the System. This allotment of alternative water must be made available at no cost to every person served by the System, as needed for drinking, cooking, maintaining oral hygiene, and dish washing. The AWSP will also outline how Respondent will inform every person served by the System of when and how an alternative water source is made available. As part of its AWSP, Respondent may opt to provide an alternate water supply that is: (1) provided by a licensed water distributor; (2) purchased bottle water; or (3) provided by another public water system that meets the requirements of

the NPDWRs. *Note:* If the AWSP trigger is localized to a specific portion of the distribution system and the entire system is not impacted, Respondent may opt to only serve alternative water to the portion of the population impacted. In order to consider this approach, the AWSP must include a detailed map of the System.

- b. The alternative source of water provided shall meet all applicable SDWA requirements at 40 C.F.R. §141. If bottled water will be used by Respondent as an alternative water in accordance with this Order, Respondent must ensure that the bottled water is certified by the International Bottled Water Association or National Sanitation Foundation International.
- c. AWSP Implementation Triggers.
  - i. If, based upon Respondent's Revised Total Coliform Rule ("RTCR") sampling data collected in accordance with 40 C.F.R. § 141.857 and as outlined in Paragraph 41 below, the PWS exceeds 5.0% total coliform-positive samples in any monthly period during the term of this Order, Respondent shall comply with the "Level 1" assessment requirements of the RTCR at 40 C.F.R. § 141.859(b). In addition, Respondent shall begin implementation of the AWSP within 24 hours of receiving such sampling results. Respondent shall continue implementing the AWSP until the EPA provides written notification to Respondent that AWSP implementation is no longer required; or
  - ii. Within 24 hours of Respondent's collection of daily special purpose samples required under Paragraphs 37 and 38 above, Respondent shall begin implementation of the AWSP. Respondent shall continue implementing the AWSP until all daily special purpose sample results are total coliform negative. *Note:* The AWSP may consider, in certain situations, that only a portion of the population is impacted by the triggering event and therefore alternative water only needs to be provided to those impacted. See requirements under Paragraph 39(a) above.

#### Notifications and Reporting

40. Within 72 hours of the Effective Date of this Order, Respondent shall provide the February 2020 MORs, including the IFE data for all conventional filters at both the O.B. Curtis and J.H. Fewell WTPs during this timeframe.
41. Sample Siting Plan.
  - a. Within one week of the Effective Date of this Order, Respondent shall review its current Sample Siting Plan developed pursuant to 40 C.F.R. § 141.853, to ensure consistency with the RTCR, at 40 C.F.R. Part 141, subpart Y, and simultaneously provide a copy of the current Sample Siting Plan to the EPA for the EPA's concurrent review.
  - b. If the current Sample Siting Plan does not include a minimum of 120 sampling locations per month as required under 40 C.F.R. § 141.857(b), Respondent shall update the Sample Siting Plan to achieve the required minimum monitoring frequency for the monthly monitoring period after the Effective Date of this Order.

- c. Within 10 business days of the Effective Date of this Order, Respondent shall provide to the EPA, RTCR sampling data for the months of January 2020 and February 2020. If the Respondent has not yet conducted the March 2020 sampling, this sampling shall be conducted within one week of the Effective Date of this Order and the results submitted within 10 days of receipt of the sampling analysis. If the March 2020 sampling has been completed prior to the Effective Date of this Order, Respondent shall submit these results along with the January 2020 and February 2020 results. All RTCR sampling data shall include the chlorine residual data for the RTCR locations.
  - d. The Respondent shall continue to submit the RTCR sampling data to the EPA until directed otherwise. This data shall include all chlorine residual data for all RTCR sampling locations.
42. Respondent must notify the EPA within 24 hours after learning of a violation of this Order or any NPDWRs, or of a situation with the potential to have serious adverse effects on human health as a result of short-term exposure to contaminants.
43. Establishing Regular Contact with the EPA.
- a. Immediately upon the Effective Date of this Order and until further notice by the EPA, Respondent shall submit MOR information weekly as follows:
    - i. Reports must run from Sunday to Saturday each week;
    - ii. Weekly reports must be submitted to the EPA and MSDH by Tuesday of the following week (e.g., for the monitoring timeframe of Sunday, March 29 through Saturday, April 4, the report must be submitted by Tuesday, April 7).
    - iii. IFE data must be submitted with each weekly MOR until further notice.
    - iv. If at any time, the Respondent is notified, by the EPA or MSDH that a revision to the MOR is required, the Respondent shall implement the revision on the following report required unless the EPA or MSDH provides a specific alternate timeline for implementation.
  - b. Within five business days of the Effective Date of this Order, Respondent shall begin submitting weekly updates to the EPA on Respondent's progress complying with this Order. Respondent shall submit subsequent weekly reports on Tuesday of each subsequent week. Each weekly update shall identify and describe all actions taken in the previous week to meet the requirements of this Order.
  - c. Within seven business days of the Effective Date of this Order, Respondent shall contact the EPA to set up a mutually agreeable meeting schedule. The purpose of the meetings to be scheduled pursuant to this paragraph are to accomplish the following goals:
    - i. Provide an opportunity for the Respondent and the EPA to clarify requirements and timelines,
    - ii. Provide an opportunity for Respondent to report to the EPA any issues, concerns, or problems it faces in complying with the terms of this Order, and

- iii. Provide an opportunity for Respondent and the EPA to maintain an open channel of communication wherein new information can be shared.
  - d. Respondent shall prepare an outline of all the requirements in this Order, how Respondent plans to meet all the requirements of this Order, and submit to the EPA in writing at least 48 hours in advance of the first agreed-upon meeting required under Paragraph 43(c) above. If this falls on a weekend, Respondent shall provide the outline on the last workday before the meeting.
44. Respondent shall send all reports, notifications, documentation and submittals required by this Order in writing or via e-mail to:

U.S. EPA, Region 4  
 Enforcement and Compliance Assurance Division  
 Attn: Amanda Driskell  
 U.S. Environmental Protection Agency  
 61 Forsyth Street  
 Atlanta, GA 30303  
 Email: driskell.amanda@epa.gov

45. All reports, notifications, documentation, and submissions required by this Order must be signed by a duly authorized representative of Respondent and must include the following statement:

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

#### IV. PARTIES BOUND

46. The provisions of this Order shall apply to and be binding upon Respondent, its officers, employees, agents, successors, and assigns.

#### V. GENERAL PROVISIONS

47. This Order constitutes final agency action. Under Section 1448(a) of the SDWA, 42 U.S.C. § 300j-7(a), Respondent may seek federal judicial review.
48. The EPA may modify this Order to ensure protection of human health. The EPA will communicate any modification(s) to Respondent in writing and the modification(s) shall be incorporated into this Order.
49. Compliance with the terms and conditions of this Order shall not in any way be construed to relieve Respondent from its obligations to comply with all provisions of federal, state, or local law, nor shall it be construed to be a determination of any issue related to any federal, state or local permit.



Compliance with this Order shall not be a defense to any actions subsequently commenced for any violation of federal laws and regulations administered by the EPA, and it is the responsibility of Respondent to comply with such laws and regulations.

50. Pursuant to SDWA Section 1431(b), 42 U.S.C. § 300i(b), in the event Respondent violates, fails or refuses to comply with any of the terms or provisions of this Order, the EPA may commence a civil action in U.S. District Court to require compliance with this Order and to assess a civil penalty of up to \$24,386 per day of violation under the SDWA, as adjusted by the Federal Civil Penalties Inflation Adjustment Act of 1990, amended by the Debt Collection Improvement Act of 1996, and the subsequent Civil Monetary Penalty Inflation Adjustment Rule, 40 C.F.R. § 19.
51. The EPA reserves all rights against Respondent and all other persons to take any further civil, criminal, or administrative enforcement action pursuant to any available legal authority, and to exercise its information gathering and inspection authorities. Nothing in this Order shall preclude the EPA from taking any additional enforcement actions, including modification of this Order or issuance of additional Orders, and/or additional actions as the EPA may deem necessary, and/or from requiring Respondent in the future to perform additional activities pursuant to the SDWA or any other applicable law.

#### VI. EFFECTIVE DATE

52. Under SDWA Section 1431, 42 U.S.C. § 300i, this Order shall be effective immediately upon Respondent's receipt of this Order. If modifications are made by the EPA to this Order, such modifications will be effective on the date received by Respondent. This Order shall remain in effect until the provisions identified in the Order have been met in accordance with the EPA's written approval.

#### VII. TERMINATION

53. The provisions of this Order shall be deemed satisfied upon Respondent's receipt of written notice from the EPA that Respondent has demonstrated, to the satisfaction of the EPA, that the terms of this Order have been satisfactorily completed.

FOR THE U.S. ENVIRONMENTAL PROTECTION AGENCY:

Carol L. Kemker

3/27/2020

Carol L. Kemker, Director

Date

Enforcement and Compliance Assurance Division  
Region 4

**ATTACHMENT I**  
**Sampling Requirements**

<b># of Connections Affected</b>	<b># of Samples Required</b>	<b># of Connections Affected</b>	<b># of Samples Required</b>
1 – 100	2	4,301 – 5,700	18
101 – 300	3	5,701 – 8,300	20
301 – 500	4	8,301 – 11,000	30
501 – 700	5	11,001 – 13,000	40
701 – 900	6	13,001 – 16,000	50
901 – 1,100	7	16,001 – 19,000	60
1,101 – 1,300	8	19,001 – 23,000	70
1,301 – 1,600	9	23,001 – 27,000	80
1,601 – 2,200	10	27,001 – 32,000	90
2,201 – 2,500	11	32,001 – 43,000	100
2,501 – 2,800	12	43,001 – 73,000	120
2,801 – 4,300	15	73,001 – 107,000	150

Note: Equivalent connections (and population served) will be considered when determining the number of samples which must be collected for a system with a large ratio of population to connections.

Mailing Addresses for the CCs:  
Mr. Robert K. Miller, Director  
City of Jackson Department of Public Works  
200 South President Street  
Jackson, Mississippi 39205-0017

William Moody, MSDH  
Bureau of Public Water Supply  
P.O. Box 1700  
2423 North State Street  
Jackson, MS 39215-1700





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

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

The Honorable Chokwe A. Lumumba  
Mayor of City of Jackson  
219 South President Street  
Jackson, Mississippi 39205

RE: Proposed ADMINISTRATIVE ORDER ON CONSENT  
Docket No. SDWA-04-2020-2301  
PWS ID: MS0250008  
City of Jackson PWS

Dear Mayor Lumumba:

The U.S. Environmental Protection Agency has determined that the City of Jackson Public Water System (hereinafter, Jackson PWS) has violated the Safe Drinking Water Act (SDWA or the Act), 42 U.S.C. § 300f *et. seq.*, the National Primary Drinking Water Regulations (NPDWRs) found at 40 C.F.R. Part 141, and the Mississippi Primary Drinking Water Regulations (MPDWRs), promulgated pursuant to the Mississippi Safe Drinking Water Act of 1997 (MSDWA), Miss. Code Ann. § 41-26-1 *et. seq.* In particular, the Jackson PWS failed to comply with the Lead and Copper Rule (LCR), Surface Water Treatment Rules, and had significant operations and maintenance concerns.

The EPA has enclosed a proposed Administrative Order on Consent (AOC) to be issued by the EPA under the authority of Section 1414(g) of the SDWA, 42 U.S.C. § 300g-3(g). The AOC sets forth the violations by the Jackson PWS and the requirements to return to compliance with the SDWA, the NPDWRs and the MPDWRs. If after review, you find that this document accurately reflects the violations and the the City of Jackson agrees to comply with the prescribed actions to return to compliance, please sign and return it by December 21, 2020 to Suzanne K. Armor, Associate Regional Counsel, via email at [Armor.Suzanne@epa.gov](mailto:Armor.Suzanne@epa.gov). If after review, you find that there are discrepancies in the violations or do not agree to the prescribed actions to return to compliance, have your legal counsel contact Ms. Armor at the contact number below prior to December 21st. A copy of the proposed AOC is being transmitted concurrently to the Mississippi State Department of Health (MSDH), providing the State of Mississippi with an opportunity to confer on the proposed AOC, consistent with SDWA Section 1414(g)(2), 42 U.S.C. § 300g-3(g)(2).

Internet Address (URL) <http://www.epa.gov>

After receiving the signed AOC, the EPA will route the document for EPA signature. The finalized AOC will be sent to the City of Jackson and the Jackson PWS and will become final upon receipt of the fully executed document.

The EPA urges your prompt attention to these matters. If you have any technical questions, please contact Ms. Amanda Driskell, at (404) 562-9735. If your attorney has any questions, he or she should contact Ms. Suzanne Armor, Associate Regional Counsel, at (404) 562-9701. Also, enclosed is a document entitled the *EPA Small Business Resources - Information Sheet*, which may assist you in understanding the compliance assistance resources and tools available to the Jackson PWS. However, any decision to seek compliance assistance at this time does not relieve the City of Jackson or the Jackson PWS of its obligations to the EPA, does not create new rights or defenses, and will not affect the EPA's decisions to pursue any other enforcement action.

Sincerely,

CAROL  
KEMKER

Digitally signed by  
CAROL KEMKER  
Date: 2020.12.04  
14:08:46 -05'00'

Carol L. Kemker, Director  
Enforcement and Compliance Assurance Division

Enclosures (2)

cc: Dr. Charles Williams, Director, City of Jackson Department of Public Works

Lester Herrington, Director of Office of Environmental Health,  
Mississippi State Department of Health

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 4**

<p><b>IN THE MATTER OF:</b></p> <p>City of Jackson, Mississippi,</p> <p>Respondent.</p> <p>Public Water System, PWS ID. No. MS0250008.</p>	<p>)</p> <p>)</p> <p>)</p> <p>)</p> <p>)</p> <p>)</p> <p>)</p>	<p>Docket No. SDWA-04-2020-2301</p> <p><b>ADMINISTRATIVE COMPLIANCE ORDER ON CONSENT</b></p> <p>Proceeding pursuant to Section 1414(g) of the Safe Drinking Water Act, 42 U.S.C. § 300g-3(g).</p>
--	--	---

**I. STATUTORY AUTHORITY**

1. This Administrative Compliance Order on Consent (“AOC”) is issued to the City of Jackson, Mississippi (“Respondent”) pursuant to the authority vested in the Administrator of the U.S. Environmental Protection Agency (“EPA”) by Section 1414(g) of the Safe Drinking Water Act (“SDWA”), 42 U.S.C. § 300g-3(g). The Administrator has delegated this authority to the Regional Administrator of EPA Region 4, who has, in turn, delegated this authority to the Director of the Enforcement Compliance and Assurance Division.

**II. EPA’s FINDINGS OF FACT AND CONCLUSIONS OF LAW**

2. Respondent is a municipality created under the laws of the State of Mississippi and is therefore a “person” as that term is defined in the SDWA, 42 U.S.C. § 300f(12); 40 C.F.R. § 141.2.

3. Respondent owns and/or operates a public water system located in the City of Jackson, Mississippi, PWS ID No. MS0250008 (“System”). The System provides water for human consumption to a population of approximately 173,514.<sup>1</sup>

4. The System is a “public water system” within the meaning of Section 1401(4) of the SDWA, 42 U.S.C. § 300f(4); 40 C.F.R. § 141.2.

5. The System regularly serves at least 25 year-round residents and is therefore a “community water system” (“CWS”) within the meaning of Section 1401(15) of the SDWA, 42 U.S.C. § 300f(15), and 40 C.F.R. § 141.2.

6. Respondent’s ownership and/or operation of the System makes it a “supplier of water” within the meaning of Section 1401(5) of the SDWA, 42 U.S.C. § 300f(5), and 40 C.F.R. § 141.2, and

<sup>1</sup> Until approximately October 2014, there were two separately identified public drinking water systems owned by the City of Jackson, Mississippi. One was supplied entirely by groundwater and identified under the PWS ID No. MS0250012; the other was supplied by surface water and identified under the PWS ID No. MS0250008. Approximately October 2014, the City of Jackson requested the removal of the PWS ID No. MS0250012 as they intended to stop utilizing the groundwater sources as primary sources of drinking water. At the time of the EPA inspection, EPA identified that the groundwater sources were still being utilized as a primary source for a portion of the distribution and requested that the PWS ID No. MS0250012 be reinstated for the groundwater portion of the system. Approximately July 2020, the PWS ID No. MS0250012 was reinstated.



subject to the requirements of Part B of the SDWA, 42 U.S.C. § 300g, the National Primary Drinking Water Regulations (“NPDWRs”) at 40 C.F.R. Part 141, and the Mississippi Primary Drinking Water Regulations (“MPDWRs”), promulgated pursuant to the Mississippi Safe Drinking Water Act of 1997 (“MSDWA”), Miss. Code Ann. § 41-26-1 et. seq.

7. Pursuant to SDWA Section 1413, 42 U.S.C. § 300g-2, the Mississippi State Department of Health (“MSDH”) has primary responsibility for the implementation and enforcement of the public water supply program in Mississippi.

8. The System consists of two water treatment plants, known as the O.B. Curtis Water Treatment Plant (“O.B. Curtis WTP”)<sup>2</sup> and the J.H. Fewell Water Treatment Plant (“J.H. Fewell WTP”),<sup>3</sup> a number of groundwater wells,<sup>4</sup> and appurtenant collection, treatment, storage, and distribution facilities.<sup>5</sup> The City has obtained a separate PWS ID number for the ground water wells system. MSDH has reviewed the necessary documents and received the revised plans to complete this separation.

9. The distribution system is currently separated into a surface water section and groundwater section that do not mix due to distribution valving the keeps the systems physically separate. The surface water sources are the Ross Barnett Reservoir which serves O. B. Curtis WTP and the Pearl River which serves the J. H. Fewell WTP. The ground water source is the Sparta Aquifer.

10. The O.B. Curtis and J.H. Fewell WTPs, both of which treat the surface water portions of the System, employ conventional filtration with ultraviolet (“UV”) systems to inactivate pathogens. The O.B. Curtis WTP also employs a membrane filtration system for a portion of the water that goes through this WTP. Finished water at the WTPs is disinfected using chloramines.

11. UV disinfection treatment is installed on each conventional individual filter effluent (“IFE”) flow at the O.B. Curtis and on each high service pump at J.H. Fewell WTPs to treat for viruses, including Cryptosporidium and Giardia. Pursuant to 40 C.F.R. § 141.720(d)(3)(ii), systems must treat at least 95% of the water delivered to the public during each month by UV reactors operating within validated conditions for the required UV dose.

12. Respondent’s PWS is required to provide filtration pursuant to 40 C.F.R. §§ 141.73, 141.173, 141.719(b), and 141.720(d); and disinfection pursuant to 40 C.F.R. §§ 141.72(b) and 141.172.

13. Ground water from the wells is treated at the point of withdrawal using gaseous chlorine.

14. The term “contaminant” means any physical, chemical, biological, or radiological substance or matter in water.” 42 U.S.C. § 300f(6).

<sup>2</sup> To the EPA’s knowledge and belief, the O.B. Curtis WTP was initially constructed in or around 1992.

<sup>3</sup> To the EPA’s knowledge and belief, the J.H. Fewell WTP was initially constructed in or around 1914.

<sup>4</sup> Respondent maintains at least six active groundwater wells (T.V. Road Well, Will-O-Wood Well, Wiggins Road Well, Siwell Road Well, Highway 18 Well; and Maddox Road Well), along with three inactive groundwater wells (Forest Hill Road Well, Rainey Road Well, and Presidential Hills Well).

<sup>5</sup> Until approximately October 2014, there were two separately identified public drinking water systems owned by the City of Jackson, Mississippi. One was supplied entirely by groundwater and identified under the PWS ID No. MS0250012 (was reactivated in May 2020); the other was supplied by surface water and identified under the PWS ID No. MS0250008.

15. Turbidity is a measure of the cloudiness of water. It is used to indicate water quality and filtration effectiveness (such as whether disease-causing organisms are present). Higher turbidity levels are often associated with the potential for higher levels of disease-causing microorganisms.

16. On November 22, 2019, the EPA issued a Request for Information to Respondent, pursuant to Section 1445 of the SDWA, 42 U.S.C. § 300j-4, and 40 C.F.R. § 141.31, seeking information to determine Respondent's compliance with federal drinking water regulations.

17. On December 23, 2019, Respondent provided its response to the EPA's Request for Information.

18. On January 15 and 16, 2020, consistent with the requirements of Section 1445(b)(1), 42 U.S.C. § 300j-4(b)(1), the EPA notified MSDH and Respondent, respectively, of its intent to inspect the PWS.

19. On February 3 to 7, 2020, representatives of the EPA conducted a civil investigation of the PWS, pursuant to its authority under Section 1445(b)(1) of the SDWA, 42 U.S.C. § 300j-4(b)(1).

20. On March 30, 2020, the EPA transmitted a copy of the Civil Investigation Report to the Respondent which identified a number of concerns related to bacterial contamination and proper disinfection.

21. Effective April 2, 2020, the EPA issued Respondent an Emergency Administrative Order, Docket No. SDWA-04-2020-2300 ("Emergency Order"), pursuant to Section 1431 of the SDWA, 42 U.S.C. § 300i(a). The Emergency Order required the Respondent to fix the dosing process for disinfection and pH control; provide a plan to address all monitoring equipment and appurtenant treatment equipment operations; to increase reporting and notice requirements for exceedances of turbidity requirements; provide boil water notices to the EPA; develop and implement, after specific triggering events, an Alternative Water Source Plan; provide Revised Total Coliform Rule ("RTCR") sampling data to the EPA; provide weekly operating/monthly reports to the EPA; and provide weekly updates on compliance with the Emergency Order.

22. On May 11, 2020, the EPA issued a Notice of Noncompliance to Respondent detailing additional violations beyond those previously identified in the Emergency Order. This Notice of Noncompliance is detailed more fully below.

23. Miss. Admin. Code § 15-20-72.2.2.1(5) requires that a certified Class A operator shall be onsite whenever the treatment plant for a Class A public water system treating surface water is in operation. The System is a Class A public water system, because it has surface water treatment, groundwater under the direct influence of surface water, lime softening, or coagulation and filtration for the removal of constituents other than iron or manganese. See Miss. Admin. Code § 15-20-72.2.2.1(5).

A review of the City's operating logbooks, provided to the EPA by MSDH on March 11, 2020, indicated that the System is not always fully covered by a Class A certified operator. Therefore, the City is in noncompliance with the MPDWR, Miss. Admin. Code § 15-20-72.2.2.1(5), for failure to maintain certified operators to operate the facilities.

24. 40 C.F.R. § 141.719(b)(3) and Miss. Admin. Code § 15-20-72.1.7.1 require that a PWS must conduct direct integrity testing of membrane units to demonstrate removal efficiencies.

During the February 2020 Inspection and upon review of the City's March 2020 MOR, the EPA found that the City was unable to perform direct integrity testing of some membrane units due to wear and breakage of components and air compressors, and malfunctioning equipment at the O.B. Curtis WTP. Therefore, the City is in noncompliance with 40 C.F.R. § 141.719(b)(3) and Miss. Admin. Code § 15-20-72.1.7.1.

25. 40 C.F.R. § 141.719(b)(4) and Miss. Admin. Code § 15-20-72.1.7.1 require that a PWS must conduct continuous indirect integrity monitoring on each membrane unit unless the system implements continuous direct integrity testing of membrane units in accordance with the criteria in 40 C.F.R. § 141.719 (b)(3)(i) through (v). If indirect integrity monitoring includes turbidity and if the filtrate turbidity readings are above 0.15 nephelometric units (NTU), the PWS must immediately perform direct integrity testing on the associated membrane unit in accordance with 40 C.F.R. § 141.719(b)(3). Pursuant to 40 C.F.R. § 141.719(b)(3), the direct integrity testing log removal value (LRV) for the membrane units at the O.B. Curtis WTP must be greater than or equal to the control limit<sup>6</sup> of 4, or else it is considered to have failed the direct integrity testing and the System must remove the membrane unit from service, conduct a direct integrity test to verify any repairs, and may return the membrane unit to service only if the direct integrity test is within the control limit. See 40 C.F.R. § 141.719(b)(3)(v).

As indicated by a review of the City's MORs, on several days in March 2020 and again in May 2020, the indirect integrity monitoring of the membrane units at the O.B. Curtis WTP showed turbidity readings greater than 0.15 NTU. Subsequent direct integrity testing performed showed failures of several of the membrane units during March 2020 and membrane unit #6 during May 2020, due to LRVs lower than the control limit of 4. The City did not remove these membrane units from service, as required by 40 C.F.R. § 141.719(b)(3)(v). Therefore, the City is in noncompliance with 40 C.F.R. §§ 141.719(b)(3)(v) and 141.719(b)(4) and Miss. Admin. Code § 15-20-72.1.7.1.

27. Pursuant to 40 C.F.R. § 141.132(b)(2) and Miss. Admin. Code § 15-20-72.1.3.6, a PWS using chlorine dioxide for disinfection or oxidation must conduct daily monitoring for chlorite.

On February 5, 2020, the EPA observed the System treating with chlorine dioxide at the J.H. Fewell WTP. However, the February 2020 MOR stated that the System did not use chlorine dioxide at the J.H. Fewell WTP on February 5, 2020, nor did the report show that the System conducted the

---

<sup>6</sup> Under 40 C.F.R. § 141.719(b)(3)(iv), a System must establish a control limit within the sensitivity limits of the direct integrity test that is indicative of an integral membrane unit capable of meeting the removal credit awarded by the State. This control limit is known as the minimum log removal value and is set by the primary enforcement agency for membrane treatment systems (in this matter, MSDH).

required monitoring on that date for chlorite. Therefore, the City did not conduct daily monitoring and is in noncompliance with 40 C.F.R. §§ 141.132(b)(2) and Miss. Admin. Code § 15-20-72.1.3.6.

28. Pursuant to 40 C.F.R. § 141.90(a)(3) and Miss. Admin. Code § 15-20-72.1.5.1, as early as possible prior to the addition of a new source or any long-term change in water treatment, a water system deemed to have optimized corrosion control under 40 C.F.R. § 141.81(b)(3) or a water system subject to reduced monitoring pursuant to 40 C.F.R. § 141.86(d)(4) shall submit written documentation to the State describing the change or addition. Under 40 C.F.R. § 141.90(a)(3), the State must review and approve the addition of a new source or long-term change in treatment before it is implemented by the PWS.

In 2014, the City had both optimized corrosion control and was, at that time, subject to reduced monitoring. In or around October 2014, the City merged the ground water system and the surface water systems under the PWS ID No. MS0250008, thereby replacing the groundwater system area with surface water from the O.B. Curtis WTP and turning the ground water wells into an emergency supply source. According to the City, this was intended to be a long-term change. In or around July 2015, due to water treatment plant and distribution issues, the City turned the wells back on and began using ground water for those areas served by surface water after the merger. The City returned the System to its pre-October 2014 operational configuration, as follows: (1) ground water system service area was again fully served by ground water only; (2) this service area was no longer served by surface water; and (3) the ground water service area was again using gaseous chlorine for disinfection. However, the System remained merged under the PWS ID No. MS0250008 and was not identified as two separate public water systems, despite the System no longer operationally considering the ground water wells as an emergency source. In October 2014, the City did not provide a formal request to MSDH to change its source from groundwater to surface water; nor did it formally notify MSDH in 2015 when the change from surface water back to groundwater occurred permanently. Therefore, the City is in noncompliance with 40 C.F.R. §§ 141.90(a)(3) and 141.81(b)(3) and Miss. Admin. Code § 15-20-72.1.5.1.

29. Pursuant to 40 C.F.R. § 141.80(c) and Miss. Admin. Code § 15-20-72.1.3.2, the lead action level is exceeded if the concentration of lead in more than 10% of tap water samples collected during any monitoring period conducted in accordance with 40 C.F.R. § 141.86 is greater than 0.015 mg/L, (i.e., if the “90<sup>th</sup> percentile” lead level is greater than 0.015 milligrams per liter (“mg/L”) (or 15 parts per billion (“ppb”))). Under 40 C.F.R. § 141.80(e), any PWS exceeding the lead action level shall implement all applicable source water treatment requirements specified by the State under 40 C.F.R. § 141.83. Pursuant to 40 C.F.R. § 141.83, any PWS exceeding the lead action level must complete source water monitoring and make treatment recommendations to the State within 180 days after the end of the monitoring period during which the lead action level was exceeded. The State then makes a determination regarding source water treatment, and, if necessary, the State may require the PWS to install and operate such treatment.

The System exceeded the lead action level of 0.015 mg/L for the following monitoring periods: January – June 2015; January – June 2016; and July – December 2016. On February 12, 2016, MSDH issued a compliance plan to the City to address the lead action level exceedances (“ALEs”). As a result of the June 2015 lead ALE, the City conducted an optimal corrosion control treatment (“OCCT”) study between October 2016 and April 2017 and provided the recommended treatment to MSDH on June 13, 2017. MSDH concurred with the recommended treatment and provided a deadline of May 31, 2019 to complete source water treatment installation. Although MSDH later extended the

completion date to December 2019, this deadline remains unmet and the City has failed to install OCCT at the J.H. Fewell WTP. Therefore, the City is in noncompliance with 40 C.F.R. §§ 141.80(e) and 141.83 and Miss. Admin. Code § 15-20-72.1.3.2, for failure to install OCCT and provide applicable source water treatment.

30. Pursuant to 40 C.F.R. § 141.82(g) and Miss. Admin. Code § 15-20-72.1.4.3, all systems optimizing corrosion control shall continue to operate and maintain OCCT, including maintaining water quality parameters (“WQPs”) at or above minimum values or within ranges designated by the State under 40 C.F.R. § 141.82(f). A water system is out of compliance with the requirements of 40 C.F.R. § 141.82(g) for a six-month period if it has excursions for any State-specified WQP on more than nine days during the period. An excursion occurs whenever the daily value for one or more of the WQPs measured at a sampling location is below the minimum value or outside the range designated by the State. Additionally, PWSs must provide the public notice of treatment technique requirement violations (such as WQP excursions) within 30 days of learning of the violation, pursuant to 40 C.F.R. § 141.203 and Miss. Admin. Code § 15-20-72.1.5.2.

The City failed to comply with the lead and copper rule (“LCR”) treatment technique requirements for pH and/or alkalinity WQPs for the following monitoring periods:

- January – June 2016 (144 days of excursions of WQPs);
- July – December 2016 (179 days of excursions of WQPs);
- January – June 2017(183 days of excursions of WQPs);
- July – December 2017(186 days of excursions of WQPs);
- January – June 2018 (167 days of excursions of WQPs);
- July – December 2018 (183 days of excursions of WQPs);
- January – June 2019 (89 days of excursions of WQPs);
- July – December 2019 (59 days of excursions of WQPs); and
- January – June 2020 (181 days of excursions of WQPs).

The City failed to report the WQP violations to SDWIS and did not provide public notification for the following monitoring periods: July – December 2016; January – June 2017; and July – December 2017. Therefore, the City is in noncompliance with 40 C.F.R. §§ 141.82(g) and 141.203 and Miss. Admin. Code §§ 15-20-72.1.4.3 and 72.1.5.2 for failure to maintain optimal WQPs and provide the appropriate public notification.

31. Pursuant to 40 C.F.R. § 141.723(d) and Miss. Admin. Code § 15-20-72.1.4.1, a PWS must correct any significant deficiencies identified in an EPA- or State-conducted sanitary survey in accordance with EPA- or State-approved schedules.

On November 18, 2016, MSDH conducted a sanitary survey, during which MSDH made a finding of inadequate application of treatment chemicals and techniques. On May 12, 2017, MSDH issued a significant deficiency report citing the System for failure to achieve the target hardness and alkalinity goals [*i.e.*, WQPs], and thereafter issued a compliance plan to the System, requiring improvements to the System be completed by December 29, 2019 to bring the System into compliance. The City failed to complete the required compliance measures at the System by the December 29, 2019 deadline established by the State. Therefore, the City is in noncompliance with 40 C.F.R. § 141.723(d) and Miss. Admin. Code § 15-20-72.1.4.1.

32. Pursuant to 40 C.F.R. §§ 141.80(f) and 141.84(a) and Miss. Admin. Code § 15-20-72.1.3.2, a water system that fails to meet the lead action level in tap samples taken pursuant to 40 C.F.R. § 141.86(d)(2), after installing corrosion control and/or source water treatment (whichever sampling occurs later), shall replace lead service lines in accordance with the requirements of 40 C.F.R. § 141.84 and Miss. Admin. Code § 15-20-72.1.1.6(8).

Pursuant to 40 C.F.R. § 141.84(b), a water system shall replace annually at least seven percent (7%) of the initial number of lead service lines in its distribution system. The initial number of lead service lines is the number of lead lines in place at the time the replacement program begins. The system shall identify the initial number of lead service lines in its distribution system, including an identification of the portion(s) owned by the system, based on a materials evaluation, including the evaluation required under § 141.86(a) and legal authorities (e.g., contracts, local ordinances) regarding the portion owned by the system. The first year of lead service line replacement shall begin on the first day following the end of the monitoring period in which the action level was exceeded.

As detailed above, the City was required to commence its lead service line replacement program in June 2016. Despite exceeding the lead action level on several occasions, the City has failed to implement a lead service line replacement program at any time from June 2016 to the present. Therefore, the City is in noncompliance with 40 C.F.R. §§ 141.80(f) and 141.84 and Miss. Admin. Code § 15-20-72.1.1.6(8).

33. Pursuant to 40 C.F.R. § 141.86(a)(1) and Miss. Admin. Code § 15-20-72.1.3.2, each water system shall complete a materials evaluation of its distribution system in order to identify a pool of targeted sampling sites that meets the requirements of this section, and which is sufficiently large to ensure that the water system can collect the number of lead and copper tap samples required in 40 C.F.R. § 141.86(c).

The EPA requested in its November 2019 Information Request that the City provide its materials evaluation required under 40 C.F.R. § 141.86(a)(1) and Miss. Admin. Code § 15-20-72.1.3.2. Additionally, during the February 2020 inspection, EPA questioned the City about a materials evaluation and what information was used to make sampling site selections. The City has not provided a complete materials evaluation, utilizing the information specified in 40 C.F.R. § 141.86(a)(2), to identify potential lead service lines, which was required when the LCR was promulgated in 1991. Therefore, the City is in noncompliance with 40 C.F.R. § 141.86(a)(1) and Miss. Admin. Code § 15-20-72.1.3.2.

34. Pursuant to 40 C.F.R. § 141.86(c) and Miss. Admin. Code § 15-20-72.1.3.2, the City is required to collect 100 unique tap samples every six months.

The City collected duplicate tap samples from the same site in the same compliance period and used those samples to meet the required minimum number of samples. This was observed in the monitoring data collected by the City and submitted to MSDH in October 2017, October 2018, April 2019, and October 2019. Therefore, the City is in noncompliance with 40 C.F.R. § 141.86(c) and Miss. Admin. Code § 15-20-72.1.3.2.

35. Pursuant to 40 C.F.R. § 141.86 and Miss. Admin. Code § 15-20-72.1.3.2, all sample results are required to be from sites or locations listed on the approved lead and copper sampling plan.

40 C.F.R. § 141.86(b)(4) requires that each first draw tap sample be collected from the same sampling site from which the system collected previous samples, unless the system cannot gain entry to collect a follow-up tap sample; under such circumstances, the system may collect a follow-up tap sample from another sampling site in its sampling pool as long as the new site meets the same criteria outlined in 40 C.F.R. § 141.86(a)(3) through (7) and is within reasonable proximity of the original site.

In monitoring data collected by the City and submitted to MSDH in May 2017, October 2017, April 2018, October 2018, April 2019, and October 2019, the City provided sample results from sites or locations not listed on the approved lead and copper sampling plan and/or those sites or locations could not be identified from the information included on the form. Therefore, the City is in noncompliance with 40 C.F.R. § 141.86 and Miss. Admin. Code § 15-20-72.1.3.2.

36. Pursuant to 40 C.F.R. § 141.90(a)(1)(i) and Miss. Admin. Code § 15-20-72.1.5.1, the City is required to report the results of all tap samples, including the location of each sampling site and the criteria under 40 C.F.R. § 141.86(a)(3) through (7) under which the site was selected, to the State.

The City changed sample sites from monitoring period to monitoring period with no documentation of MSDH's approval of such changes or how the new sampling sites met the selection criteria in 40 C.F.R. § 141.86(a)(3) through (7). Therefore, the City is in noncompliance with 40 C.F.R. §§ 141.86(b)(4) and 141.90(a)(1)(i) and Miss. Admin. Code §§ 15-20-72.1.3.2 and 72.1.5.1.

37. Pursuant to 40 C.F.R. § 141.90(a) and Miss. Admin. Code § 15-20-72.1.5.1(1), a PWS is required to analyze and report to the State the information obtained for all water samples taken pursuant to the lead and copper sampling requirements of 40 C.F.R. § 141.86. Pursuant to Miss. Admin. Code § 15-20-72.1.5.5(2), each supplier of water must utilize the services of certified laboratory or party approved by the State where applicable to complete all water quality analyses as stipulated in the NPDWRs.

During the April 2019 compliance monitoring period, some lead and copper samples collected by the City were not taken to the State-approved laboratory for analysis. Additionally, while the City retained sample collection forms for sites 12 and 181, no corresponding laboratory results were reported to the State for these sites. Therefore, the City is in noncompliance with 40 C.F.R. § 141.90(a) and Miss. Admin. Code §§ 15-20-72.1.5.1(1) and -72.1.5.5(2).

38. Pursuant to 40 C.F.R. § 141.85(d) and Miss. Admin. Code § 15-20-72.1.5.2, all water systems must deliver a consumer notice of all individual lead tap water monitoring results to persons served by the water system at sites that are tested. A water system that exceeds the lead action level shall deliver the public education materials contained in 40 C.F.R. § 141.85(a) in accordance with 40 C.F.R. § 141.85(b). A water system must provide the consumer notice as soon as practical, but no later than 30 days after the system learns of the tap monitoring results.

For the first half of 2016, the City provided notification to MSDH by certification that consumer notices were distributed in February 2016. However, the last sample result for February was not analyzed until March 2016 and was not included in the consumer notice for that period. Consequently, the consumer notices that went out in February 2016 were incomplete. Therefore, the City is in noncompliance with 40 C.F.R. §§ 141.85(a) and 141.85(d) and Miss. Admin. Code § 15-20-72.1.5.2.

39. Pursuant to 40 C.F.R. § 141.90(f)(3) and Miss. Admin. Code § 15-20-72.1.5.1, no later than three months following the end of each monitoring period, each system shall mail a sample copy of the consumer notification of tap results to the State along with a certification that the notification has been distributed in a manner consistent with the requirements of 40 C.F.R. § 141.85(d).

Based on a review of records obtained during the EPA's February 2020 Inspection, the City failed to provide MSDH with the consumer notice certification forms required by 40 C.F.R. § 141.90(f)(3) for the second half of 2017 and the second half of 2018. Therefore, the City is in noncompliance with 40 C.F.R. § 141.90(f)(3) and Miss. Admin. Code § 15-20-72.1.5.1.

40. Pursuant to 40 C.F.R. § 141.85(d) and Miss. Admin. Code § 15-20-72.1.5.2, all water systems must provide a notice of the individual tap results from lead tap water monitoring carried out under 40 C.F.R. § 141.86 to the persons served by the water system at the specific sampling site from which the sample was taken.

Customer complaints on the "Homeowner Lead/Copper Sample Collection" forms from tap sampling conducted in October 2018 indicate that the customer(s) was not notified of the lead and copper sampling results. Therefore, the City is in noncompliance with 40 C.F.R. § 141.85(d) and Miss. Admin. Code § 15-20-72.1.5.2.

41. Pursuant to 40 C.F.R. § 141.153 and Miss. Admin. Code § 15-20-72.1.18.1, each PWS must provide to its customers an annual report (known as a "Consumer Confidence Report") which contains the informed identified in 40 C.F.R. §§ 141.153 and 141.154. Under 40 C.F.R. § 141.153(d)(4)(vi), a Consumer Confidence Report must include the 90<sup>th</sup> percentile value of the most recent round of sampling and number of sampling sites exceeding the ALE.

The City did not fully provide lead and copper results for the 2016 and 2018 monitoring periods in its Consumer Confidence Reports for those years. Therefore, the City is in noncompliance with 40 C.F.R. § 141.153(d)(4)(vi) and Miss. Admin. Code § 15-20-72.1.18.1.

42. Based on the findings above, the EPA has determined that the System has numerous SDWA violations, including violations of the NPDWRs.

### **III. AGREEMENT ON CONSENT**

Based on the foregoing FINDINGS, and pursuant to the authority of Section 1414(g) of the SDWA, 42 U.S.C. § 300g-3(g), the EPA is issuing this AOC, to place the Respondent on an enforceable schedule to comply with 40 C.F.R. Part 141 and applicable requirements of Miss. Admin. Code. **The EPA hereby ORDERS and Respondent hereby AGREES:**

43. Public Notification and Consumer Confidence Reports

- a. Upon the Effective Date of this AOC, Respondent shall carry out the public notice requirements as required by 40 C.F.R. Part 141, Subpart Q for all future violations of the NPDWRs.



- b. Upon the Effective Date of this AOC, Respondent shall comply with the requirements of 40 C.F.R. § 141.153(d)(4)(vi) and ensure that all lead and copper results are properly identified in the annual Consumer Confidence Reports.

44. Within thirty (30) days of the Effective Date of this AOC, Respondent shall provide the EPA with a Comprehensive Staffing Plan. This plan shall include the staff's primary duty location, role(s) (*i.e.*, either O.B. Curtis or J.H. Fewell), and years of experience in that role along with including date of original certification(s). Additionally, Respondent shall provide a staffing plan that identifies how it is ensured that a Class A operator is onsite at all times, this shall include any backup plans in case staff are unavailable.

45. Asset Management Plan Development and Implementation.

- a. Within sixty (60) days of the Effective Date of this AOC, Respondent shall provide a scope of work for the EPA's review and approval for development of an Asset Management Plan. The Asset Management Plan shall include detailed asset inventories (including, at minimum, age, condition, and criticality), operation and maintenance tasks, and long-range financial planning. The scope of work shall include interim milestones and timeframes for completion of the Asset Management Plan. Completion of the Asset Management Plan shall be accomplished within nine (9) months of the EPA's approval of the scope of work. The Asset Management Plan must include an evaluation of all Respondent's assets to facilitate effective and efficient system-wide operational sustainability. See the attached, "*Asset Management: A Best Practices Guide*," for guidance on this topic.<sup>7</sup> The Asset Management Plan must be developed by a qualified entity, and Respondent shall include in its scope of work a description of the entity that will develop the Plan. See the attached, "*Building an Asset Management Team*,"<sup>8</sup> for guidance on this topic. Interim milestones and timeframes contained in the approved scope of work will be enforceable pursuant to this AOC.
- b. The Asset Management Plan shall be submitted to EPA for review and approval in accordance with the timeframes contained in the above referenced scope of work. Upon the EPA's approval of the Asset Management Plan, the Plan shall become an enforceable requirement of this AOC. Respondent shall begin implementation of the Asset Management Plan immediately upon receipt of EPA's approval.

46. Respondent was required under the terms of the Emergency Order to develop a Comprehensive Equipment Repair Plan ("CERP"). Immediately upon receipt of the AOC, Respondent shall begin implementation of the repairs, replacement, and/or maintenance described in the CERP and included in Appendix A in accordance with the schedule of implementation, including interim milestones, maintenance schedules, and completion deadlines. If, after the EPA's concurrence on the CERP, Respondent determines that revisions are required, Respondent shall submit a request for

---

<sup>7</sup> Additional resources on Asset Management can be found at the following EPA website: <https://www.epa.gov/sustainable-water-infrastructure/asset-management-water-and-wastewater-utilities>.

<sup>8</sup> Available at <https://nepis.epa.gov/Exec/ZipPDF.cgi/P1000LTZ.PDF?Dockey=P1000LTZ.PDF>.

revision to the EPA at least ten (10) days prior to implementing any changes and shall not begin implementing such revisions until EPA approval is received. If the EPA determines, during the term of this AOC, that revisions are required, the EPA will notify Respondent in writing of such revisions and Respondent shall submit such revisions to the EPA within thirty (30) days of receipt of the EPA's determination and shall implement such revisions in accordance with the EPA's approval and any associated schedule.

47. Within ten (10) days of the Effective Date of this AOC, Respondent shall submit the current Site Sampling Plans developed in accordance with the RTCR. If revision to these plans are anticipated, Respondent shall provide to the EPA a timeline for completing such revision.

48. LCR Monitoring:

- a. Within five (5) days of the Effective Date of this AOC, Respondent shall correct the LCR monitoring procedures to ensure accurate determination of compliance. This correction shall, at a minimum:
  - i. Ensure that the same sample sites are sampled from one monitoring period to the next. However, if a sample site is not sampled, identify and record reasons why a sample site from one monitoring period is not used in the following monitoring period.
  - ii. Avoid duplicating collection of tap samples in the same monitoring period.
  - iii. Ensure that all samples collected are submitted for analysis, and, if not, provide a valid explanation to justify the exclusion.
  - iv. Ensure that consumer notices are provided as required by 40 C.F.R. § 141.85(d).
- b. Within thirty (30) days of the Effective Date of this AOC, Respondent shall develop and provide to the EPA an LCR Monitoring Standard Operating Procedure ("SOP") to address the items in the preceding paragraph to ensure that all staff are following the same process.
- c. Beginning with the monitoring period of July 1, 2020 – December 31, 2020, Respondent shall implement the changes to address the above items and the new LCR Monitoring SOP.

49. LCR Corrosion Control Treatment

- a. Within fifteen (15) days of the Effective Date of this AOC, Respondent shall address any outstanding comments on the scope of work for the Corrosion Control Treatment (CCT) Study being conducted at J.H. Fewell and provide a

revised scope of work for the EPA's review.<sup>9</sup> Until EPA concurrence is received on the scope of work, Respondent shall make any revisions as requested by the EPA. Upon receipt of the EPA's concurrence of the scope of work, this scope of work and its associated timeframes will become an enforceable component of this AOC. The scope of work shall include interim milestones and final completion timeline that shall not exceed February 28, 2021.

- b. Within seven (7) days of receipt of CCT Study final report, Respondent shall submit to the EPA and MSDH, for a review and approval, a copy of the CCT Study report and the proposed treatment plan to address any findings from the report. The proposed treatment plan shall include a scope of work and timeframes for completion of any necessary treatment modifications. Until EPA concurrence is received on the proposed treatment plan, Respondent shall make any revisions as requested by the EPA. Upon receipt of the EPA's concurrence on the proposed treatment plan, the plan will become an enforceable component of this AOC.

#### 50. LCR Materials Evaluation and Lead Service Line Replacement

- a. On April 30, 2020, the Respondent provided a Lead Service Line Replacement Program Plan ("LSLRPP") to the EPA. The LSLRPP identified that the Respondent currently has limited data on the presence of lead service lines. The Respondent identified several methods that would be used to evaluate and identify lead service lines. The LSLRPP did not include any timeframes for completion of these activities. Within thirty (30) days of the Effective Date of this AOC, Respondent shall develop and provide to the EPA for review and concurrence an updated LSLRPP that identifies timeframes for implementing the identified activities and addresses EPA's comments.<sup>10</sup> The LSLRPP shall include the current inventory of lead service lines, how Respondent plans to begin replacement as required by 40 C.F.R. § 141.84, and how the information gathered through the evaluation steps will be utilized to update the materials evaluation and sample siting plans, as necessary.
- b. Within fifteen (15) days of receipt of the EPA's concurrence on the revised LSLRPP, Respondent shall begin implementation of the plan. This shall continue, at a minimum, until such time as Optimal Corrosion Control has been installed and is determined to be effective based on follow-up sampling.
- c. Respondent has been required by MSDH to update the LCR Sample Siting Plan due to the separation of the surface water and ground water portions of the system. On April 22, 2020, MSDH provided comments to the Respondent regarding the revised plans that were submitted, including the requirement to have a valid materials inventory. On June 22, 2020, the Respondent provided a response to address MSDH comments. Upon receipt of MSDH and EPA

<sup>9</sup> Respondent provided the CCT Study scope of work to the EPA on June 12, 2020. On June 18, 2020, the EPA provided comments on the scope of work and requested revision.

<sup>10</sup> Respondent provided the LSLRPP to the MSDH and EPA on April 30, 2020. On June 19, 2020, the EPA provided comments on the LSLRPP and requested revision.

comments on the revised plan, the Respondent shall address these comments within fifteen (15) days of receipt. Respondent shall include any updated Materials Evaluations that were prepared in order to develop these plans. The materials evaluation records provided shall include a description of what information was utilized to identify potential lead service lines.<sup>11</sup>

#### 51. Reporting and Notifications

- a. Effective immediately upon the Effective Date of this AOC and until further notice by the EPA, Respondent shall submit MOR information weekly as follows:
  - i. Reports must run from Sunday to Saturday each week;
  - ii. Weekly reports must be submitted to the EPA and MSDH by Tuesday of the following week (*e.g.*, for the monitoring timeframe of Sunday, July 5 through Saturday, July 11, the report must be submitted by Tuesday, July 14).
  - iii. Respondent shall report the MOR in the formatting requested by MSDH and the EPA.
- b. On June 29, 2020, the Respondent provided to the EPA, the missing WQP results for tap sampling for any sampling that occurred in May 2020 and June 2020.
  - i. Respondent shall continue to submit the WQP sampling data to the EPA until directed otherwise. The data shall be reported as follows:
    1. WQP results for the entry points to the distribution system sampling shall be included with the weekly MOR submittals.
    2. WQP results for the tap sampling shall be submitted within fifteen (15) days of the end of each month (*e.g.*, for the monitoring timeframe of July 1 through July 31, the results must be submitted by August 10, 2020).
- c. On June 29, 2020, the Respondent provided to the EPA the missing RTCR sampling data for the months of April 2020, May 2020, and June 2020.

Respondent shall continue to submit the RTCR sampling data to the EPA until directed otherwise. The data shall include all chlorine residual data for all the RTCR sampling locations. This data shall be submitted to the EPA within ten (10) days of the end of each month (*e.g.*, for the monitoring timeframe of July 1 through July 31, the results must be submitted by August 10, 2020).

---

<sup>11</sup> 40 C.F.R. § 141.86(a)(2) describes the types of information that shall be used to evaluate and identify potential lead service lines.

- d. Effective immediately upon the Effective Date of this Order and until further notice by the EPA, Respondent shall submit weekly updates to the EPA as follows:
- i. Weekly updates shall include the Respondent's progress in complying with this AOC and identify any failures to comply with the AOC as well as any violations that occurred during the previous week.
  - ii. Reports must run from Sunday to Saturday each week;
  - iii. Weekly updates shall be submitted with the weekly MORs to the EPA and MSDH by Tuesday of the following week (*e.g.*, for the monitoring timeframe of July 1 through July 31, the results must be submitted by August 10, 2020).
  - iv. Weekly updates shall follow the format provided by the EPA and be submitted electronically.
- e. Respondent must notify the EPA within twenty-four (24) hours after learning of a violation of this AOC or any NPDWR or MPDWR, or situation with the potential to have serious adverse effects on human health as a result of short-term exposure to contaminants.
- f. Respondent shall send all reports, notifications, documentation and submittals required by this AOC in writing or via e-mail to:

U.S. EPA, Region 4  
 Enforcement and Compliance Assurance Division  
 Attn: Amanda Driskell  
 Email: [driskell.amanda@epa.gov](mailto:driskell.amanda@epa.gov)

- g. All reports, notifications, documentation, and submissions required by this AOC must be signed by a duly authorized representative of the Respondent and must include the following statement:

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

#### IV. FINAL REPORT AND TERMINATION OF AOC

52. Within thirty (30) calendar days after Respondent has fully completed and implemented the actions required by Section III (Agreement on Consent) of this AOC, including work outlined in the CERP, Respondent shall submit for the EPA's review and approval a final report (Final Report) that includes: (a) a description of all of the actions which have been taken toward achieving compliance with this AOC; (b) an assessment of the effectiveness of such actions; and (c) an analysis of whether additional actions beyond the scope of this AOC are necessary to further comply with the SDWA and this AOC.

53. If the EPA determines, after review of the Final Report, that all the requirements of this AOC have been completed and implemented in accordance with this AOC and no further actions are necessary to comply with the SDWA, the EPA will provide notice to Respondent and this AOC shall be deemed terminated.

54. If the EPA determines, after review of the Final Report, that, despite all the requirements of this AOC having been completed and implemented in accordance with this AOC, further actions are necessary to comply with the SDWA, the NPDWRs, and the MPDWRs, the Parties agree that this AOC may be amended to reflect such necessary additional actions. Such amendment must be agreed to in writing to become effective under this AOC.

55. If the EPA determines that any requirement has not been completed and implemented in accordance with this AOC, the EPA will notify the Respondent, provide a list of deficiencies, and may require Respondent to modify its actions as appropriate in order to correct such deficiencies. If so required, Respondent shall implement the modified and approved requirement(s) and submit a modified Final Report in accordance with the EPA notice. Failure by Respondent to implement any of the approved modified requirement(s) shall be a violation of this AOC.

56. Notwithstanding the provisions above, the EPA may extend any timeframe contained in Appendix A upon a showing of good cause as to why such timeframe (interim or final) cannot be achieved. Such extension of time shall be in writing, but may be incorporated into a revision to Appendix A and not necessarily in a revision or amendment to this Order.

#### V. GENERAL PROVISIONS

57. Nothing in this AOC shall constitute a waiver, suspension, or modification of the terms and conditions of the Permit, which remain in full force and effect.

58. Failure to comply with the requirements herein shall constitute a violation of this AOC and the SDWA, and may subject the Respondent to penalties as provided in Section 1414(g)(3) of the SDWA, 42 U.S.C. § 300g-3(g)(3), as amended by the Federal Civil Penalties Inflation Adjustment Act of 1990, as amended, and as codified by the EPA at 40 C.F.R. Part 19.

59. Respondent's compliance with this AOC does not necessarily constitute compliance with the provisions of the SDWA, 42 U.S.C. § 300f et seq.; the MSDWA, Miss. Code Ann. § 41-26-1 et. seq.; or their respective implementing regulations.

60. Any sampling done to comply with the terms of this order shall be done in a manner consistent with EPA approved methodologies. The EPA reserves the right to require Respondent to conduct additional sampling if the EPA determines that Respondent's sampling is not being conducted in accordance with EPA-approved methodologies.

61. This AOC shall not relieve the Respondent of its obligation to comply with all applicable provisions of federal, state, or local law, nor shall it be construed to be a ruling on, or determination of, any issue related to any other federal, state, or local permit. Compliance with this AOC shall not be a defense to any actions subsequently commenced pursuant to federal laws and regulations administered by the EPA.

62. Issuance of this AOC shall not be deemed as prohibiting, altering, or in any way limiting the ability of the EPA to pursue any other enforcement actions available to it under law. Such actions may include, without limitation, any administrative, civil, or criminal action to seek penalties, fines, injunctive, or other appropriate relief, or to initiate an action for imminent and substantial endangerment under the SDWA or any other federal or state statute, regulation, or permit.

63. The EPA reserves all rights and remedies, legal and equitable, available to enforce any violation cited in this AOC and to enforce this AOC.

64. Nothing in this AOC is intended to nor shall be construed to operate in any way to resolve any criminal liability of Respondent, or other liability resulting from violations that were not alleged in this AOC.

65. This AOC applies to and is binding upon Respondent and its officers, directors, employees, agents, successors, and assigns.

66. Any change in the legal status of Respondent, including but not limited to any transfer of assets of real or personal property, shall not alter Respondent's responsibilities under this AOC.

67. Respondent admits to the jurisdictional allegations set forth within this AOC.

68. Respondent neither admits nor denies the factual allegations set forth within this AOC.

69. Respondent waives any and all claims for relief and otherwise available rights or remedies to judicial or administrative review which Respondent may have with respect to any issue of fact or law set forth in this AOC, including, but not limited to any right of judicial review of the AOC under the Administrative Procedure Act, 5 U.S.C. §§ 701-706.

70. Each party shall bear its own costs and attorneys' fees in connection with the action resolved by this AOC.

71. Pursuant to Section 1414(g)(2) of the SDWA, 42 U.S.C. § 300g-3(g)(2), the EPA has conferred with and sent a copy of this AOC to the State of Mississippi.

72. Each undersigned representative of the parties to this AOC certifies that he or she is fully authorized to enter the terms and conditions of this AOC and to execute and legally bind that party to it.

**VI. EFFECTIVE DATE**

73. This AOC shall become effective on the date on which Respondent receives a fully executed copy of this AOC, after signature by the Director, EPA Region 4 Enforcement and Compliance Assurance Division.

**VII. MULTIPLE COUNTERPARTS**

74. This AOC may be executed in counterparts, each of which shall be deemed to be an original but all of which taken together shall constitute one and the same agreement.

FOR THE RESPONDENT:

\_\_\_\_\_  
Date

SO ORDERED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

\_\_\_\_\_  
Carol L. Kemker, Director  
Enforcement and Compliance Assurance Division  
Region 4



**APPENDIX A**  
**Comprehensive Equipment Repair Plan (CERP) Schedule of Implementation**

General Tasks

Task#	Category	Task	Deadline or Timeframe
1	Operator/Staffing	City will hire an Instrument Technician for O.B. Curtis	6/30/2021
2	Operator/Staffing	Submit documentation of funding for an additional two (2) operators for OB Curtis in FY2020-21.	9/30/2021
3	Operator/Staffing	Both operations new hires should be eligible for licensure in Jul 2021 and must complete testing for Class A Waterworks	10/31/2021
4	Distribution	48-in Water Transmission Line Project. Install approximately 6,000 ft of 48-in water transmission line from downtown to south Jackson. The project has been designed and is awaiting permit from the railroad companies for right of way access. <b>4.a.</b> - Submit scope of work and <b>4.b.</b> Advertise for construction request funding from the 1% sales tax commission. Upon EPA approval of the scope of work and timeframes, the CERP will be updated to add the tasks/timeframes.	4.a. 12/30/2020 4.b 1/31/21

Task#	Category	Task	Deadline or Timeframe
5	Clar-Trac	Clar-Trac System shall be functioning and operational and repairs completed for all Basins including Butterfly Valves, Actuators, Drives, and Vacuum Hoses.	3/31/2020
6	UV Reactors	UV Sensors - Functional and fully operational.	11/30/2020
7	Filters	<b>7.A</b> Complete Filter Assessment <b>7.B</b> Filter Scope of Work - After assessment, COJ will develop a plan and timeframes for returning filters to fully operational and functional status. Upon EPA approval of Scope of Work/plan, the CERP will be updated to include the individual tasks and timeframes.	7.A 12/18/2020 7.B 1/31/2021
8	Monitoring Equip	<b>8.A.</b> Flow Measurement Devices - Research and assessment completed <b>8.B</b> Flow Measurement Devices -will be functional and fully operational.	8.A. 1/31/2021 8.B. 6/30/2021
9	Intake Structure	Pedestrian Bridge	9/30/2021
10	Entire Plant	Corrosion Control	2/28/2021

Curtis

Task#	Plant (Conventional/ Membrane/ Both)	Category	Task	Deadline or Timeframe
11	Conventional	Chlorine Room	Weight Indicator - Functional and fully operational.	2/1/2020
12	Conventional	Air Compressor Room	Dryers on both compressors - Functional and fully operational.	Repaired 5-14-2020. Possibly complete
13	Conventional	All Conventional Basins	Clar-Trac System - Provide documentation that the Clar-Trac System is completely functional and inservice for all 3 conventional basins, including Brackets and Suction-Hoses.	2/15/2021
14	Conventional	UV Filter Gallery	UV #5 - Operational and Fully functional	3/31/2021
15	Membrane	HS#2	Chlorine analyzers - Operational and Fully functional	12/31/2020
16	Membrane	Blower Room	Blower C - <b>18.A</b> Assessment of root cause completed <b>18.B</b> Submit plan to address the concerns identified in assessment. Upon EPA approval of the plan, the CERP will be updated to include those individual tasks and timeframes.	18.A. 1/31/2021 18.B. 2/28/2021
17	Both	Intake	Roof Repairs/Potassium Permanganate feeder	6/30/2022
18	Membrane	Train #6	Sluice gate - fully operational	2/28/2021
19	Membrane	Train #1	Sluice gate - fully operational	1/31/2021
20	Membrane	Sludge Plant Handling Facility	Gravity Thickener #1 and #2 - Functional and Fully Operational	8/1/2021
21	Both	Filters	Filter Rehab - Submit funding plan	12/30/2020

Curtis

Task#	Plant (Conventional/ Membrane/ Both)	Category	Task	Deadline or Timeframe
22	Membrane	Trains #1-6	Submit a Plan for all of the Membrane Trains. Plan shall include a status for each membrane train and its components, a listing of all items that are need of repair/replacement, the plan for addressing these repairs/replacements including any necessary sequencing, and interim and final timeframes proposed to return the each membrane train to fully functional and consistent operational status. Upon EPA approval of the plan, the CERP will be updated to include those individual tasks and timeframes for each train.	12/30/2020
23	Membrane	Cover	Complete Membrane Basin Building Structure Project.	12/31/2021
24	Conventional	Soda ash System	Dilution System - - Functional and Fully Operational	11/30/2021

Groundwater System-Storage Tank

Task#	Category	Task	Deadline or Timeframe
25	Storage Tanks	Maddox Rd (Hwy 18) - Fully functioning and operational.	12/31/2021
26	Storage Tanks	TV Rd Booster Station - Plan for bringing back into service. Provide a status and plan for each of the wells, include a status of each well, identify any need repairs/replacement, and propose timeframe for addressing these repairs/replacement including any interim steps. Upon EPA approval of the plan, the CERP will be updated to include those individual tasks and timeframes for each well.	12/30/2020
27	Wells	Well Houses - Submit Scope of Work including proposed timeframes. Upon EPA approval of the scope of work, the CERP will be updated to include those individual tasks and timeframes.	12/30/2020
28	Well		12/30/2020

## Dosing Automation

Task#	Plant (Fewell/Curtis/Both)	Task	Deadline or Timeframe
29	Curtis	OB Curtis: the pH is controlled by a soda ash dilution system. System needs to be fully functional and operational.	Confirm completed - Due 11/20/2020
30	Curtis	OB Curtis: COJ is working on a plan to run OB Curtis in auto to submit to EPA and MSDH for approval. 35.A. Submit plan to complete research/assessment 35.B. Based on research, submit scope of work proposal. 35.C. Complete automation.	35.A. 12/30/2020 35.B. 1/31/2021 35.C. 7/31/2021
31	Curtis	Ammonia/Chlorine feeds: All chlorinator and ammoniator equipment and appurtenances will be fully functional with automatic, flow-pacing capabilities inservice and redundancy present. 36.A. Submit plan to complete research/assessment 36.B. Based on research, submit work proposal; 36.C. Complete work.	36.A. 12/30/2020 36.B. 1/31/2021 36.C. 7/31/2021
32	Curtis	ACH (Aluminum Chlorohydrate) (coagulant): Set up to do auto and supposed to be flow-paced. However, this is not functioning properly because they are dosing it along with a "carry water" which is not the appropriate method for this type of material. The treatment system was installed by using the same method as the Alum/lime system that was previously being used and not tweaked to for the new ACH coagulant. Studying the coagulation system to determine if CO2 treatment addition will be helpful in improving the treatment system for future automation. 36.A. Submit plan to complete research/assessment 36.B. Based on research, submit work proposal; 36.C. Complete work.	37.A. 12/30/2020 37.B. 1/31/2021 37.C. 7/31/2021
33	Curtis	OB Curtis: Potassium Permanganate Feeds: flow pacing or feed back loop. 38.A. Submit a plan to complete research/assessment 38.B. Based on research, submit work proposal; 36.C. Complete work.	38.A. 1/31/2020 38.B. 2/28/2021 38.C. 7/31/2021
34	Curtis	OB Curtis: Fluoride 39.A. Submit a plan to complete research/assessment 39.B. Based on research, submit work proposal; 39.C. Complete work.	39.A. 1/31/2020 39.B. 2/28/2021 39.C. 7/31/2021
35	Curtis	OB Curtis: pH metering information: Replaced/Repaired and are being calibrated as required. However, the information from the meters is not fed directly into the chemical feeding systems and instead relies on the operators to view it and make decisions manually. This can result in missing peaks. 40.A. Submit a plan to complete research/assessment 40.B. Based on research, submit work proposal; 40.C. Complete work.	40.A. 12/30/2020 40.B. 1/31/2021 40.C. 7/31/2021
36	Curtis	OB Curtis: Raw Water Flow Meter - Conventional plant (related to the Clar-Trac System): Not currently running automatically.	7/31/2021
37	Fewell	The dosing equipment has always been run in manual for disinfection and pH at the Fewell plant. 42.A. Submit a plan to complete research/assessment 42.B. Based on research, submit work proposal; 42.C. Complete work.	42.A. 1/31/2020 42.B. 2/28/2021 42.C. 7/31/2021

## U.S. EPA Small Business Resources Information Sheet

The United States Environmental Protection Agency provides an array of resources to help small businesses understand and comply with federal and state environmental laws. In addition to helping small businesses understand their environmental obligations and improve compliance, these resources will also help such businesses find cost-effective ways to comply through pollution prevention techniques and innovative technologies.

### Office of Small and Disadvantaged Business Utilization (OSDBU)

<https://www.epa.gov/aboutepa/about-office-small-and-disadvantaged-business-utilization-osdbu>

EPA's OSDBU advocates and advances business, regulatory, and environmental compliance concerns of small and socio-economically disadvantaged businesses.

### EPA's Asbestos Small Business Ombudsman (ASBO)

<https://www.epa.gov/resources-small-businesses/asbestos-small-business-ombudsman> or 1-800-368-5888

The EPA ASBO serves as a conduit for small businesses to access EPA and facilitates communications between the small business community and the Agency.

### Small Business Environmental Assistance Program

<https://nationalsbcap.org>

This program provides a "one-stop shop" for small businesses and assistance providers seeking information on a wide range of environmental topics and state-specific environmental compliance assistance resources.

### EPA's Compliance Assistance Homepage

<https://www.epa.gov/compliance>

This page is a gateway to industry and statute-specific environmental resources, from extensive web-based information to hotlines and compliance assistance specialists.

### Compliance Assistance Centers

<https://www.complianceassistance.net>

EPA-sponsored Compliance Assistance Centers provide the information you need, in a way that helps make sense of environmental regulations. Each Center addresses real world issues faced by a specific industry or government sector. They were developed in partnership with industry, universities and other federal and state agencies.

### Agriculture

<https://www.epa.gov/agriculture>

### Automotive Recycling

<http://www.ecarcenter.org>

### Automotive Service and Repair

<https://ccar-greenlink.org/> or 1-888-GRN-LINK

### Combustion—Boilers, Generators, Incinerators, Wood Heaters

<https://www.combustionportal.org/>

### Construction

<http://www.cicacenter.org>

### Education

<https://www.nacubo.org/>

### Healthcare

<http://www.hercenter.org>

### Local Government

<https://www.lgean.net/>

### Oil/ Natural Gas Energy Extraction

<https://www.eciee.org/>

### Paints and Coatings

<https://www.paintcenter.org/>

### Ports

<https://www.portcompliance.org/>

### Surface Finishing

<http://www.sterc.org/>

### Transportation

<https://www.tercenter.org/>

### U.S. Border Compliance and Import/Export Issues

<https://www.bordercenter.org/>

### Veterinary Care

<https://www.vetca.org/>

### EPA Hotlines and Clearinghouses

[www.epa.gov/home/epa-hotlines](http://www.epa.gov/home/epa-hotlines)

EPA sponsors many free hotlines and clearinghouses that provide convenient assistance regarding environmental requirements. Examples include:

### Clean Air Technology Center (CATC) Info-line

[www.epa.gov/cate](http://www.epa.gov/cate) or 1-919-541-0800

### Superfund, TRI, EPCRA, RMP, and Oil Information Center

1-800-424-9346

### EPA Imported Vehicles and Engines Public Helpline

[www.epa.gov/otaq/imports](http://www.epa.gov/otaq/imports) or 1-734-214-4100

### National Pesticide Information Center

[www.npic.orst.edu](http://www.npic.orst.edu) or 1-800-858-7378

**National Response Center Hotline** to report oil and hazardous substance spills - <http://nrc.uscg.mil> or 1-800-424-8802

### Pollution Prevention Information Clearinghouse (PPIC) -

[www.epa.gov/p2/pollution-prevention-resources/ppic](http://www.epa.gov/p2/pollution-prevention-resources/ppic) or 1-202-566-0799

### Safe Drinking Water Hotline -

[www.epa.gov/ground-water-and-drinking-water/safe-drinking-water-hotline](http://www.epa.gov/ground-water-and-drinking-water/safe-drinking-water-hotline) or 1-800-426-4791

### Toxic Substances Control Act (TSCA) Hotline

[tsc hotline@epa.gov](mailto:tsc hotline@epa.gov) or 1-202-554-1404



## U.S. Small Business Resources

### Small Entity Compliance Guides

<https://www.epa.gov/reg-flex/small-entity-compliance-guides>

EPA publishes a Small Entity Compliance Guide (SECG) for every rule for which the Agency has prepared a final regulatory flexibility analysis, in accordance with Section 604 of the Regulatory Flexibility Act (RFA).

### Regional Small Business Liaisons

[www.epa.gov/resources-small-businesses/epa-regional-office-small-business-liaisons](http://www.epa.gov/resources-small-businesses/epa-regional-office-small-business-liaisons)

The U.S. Environmental Protection Agency (EPA) Regional Small Business Liaison (RSBL) is the primary regional contact and often the expert on small business assistance, advocacy, and outreach. The RSBL is the regional voice for the EPA Asbestos and Small Business Ombudsman (ASBO).

### State Resource Locators

[www.enveap.org/statetools](http://www.enveap.org/statetools)

The Locators provide state-specific information on regulations and resources covering the major environmental laws.

### State Small Business Environmental Assistance Programs (SBEAPs)

<https://nationalsbeap.org/states/list>

State SBEAPs help small businesses and assistance providers understand environmental requirements and sustainable business practices through workshops, trainings and site visits.

### EPA's Tribal Portal

<https://www.epa.gov/tribal>

The Portal helps users locate tribal-related information within EPA and other federal agencies.

### EPA Compliance Incentives

EPA provides incentives for environmental compliance. By participating in compliance assistance programs or voluntarily disclosing and promptly correcting violations before an enforcement action has been initiated, businesses may be eligible for penalty waivers or reductions. EPA has several such policies that may apply to small businesses. More information is available at:

- **EPA's Small Business Compliance Policy**
- <https://www.epa.gov/compliance/small-business-compliance>
- **EPA's Audit Policy**
- [www.epa.gov/compliance/epas-audit-policy](http://www.epa.gov/compliance/epas-audit-policy)

### Commenting on Federal Enforcement Actions and Compliance Activities

The Small Business Regulatory Enforcement Fairness Act (SBREFA) established a Small Business Administration (SBA) National Ombudsman and 10 Regional Fairness Boards to receive comments from small businesses about federal agency enforcement actions. If you believe that you fall within the SBA's definition of a small business (based on your North American Industry Classification System designation, number of employees or annual receipts, as defined at 13 C.F.R. 121.201; in most cases, this means a business with 500 or fewer employees), and wish to comment on federal enforcement and compliance activities, you can call the SBA National Ombudsman's toll-free number at 1-888-REG-FAIR (1-888-734-3247), or submit a comment online at <https://www.sba.gov/about-sba/oversight-advocacy/office-national-ombudsman>.

Every small business that is the subject of an enforcement or compliance action is entitled to comment on the Agency's actions without fear of retaliation. EPA employees are prohibited from using enforcement or any other means of retaliation against any member of the regulated community in response to comments made under SBREFA.

### Your Duty to Comply

If you receive compliance assistance or submit a comment to the SBREFA Ombudsman or Regional Fairness Boards, you still have the duty to comply with the law, including providing timely responses to EPA information requests, administrative or civil complaints, other enforcement actions or communications. The assistance information and comment processes do not give you any new rights or defenses in any enforcement action. These processes also do not affect EPA's obligation to protect public health or the environment under any of the environmental statutes it enforces, including the right to take emergency remedial or emergency response actions when appropriate. Those decisions will be based on the facts in each situation. The SBREFA Ombudsman and Fairness Boards do not participate in resolving EPA's enforcement actions. Also, remember that to preserve your rights, you need to comply with all rules governing the enforcement process.

*EPA is disseminating this information to you without making a determination that your business or organization is a small business as defined by Section 222 of the Small Business Regulatory Enforcement Fairness Act or related provisions.*

## APPENDIX A of the Comprehensive Equipment Repair Plan (CERP) Schedule of Implementation

APPENDIX A				
Comprehensive Equipment Repair Plan (CERP) Schedule of Implementation				
Task#	Plant and/or Category	Task	Deadline or Timeframe	Approved/Overdue
<b>General Tasks</b>				
1	Operator/Staffing	City will hire an Instrument Technician for O.B. Curtis	October 1, 2021	Approved on 11/19/21.
2	Operator/Staffing	2. Provide documentation of completion or 2.A. Submit documentation of funding for an additional two (2) operators for O.B. Curtis. 2.B.City will hire 2 unlicensed operators for O.B. Curtis in FY2020-21.	2 - August 2, 2021* or 2.A and 2.B - January 3, 2022*	Overdue
3	Operator/Staffing	Both operations new hires should be eligible for licensure and must complete testing for Class A Waterworks	February 1, 2022	Due on 2/01/2022 - Overdue
<b>Fewell</b>				
4	Clari-Trac	Clari-Trac System shall be functioning and operational and repairs completed for all Basins including Butterfly Valves, Actuators, Drives, and Vacuum Hoses.4. Provide documentation of completion or 4.A. Contact Manufacturer and identify necessary work/schedule and submit Scope of Work <sup>+</sup> to EPA; 4.B. Clari-Trac system shall be fully functional and operational with all repairs completed	4 - August 2, 2021* or 4.A - August 2, 2021* 4.B - January 3, 2022*	4 – Approved on 8/20/2021
5	UV Reactors	UV Sensors - Functional and fully operational. 5. Provide documentation of completion or 5.A. Order parts identified on the parts list provided by the Technician report from the 1/19/2021 evaluation. Provide the Technician Report/parts list and date parts were ordered to EPA. 5.B. Return all UV Sensors to fully functional/operational status.	5 - August 2, 2021* or 5.A - August 2, 2021* 5.B - January 3, 2022*	5 – Approved on 8/20/2021
6		6.COJ will develop a Scope of Work <sup>+</sup> with timeframes for returning filters to fully operational and functional status. Upon EPA approval of Scope of Work/plan, the CERP will be updated to include the individual tasks and timeframes.  Individual Tasks and Timeframes Task 6.A - Filters 24 & 26 rehab at JHF WTP 6.A.1) Within 2 months of execution of SRF Loan #3:Issue Notice to Proceed to Begin Engineering Design Process. SRF Loan #3 executed on 9/30/21. 6.A.2) Within 4 months of Issuance of Notice to Proceed to Begin Engineering Design Process: Submit plans to MSDH for review and approval.	August 30, 2021           Task 6.A. Due Dates 6.A.1) Due 11/30/21 6.A.2) Due 3/31/22 6.A.3) Due 3/7/2022 6.A.4) End Date 3/15/2022 6.A.5) Due 5/15/2022 6.A.6) Due 7/5/2022 6.A.7) TBD 6.A.8) TBD	6-Two SOWS Approved on 12/13/21. One for Filters 24/26 and one for general filters. Updated General Filter SOW approved 2/5/22  6.A.1 – approved 2/11/22 6.A.2 – approved 2/23/2022 6.A.3- approved on 6/3/2022 and 7/29/2022(Completed on 2/25/22)

		<p>6.A.3) Within 2 weeks of MSDH approval: Advertise for Construction Bids.</p> <p>6.A.4) Within 6 weeks of Advertise for Construction Bids: Receive Construction Bids.</p> <p>6.A.5) Within 2 months of closure to Receive Construction Bids: Award Construction Contract.</p> <p>6.A.6) Within 6 weeks of awarding construction contract: Issue Notice to Proceed with Construction to the General Contractor.</p> <p>6.A.7) Within 8 months of issuance of Notice to Proceed with Construction: Filters 24 &amp; 26 at JHF WTP Rehabilitation Complete.</p> <p>6.A.8) Within 1 month of Filter Rehabilitation Completion: J HF Filter Startup and training complete.</p> <p>Individual Tasks and Timeframes Task 6.B – General Filter Rehab</p> <p>6.B.1) Within 8 months of execution of SRF Loan #3: Issue Notice Proceed to Begin Engineering Design Process.</p> <p>6.B.2) Within 4 months of Issuance of Notice to Proceed to Begin Engineering Design Process: Submit plans to MSDH for review and approval.</p> <p>6.B.3) Within 2 weeks of MSDH approval: Advertise for Construction Bids.</p> <p>6.B.4) Within 6 weeks of Advertise for Construction Bids: Receive Construction Bids.</p> <p>6.B.5) Within 2 months of closure to Receive Construction Bids: Award Construction Contract.</p> <p>6.B.6) Upon completion of JHF Filters 24 &amp; 26 (Task 6.A.7): Issue Notice to Proceed with Construction to the General Contractor</p> <p>6.B.7) Within 40 months of issuance of Notice to Proceed with Construction: J.H. Fewell General Filter Rehabilitation Complete.</p> <p>6.B.8) Within 1 month of Filter Rehabilitation Completion: J.H. Fewell Filter Startup and training complete.</p>	<p>Task 6.B. Due Dates</p> <p>6.B.1) <a href="#">Due 5/30/22</a></p> <p>6.B.2) <a href="#">Due 9/30/22</a></p> <p>6.B.3) TBD</p> <p>6.B.4) TBD</p> <p>6.B.5) TBD</p> <p>6.B.6) TBD</p> <p>6.B.7) TBD</p> <p>6.B.8) TBD</p>	<p>6.A.4-Approved on 6/3/22 and 7/29/2022</p> <p>6.A.5 Approved on 7/29/22 (completed 5/24/22)</p> <p>6.B.1 Overdue</p>
7	Monitoring Equip	<p>7.A. Flow Measurement Devices - Research and assessment completed 7.B</p> <p>Flow Measurement Devices -will be functional and fully operational.</p>	<p>7.A - August 2, 2021*</p> <p>7.B - January 3, 2022*</p>	<p>7.A - Approved on 8/27/2021</p> <p>7.B – Approved on 11/19/22</p>

APPENDIX A				
Comprehensive Equipment Repair Plan (CERP) Schedule of Implementation				
Task#	Plant and/or Category	Task	Deadline or Timeframe	Approved/Overdue
8	Monitoring Equip	8. Provide documentation of completion or 8.A. Submit a status report for all turbidimeters, to include current status (operational or not) and what repairs/replacement is needed for each item. 8.B. Return all to fully operational status.	8 - August 2, 2021* or 8.A - August 2, 2021* 8.B - October 1, 2021	8 – Approved on 8/27/2021
9	Intake Structure	Pedestrian Bridge	January 3, 2022*	Approved on 11/19/21
10	Entire Plant	Corrosion Control report	August 2, 2021*	Approved on 8/13/2021
<b>Curtis</b>				
11	Conventional - Chlorine Room	Weight Indicator - 11.A Parts ordered 11.B Functional and fully operational.	11.A - August 2, 2021* 11.B - September 29, 2021	11.A - Approved on 8/13/2021 11.B – Approved on 11/19/21
12	Conventional - Chlorine Room	During the automation project, the original 24-inch mag meter will be replaced, and automation restored.	December 30, 2023	Language change approved on 12/13/21
13	Conventional - All Conventional Basins	Clari-Trac System shall be functioning and operational and repairs completed for all Basins including Butterfly Valves, Actuators, Drives, and Vacuum Hoses.	13 - May 31, 2022 (Approved language change on 12/10/21 and extension granted on 11/19/21)	Overdue
14	Conventional - Turbidimeters for Basis 1, 2, 3	14. Provide documentation of completion or 14.A. Submit a status report for all turbidimeters, to include current status (operational or not) and what repairs/replacement is needed for each item. 14.B. Return all to fully operational status.	14 - August 2, 2021* or 14.A - August 2, 2021* 14.B - October 1, 2021	14.A - Approved on 9/24/21 14.B – Approved on 11/19/21
15	Conventional - UV Filter Gallery	UV #5 - Operational and Fully functional	15 - To be completed within 4 months of issuance of Notice to Proceed with Construction on the general filter rehab at OBC outlined in Task 25. (Extension Request granted on 12/13/21)	
16	Membrane - HS#2	Chlorine analyzers - Operational and Fully functional. Provide documentation of replacement of one chlorine analyzer and installation of second chlorine analyzer	August 2, 2021*	16- Approved on 2/5/22
17	Membrane - Blower Room	Blower C - 17. Provide documentation of completion and fully operational.	17 - Completed within 9 months of issuance of Notice to Proceed with Construction of the OBC Automation Construction Contract to coincide with completion of Task 26. (Updated language and accepted extension request on 12/13/21.)	

18	Conventional-Intake	Microscreens -18. Provide documentation of completion or 18.A. Submit status report for the microscreens, include current status and any needed repairs/replacement; 18.B. Complete any needed repairs/replacement	18 - August 2, 2021 or 18.A - August 2, 2021* 18.B - August 30, 2021	18 – Approved on 8/13/2021
19	Conventional-Intake	60-inch sluice gate -19. Provide documentation of completion or 19.A. Submit status report, include current status and any needed repairs/replacement; 19.B. Complete any needed repairs/replacement	19 - August 2, 2021* or 19.A - August 2, 2021* 19.B - August 30, 2021	19 - Approved on 8/13/2021

APPENDIX A				
Comprehensive Equipment Repair Plan (CERP) Schedule of Implementation				
Task#	Plant and/or Category	Task	Deadline or Timeframe	Approved/Overdue
20	Conventional-Intake	72-inch sluice gate - 20. Provide documentation of completion or 20.A. Submit status report, include current status and any needed repairs/replacement; 20.B. Complete any needed repairs/replacement	20 - August 2, 2021* or 20.A - August 2, 2021* 20.B - August 30, 2021	20 - Approved on 8/13/21
21	Both - Intake	Roof Repairs/Potassium Permanganate feeder	March 28, 2024 (Extension Request granted on 11/19/21)	
22	Membrane - Intake	Microscreens -22. Provide documentation of completion or 22.A. Submit status report for the microscreens, include current status and any needed repairs/replacement; 22.B. Complete any needed repairs/replacement	22 - August 2, 2021* or 22.A - August 2, 2021* 22.B - August 30, 2021	22 - Approved on 8/13/2021
23	Membrane - Intake	60-inch sluice gate - 23. Provide documentation of completion or 23.A. Submit status report, include current status and any needed repairs/replacement; 23.B. Complete any needed repairs/replacement	23 - August 2, 2021*. or 23.A - August 2, 2021* 23.B - August 30, 2021	23 - Approved on 8/13/2021
24	Membrane - Sludge Plant Handling Facility	Gravity Thickener #1 and #2 - Functional and Fully Operational	December 1, 2021	24- Approved on 11/19/21
25	Both - Filters	<p>Filter Rehab - Submit detailed Scope of Work*. Upon approval of the Scope of Work, the tasks will be updated to include additional milestones and final completion of this task.</p> <p>Updated Milestones from SOW Individual Tasks and Timeframes Task 25.A – OBC General Filter Rehab</p> <p>25.A.1) Within 2 months of execution of SRF Loan #3: Issue Notice Proceed to Begin Engineering Design Process. 25.A.2) Within 4 months of Issuance of Notice to Proceed to Begin Engineering Design Process: Submit plans to MSDH for review and approval. 25.A.3) Within 2 weeks of MSDH approval: Advertise for Construction Bids. 25.A.4) Within 6 weeks of Advertise for Construction Bids: Receive Construction Bids. 25.A.5) Within 2 months of closure to Receive Construction Bids: Award Construction Contract. 25.A.6) Within 6 weeks of awarding construction contract: Issue Notice to Proceed with Construction to the General Contractor. 25.A.7) Within 19 months of issuance of Notice to Proceed with Construction: OBC General Filter Rehabilitation Complete. 25.A.8) Within 1 month of Filter Rehabilitation Completion: OBC Filter Startup and training complete.</p>	<p>August 30, 2021</p> <p>Task 25.A. Due Dates 25.A.1) Due 11/30/21 25.A.2) <a href="#">Due 3/31/22</a> 25.A.3) TBD 25.A.4) TBD 25.A.5) TBD 25.A.6) TBD 25.A.7) TBD 25.A.8) TBD</p>	<p>25.A - SOW Approved on 12/13/21</p> <p>25.A.1 – Approved on 2/11/22</p>

26	Membrane - Trains #1-6	<p>26.A. Submit a report on the current status and any needed repairs/replacement for each membrane train and its components including sluice gate, flocculator, centrifuge, reject valve, turbidimeter and rapid mixer. 26.B. Submit detailed Scope of Work* to address the identified concerns, including any sequencing. Upon approval of the Scope of Work, the tasks will be updated to include additional milestones and final completion of this task.</p> <p>Individual Tasks and Timeframes Task 26.A – Membrane Plant Pretreatment Rehab</p> <p>26.A.1) Within 2 months of execution of SRF Loan #3: Issue Notice Proceed to Begin Engineering Design Process. 26.A.2) Within 4 months of Issuance of Notice to Proceed to Begin Engineering Design Process: Submit plans to MSDH for review and approval. 26.A.3) Within 2 weeks of MSDH approval: Advertise for Construction Bids. 26.A.4) Within 6 weeks of Advertise for Construction Bids: Receive Construction Bids. 26.A.5) Within 2 months of closure to Receive Construction Bids: Award Construction Contract. 26.A.6) Within 6 weeks of awarding construction contract: Issue Notice to Proceed with Construction to the General Contractor. 26.A.7) Within 9 months of issuance of Notice to Proceed with Construction OBC Membrane Rehabilitation Complete.</p>	<p>26.A - August 2, 2021* 26.B - August 30, 2021</p> <p>Task 26.A. Due Dates 26.A.1) Due 11/30/21 26.A.2) <a href="#">Due 3/31/22</a> 26.A.3) TBD 26.A.4) TBD 26.A.5) TBD 26.A.6) TBD 26.A.7) TBD</p>	<p>26.A - Approved on 9/24/2021 26.B – SOW Approved on 12/13/21</p> <p>26.A.1 – Approved on 2/11/2022</p> <p>Remaining tasks may be unnecessary as all work has almost been completed and City is awaiting contractor to address few remaining repairs before closing out.</p>
27	Membrane - Cover	Complete Membrane Basin Building Structure Project.	<p>August 31, 2022* (Extension request approved 4/22/22)</p> <p>April 1, 2022* (Extension Request approved on 12/10/21)</p>	
28	Conventional - Soda Ash System	dilution system - - Functional and Fully Operational - Provide documentation of completion or repair the dry powder level indicators	August 2, 2021*	Approved on 8/20/2021
<b>Groundwater System-Storage Tank</b>				
29	Storage Tanks	Maddox Rd (Hwy 18) - Provide documentation that tank is fully functioning and operational.	August 2, 2021*	Approved on 10/18/2021
30	Storage Tanks	TV Rd Booster Station - Submit plan for bringing back into service.	January 3, 2022*	Submitted on 7/25/2022

APPENDIX A Comprehensive Equipment Repair Plan (CERP) Schedule of Implementation				
Task#	Plant and/or Category	Task	Deadline or Timeframe	Approved/Overdue
31	Wells	31.A - Provide a status and plan for each of the wells, include a status of each well, identify any need repairs/replacement, and propose timeframe for addressing these repairs/replacement including any interim steps. 31.B – Completion of need repairs/replacement	31.B - April 14, 2022	31.A – Approved on 2/7/21 31.B Approved on 5/13/22
32	Well House	Well Houses - Submit Scope of Work* including proposed timeframes. Upon EPA approval of the Scope of Work, Appendix A will be updated to include those individual tasks and timeframes.	August 30, 2021	Approved on 10/18/2021
<b>Dosing Automation</b>				
33	Curtis	O.B. Curtis: Submit detailed Scope of Work*, that includes schedule of tasks and timeframes for completion of interim and final tasks. Upon approval of the Scope of Work, Appendix A will be amended to add additional tasks/timeframes for completion of automation.  a) Issue notice proceed to begin engineering design process. b) Submit plans to MSDH for review and approval. c) Advertise for construction bids. d) Receive construction bids. e) Award construction contract. f) Issue notice to proceed with construction to the General Contractor. g) Complete all construction upgrades for the automation project.  <b>Completion dates of specific feeds are outlined in Tasks 34-37 and 39.</b>	August 30, 2021  Funding/Project Due dates: 33.a) 01/30/2022 33.b) 09/28/2022 33.c) 11/30/2022 33.d) 12/30/2022 33.e) 03/15/2023 33.f) 04/15/2023 33.g) 03/24/2024	SOW approved on 9/10/2021  33.a – approved on 2/11/22  Extension request received on 6/24/2022  Extension request granted for 33(b-f) on 7/20/2022
34	Curtis	Ammonia/Chlorine Feeds: All chlorinator and ammoniator equipment and appurtenances will be fully functional with automatic, flow-pacing capabilities in service and redundancy present. Submit detailed Scope of Work*, that includes schedule of tasks and timeframes for completion of interim and final tasks. Upon approval of the Scope of Work, Appendix A will be amended to add additional tasks/timeframes for completion of automation.	August 30, 2021  Project Due Date: 11/28/2023	SOW approved on 9/10/2021



APPENDIX A				
Comprehensive Equipment Repair Plan (CERP) Schedule of Implementation				
Task#	Plant and/or Category	Task	Deadline or Timeframe	Approved/Overdue
35	Curtis	ACH (Aluminum Chlorohydrate) (coagulant): The treatment system was installed by using the same method as the Alum/lime system that was previously being used and not tweaked for the new ACH coagulant. Studying the coagulation system to determine if CO2 treatment addition will be helpful in improving the treatment system for future automation. Submit detailed Scope of Work*, that includes schedule of tasks and timeframes for completion of interim and final tasks. Upon approval of the Scope of Work, Appendix A will be amended to add additional tasks/timeframes for completion of automation.	August 30, 2021  Project Due Date: 12/30/2023	SOW approved on 9/10/2021
36	Curtis	O.B. Curtis: Potassium Permanganate Feeds: flow pacing or feed back loop. Submit detailed Scope of Work*, that includes schedule of tasks and timeframes for completion of interim and final tasks. Upon approval of the Scope of Work, Appendix A will be amended to add additional tasks/timeframes for completion of automation.	August 30, 2021  Project Due Date: 03/28/2024	SOW approved on 9/10/2021
37	Curtis	O.B. Curtis: Fluoride - Submit detailed Scope of Work*, that includes schedule of tasks and timeframes for completion of interim and final tasks. Upon approval of the Scope of Work, Appendix A will be amended to add additional tasks/timeframes for completion of automation.	August 30, 2021  Project Due Date: 02/30/2024	SOW approved on 10/18/2021
38	Curtis	pH control 38.A pH control will be investigated during the design phase of the OB Curtis automation project, including the potential use of CO2. 38.B Completion of pH control process project and pH meters working properly.	38.A June 28, 2022 38.B December 30, 2023 (New language and due dates approved 12/1/21)	

## APPENDIX A

## Comprehensive Equipment Repair Plan (CERP) Schedule of Implementation

Task#	Plant and/or Category	Task	Deadline or Timeframe	Approved/Overdue
39	Curtis	O.B Curtis: Raw Water Flow Meter - Conventional plant (related to the Clari-Trac System): Not currently running automatically. Submit detailed Scope of Work*, that includes schedule of tasks and timeframes for completion of interim and final tasks. Upon approval of the Scope of Work, Appendix A will be amended to add additional tasks/timeframes for completion of automation.	August 30, 2021  Project Due Date: 05/31/2023	SOW approved on 10/18/2021
40	Fewell	The dosing equipment has always been run in manual for disinfection and pH at the Fewell plant. 40.A. Submit a plan to complete research/assessment; 40.B. Based on research, submit work proposal, which should include a proposed treatment plan; 40.C. Complete work.	Task 40.A will be due one month after approval of OCCT Study Findings Plan and Task 40.B will be due two months after approval. 40.A- Due 9/11/2021 40.B – Due 10/11/2021  Upon approval, Appendix A will be updated to include completion timeframe for Task 40.C A proposed treatment plan shall include a scope of work, timeframes for completion of any necessary treatment modifications, and identify funding for implementation of the treatment plan.	40.A and 40.B - approved on 9/24/2021
		40.C  a) Issue notice proceed to begin engineering design process. b) Submit plans to MSDH for review and approval. c) Advertise for construction bids. d) Receive construction bids. e) Award construction contract. f) Issue notice to proceed with construction to the General Contractor.  Specific projects: 1) Chloramination and Ammonia Feed System and Automation Improvements 2) Process Automation and Other Chemical Feed System Improvement 3) Fluoridation Feed System 4) Potassium Permanganate Feed System at Pearl River Intake (copper sulfate will be evaluated for algae control 5) Automation System Startup and Operator Training	See below for approved timeframes on 40.C  Completion dates: a) 02/01/2022 b) 06/28/2022 c) 09/30/2022 d) 11/15/2022 e) 01/15/2023 f) 03/02/2023  Completion dates for specific projects: 1) 11/30/2023 2) 02/30/2024 3) 03/31/2024 4) 04/30/2024 5) 05/30/2024	40.C.a 0 approved on 2/11/22 40.C.b – approved on 2/25/2022 40.C.c – approved on 7/29/2022 40.C.d – approved on 7/29/2022 40.C.e – approved on 7/29/2022

\*The Scope of Work (SOW) submitted to the EPA must contain detailed descriptions of all work necessary to successfully complete the Task listed in this AOC. The SOW must include all interim steps, including completion dates and/or timeframes to complete each interim step. In addition to completion dates/timeframes for each interim step, the SOW must also contain the deadline (date) for the completion of the

entire Task. Scope of Works may be combined if tasks will all be a part of same project.

The EPA understands that the City may not be able to provide exact completion dates due to the complex nature of some Tasks included in the AOC. If the City is unable to project exact dates of completion for each interim step necessary to complete a Task, the City must, at a minimum, describe the interim steps necessary to complete each Task, along with timeframes that the City reasonably expects to be necessary for each interim step to be completed. For example, if the City has a requirement to submit and receive approval of a "Plans and Specs" document to the MSDH as an interim step, the SOW could include a statement similar to, "The City will submit "Plans and Specs" document for review and approval to the MSDH. Within two (2) weeks of MSDH approval of "Plans and Specs" document, the City will put the work out for bid."

This level of detail must be provided for each interim step necessary to complete each Task identified in the AOC. Without specific, detailed SOWs, including interim steps and completion dates or timeframes for completion, the EPA is unable to adequately review and approve the SOW proposed by the City.



**Chokwe Antar Lumumba, Mayor**  
**City Council**

**Ashby Foote**  
Ward 1

**De'Keither Stamps**  
Ward 4

**Angelique C. Lee**  
Ward 2

**Charles Tillman**  
Ward 5

**Kenneth I. Stokes**  
Ward 3

**Aaron D. Banks**  
Ward 6

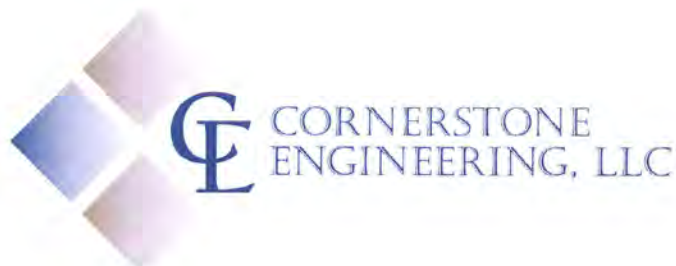
**Virgi Lindsay**  
Ward 7

---

Water Treatment Study Report for:

**WATER TREATMENT PLANT OPTIMAL  
CORROSION CONTROL STUDY AMENDMENT  
PROJECT**

**February 2021**





City of Jackson  
Attn: Charles Williams, P.E., PhD  
200 South President Street  
P.O. Box 17  
Jackson, MS 39205

February 21, 2021

RE: Water Treatment Plant Optimal Corrosion Control Study Amendment Report

Dr. Williams:

Enclosed is the requested filter condition assessment report regarding the above referenced water treatment plant in Jackson, MS. The study primarily focused on the use of lime for pH adjustment and corrosion control at JH Fewell Water Treatment Plant in Jackson, MS.

The amended corrosion control report contained herein provides pertinent details regarding our study approach, extensive data collection reviews, weekly laboratory water parameter testing, lead and copper coupon tests, technical findings, and recommendations. In general, our scientific findings provide proof that the JH Fewell Water Treatment Plant is currently optimized for corrosion control without the need for conversion to soda ash.

If you have any questions, please let me know.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Mauricka McKenzie, Sr.'.

Mauricka McKenzie, Sr., P.E., BCEE  
Project Manager and Study Coordinator

A handwritten signature in blue ink, appearing to read 'Keith Allen'.

Keith Allen, P.E., BCEE  
Principal Investigator-Water Treatment Engineer

Cc: file

710 E. Northside Drive, Suite A  
Clinton, MS 39056  
601-473-2403

WATER TREATMENT PLANT OPTIMAL CORROSION CONTROL REPORT  
AMENDMENT  
JH FEWELL WATER TREATMENT PLANT  
JACKSON, MISSISSIPPI  
DATE: FEBRUARY 21, 2021

WATER TREATMENT ENGINEER

Cornerstone Engineering, LLC  
710 Northside Drive, Suite A  
Clinton, MS 39056  
601-473-2403



Keith Allen, P.E., Principal Investigator  
P: 601-421-1325  
Email: [kallen@cornerstoneengllc.com](mailto:kallen@cornerstoneengllc.com)



Mauricka McKenzie, P.E., Project Manager/Coordinator  
P: 601-473-2403  
Email: [mmckenzie@cornerstoneengllc.com](mailto:mmckenzie@cornerstoneengllc.com)



Charles Williford, P.E., Quality Control Review Engineer  
P: 601-955-6504  
Email: [cwilliford@bellsouth.net](mailto:cwilliford@bellsouth.net)

## TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY</b> .....	1
<b>PART 1 GENERAL</b> .....	2
SECTION 1.1 BACKGROUND .....	2
SECTION 1.2 PURPOSE OF AMENDED STUDY .....	2
SECTION 1.3 PARTICIPANTS AND AUTHORITY .....	2
<b>PART 2 INTRODUCTION</b> .....	3
SECTION 2.1 GENERAL INFORMATION .....	3
SECTION 2.2 CURRENT SITUATION .....	3
SECTION 2.3 JHF CC STUDY PIPE RACK UNIT.....	4
<b>PART 3 RESULTS OF BENCH AND DESKTOP STUDIES</b> .....	6
SECTION 3.1 PURPOSE OF BENCH TOP STUDY.....	6
SECTION 3.2 PURPOSE OF DESK TOP STUDY.....	7
<b>PART 4 RESULTS OF CORROSION CONTROL STUDY</b> .....	9
SECTION 4.1 PIPE RACKS .....	9
SECTION 4.2 GENERAL PIPE RACK TRENDS .....	12
SECTION 4.3 MONTHLY WQP SAMPLES .....	13
SECTION 4.4 DISTRIBUTION LEAD AND COPPER SAMPLE RESULTS .....	14
SECTION 4.5 ANALYSIS OF CORROSION PROPERTIES .....	17
SECTION 4.6 ANALYSIS OF PIPE RACKS AND FIELD DATA BASED ON CHEMICAL QUALITY.....	17
<b>PART 5 FINDINGS, CONCLUSIONS AND RECOMMENDATIONS</b> .....	18
SECTION 5.1 FINDINGS.....	18
SECTION 5.2 CONCLUSIONS .....	19
SECTION 5.3 RECOMMENDATIONS .....	19
SECTION 5.4 RECOMMENDED TREATMENT PROCESS IMPROVEMENTS.....	19
<b>APPENDIX A DISTRIBUTION TAP SAMPLE RESULTS</b> .....	
<b>APPENDIX B PIPE RACK SAMPLE RESULTS</b> .....	
<b>APPENDIX C WQP SAMPLE SITES AND RESULTS</b> .....	
<b>APPENDIX D JHF PLANT DAILY PRODUCTION</b> .....	
<b>APPENDIX E PIPE RACK PICTURES AND PLANS</b> .....	
<b>APPENDIX F RESULT REPORTS FROM WAYPOINT ANALYTICAL</b> .....	
<b>APPENDIX G ANALYSIS OF PROCESS JAR TEST RESULTS</b> .....	



## EXECUTIVE SUMMARY

The purpose of the amended corrosion control study at J H Fewell Water Treatment Plant (JHF) was to determine if current finished water produced by JHF is corrosive to lead and copper, determine if increasing the alkalinity of the finished water will reduce the corrosiveness (optimize), determine if increasing the alkalinity of the finished water will cause unacceptable scaling on UV bulbs and customer plumbing, determine if increasing the alkalinity of the finished water will cause unacceptable lime turbidity resulting in customer complaints, and determine if increasing the alkalinity of the finished water will increase the calcium carbonate content enough to reduce the possibility of leached lead in the water being absorbed by the human body.

The results of the pipe rack study and the tap samples collected from distribution sites indicate that JHF finished water is up to 10 times less corrosive to lead than O B Curtis Water Treatment Plant (OBC) finished water even after optimization. Tap samples collected where chemical and pumping data show obvious service areas along with plant service changes indicated much lower lead results and many more samples where no lead was detected in the sample at all. While this could result from different plumbing fixtures and sample collectors, sites where service area changed from OBC to JHF showed the same result when sampled. The pipe rack data indicated that while new fixtures leach some lead upon installation with JHF water, they develop a passivating film over time which effectively prevents lead leaching resulting in no lead detection at all in most samples collected after week 20. While JHF finished water is not corrosive to lead, it does cause Water Quality Parameters (WQP) excursions at the ends of the JHF service area. Increasing the alkalinity to correct this is possible but scaling and lime turbidity are potential issues. Changing to liquid lime (Calcium Hydroxide) in week 20 stabilized the make-up water and continued the trend of declining lead in collected samples to no detect. Liquid lime also reduced the occurrence of lime turbidity significantly over the 7-week period in comparison to dry lime in the first 20 weeks. The average increase in turbidity from dry lime addition was 3 to 5 NTU while the average increase with liquid lime was 0.3 – 0.6 NTU.

The study indicated that an increase in alkalinity to 32.5 mg/l would provide optimized corrosion control treatment while minimizing WQP excursions at the ends of JHF service area. This can be accomplished by replacing the dry lime feed with a liquid lime feed, and by adding an option for carbon dioxide to provide enhanced coagulation in winter months with low alkalinity which may still lead to WQP excursions without the enhanced option. Also, the level of calcium carbonate hardness which can be provided for prevention of lead absorption into the bloodstream in this scenario is also likely to assist with excretion of lead already absorbed from the body even if the lead is from other sources than drinking water.

It is also noted that the addition of soda ash adds sodium to the finished water at OBC which may be detrimental to customers with hypertension. Since Jackson has a majority African American customer base who tend to be more susceptible to hypertension, limiting sodium addition to a minimum must be a priority.



## Part 1 – General

### Section 1.1 – Background

In 2015, the City of Jackson was out of compliance concerning tap samples for lead under the Lead and Copper Rule administered by the Environmental Protection Agency. As a result, the City commissioned an Optimum Corrosion Control Study to determine the best course of action to correct the corrosive properties that caused the lack of compliance. The original study results indicated that the failure to properly add alkalinity in the finished water at the O B Curtis Water Treatment Plant was responsible for the corrosive nature of the finished water and that a change to soda ash feed would increase Dissolved Inorganic Carbon (DIC) resulting in a less aggressive finished water. Also, the original study recommended a change to soda ash in the finished water at J H Fewell Water Treatment Plant (JHF) even though tap samples did not indicate that JHF water had caused any of the lead action level (AL) exceedances. Since subsequent tap samples during design and construction of the required upgrades at OBC did not indicate corrosion issues from JHF finished water, City officials requested permission to pursue an amended study focusing on the JHF finished water which is described below. This report provides the results of that amended study.

### 1.2 - Purpose of Amended Study

The purpose of the Amended Optional Corrosion Control Treatment Study is to determine if the current treatment process at the City of Jackson's JH Fewell Water Treatment Plant is sufficient to prevent lead leaching from distribution plumbing and fixtures. A second objective is to determine if raising the alkalinity to a level of protection for other distribution plumbing such as cast iron and ductile iron can be accomplished without excess scaling of UV light bulbs and lime turbidity in the finished water. A third objective is to determine if the calcium concentration in the finished water can be raised to a level to protect against the absorption of lead into the bloodstream. A fourth objective is to determine if the current treatment process can reliably meet water quality parameter requirements set in the original Optimum Corrosion Control Treatment Report, Revised November 10, 2017.

### Section 1.3 – Participants and Authority

The City of Jackson entered into a professional services contract with Cornerstone Engineering, LLC on March 19, 2020 for the Amended Water Treatment Plant Optimal Corrosion Control Treatment Study. The contract specified a timeframe of 180 days for completing the water treatment study. Cornerstone Engineering, LLC had three engineers who directly participated throughout the study. The study team members consisted of Keith Allen, P.E., BCEE, who served as the principal investigator for the water treatment study; Mauricka McKenzie, Sr. P.E., BCEE, who served as the project manager and engineering coordinator for the water treatment study; and Charles Williford, P.E., who served as the quality control and quality assurance water treatment consulting engineer.

The project participants for the City of Jackson included the Dr. Charles Williams, Jr., P.E., who is the City Engineer/Public Works Director; Mary Carter, who the Deputy Public Works Director and a Certified Water Operator; Terrence Byrd, who is the plant manager and the lead Certified Water Operator for the JH Fewell Water Treatment Plant and Mousetta Spann, who is the plant manager for the OB Curtis Water Treatment Plant.

## Part 2 – Introduction

### Section 2.1 – General Information

The City of Jackson has two drinking water distribution systems separated by valves; one using wells as a source and free chlorine disinfection and the other using surface water and chloramine disinfection. The surface water system is served by two different treatment plants with different water treatment objectives and results. The OB Curtis Water Treatment Plant is located northeast of the City near the Barnett Reservoir in Ridgeland, MS, and consists of two different treatment processes: one conventional and the other membranes with a capacity of 25 MGD each (total 50 MGD). The JH Fewell Water Treatment Plant is located east of downtown Jackson near the Pearl River, and consists of conventional treatment processes with a capacity of 20 MGD (maximum). The treatment processes employed at these two plants are as follows.

The conventional treatment process at OB Curtis consists of pre-oxidation, rapid mix, coagulation, flocculation, sedimentation, filtration, UV light disinfection, free chlorine for virus control followed by ammonia for creation of chloramines used for distribution residual, pH adjustment, and fluoridation. The chemicals fed are potassium permanganate (intake and/or pre-oxidation basin), aluminum chlorohydrate (ACH) (rapid mix), soda ash (rapid mix or clear well), chlorine, ammonia, and hydrofluorosilicic acid.

The membrane treatment process at OB Curtis consists of pre-oxidation, rapid mix, coagulation, membrane filtration (6 trains), free chlorine for virus control followed by ammonia for creation of chloramines used for distribution residual, pH adjustment, and fluoridation. The chemical addition is the same as the conventional process.

The JH Fewell Water Treatment Plant process consists of rapid mix, coagulation, flocculation, sedimentation, filtration, free chlorine for virus control followed by ammonia for creation of chloramines used for distribution residual, pH adjustment, fluoridation, and UV light disinfection. The chemicals fed are potassium permanganate (not routinely used), aluminum sulfate (alum) (rapid mix), dry hydrated Lime (rapid mix and clear well), chlorine, ammonia, and hydrofluorosilicic acid.

### Section 2.2 – Current Situation

The JH Fewell and OB Curtis plants are not separated in the distribution system by valves but are separated hydraulically into clear zones that can be determined using chemical analyses such as the Water Quality Parameter samples. Therefore, the lead and copper samples can be separated by plant service during the time of collection. This is reflected by general mapping in the appendix and is also identified in the spreadsheets with sample site number and address. By this method we can determine which plants have caused distribution system lead leaching and occurrence in the clear plant service areas and the normal mixing zones between plants.

As is stated in the Optimum Corrosion Control Treatment Report, Revised November 10, 2017, the coupon method of corrosion study gives an idea of general corrosiveness of the water but does not predict the specific effect on lead containing plumbing or fittings. In addition to the coupon study method and apparatus, this study employed pipe loops with copper pipe, solder joints, and plumbing fixtures bought new and taken from home renovations in the Jackson water distribution system

(originally placed 1990's) and new outdoor faucets which are non-potable and do not meet the current definition of lead free.

The OB Curtis plant employs aluminum chlorohydrate (ACH) as the primary coagulant while the JH Fewell plant employs aluminum sulfate (alum) as the primary coagulant. The original Optimum Corrosion Control Treatment Report found that low alkalinity and pH of finished water at OB Curtis was due to the inability to successfully convey the powdered and slaked lime solution to the clear well for post treatment, so it was recommended soda ash be used as an alternative which unlike lime raises Dissolved Inorganic Carbon (DIC). As part of this amended study, we researched the likely causes of the high lead samples and concluded that the addition of ACH may be the ultimate cause since the inconsistent lime mixing in the clear well at JH Fewell caused no such issues in the 402 samples that have been collected from sites clearly served by the older plant. At OB Curtis, declining and inconsistent alkalinity and pH levels will leave chloride as the controlling film component which will accelerate lead leaching especially from brass fittings which are the likely majority contributors of lead content in City of Jackson tap water. The original study recommended DIC treatment will overcome the electrical attraction of chlorides thereby replacing the destructive chloride films with carbonate films (better than chloride but oxides and hydroxides are the goal) which has appeared to decrease the lead leaching caused by OBC finished water prior to the correct application of soda ash feed. However, during the time when Soda Ash was being implemented at OB Curtis, liquid lime feed was installed on the clear well at OB Curtis and lead sampling produced the lowest number of action level (AL) violations since the original Lead and Copper Rule compliance in 2015. As described in the discussion below, an in-depth analysis of the results showed the average lead leaching with liquid lime was 46% of optimized DIC treatment with soda ash on the same sample pool served by OBC.

AT JHF, the original study recommended DIC (Dissolved Inorganic Carbon) treatment will overcome the electrical attraction of sulfates thereby replacing the passivating sulfate films with carbonate films (much more corrosive to lead than sulfate films) which should increase the lead leaching caused by JHF finished water. While continuation of DIC treatment to achieve oxide and hydroxide coatings will ultimately achieve protection comparable to the existing sulfate coatings, it is unlikely to happen with total chlorine residuals and pH less than 10 when employing soda ash feed. The results of the amended study demonstration unit described herein indicates that the changing of films (sulfate to carbonate) will begin at an alkalinity just less than 40 mg/l. However, since this was accomplished with lime feed rather than soda ash, the number may be lower with soda ash due to less interference from general calcium carbonate coatings indicated by the higher scaling potential. Also, these results indicate that the point of stability for scale formation between sulfates and carbonates may occur at an alkalinity between 26 and 40 mg/l. Tank 2 with an average make-up alkalinity of 32.3 mg/l, showed better results both overall and in each study category than either Tank 1 (current finished water) with an average make-up alkalinity of 26.3 mg/l or Tank 3 with make-up alkalinity of 38.1 mg/l. This suggests that the point of maximum effectiveness of both film regimes lies between 25 and 40 mg/l alkalinity at JHF.

### Section 2.3 JHF CC Study Pipe Rack Unit

The purpose of the Pipe Rack units used in this study was to determine the level of lime feed for alkalinity addition that improves general corrosivity without increasing lead dissolution and customer complaints. Also, the purpose was to give a general indication if copper pipe, brass fitting, and solder joints within the customer's plumbing are affected by the increased alkalinity.



Each pipe rack demonstration unit used in this study consisted of a plastic make-up tank filled to 100 liters when starting make-up water detention for maximum hold time (7 days or 3.5 days), plastic plumbing to three coupon test racks, three old brass fitting taken from the Jackson water distribution system (1990 vintage), and a new brass yard faucet marked “not for potable use” attached with at least 10 feet of three-quarter inch copper pipe with solder joints and brass fittings. The old brass and new brass fittings were connected to system pressure (approximately 90 psi) by a bypass valve that was opened behind the tank water and closed when filling piping. To ensure that no system water was against the faucets and fittings on Tank 2 and Tank 3, the first sample from each old brass faucet was taken to Waypoint Analytical, a private laboratory in the Jackson area, and evaluated for lead, copper, alkalinity, calcium, magnesium, and total hardness. Also, a second 250 ml sample was collected consecutively from each old brass faucet and evaluated on site for pH, alkalinity, and total chlorine. A 250 ml sample was also collected from each tank and was taken to Waypoint Analytical and evaluated for alkalinity, calcium, magnesium and total hardness to ensure that the water quality in the sample was consistent with that of the tank. Each unit was flushed 3 times between sampling with flushing under system pressure for the non-coupon pipe racks. A 250 ml sample was collected at each pipe rack which differs from the original study since EPA describes investigative sampling as using a 250 ml sample volume instead of the customary 1 liter sample volume for lead and copper investigative samples. The smaller sample volume prevents the dilution of sample with water that was not in contact with the actual plumbing fixture producing the lead. The actual sample volume in contact with the coupons was 180.2 ml contained in 2 inches of 1-inch PVC above the valve and 3 inches of 2-inch PVC containing the 3-inch coupon. Every four weeks, the system pressure pipe racks were extensively flushed for 15 – 20 minutes under full system pressure to prevent excess film formation on the pipe racks. The pipe rack units are described below, and pictures of the pipe rack units are contained in Appendix E.

Unit 1 – Finished water with no additional treatment or amendment.

Unit 2 – Finished water with 10 mg/l of alkalinity added (0.8 g of lime/100 liters) for first 20 weeks.

Finished water with 7 mg/l of alkalinity added (50 ML of 1% CaOH/100 liters) for last 7 weeks.

Unit 3 – Finished water with 20 mg/l of alkalinity added (1.6 g of lime/100 liters) for first 20 weeks.

Finished water with 14 mg/l of alkalinity added (100 ML of 1% CaOH/100 liters) for last 7 weeks.

Data was collected and is presented in spreadsheet form in Appendix B (figures 12 – 32) with the following results identified as necessary: pH, alkalinity, calcium hardness, conductivity, temperature, sulfate, chloride, total chlorine, free chlorine, lead, and copper.

All parameters were evaluated on site with Hach HQ411d, Hach pocket pal pro, Hach digital titrator, Fisher Brand traceable conductivity meter, Hach Dr1900, and Core Balance scale, with the exception of total hardness which was taken from JHF daily sampling and calculated stoichiometrically. Also, samples for alkalinity, calcium hardness, total hardness, calcium, magnesium, lead, and copper were collected on sample day and taken to Waypoint Analytical. All on-site samples were evaluated with coordination of JHF lab results where appropriate. The lead and copper coupons were purchased from the same source and are identical to those used in the original corrosion control study. They are pre-weighed and certified for reweighing after the study. Testing was performed after 7 days of detention except once a month where 3.5 days was used. Each unit was flushed approximately 6 - 8 hours prior to sampling. Each

rack was sampled once a week except the new brass fitting racks which were sampled every 2 weeks for the first 24 weeks and weekly for the last 3 weeks. The lead and copper sample size in this study was 250 ml rather than the lead and copper tap samples volume of 1 liter for reasons explained below.

### Part 3 - Results of Bench and Desktop Studies

#### Section 3.1 Purpose of Bench Top Study

The purpose of the bench top study was to determine if raising the alkalinity in JHF finished water with lime will increase lime turbidity and scaling to unacceptable levels in the distribution system. The purpose also included evaluation of the original corrosion control study with specific attention to results from JHF and sample results from semi-annual lead and copper sampling. The objectives of this study were as follows:

1. To determine the amount of alkalinity addition with lime from current practice that is likely to be acceptable to customers in the distribution system at JHF.
2. To use the Langelier Saturation Index (LSI) to predict scaling issues that may result from the alkalinity addition to achieve DIC optimization.
3. To determine the amount of calcium carbonate remaining in the finished water available to prohibit lead absorption from biological assimilation into the bloodstream.

The results of the pipe rack study and specific sampling for turbidity increase do tend to show that increasing the dry lime feed by 8 mg/l to raise the alkalinity by an average of 8-10 mg/l in Tank 2 indicate an increase of about 3 to 5 NTU in finished water due to the dry lime (lime turbidity). While this increase will not cause a violation of the Safe Drinking Water Act since it can be easily shown to be caused by the lime and not coming from the combined filter effluent, it may cause objectional aesthetic properties which will lead to customer complaints. So, during the last seven weeks of the study, the stock lime make-up solution was changed to Calcium Hydroxide (liquid lime) at 5 mg/l of 1% solution resulting in an approximate addition of 6-8 mg/l alkalinity. The increase in turbidity during this time due to liquid lime was 0.3 to 0.5 NTU which is 10 times less than the increase due to dry lime addition in the first twenty weeks.

The increase in average LSI during the study from finished water is presented below:

Tank 1 finished water	Tank 2 (7 – 10 mg/l alk. incr.)	Tank 3 (14 – 20 mg/l alk. incr.)
LSI 0.76	1.1	1.4

As shown above, the average increase in LSI of make-up water is indicative of higher calcium carbonate scaling in both Tank 2 and Tank 3. So, the selected alkalinity increase should be less than 7 mg/l to keep the LSI below 1 for the scaling control.

Results from the pipe racks (Appendix B, Figure 27) show that the average calcium carbonate content (calcium bicarbonate hardness) in Tank 2 is 32.3 mg/l. Calcium in sufficient quantities (1.1-6.6 mg/l Ca/ppb lead) will reduce lead absorption into the bloodstream by as much as 75% to 99%, respectively as shown in a study by Blake and Mann in 1983. The 1983 study shows the effectiveness of calcium (bicarbonate form and phosphate form) in preventing the absorption of lead into the bloodstream (source: Blake, K. C. H., Barbezat, G. O. & Mann, M. Effect of dietary constituents on the gastrointestinal

absorption of 203pb in man, Environmental research 30(1), 182–187 (1983). Later studies (Source: Anca Rădulescu1 & Steven Lundgren, Scientific Reports, October 2, 2019) have shown that the positive effects of calcium in drinking water does not depend on lead level. Any amount of calcium has at least some effect of preventing lead absorption into the bloodstream.

Evidence suggests that calcium competes with lead for sites (for example similar to ion exchange) in the blood, liver, brain and bone. Even after the lead has been absorbed, it has been shown that sufficient calcium intake can reverse lead affinity and cause excretion of the lead from the body. A study published by Anca Rădulescu1 & Steven Lundgren on October 2, 2019 states “it was shown that the competitive presence of calcium can affect: (1) lead’s intestinal absorption, (2) its kinetics between soft tissues; (3) its storage in bones and its mobilization from osseous to non-osseous tissue; (4) its retention versus excretion rates; (5) the toxic response of the body to lead. Early research in rodents has revealed that a lower Ca diet increased their susceptibility to the toxic effects of lead (including order of magnitude higher lead blood levels, anemia, renal problems)”.

Therefore, a 32.5 mg/l level of calcium bicarbonate hardness should be beneficial at all levels of lead for health protection against lead exposure.

### Section 3.2 – Purpose of Desk Top Study

The purpose of the desk top study involved evaluation of the previous corrosion control study with specific attention to results from JHF and sample results from semi-annual lead and copper sampling along with WQP’s from treatment plants and in the distribution system. The objectives of this study were as follows:

1. To incorporate pertinent information from the previous corrosion control study. The previous study at JHF included 3 coupon racks using current finished water (unit 1), orthophosphate (unit 2), and addition of Soda Ash following filtration (Unit 3). Results of the coupon studies from the previous study for unit 1 and unit 3 will be incorporated into the amended study.
2. An evaluation of lead and copper sample results since 2015 to assess the magnitude of lead issues in the distribution system and to determine if finished water from JHF contributed to AL (action level) exceedances during this time.
3. An evaluation of WQP sample results since 2015 to determine the areas of service for the JHF and OBC.
4. An evaluation of the increase in alkalinity required to obtain reasonable WQP parameters for pH, Alkalinity, and Hardness for both plants, if OBC continues to leach more lead from plumbing even after corrective corrosion control treatment is installed.

A comparison of the coupon study on JHF from the previous study indicates comparable results. The previous study included the normal 1 liter sample volume used in lead and copper distribution sampling while this study used the more conservative 250 ml sample required for investigation. The smaller sample would indicate (in this case) that the additional water volume used in the original study would include mostly water that was not in contact with the coupons since the coupons were contained within 3 inches of 2-inch plastic pipe above 2 inches of 1 inch pipe above the sample valve, which would mean that approximately 180 ml of sample was in contact and downstream of the coupons. Therefore, the



same quantity of lead by weight would be contained in the 250 ml sample from this amended study as would be contained in the liter sample from the original study, with 4 times the sample volume. The average lead from the previous study for coupons on finished water was 15.8 ppb while the average lead from the coupons on finished water from this amended study adjusted for sample volume was 7.5 ppb. For Tank 2, the adjusted lead result was 4.8 ppb and for Tank 3 it was 5.6 ppb. Since these studies were not run side by side and at the same time, only a comparison of general corrosiveness can be made but it is still very favorable to Tank 2 as the solution for optimum corrosion control even when compared with the selected option of soda ash addition which yielded 10.6 ppb lead. Therefore, in average lead leaching from the coupons, all three options in the amended study showed favorable results compared with the selected best option from the original study.

The results from the coupon racks on this amended study show a reasonable decline throughout the study with all coupon racks going below the ACL for lead and Tank 2 and Tank 3 declining to no detect for the last 3 weeks. Tank 2 and Tank 3 water showed to be the least corrosive to the coupons and showed a passivating film forming within 4 to 6 weeks of the start of the study. While Tank 3 was the least corrosive to the coupons with the highest alkalinity, other considerations will likely indicate Tank 2 as the treatment choice since the distribution issues from Tank 3 may outweigh the benefits.

The coupons were extracted and sent for certified weight analysis. The following comparison shows that the higher alkalinity water was less corrosive to copper as expected with Tank 2 and Tank 3 showing exactly the same corrosion level which indicates no appreciable benefit to the higher alkalinity. The lead coupon in Tank 2 was not correctly weighed at one or the other time but Tank 1 which is the current finished water was slightly less corrosive than Tank 3 with the higher alkalinity.

Tank	Metal	Coupon tag ID	factory Wgt (g)	study Wgt (g)(waypoint)	Difference (g)	MYP
1	Copper	UM378	12.9981	12.9955	0.0026	0.0095
2	Copper	UM377	12.9956	12.9943	0.0013	0.0047
3	Copper	UM376	12.9877	12.9864	0.0013	0.0047
1	Lead	WI179	17.4785	17.4841	0.0044	0.0127
2	Lead	WI178	17.6015	17.6050	-0.0035	
3	LEAD	WI180	17.4862	17.4807	0.0055	0.0159

The distribution lead and copper test results found by the City in the 2020 sampling as shown in Appendix A clearly indicate that current treatment at JHF is much more protective of lead containing plumbing materials than is any water produced during the 2020 sampling period at OBC. In every case where a side by side comparison could be made, JHF finished water was more than 10 times better at controlling average lead sample content than was OBC finished water.

The WQP results shown in Appendix C indicate that current JHF finished water cannot meet the selected WQP parameters set from the previous study. In fact, it is clear in all cases where clear plant service can be determined, almost all the "excursions" found are clearly from JHF. This means that some adjustment will be required to current treatment in order to meet these WQP parameters. The parameters could be

adjusted for JHF treatment but no adjustment can fully account for low alkalinity, high turbidity water during cold winter weather in the JHF service area. Tank 2 adjustment can conceivably meet current WQP parameters and would have no problem if parameter targets were reduced slightly. This would probably require a change from dry lime to liquid lime as the increase in lime turbidity is significant using current dry lime product. Also, switching to liquid lime will reduce mixing and inconsistent lime slurry concentration issues resulting in a more consistent finished water from JHF with respect to water stability.

#### Part 4 - Results of Corrosion Control Study

##### Section 4.1 Pipe Racks

The generalized results of this study are shown below for each tank. Note that the lead and copper was sampled 27 times for Coupon and old brass pipe racks, and 15 times for new brass pipe racks. It is also noted that the sample size was 250 ml rather than 1 liter in the study which is more compatible with actual sample size in contact with lead containing plumbing.

The results from Tank 1 JH Fewell water treatment plant finished water which received no further treatment or amendment are shown below.

- Average sample lab alkalinity – 26.3 mg/l
- Sample lab alkalinity  $\leq$  25 mg/l – 14/27
- Sample lab alkalinity  $\leq$  20 mg/l – 3/27
- Average make up alkalinity - 26.6 mg/l
- Make up alkalinity  $\leq$  26 mg/l – 14/27
- Average Sample pH – 8.9
- Sample pH  $\leq$  8.5 – 5
- Sample pH  $\geq$  9.7 – 0
- Average make up pH – 9.4
- Make up pH  $\leq$  8.5 – 0
- Make up pH  $\geq$  9.7 – 0
- Number of coupon lead samples  $<$  AL – 11, Note: all occurred after sample week 17
- Sample week coupon lead  $<$  AL – 17
- Number of coupon lead samples  $<$  detection - 0
- Number of old brass lead samples  $<$  ACL – 25, Note: 23 occurred after sample week 4
- Sample week old brass Lead  $<$  AL – 4
- Number of old brass lead samples  $<$  detection – 11
- Number of new brass lead samples  $<$  ACL – 7, Note: 2 occurred after sample week 25
- Sample week new brass lead  $<$  AL – 25
- Number of new brass lead samples  $<$  detection – 5, note: 4 of 5 occurred after sample week 19
- Average sample day LSI – 0.38
- Average sample day DIC – 5.8
- Average make up day LSI – 0.8
- Average make up day DIC – 5.3



Existing finished water meets all corrosion control criteria for lead and copper. However, there were 19 WQP excursions on sample day which will not meet the minimum of 9 even with mitigation steps. Also, JHF lab alkalinities were recorded on 23 make up days with 15  $\leq$  25 mg/l which indicates 15 excursions on alkalinity from JHF during corrosion control study. If alkalinity target were lowered to 20, 3 excursions would still be recorded on Tank 1 and 5 would be recorded based on JHF lab results on makeup days. This means 8 excursions just on alkalinity which would not meet the minimum of 9 given pH constraints for CO<sub>2</sub> removal (pH 8.34)

The results from Tank 2 JH Fewell water treatment plant finished water with 8 mg/l of dry lime (plant) added for first 20 sample days and 5 mg/l of 1% CaOH for last 7 sample days are shown below.

- Average sample lab alkalinity – 30.5 mg/l
- Sample lab alkalinity  $\leq$  25 mg/l – 2/27
- Sample lab alkalinity  $\leq$  20 mg/l – 0/27
- Average make up alkalinity – 32.3 mg/l
- Make up alkalinity  $\leq$  26 mg/l – 0/27
- Average Sample pH – 9.0
- Sample pH  $\leq$  8.5 – 3
- Sample pH  $\geq$  9.7 – 0
- Average make up pH – 9.5
- Make up pH  $\leq$  8.5 – 0
- Make up pH  $\geq$  9.7 – 4
- Make up pH  $\geq$  10 – 2
- Number of coupon lead samples < ACL – 11, Note: 7 occurred after sample week 20
- Sample week coupon lead < ACL – 20
- Number of coupon lead samples < detection - 3
- Number of old brass lead samples < ACL – 27, Note: no samples above ACL
- Sample week old brass lead < ACL – all
- Number of old brass lead samples < detection – 25
- Number of new brass lead samples < ACL – 8, Note: 6 occurred after sample week 17
- Sample week new brass lead < ACL – 17
- Number of new brass lead samples < detection – 5, note: all 5 occurred after sample week 17
- Average sample day LSI – .67
- Average sample day DIC – 6.8
- Average make up day LSI – 1.11
- Average make up day DIC – 6.3

Tank 2 water meets all corrosion control criteria for lead and copper. There were 5 WQP excursions on sample day which will likely meet the minimum of 9 with mitigation steps taken in the monthly distribution WQP samples. If alkalinity target were lowered to 20, no excursions would be recorded on Tank 2 finished water alkalinity. However, the average makeup LSI is 1.1 which indicates more scaling on the UV bulbs requiring more cleaning and maintenance and pH is greater than the upper limit of 9.7 4 times and greater than 10 2 times.

Turbidity increased by 2 to 4 NTU in tests after 2 hours to 4 hours of settling time indicating this level of dry lime addition which may be objectionable to customers. When Liquid lime (Calcium Hydroxide) was used in the last 7 weeks of the study, the turbidity increase was between .1 and .4 NTU after 2 hours of settling which would not be objectionable to customers.

The results from Tank 3 JH Fewell water treatment plant finished water with 16 mg/l of dry lime (plant) added for first 20 sample days and 10 mg/l of 1% Calcium Hydroxide for last 7 sample days are shown below.

- Average sample lab alkalinity –32.6 mg/l
- Sample lab alkalinity <= 25 mg/l – 2/27
- Sample lab alkalinity <= 20 mg/l – 1/27
- Average make up alkalinity – 38.1 mg/l
- Make up alkalinity <= 26 mg/l – 0/27
- Average Sample pH – 9.1
- Sample pH <= 8.5 – 5
- Sample pH >= 9.7 – 2
- Sample pH >= 10 – 0
- Average make up pH – 9.6
- Make up pH <= 8.5 – 0
- Make up pH >= 9.7 – 10
- Make up pH >= 10 – 7
- Number of coupon lead samples < ACL – 12, Note: 11 occurred after sample week 16
- Sample week coupon lead < ACL – 16
- Number of coupon lead samples < detection - 5
- Number of old brass lead samples < ACL – 26, Note: 14 occurred after sample week 13
- Sample week old brass lead < ACL – 13
- Number of old brass lead samples < detection – 21
- Number of new brass lead samples < ACL – 8, Note: 4 occurred after sample week 21
- Sample week new brass lead < ACL – 21
- Number of new brass lead samples < detection – 7, note: 4 occurred after sample week 21
- Average sample day LSI – .79
- Average sample day DIC – 7.0
- Average make up day LSI – 1.42
- Average make up day DIC – 6.8

Tank 3 water meets all corrosion control criteria for lead and copper. There were 7 WQP excursions on sample day which may meet the minimum of 9 with mitigation steps taken in the monthly distribution WQP samples. If alkalinity target were lowered to 20, 1 excursions would be recorded on Tank 3 finished water alkalinity. However, the average make up LSI is above 1.4 which indicates significantly more scaling on the UV bulbs requiring more cleaning and maintenance and pH is greater than the upper limit of 9.7 10 times and greater than 10 7 times.

Turbidity typically increased by 3 to 5 NTU in tests after 2 hours to 4 hours of settling time indicating dry lime addition at this level which may be objectionable to customers. When Liquid lime (Calcium

Hydroxide) was used in the last 7 weeks of the study, the turbidity increase was between .3 and .6 NTU after 2 hours of settling which would not likely be objectionable to customers.

#### Section 4.2 General Pipe Rack Trends

Figures 12-33 in Appendix B show general trends on all of the pipe racks that suggest that corrosion of lead and copper does follow similar trends. There appears to be a definite connection between lower alkalinity and pH on corrosion rates of both lead and copper as expected. However, as the time of contact with the water from the start of the study increased (both new brass and coupon components were installed new at the time the study started), the dependence of results on pH and alkalinity was significantly reduced. This indicates the formation of scale over time (typically 6 weeks to 6 months) along with reduction of exposed area in the form of metal oxides, carbonates, sulfates, and chlorides depending on the water quality. While consistent treatment is required to maintain these scales, the films reduce the immediate reaction of corrosion rates to instantaneous changes in water quality. Generally, the new brass and coupon rack units trended downward from installation to week 20 with some excursions on the new brass due to aggressive flushing approximately every four weeks. In weeks 21-27, the lead results dropped generally below action level (AL) and down to no detect for the remainder of the study. The graphs in Appendix B (figures 12-20) show the lead and copper trends on each tank and pipe rack with respect to time, pH, and alkalinity. The graphs show 8 of the 9 pipe rack's lead results descending below detection limit for the last few weeks of the study. Only the coupon rack for Tank 1 continued to show detectable lead at the end of the study. These results are shown in table form in Figures 21-33, and support the conclusion of corrosion scales that prohibit the lead leaching from lead containing plumbing and fixtures. This data suggests a lead sulfate scale which would not react to aggressive flushing has formed consistently on the new metal on both the coupons and the new brass after 20 weeks of water contact. This seems to be supported by the tap sample results shown in Appendix A with JHF finished water consistently giving much lower lead results than OBC with the only consistent treatment difference being use of coagulant.

Another possible factor explaining these results is the change to liquid lime (Calcium Hydroxide) after week 20. Liquid lime was used in week 19 for make up water but the concentration to get the proper alkalinity addition was not corrected until week 20. The liquid lime generally stabilized the make up water chemistry likely due to the dry lime product variability and the consistency of the liquid lime.

#### Section 4.3 Monthly WQP Samples

The City originally selected the top 25 sampling sites from the 2015 Lead and Copper sampling for WQP analysis in the distribution system of which 7 sites were served by the well system. This left 18 WQP sites actually on the surface water system served by OBC and JHF. Since these sites were not selected based on distribution system coverage, it is difficult to make generalizations about plant service even though comparing hardness and alkalinity gives a general indication of service. In January of 2018, the City selected 40 sites for WQP which are more representative of distribution system coverage. Using hardness and alkalinity along with percentage production from each plant, the distribution system service areas can be determined. In November 2019, the optimum corrosion control method using soda ash addition was successfully implemented at OBC. Therefore, the optimum corrosion control treatment installed at OBC can be compared with the existing treatment at JHF.

Since January of 2018, the City has collected monthly samples for water quality parameters (WQP) at these 40 sites around the distribution system. Of these 40 sites, 17 are served at least partially by JHF especially in 2020 since membrane train and filter issues at OBC caused a greater reliance on water from JHF. This caused service from Fewell to move farther North than normal into the transition areas where the water would mix. While this improves Lead results in these areas it deteriorates the WQP results due to age of water and loss of chlorine residual. The following distribution alkalinity and pH results are based on sites clearly being served by JHF at the time of sample collection.

- Sample alkalinity  $\leq 25$  mg/l
  - June 2020 – 9
  - July 2020 – 8
  - August 2020 – 2
  - September 2020 – 8
  - October 2020 – 9
  - November 2020 – 7
  - December 2020 – 14
- Sample alkalinity  $\leq 20$  mg/l
  - June 2020 – 5
  - July 2020 – 2
  - August 2020 – 1
  - September 2020 – 2
  - October 2020 – 4
  - November 2020 – 3
  - December 2020 – 8
- Sample pH  $\leq 8.5$ 
  - June 2020 – 0
  - July 2020 – 4
  - August 2020 – 2
  - September 2020 – 3
  - October 2020 – 4
  - November 2020 – 3
  - December 2020 – 9
- Sample pH  $\geq 9.7$ 
  - June 2020 – 0
  - July 2020 – 0
  - August 2020 – 0
  - September 2020 – 0
  - October 2020 – 0
  - November 2020 – 0
  - December 2020 – 0

Based on these results, there are 17 sample sites of the 40 total that are partially or totally served by J H Fewell water treatment plant. While the current water treatment process at JHF is not corrosive to lead or copper containing pipes and fixtures, it cannot meet current or any reasonable water quality parameters during cold weather months such as December 2020. Of 17 sampling sites clearly served by



JHF in December 2020, 14 were below current WQP minimums set by the MSDH on Alkalinity and 9 were below the current WQP minimums set by the MSDH on pH. This is due to low raw water alkalinity during cold weather months and process constraints that make raising these levels to current minimums difficult. Even if the Alkalinity minimum was lowered to 20 mg/l, December 2020 would still have produced 8 alkalinity excursions and 9 pH excursions.

#### Section 4.4 Distribution Lead and Copper Sample Results

After violating the lead and copper rule in 2015, the City of Jackson was required to select Water Quality Parameter (WQP) sites to check the chemical quality of water in the distribution system to help determine the corrosiveness with respect to lead and copper. From 2016 to 2017, the City of Jackson used the 25 sites from the 2015 sampling period that yielded the highest lead results. In January of 2018, the City began using 40 sites selected from the Bacteriological sampling site plan which gave a more representative distribution of sites with plant service area and geographic area in mind. At that time, the coverage areas between O B Curtis (OBC) and J H Fewell (JHF) were subjective since no updated hydraulic analysis exists to determine general service areas from the plants. Also, since the treatment processes were similar with respect to WQP parameters, it was difficult to properly designate those service areas although the higher hardness typically produced by JHF gave a good reference for most of the sample sites. When Soda Ash treatment was installed at OBC in late 2017 (installation was ultimately unsuccessful) and Lime was discontinued, the soft water produced at OBC gave clear indication of the service areas in most of the 2018 WQP sampling results. However, as problems developed in the Soda Ash feed changeover during 2018, the City eventually switched back to lime in late 2018. Through 2019 until the corrected optimum corrosion control treatment was installed in late November, the service area was less defined but plant production could be used to predict service area along with hardness results. Appendix C gives the WQP sample results from February 2018 to December 2020. The WQP sample results in 2018 and late 2019 and 2020 compared with plant pumping data presented in Appendix D show that JHF serves much farther North and East of Highway 55 when pumping at 20 MGD as opposed to 10 MGD. The WQP sample results give a good indication of plant service area from 2018 – 2020 for the sample sites. Using Chemical data from WQP sample results during months coinciding with lead and copper tap samples and daily JHF plant production records shown in Appendix C, service area maps were developed showing the service coverage at the time of sampling in 2018 (JHF average production around 10 MGD daily production) and 2020 (JHF average production around 20 MGD daily production). These service areas are consistent with pumping data from previous years also but during 2015 OBC was serving the South well system which would have changed the flow dynamics at that time. The following discussion breaks the Lead and Copper results since 2015 into sections based on the circumstances and plant service areas that applied at the time of sample collection including WQP concentrations and plant production.

Total results from 2015 to present:

Overall:

Service Plant	# of Sites	ACL Exceed	average result (ppb)	# of no detects
Curtis	516	65	10	72
Fewell	402	5	1.2	244
Both	119	13	4.6	32

This data indicates that 48 samples are included in Both and Curtis service and 22 are included in Both and Fewell service because of WQP determination since 2018. Although those labeled Both can be served by either plant depending on immediate plant production, 6 of 13 AL exceedances on Both are clearly served by Curtis and 0 of 13 are clearly served by Fewell.

These results show that sites served by the Fewell plant are typically low in the AL exceedances where definitive chemical data is available to assess plant service of the sites. Of 402 total samples served by Fewell at the time of sampling, 244 had no lead detected at all. Of the 5 AL exceedances' 3 occurred at the same residence in the same year (2018) and did not violate before or since. On Curtis, 25 of the AL exceedances occurred at 8 sites with one site exceeding 8 times it was sampled. On sites labeled Both, 7 exceedances occurred at 2 sites.

This indicates that current treatment at Fewell is likely to result in 10 times lower average lead over these sampling periods, that it is 4.3 times as likely to provide no detect results, and that it is 10 times as likely to provide results below the AL as compared with water treated by Curtis.

2020 samples:

Since the prescribed treatment process from the previous Optimum Corrosion Control Study was finally successfully implemented at OBC in November of 2019, the following analysis is of the 2020 Lead and Copper sample results in March and October 2020 while the OBC was producing water treated according to the original study recommendations and JHF was treating water as it has historically. The following is a comparison of plant service sample results based on WQP sample results and plant production records from the months samples were collected. The alkalinity and hardness results from the WQP samples indicate the chemical difference between the low hardness water produced by OBC and the much higher hardness water produced at JHF. All samples were shown to be served either by Curtis or Fewell.

2020 results:

Service Plant	# of Sites	ACL Exceed	average result (ppb)	# of no detects
Curtis	96	6	11.4	21
Fewell	87	2	1.2	62

These results indicate from sites served by JHF with the current treatment process in place, that JHF finished water is typically much less corrosive to lead than the optimum corrosion control employed at OBC. JHF served sites resulted in few AL exceedances and showed much lower average lead levels and a much higher percentage of samples with no lead detected. Of 87 total samples served by Fewell at the time of sampling, 62 had no lead detected at all or 71.2 %. This compares very favorably to the optimum DIC method employed at OBC where only 21 of 96 or 21.9% of samples had no lead detected. However, the average lead contained in OBC samples was almost 10 times that contained in Fewell samples, and there were 3 times as many AL exceedances from optimized Curtis treated water as from current Fewell treated water. It is also noted that 6 additional samples on sites served by OBC in 2020 would exceed the proposed trigger level in the Lead and Copper Rule revisions of 10 ppb while no additional samples on sites served by JHF would have exceeded. It is further noted that of 402 samples from sites served by JHF since 2015, only 1 additional sample would be added if the new trigger level of 10 ppb had been in force.

In any case, even though lead and copper corrosion is shown to be significantly less, the current JHF water cannot meet the selected WQP parameters according to WQP analysis above. All of the WQP excursions since optimized treatment was successfully employed at OBC have been on sites clearly served by JHF. It is clear that a set of parameters must be adopted for JHF separately from OBC since the optimized versions of the treatment processes are also significantly different.

Comparison of 2018 and 2020 results:

In 2018, the predominant treatment technique at OBC was soda ash feed for pH and alkalinity correction according to the optimum corrosion control recommendations from the original study. Although the treatment process was flawed due to soda ash storage and feed issues, the comparison of transition areas that were served by OBC in 2018 but switched to JHF in 2020 due to production issues at OBC in 2020 are pertinent to this discussion. The following is a discussion of these issues with data for those sites that are common to both 2018 and 2020 sampling periods.

Comparison of 2018 and 2020 transition site results:

Service Plant	# of Sites	ACL Exceed	average result (ppb)	# of no detects
Curtis (2018)	9	1	10	3
Fewell (2020)	9	0	0.5	6

This data indicates that the existing JHF finished water is much less aggressive to customer plumbing when compared to DIC treatment with Soda Ash at OBC. These 9 sites were served by OBC in 2018 when production at JHF was around 10 MGD (see Appendix D) but switched to JHF in 2020 when daily production from JHF increased to approximately 20 MGD (maximum). The marked difference in results for these sites with the same plumbing and collection procedure must be considered even if the DIC treatment was not considered optimum for the entire time. The improvement from OBC to JHF plant service is consistent with results shown in the overall sample results and from the comparison of samples after the corrected optimum corrosion control was installed at OBC. The average lead result is 20 times higher when OBC is serving the site with half the no detects and an AL exceedance.

Comparison of 2019 with liquid lime feed and optimized DIC treatment using Soda Ash in 2020:

In 2019, the OBC switched to liquid lime feed in the clear well for pH and alkalinity adjustment of the finished water. The following data shows the relative results for 2019 and 2020 for a comparison of adequate adjustment using liquid lime as opposed to optimum treatment at OBC with soda ash and without liquid lime in 2020.

Comparison of 2019 and 2020 Curtis site results:

Service Plant	# of Sites	ACL Exceed	average result (ppb)	# of no detects
Curtis (2019)	101	4	5	20
Curtis (2020)	96	6	11.4	21

This comparison of actual sites with the same plumbing and collection procedures indicates that treatment with liquid lime at OBC was more successful at prohibiting lead leaching in 2019 than the optimized treatment with only soda ash employed successfully in 2020. The average lead results for OBC were over 2 times as high in 2020 as in 2019. There was a 50% increase in AL exceedances and no



detects were approximately the same. These results indicate that even though OBC finished water is inherently more corrosive because of the use of ACH instead of Alum than JHF, and that the use of Lime is actually more protective of lead containing plumbing and fixtures than optimized treatment with only soda ash when employing ACH.

#### Section 4.5 Analysis of Corrosion Properties

The increased lead leaching from finished water at Curtis over Fewell is likely caused by Chlorides added with the coagulant ACH. When alkalinity is low, the pH for water near the pipe typically decreases due to biofilms, bacterial activity, etc. Brass and bronze fittings and faucets typically have hundreds of tiny bubbles of pure lead on the surface that form during the intense heating and cooling process when being fabricated. These bubbles become anodes that can leach lead into the water. When pH is below 8.4 and alkalinity is low, the normal oxide films that should form on these nodes may not be present. As pH falls, the anode will form complexes with other things in the water such as chloride and sulfate. If chloride is present in absence of sulfate, the resulting lead chloride coating at the node will accelerate lead leaching. If sufficient Sulfate (Alum coagulant) is present, the lead sulfate coating on the node will reduce lead leaching as verified in this study. (Sources: Optimal Corrosion Control Treatment Evaluation Technical Recommendations for Primacy Agencies and Public Water Systems, EPA, Page 18, Journal - American Water Works Association 99(7):96-109 · July 2007, Edwards and Triantafyllidou, 2007;Hu et al., 2012, Nguyen et al., 2011b ). This explains why plumbing fixtures at sites on Fewell tend to leach much less lead than those on Curtis, even after optimization of DIC with soda ash at Curtis.

The purpose of the optimized corrosion control treatment (DIC) at Curtis is to increase alkalinity (stabilizing pH) to a level where the lead chloride is replaced by lead carbonates or lead oxides. However, if the oxide is not formed, the carbonate can be scoured off of the node by sudden surges (turning on the faucet). The theory of the DIC method is to drive the lead coating to stable Oxides/Hydroxides which prohibit most lead leaching. However, if the coating remains mostly Bicarbonate/Carbonate, the coating is much less protective.

In the case of Fewell water, the addition of Alum increases sulfate to levels that under low alkalinity, unstable pH conditions near the pipe surface, and causes the formation of lead sulfate coatings which tend to prohibit lead leaching. As the alkalinity is increased, stabilizing pH, the sulfate at the site will be replaced by carbonate just as above which will increase lead leaching until the stable oxide is formed.

#### Section 4.6 Analysis of Pipe Racks and Field Data Based on Chemical Quality

The pipe rack testing indicates that current JHF treatment is protective of lead plumbing and fixtures. However, optimized corrosion control for lead appears to exist at a slightly higher alkalinity in the range of a 5 mg/l increase over that found in the 32 weeks of the amended study. The average increase in make-up day alkalinity from the finished water in Tank 1 (26.58 mg/l) to Tank 2 (32.3 mg/l) is 5.72 mg/l. The average increase in sample day alkalinity from the finished water in Tank 1 (26.26 mg/l) to Tank 2 (30.48 mg/l) is 3.9 mg/l. This indicates a generally slightly scaling water in Tank 2 that loses some alkalinity over time. This means that film formation is the likely reason for the increased protection of lead plumbing and fixtures shown by the slightly higher alkalinity water in Tank 2. Tank 3 shows an increase in alkalinity to 38.11 mg/l with an almost 6 mg/l decrease on sample day. This indicates a higher scaling factor is expected in Tank 3, but which is less protective of lead plumbing and fixtures than Tank 2. Therefore, it is indicated that Tank 2 provides the optimum corrosion protection for this study. It is



also evident that increasing the alkalinity above 38 mg/l at current pH levels will begin the process of replacing sulfate films with carbonate resulting in diminishing effectiveness.

The following is a comparison of lead results from each tank on all three pipe racks showing Tank 2 as the most effective method of the three treatment options.

The average lead detected per tank and rack during this study was as follows:

Pipe Rack	Tank 1	Tank 2	Tank 3
Old Brass	0.0058	0.0004	0.0020
New Brass	0.0437	0.0444	0.0570
Coupon	0.0301	0.0191	0.0224

Again, these are results with a sample volume of 250 ml rather than 1 liter as was used in the original study, which reduces the volume of water not in contact with the lead containing plumbing fixtures by a factor of as much as 4 times. While all three treatment options studied at JHF during this study showed protective properties toward lead containing plumbing fixtures, Tank 2 showed the best potential with treatment improvements (liquid lime) to promote consistency, reduce lime turbidity, control scaling and reduce lead absorption by humans.

The field data also indicates that finished water at JHF is much more protective of lead containing plumbing and fixtures. The above data clearly shows JHF sites with much less lead leaching even though WQP excursions event violations were high. The use of alum as the primary coagulant at JHF probably accounts for this outcome. The lowest observed sulfate content of the water at JHF during the study was 24 mg/l and the highest observed chloride was 13.3 mg/l, indicating that the sulfate to chloride ratio was always significantly above the 70% required to reduce lead leaching. This was also found to be the case in the original study.

#### **Part 5 – Findings, Conclusions and Recommendations**

The following recommendations are presented as a supplement to the original study. Those recommendations from the previous study that have not been completed will be included.

##### **Section 5.1 Findings**

The finished water at JHF is not the cause of lead and copper issues in the City of Jackson distribution system. Through a 28-week pipe rack study and approximately 1000 tap samples since the original AL exceedances, the results have shown JHF finished water to be unlikely to leach lead. In the tap sample results from JHF (402 samples), 61% of JHF sample site results have no detect and 99% of sample sites results were less than the AL. Also, 98.5% of JHF sample site results would still meet the proposed trigger of 10 ppb contained in the revisions to the Lead and Copper Rule being considered now. However, the current finished water will not meet the current WQP parameters set by the previous study.

The pipe rack study indicates that the current finished water at JHF, the finished water with 7 to 10 mg/l of alkalinity added, and the finished water with 14 to 20 mg/l of alkalinity added are all capable of protecting lead containing plumbing fixtures from lead leaching. However, the addition of alkalinity at

higher levels will cause unacceptable increases in lime turbidity and scaling. The DIC is within parameters (5 to 10) set by the previous study on all pipe rack tanks but WQP Parameters show a similar decline after 7 days of detention that shows up in the distribution WQP samples with current finished water during cold weather.

### Section 5.2 Conclusions

Even though sample results indicate JHF finished water is not corrosive to lead containing pipe and plumbing fixtures, the alkalinity and pH need to be stabilized in the distribution system. The current WQP standards recommended in the previous study cannot be met by current JHF treatment regime, but given the lead and copper results in the pipe rack and tap samples, it appears that they may simply be set too high for pH adjustment with lime even though corrosion results are much better than with soda ash at OBC. During the pipe rack study, the addition of liquid lime appeared to stabilize the make-up water in the tanks leading to an almost uniform water with respect to pH and alkalinity. This is probably due to the more consistent quality of the liquid lime as compared to dry lime, and the percentage of inert material that may be contained in the dry lime. Also, the liquid lime gave much better results with respect to lime turbidity than dry lime at similar dosage.

Liquid lime should also provide a more consistent water in the clear well since poor mixing dynamics in the clear well at JHF cause inconsistent finished water quality. The liquid lime will help in mixing and may also allow for innovative solutions to the lime distribution problem in the clear well. Also, enhanced coagulation with CO<sub>2</sub> would allow for increasing alkalinity in the winter without increasing pH and scaling potential. Increasing alkalinity in the JHF treatment process instead of in the clear well will decrease the reliance on the inefficient clear well mixing and provide a more consistent chemical quality in the finished water.

It is noted that the unnecessary increase in finished water sodium that would result from soda ash addition at JHF could have a detrimental effect on the service area population. The minority population of Jackson is typically more susceptible to Hypertension and sodium content should be limited wherever possible especially in a common commodity provided by the City. Since JHF water already meets any reasonable corrosiveness standard with respect to Lead and Copper from the evidence presented here, the addition of soda ash would serve no logical purpose since no complaints have been received from the slightly dissimilar chemical water qualities mixing in the distribution system.

### Section 5.3 Recommendations

We recommend the installation of liquid lime and carbon dioxide feed systems at JHF to fully optimize corrosion control and stabilize distribution pH and alkalinity to meet current WQP standards. We also recommend that the WQP standards for JHF service area be lowered to alkalinity > 20 mg/l and pH > 8.0. This would ensure noncorrosive water with respect to lead plumbing while allowing latitude for process changes to stabilize these parameters. The current corrosion control regime at JHF is much more dependent on chloride/sulfate ratio than the WQP parameters, and the lower parameters favor the development of sulfate coating as per the study. The target for alkalinity for the finished water at JHF will still be 32.5 mg/l, as that is the level of Optimized corrosion control suggested by these study results.

### Section 5.4 Recommended Treatment Process Improvements

The following items are proposed for automation for JHF to be completed on a schedule already submitted to EPA and MSDH. They include the necessary steps to optimize corrosion control for JHF in accordance with this Amended Optimized Corrosion Control Study.

1. Decommission existing dry lime feed system.
2. Install new liquid lime feed system with automation.
3. Install components for raw water CO<sub>2</sub> feed with automation.
4. Install all components necessary for automation and integration with SCADA system.

Note: see appendix G for process jar test analysis indicating the success of CO<sub>2</sub> and alkalinity addition in accomplishing pH and alkalinity stabilization for treatment and distribution systems.

#### Section 5.5 Distribution System improvements from Previous study

The following items are from Section 4.4 of the previous study concerning distribution system upgrades, and need to be completed along with the revised items listed above.

1. A calibrated hydraulic model of the water distribution system should be created to indicate water age and plant service areas.
2. A valve location and operation program should be integrated with results of the hydraulic study to provide assistance in planning and locating leaks and closed valves.
3. A routine flushing program should be followed in conjunction with the established service areas to reduce water age and enhance disinfection residuals.

# **ATTACHMENT H**

## **Clauses That May Be Used in Service Contract Resulting from Request for Qualifications**

1. Anti-assignment/Subcontracting: Contractor acknowledges that it was selected by the City to perform the services required hereunder based, in part, upon Contractor's special skills and expertise. Contractor shall not assign, subcontract, or otherwise transfer this agreement, in whole or in part, without the prior written consent of the City, which the City may, in its sole discretion, approve or deny without reason. Any attempted assignment or transfer of its obligations without such consent shall be null and void. No such approval by the City of any subcontract shall be deemed in any way to provide for the incurrence of any obligation of the City in addition to the total fixed price agreed upon in this agreement. Subcontracts shall be subject to the terms and conditions of this agreement and to any conditions of approval that the City may deem necessary. Subject to the foregoing, this agreement shall be binding upon the respective successors and assigns of the parties.
2. Attorney's Fees and Expenses: Subject to other terms and conditions of this agreement, in the event Contractor defaults in any obligations under this agreement, Contractor shall pay to the City all costs and expenses (including, without limitation, investigative fees, court costs, and attorney's fees) incurred by the City in enforcing this agreement or otherwise reasonably related thereto. Contractor agrees that under no circumstances shall the customer be obligated to pay any attorney's fees or costs of legal action to Contractor.
3. Authority to Contract: Contractor warrants: (a) that it is a validly organized business with valid authority to enter into this agreement; (b) that it is qualified to do business and in good standing in the State of Mississippi; (c) that entry into and performance under this agreement is not restricted or prohibited by any loan, security, financing, contractual, or other agreement of any kind; and, (d) notwithstanding any other provision of this agreement to the contrary, that there are no existing legal proceedings or prospective legal proceedings, either voluntary or otherwise, which may adversely affect its ability to perform its obligations under this agreement.
4. Change in Scope of Work: The City may order changes in the work consisting of additions, deletions, or other revisions within the general scope of the contract. No claims may be made by Contractor that the scope of the project or of Contractor's services has been changed, requiring changes to the amount of compensation to Contractor or other adjustments to the contract, unless such changes or adjustments have been made by written amendment to the contract signed by the City and Contractor.

If Contractor believes that any particular work is not within the scope of the project, is a material change, or will otherwise require more compensation to Contractor, Contractor must immediately notify the city in writing of this belief. If the City believes that the particular work is within the scope of the contract as written, Contractor will be ordered to and shall continue with the work as changed and at the cost stated for the work within the contract.

5. Claims Based on a Procurement Officer's Actions or Omissions:

- a. *Notice of Claim.* If any action or omission on the part of a Chief Procurement Officer or designee of such officer requiring performance changes within the scope of the contract constitutes the basis for a claim by Contractor for additional compensation, damages, or an extension of time for completion, Contractor shall continue with performance of the contract in compliance with the directions or orders of such officials, but by so doing, Contractor shall not be deemed to have prejudiced any claim for additional compensation, damages, or an extension of time for completion; provided:
    - i. Contractor shall have given written notice to the Chief Procurement Officer or designee of such officer:
      - (1) prior to the commencement of the work involved, if at that time Contractor knows of the occurrence of such action or omission;
      - (2) within 30 days after Contractor knows of the occurrence of such action or omission, if Contractor did not have such knowledge prior to the commencement of the work; or,
      - (3) within such further time as may be allowed by the Chief Procurement Officer in writing.This notice shall state that Contractor regards the act or omission as a reason which may entitle Contractor to additional compensation, damages, or an extension of time. The Chief Procurement Officer or designee of such officer, upon receipt of such notice, may rescind such action, remedy such omission, or take such other steps as may be deemed advisable in the discretion of the Chief Procurement Officer or designee of such officer;
    - ii. The notice required by subparagraph (a) of this paragraph describes, as clearly as practicable at the time, the reasons why Contractor believes that additional compensation, damages, or an extension of time may be remedies to which Contractor is entitled; and,
    - iii. Contractor maintains and, upon request, makes available to the Chief Procurement Officer within a reasonable time, detailed records to the extent practicable, of the claimed additional costs or basis for an extension of time in connection with such changes.
  - b. *Limitation of Clause.* Nothing contained herein shall excuse Contractor from compliance with any rules of law precluding city officers and Contractors from acting in collusion or bad faith in issuing or performing change orders which are clearly not within the scope of the contract.
  - c. *Adjustment of Price.* Any adjustment in the contract price made pursuant to this clause shall be determined in accordance with the Price Adjustment clause of this contract.
6. Confidentiality: Notwithstanding any provision to the contrary contained herein, it is recognized that City is a political subdivision of the State of Mississippi and is subject to the Mississippi Public Records Act. Mississippi Code Annotated §§ 25-61-1 *et seq.* If a public records request is made for any information provided to Agency pursuant to the agreement and designated by the Contractor in writing as trade secrets or other proprietary confidential information, City shall follow the provisions of Mississippi Code Annotated §§ 25-61-9 and 79-23-1 before disclosing such information. The City shall not be liable to the Contractor for disclosure of information required by court order or required by law.

7. Contractor Personnel: The City shall, throughout the life of the contract, have the right of reasonable rejection and approval of staff or subcontractors assigned to the work by Contractor. If the City reasonably rejects staff or subcontractors, Contractor must provide replacement staff or subcontractors satisfactory to the city in a timely manner and at no additional cost to the City. The day-to-day supervision and control of Contractor's employees and subcontractors is the sole responsibility of Contractor.
  
8. Debarment and Suspension: Contractor certifies to the best of its knowledge and belief, that it:
  - a. is not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transaction by any federal department or agency or any political subdivision or agency of the State of Mississippi;
  - b. has not, within a three-year period preceding this proposal, been convicted of or had a civil judgment rendered against it for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state, or local) transaction or contract under a public transaction;
  - c. has not, within a three-year period preceding this proposal, been convicted of or had a civil judgment rendered against it for a violation of federal or state antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
  - d. is not presently indicted for or otherwise criminally or civilly charged by a governmental entity (federal, state, or local) with commission of any of these offenses enumerated in paragraphs two (b) and (c) of this certification; and,
  - e. has not, within a three-year period preceding this proposal, had one or more public transactions (federal, state, or local) terminated for cause or default.
  
9. Disclosure of Confidential Information: In the event that either party to this agreement receives notice that a third party requests divulgence of confidential or otherwise protected information and/or has served upon it a subpoena or other validly issued administrative or judicial process ordering divulgence of confidential or otherwise protected information that party shall promptly inform the other party and thereafter respond in conformity with such subpoena to the extent mandated by law. This section shall survive the termination or completion of this agreement. The parties agree that this section is subject to and superseded by Mississippi Code Annotated §§ 25-61-1 *et seq.*
  
10. Exceptions to Confidential Information: Contractor and the City shall not be obligated to treat as confidential and proprietary any information disclosed by the other party ("disclosing party") which:
  - a. is rightfully known to the recipient prior to negotiations leading to this agreement, other than information obtained in confidence under prior engagements;
  - b. is generally known or easily ascertainable by nonparties of ordinary skill in the business of the customer;
  - c. is released by the disclosing party to any other person, firm, or entity (including governmental agencies or bureaus) without restriction;
  - d. is independently developed by the recipient without any reliance on confidential information;

- e. is or later becomes part of the public domain or may be lawfully obtained by the City or Contractor from any nonparty; or,
- f. is disclosed with the disclosing party's prior written consent.

11. Failure to Deliver: In the event of failure of Contractor to deliver services in accordance with the contract terms and conditions, the City, after due oral or written notice, may procure the services from other sources and hold Contractor responsible for any resulting additional purchase and administrative costs. This remedy shall be in addition to any other remedies that the City may have.
12. Force Majeure: Each party shall be excused from performance for any period and to the extent that it is prevented from performing any obligation or service, in whole or in part, as a result of causes beyond the reasonable control and without the fault or negligence of such party and/or its subcontractors. Such acts shall include without limitation acts of God, strikes, lockouts, riots, acts of war, epidemics, governmental regulations superimposed after the fact, fire, earthquakes, floods, or other natural disasters ("force majeure events"). When such a cause arises, Contractor shall notify the City immediately in writing of the cause of its inability to perform, how it affects its performance, and the anticipated duration of the inability to perform. Delays in delivery or in meeting completion dates due to force majeure events shall automatically extend such dates for a period equal to the duration of the delay caused by such events, unless the State determines it to be in its best interest to terminate the agreement.
13. Indemnification: To the fullest extent allowed by law, Contractor shall indemnify, defend, save and hold harmless, protect, and exonerate the city, its commissioners, board members, officers, employees, agents, and representatives, and the State of Mississippi from and against all claims, demands, liabilities, suits, actions, damages, losses, and costs of every kind and nature whatsoever including, without limitation, court costs, investigative fees and expenses, and attorney's fees, arising out of or caused by Contractor and/or its partners, principals, agents, employees and/or subcontractors in the performance of or failure to perform this agreement. In the City's sole discretion, In the event Contractor defends said claim, suit, etc., Contractor shall use legal counsel acceptable to the City of Jackson. Contractor shall be solely responsible for all costs and/or expenses associated with such defense, and the State shall be entitled to participate in said defense. Contractor shall not settle any claim, suit, etc. without the concurrence of the City of Jackson, which shall not be unreasonably withheld.
14. Independent Contractor Status: Contractor shall, at all times, be regarded as and shall be legally considered an independent contractor and shall at no time act as an agent for the City. Nothing contained herein shall be deemed or construed by the City, Contractor, or any third party as creating the relationship of principal and agent, master and servant, partners, joint ventures, employer, and employee, or any similar such relationship between the City and Contractor. Neither the method of computation of fees or other charges, nor any other provision contained herein, nor any acts of the City or Contractor hereunder creates or shall be deemed to create a relationship other than the independent relationship of the City and Contractor. Contractor's personnel shall not be deemed in any way, directly or indirectly, expressly or by

implication, to be employees of the City. Neither Contractor nor its employees shall, under any circumstances, be considered servants, agents, or employees of the city, and the City shall be at no time legally responsible for any negligence or other wrongdoing by Contractor, its servants, agents, or employees. The City shall not withhold from the contract payments to Contractor any federal or state unemployment taxes, federal or state income taxes, Social Security tax, or any other amounts for benefits to Contractor. Further, the City shall not provide to Contractor any insurance coverage or other benefits, including Worker’s Compensation, normally provided by the State for its employees.

15. Infringement Indemnification: Contractor warrants that the materials and deliverables provided to the customer under this agreement, and their use by the customer, will not infringe or constitute an infringement of any copyright, patent, trademark, or other proprietary right. Should any such items become the subject of an infringement claim or suit, Contractor shall defend the infringement action and/or obtain for the customer the right to continue using such items. Should Contractor fail to obtain for the customer the right to use such items, Contractor shall suitably modify them to make them non-infringing or substitute equivalent software or other items at Contractor’s expense. In the event the above remedial measures cannot possibly be accomplished, and only in that event, Contractor may require the customer to discontinue using such items, in which case Contractor will refund to the customer the fees previously paid by the customer for the items the customer may no longer use, and shall compensate the customer for the lost value of the infringing part to the phase in which it was used, up to and including the contract price for said phase. Said refund shall be paid within ten (10) working days of notice to the customer to discontinue said use.
  
16. Integrated Agreement/Merger: This agreement, including all contract documents, represents the entire and integrated agreement between the parties hereto and supersedes all prior negotiations, representations, or agreements, irrespective of whether written or oral. This agreement may be altered, amended, or modified only by a written document executed by the City and Contractor. Contractor acknowledges that it has thoroughly read all contract documents and has had the opportunity to receive competent advice and counsel necessary for it to form a full and complete understanding of all rights and obligations herein. Accordingly, this agreement shall not be construed or interpreted in favor of or against the City or Contractor on the basis of draftsmanship or preparation hereof.
  
17. Modification or Renegotiation: This agreement may be modified only by written agreement signed by the parties hereto. The parties agree to renegotiate the agreement if federal and/or city revisions of any applicable laws or regulations make changes in this agreement necessary.
  
18. Notices: All notices required or permitted to be given under this agreement must be in writing and personally delivered or sent by certified United States mail, postage prepaid, return receipt requested, to the party to whom the notice should be given at the address set forth below. Notice shall be deemed given when actually received or when refused. The parties agree to promptly notify each other in writing of any change of address.

For the City:	For Contractor:
[Name, Title]	[Name, Title]



[Agency Name]	[Contractor Name]
[Address]	[Address]
[City, State, Zip]	[City, State, Zip]

19. Non-solicitation of Employees: Each party to this agreement agrees not to employ or to solicit for employment, directly or indirectly, any persons in the full-time or part-time employment of the other party until at least six (6) months after this agreement terminates unless mutually agreed to in writing by the City and Contractor.
20. Oral Statements: No oral statement of any person shall modify or otherwise affect the terms, conditions, or specifications stated in this contract. All modifications to the contract must be made in writing by the City and agreed to by Contractor.
21. Ownership of Documents and Work Papers: Agency shall own all documents, files, reports, work papers and working documentation, electronic or otherwise, created in connection with the project, which is the subject of this agreement, except for Contractor’s internal administrative and quality assurance files and internal project correspondence. Contractor shall deliver such documents and work papers to the City upon termination or completion of the agreement. The foregoing notwithstanding, Contractor shall be entitled to retain a set of such work papers for its files. Contractor shall be entitled to use such work papers only after receiving written permission from the City and subject to any copyright protections.
22. Price Adjustment:
- a. *Price Adjustment Methods*. Any adjustments in contract price, pursuant to a clause in this contract, shall be made in one or more of the following ways:
    - i. by agreement on a fixed price adjustment before commencement of the additional performance;
    - ii. by unit prices specified in the contract;
    - iii. by the costs attributable to the event or situation covered by the clause, plus appropriate profit, or fee, all as specified in the contract; or,
    - iv. by the price escalation clause.
  - b. *Submission of Cost or Pricing Data*. Contractor shall provide cost or pricing data for any price adjustments subject to the provisions of Section 3-403 (Cost or Pricing Data) of the *PPRB OPSCR Rules and Regulations*.
23. Priority: The contract consists of this agreement with exhibits, the RFP, attached as Schedule [ ], and the proposal dated [date] by [Contractor Name] (hereinafter referred to as “Proposal” and attached as Schedule [ ]). Any ambiguities, conflicts or questions of interpretation of this contract shall be resolved by first, reference to this agreement with exhibits and, if still unresolved, by reference to the RFP and, if still unresolved, by reference to the Proposal. Omission of any term or obligation from this agreement or attached Schedules [ ] or [ ] shall not be deemed an omission from this contract if such term or obligation is provided for elsewhere in this contract.
24. Record Retention and Access to Records: Provided Contractor is given reasonable advance written notice and such inspection is made during normal business hours of Contractor, the

City or any duly authorized representatives shall have unimpeded, prompt access to any of Contractor's books, documents, papers, and/or records which are maintained or produced as a result of the project for the purpose of making audits, examinations, excerpts, and transcriptions. All records related to this agreement shall be retained by Contractor for three (3) years after final payment is made under this agreement and all pending matters are closed; however, if any audit, litigation or other action arising out of or related in any way to this project is commenced before the end of the three (3) year period, the records shall be retained for one (1) year after all issues arising out of the action are finally resolved or until the end of the three (3) year period, whichever is later.

25. Right to Audit: Contractor shall maintain such financial records and other records as may be prescribed by the City or by applicable federal and state laws, rules, and regulations. Contractor shall retain these records for a period of three years after final payment, or until they are audited by the City, whichever event occurs first. These records shall be made available during the term of the contract and the subsequent three-year period for examination, transcription, and audit by the City its designees, or other authorized bodies.
26. Right to Inspect Facility: The City may, at reasonable times, inspect the place of business of a Contractor or any subcontractor which is related to the performance of any contract awarded by the City.
27. Severability: If any part of this agreement is declared to be invalid or unenforceable, such invalidity or unenforceability shall not affect any other provision of the agreement that can be given effect without the invalid or unenforceable provision, and to this end the provisions hereof are severable. In such event, the parties shall amend the agreement as necessary to reflect the original intent of the parties and to bring any invalid or unenforceable provisions in compliance with applicable law.
28. City Property: Contractor will be responsible for the proper custody and care of any city-owned property furnished for Contractor's use in connection with the performance of this agreement. Contractor will reimburse the city for any loss or damage, normal wear and tear excepted.
29. Third Party Action Notification: Contractor shall give the customer prompt notice in writing of any action or suit filed, and prompt notice of any claim made against Contractor by any entity that may result in litigation related in any way to this agreement.
30. Unsatisfactory Work. If, at any time during the contract term, the service performed or work done by Contractor is considered by the City to create a condition that threatens the health, safety, or welfare of the citizens and/or employees of the City, Contractor shall, on being notified by the City, immediately correct such deficient service or work. In the event Contractor fails, after notice, to correct the deficient service or work immediately, the City shall have the right to order the correction of the deficiency by separate contract or with its own resources at the expense of Contractor.

31. Waiver: No delay or omission by either party to this agreement in exercising any right, power, or remedy hereunder or otherwise afforded by contract, at law, or in equity shall constitute an acquiescence therein, impair any other right, power or remedy hereunder or otherwise afforded by any means, or operate as a waiver of such right, power, or remedy. No waiver by either party to this agreement shall be valid unless set forth in writing by the party making said waiver. No waiver of or modification to any term or condition of this agreement will void, waive, or change any other term or condition. No waiver by one party to this agreement of a default by the other party will imply, be construed as, or require waiver of future or other defaults.

**ATTACHMENT I**

**REQUIRED FEDERAL PROCUREMENT CLAUSES AS FEDERAL FUNDS  
MAY BE USED TO PAY FOR ALL OR A PORTION OF THIS CONTRACT**

**1. Access**

The City, the Comptroller General of the United States, the funding federal agency and any other duly authorized representatives to any of these bodies shall have access to any and all books, documents, papers and records of the contractor which are directly pertinent to this specific contract for the purpose of making audit, examination, excerpts and transcriptions.

**2. Byrd Anti-Lobbying Amendment**

The contractor shall certify that it will not and has not used federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress or an employee of a member of Congress in connection with obtaining any federal contract, grant or any other award covered by 31 U.S.C. 1352. The contract shall also disclose any lobbying with non-federal funds that takes place in connection with obtaining any federal award. The contractor shall require all subcontractors to submit these same certifications. The contractor shall adhere to mandatory standards and policies on energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 U.S.C 6201).

**3. Clean Air and Water Acts Compliance**

- (1) The contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401 et. seq. and the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et. seq.
- (2) The contractor agrees to report each violation to the City and understands and agrees that the City will, in turn, report each violation as required to assure notification to the State of Mississippi, Federal Emergency Management Agency and the appropriate Environmental Protection Agency Regional Office.
- (3) The contractor agrees to include these requirements in each subcontract exceeding \$150,000 financed in whole or in part with federal assistance provided by the federal funding agency.

**4. Energy Efficiency**

The contractor shall adhere to mandatory standards and polices on energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 U.S.C. 6201).

**(1) 5. Procurement of Recovered Materials**

**(2)** In the performance of this contract, the contractor shall make maximum use of products containing recovered materials that are EPA-designated items unless the product cannot be acquired:

- i.** competitively within a timeframe providing for compliance with the contract performance schedule.
- ii.** meeting contract performance requirement; or,
- iii.** at a reasonable price.

**(3)** Information about this requirement, along with the list of EPA-designate items, is available at EPA's Comprehensive Procurement Guidelines website, <http://www.epa.gov/smm/comprehensiveprocurement-guideline-cpg-program>.

**6. Suspension and Debarment**

**(1)** This contract is a covered transaction for purposes of 2 C.F.R. pt. 180 and 2 C.F.R. Pt. 3000. As such the contractor is required to verify that none of the contractor, its principals (defined at 2 C.F.R. § 180.995) or its affiliates (defined at 2 C.F.R. § 180.905) are excluded (defined at 2 C.F.R. § 180.940) or disqualified (defined at 2 C.F.R. § 180.935).

**(2)** The contractor must comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C and must include a requirement to comply with these regulations in any lower tier covered transaction it enters into.

**(3)** This certification is a material representation of fact relied upon by MEMA. If it is later determined that the contractor did not comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, in addition to remedies available to MEMA, the federal government may pursue available remedies, including but not limited to, suspension and/or debarment.

**(4)** The bidder or proposer agrees to comply with the requirements of 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

**7. Retention of Records**

The contractor shall retain all records associated with this contract for three (3) years after MEMA or the subgrantees (counties and communities) make final payment and all other pending matters are closed.

**8. Funding Agency Seal, Logo and Flags**

The contractor shall not use the federal agency seal(s), logos, crests or reproductions of flags or likenesses of federal agency officials without specific agency pre-approval.

**9. Compliance with Federal Law, Regulations and Executive Orders**

This is an acknowledgement that federal financial assistance will be used to fund the contract. The contractor will comply with all applicable federal laws, regulations, executive orders, federal agency policies, procedures and directives.

**10. No Obligation by Federal Government**

The federal government is not a party to this contract and is not subject to any obligations or liabilities to the non-federal entity, contractor or any other party pertaining to any matter resulting from the contract. (Program Fraud and False or Fraudulent Statements or Related Acts) The contractor acknowledges that 31 U.S.C 38 (Administrative Remedies for False Claims and Statements) applies to its actions pertaining to the contract.

**11. Program Fraud and False or Fraudulent Statements or Related Acts**

The Contractor acknowledges that 31 U.S.C. (Administrative Remedies for False Claims and Statements) applies to its actions pertaining to the contract.

**12. Compliance with the Contract Work Hours and Safety Standards Act**

(1) **Overtime Requirements.** No contractor or subcontractor contracting for any part Of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty (40) hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty (40) hours in such workweek.

(2) **Violation: Liability for Unpaid Wages; Liquidated Damages.** In the event of any violation of the clause set forth in paragraph (1) of this section the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty (40) hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this section.

(3) **Withholding for Unpaid Wages and Liquidated Damages.** The Mississippi Emergency Management Agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this section.

(4) **Subcontracts.** The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this section.

### **13. Davis-Bacon Act**

The Contractor shall comply with the Davis-Bacon Act (40 U.S.C. 276a to 276a-7) as supplemented by Department of Labor regulations (29 CFR Part 5) in so far as it may apply to this contract.