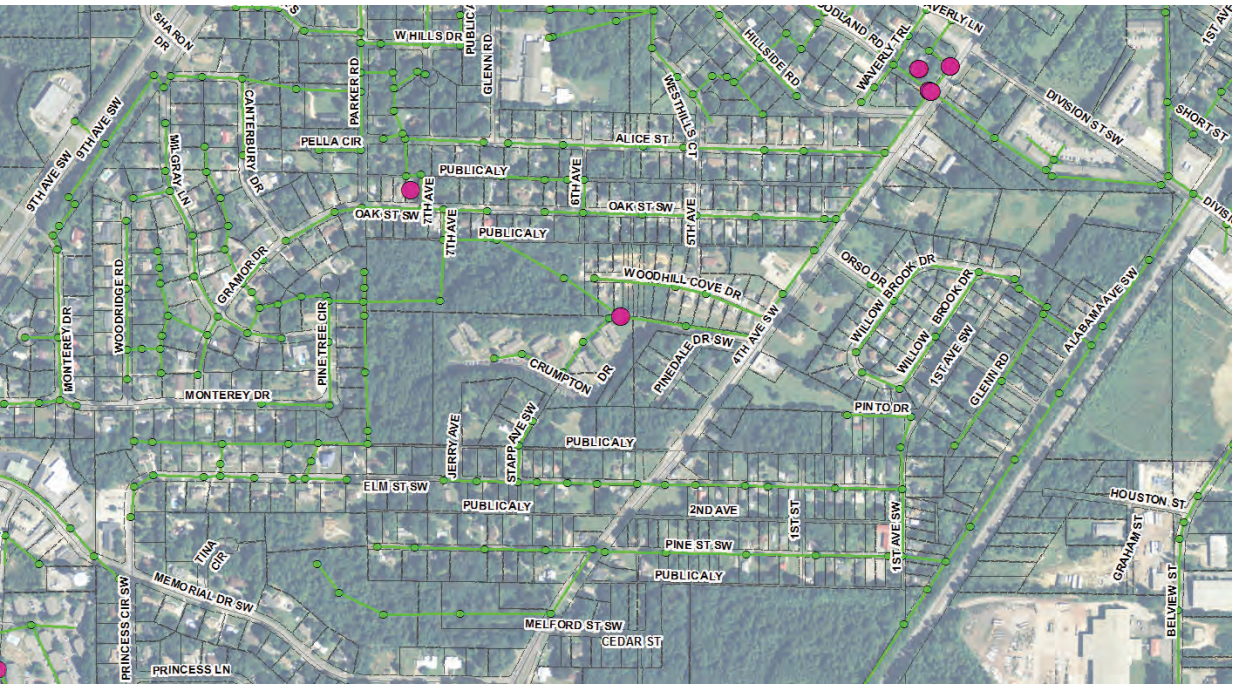














# Jefferson County Environmental Services Department Capacity, Management, Operations and Maintenance (CMOM) Program

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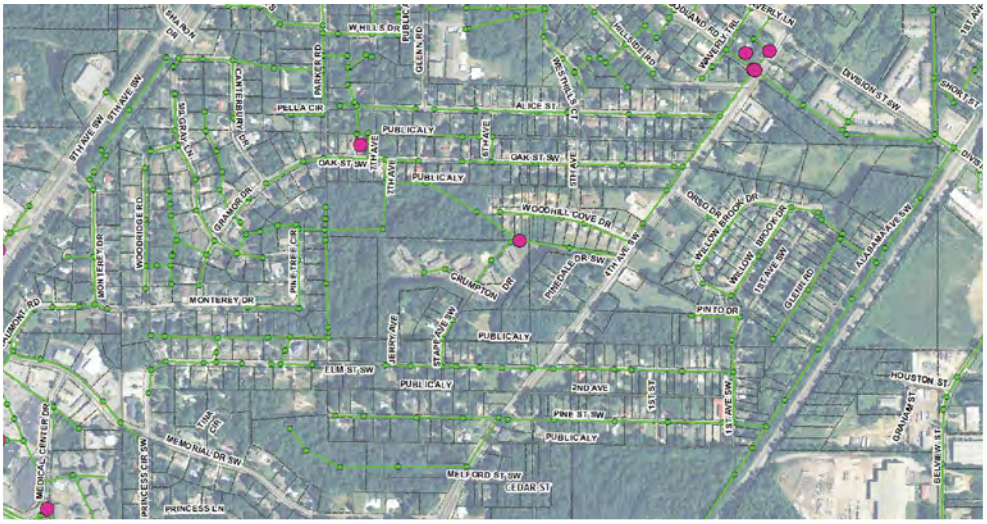
- Gravity Line Preventive Maintenance Program
- Maintenance of Way Program

**Standard Operating Procedures Handbook for Field Operations**

# Management

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ELM ST SW
2ND AVE
PINE ST SW
MEMORIAL DR SW
MELFORD ST SW
CEDAR ST
PRINCESS LN
HOUSTON ST
DIVISION ST SW
ALABAMA AVE SW
GRAHAM ST
BELVIEW ST
MEDICAL CENTER DR
PRINCESS CIR SW
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GRAMOR DR
CANTERBURY DR
PARKER RD
GLENN RD
WESTHILLS CT
HILLSIDE RD
ORSO DR
WILLOW BROOK DR
1ST AVE SW
GLENN RD
JERRY AVE
STAPP AVE SW
TINA CIR
5TH AVE SW
4TH AVE SW
3TH AVE
1ST ST
1ST AVE SW













# Jefferson County Environmental Services Department Capacity, Management, Operations, and Maintenance (CMOM) Program Organization

**Final**

December 2016

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# Acronyms

| | |
|---|---|
| ADEM | Alabama Department of Environmental Management |
| CMMS | Computerized maintenance management system |
| CMOM | Capacity, Management, Operations, and Maintenance |
| FOG | Fats, oils, and grease |
| FY | Fiscal year |
| GIS | Geographic Information System |
| IMS | Information management system |
| in | Inch |
| JCDH | Jefferson County Department of Health |
| JCESD | Jefferson County Environmental Services Department |
| LF | Lineal feet |
| MOM | Management, Operation and Maintenance |
| NPDES | National Pollutant Discharge Elimination System |
| O&M | Operations and maintenance |
| PM | Preventive maintenance |
| SOP | Standard operating procedure |
| SSO | Sanitary sewer overflow |
| SSORRP | Sanitary Sewer Overflow Response and Reporting Program |
| USEPA | United States Environmental Protection Agency |
| WWTP | Wastewater treatment plant |

# Capacity, Management, Operations, and Maintenance (CMOM) Program Organization

## Overview

The Jefferson County Environmental Services Department (JCESD) has developed a comprehensive CMOM Program that is documented in various program plans, policies and procedures, and guidance documents.

JCESD began its formal Collection System Management, Operation and Maintenance Program (referred to as the "MOM") in 1998, and originally prepared a short-term written MOM Plan in 2001 as required by the United States Environmental Protection Agency (USEPA). The purpose of the MOM was to describe JCESD's plan for the management, operations and maintenance of the unified County sanitary sewer collection system. In a letter dated September 9, 2008, the USEPA approved JCESD's MOM Program Plan and supporting documentation, and since that time, JCESD has provided annual updates to the plan to USEPA.

In 2012, JCESD's MOM Plan described basic procedures employed by the County in managing, operating and maintaining its sanitary sewer collection system after the completion of rehabilitation performed pursuant to Section VII of the Consent Decree with USEPA, into which the County had entered.

Since 2012, JCESD has made significant advances to the ways in which it manages, operates, and maintains its collection system.

In 2011, JCESD entered into contract with a consulting engineering firm to develop a Collection System Asset Management Program, which includes processes and procedures to identify and prioritize future collection system capital and operating replacement and maintenance requirements. As part of this program, a system of tools and data were developed and refined, including an asset management platform, hydraulic capacity model, detailed condition assessment data, and system performance data. Additionally, a comprehensive evaluation of the field operations and maintenance programs, practices, equipment and tools was undertaken, and a maintenance best practice operations training program was developed. As part of this training program, the field crews have gone through a standardization process during which best practices and new technologies have been adopted.

This document, and all the related associated program plans and referenced resources, describe the goals of the JCESD CMOM Program, as well as the means and methods that are in place and are being implemented to achieve the goals and ensure the successful execution of the various CMOM program elements.

## Overall CMOM Program Goals

The County has a stated goal for the overall CMOM Program, and is establishing goals for each of its areas of responsibility of wastewater conveyance and treatment. The overall CMOM Program goal is to:

> *Protecting public health and the environment by reducing the frequency and volume of sanitary sewer overflows (SSOs) in the JCESD collection system and providing the proper resources to effectively manage and maintain the collection system while supporting economic sustainability in the Jefferson County service area.*

This CMOM Program goal ties directly back to JCESD's Mission Statement, which is as follows:

> *The mission of Environmental Services is to protect human health and the environment through the effective and efficient operation of the County-wide sanitary sewer collection and treatment system.*

## Overall CMOM Program Components

JCESD's Overall CMOM Program documentation reflects the USEPA's CMOM guidelines[1], and individual program plans have been developed for the following JCESD management, operations, and maintenance program initiatives that are currently in place:

Capacity and Management Programs

- CMOM Program Organization
- Engineering, includes:
  - Acquisitions
  - Capacity Assurance
  - Collection System Plans and Mapping
  - Continuous Sewer System Assessment
  - Infrastructure Rehabilitation
  - New Construction and Rehabilitation Inspection
  - System Design Standards
  - System Inventory
- CMOM Information Management Systems (IMS)
- Collection System Training
- Contingency Planning
- Customer Service
- Equipment and Supplies Management
- Financial Analysis
- Legal Support
- Overflow Tracking
- Safety
- Water Quality Monitoring

[1] United States Environmental Protection Agency, Office of Enforcement and Compliance Assurance (2224A), January 2005, *Guide for Evaluating Capacity, Management, Operation, and Maintenance (CMOM) Programs at Sanitary Sewer Collection Systems*, EPA 305-B-05-002.

Operations and Maintenance Programs

- Fats, Oils and Grease (FOG) Management
- Gravity Line Preventative Maintenance (PM)
- Line Location
- Maintenance of Way
- Pretreatment
- Pump Stations Operations and Maintenance (O&M)
- Service Connection and Disconnection
- Sewer System Overflow Response and Reporting

JCESD has developed a CMOM Program that is patterned after USEPA Region 4 guidance, with its own customized formatting of program elements to better conform to its organization structure. A crosswalk between the CMOM program element checklists provided in the 2005 USEPA CMOM guidance document and the individual plans that are included in the JCESD CMOM Program documentation is provided in **Table 1**.

**Table 2** provides a summary of the individual program plans, which is intended to aid in understanding the interrelationships of the comprehensive CMOM Program.

# Collection System Background Information

The following provides an overview of the Jefferson County collection system service area, components, and performance history.

## Service Area

The JCESD provides wastewater collection and treatment services to a mix of residential, commercial, and industrial users in 23 municipalities located in Jefferson County, portions of unincorporated Jefferson County, and portions of Shelby and St. Clair Counties, as shown in **Figure 1**.

## Wastewater Treatment and Collection System Description

The County's wastewater collection and treatment system, overseen by the JCESD, consists of the following:

- Approximately 3,064 miles of gravity sanitary sewer lines
- 177 collection system pump/lift stations
- Approximately 89 miles of sanitary sewer force main pipe
- 9 wastewater treatment plants (WWTPs)

**Table 1. EPA CMOM Guidance and JCESD CMOM Program Crosswalk**

| Region 4 CMOM Checklist Item | | | | | Jefferson County ESD CMOM Programs |
|---|---|---|---|---|---|
| **Section** | **Issue** | | | | **Program Plan** |
| I. | General Information – Collection System Description | | | | CMOM Program Organization |
| II. | Continuing Sewer Assessment Plan | | | | Engineering |
| III. | Collection System Management | A. | Organizational Structure | | CMOM Program Organization |
| | | B. | Training | | Collection System Training |
| | | C. | Communication and Customer Service | | CMOM Program Organization, Customer Service |
| | | D. | Management Information Systems | | CMOM Information Management Systems |
| | | E. | SSO Notification Program | | Sanitary Sewer Overflow Response and Reporting |
| | | F. | Legal Authority | | Legal Support |
| IV. | Collection System Operation | A. | Budgeting | | Financial Analysis |
| | | B. | Compliance | | CMOM Program Organization |
| | | C. | Water Quality Monitoring | | Water Quality Monitoring |
| | | D. | Hydrogen Sulfide Monitoring and Control | | Corrosion Control, Engineering |
| | | E. | Safety | | Safety |
| | | F. | Emergency Preparedness and Response | | Contingency Planning |
| | | G. | Modeling | | Engineering |
| | | H. | Engineering | System Mapping and As-built Plans | Engineering |
| | | I. | | Design | Engineering |
| | | J. | | Capacity | Engineering |
| | | K. | | Construction | Engineering |
| | | L.1. | Pump Station Operation | Inspection | Pump Station O&M |
| | | L.2. | | Emergencies | Pump Station O&M |
| | | L.3. | | Emergency Response and Monitoring | Contingency Planning |
| | | L.4. | | Record Keeping | Pump Station O&M |
| | | L.5. | | Force Mains and Air/Vacuum Valves | Pump Station O&M |
| V. | Collection System Maintenance | A. | Maintenance Budgeting | | Financial Analysis |
| | | B. | Planned Maintenance | | Gravity Line Preventative Maintenance |
| | | C. | Maintenance Scheduling | | Gravity Line Preventative Maintenance |
| | | D. | Maintenance Right-of-Way | | Maintenance of Way |
| | | E.1. | Sewer Cleaning | Cleaning Equipment | Gravity Line Preventative Maintenance |
| | | E.2. | | Chemical Cleaning and Root Removal | Gravity Line Preventative Maintenance |
| | | F. | Parts Inventory | | Equipment and Supplies Management |
| | | G. | Equipment and Tool Management | | Equipment and Supplies Management |
| VI. | Management Information Systems: Performance Indicators | | | | Each Program Plan as appropriate |
| VII. | Sewer System Capacity Evaluation | A. | Internal CCTV Inspection | | Engineering, Gravity Line Preventative Maintenance |
| | | B. | Survey and Rehabilitation (general) | | Engineering |
| | | C. | Sewer Cleaning Related to I/I Reduction | | Gravity Line Preventative Maintenance |
| | | D. | Flow Monitoring | | Engineering |
| | | E. | Smoke Testing and Dyed Water Flooding | | Gravity Line Preventative Maintenance |
| | | F. | Manhole Inspection | | Engineering |
| VIII. | Rehabilitation | A. | Manhole Repairs | | Engineering |
| | | B. | Mainline Sewers | | Engineering |

**Table 2. JCESD CMOM Program Plan Interrelationships Matrix**

| | CMOM Program Organization | Collection System Training | Safety | CMOM IMS | Engineering | Overflow Tracking | Financial Analysis | Equipment and Supplies Management | Customer Service | Legal Support | Water Quality Monitoring | Contingency Planning | Pump Station O&M | Pretreatment | Corrosion Control | FOG Management | Service Connection and Disconnection | Line Location | Gravity Line PM | Maintenance of Way | SSORRP | SOPs and WPDs for Field Operations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CMOM Program Organization** | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| **Collection System Training** | ✓ | | ✓ | | | | | | ✓ | | | ✓ | ✓ | | | | | | ✓ | | ✓ | ✓ |
| **Safety** | ✓ | ✓ | | | | | | ✓ | ✓ | | | ✓ | ✓ | | | | | | ✓ | | | ✓ |
| **CMOM IMS** | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| **Engineering** | ✓ | | | ✓ | | | ✓ | ✓ | ✓ | ✓ | | | | | ✓ | | | ✓ | ✓ | | | ✓ |
| **Overflow Tracking** | ✓ | | ✓ | ✓ | | | | | ✓ | | | | | ✓ | | ✓ | | | ✓ | | ✓ | ✓ |
| **Financial Analysis** | ✓ | | ✓ | | | | | ✓ | | ✓ | | | ✓ | ✓ | | ✓ | ✓ | | | | | |
| **Equipment and Supplies Management** | ✓ | | ✓ | ✓ | ✓ | | | | | | | | ✓ | | | | | | ✓ | | ✓ | ✓ |
| **Customer Service** | ✓ | | | ✓ | | | | | | | | | ✓ | | | ✓ | | | | | ✓ | ✓ |
| **Legal Support** | ✓ | | | ✓ | ✓ | | ✓ | | | | | | | ✓ | | ✓ | ✓ | ✓ | ✓ | | | |
| **Water Quality Monitoring** | ✓ | | | ✓ | | ✓ | | ✓ | ✓ | | | | | ✓ | | ✓ | | | | | ✓ | |
| **Contingency Planning** | ✓ | ✓ | ✓ | ✓ | | | | ✓ | ✓ | | ✓ | | ✓ | | | | | | ✓ | | ✓ | ✓ |
| **Pump Station O&M** | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | | | | ✓ | | | | | | | | | ✓ | ✓ |
| **Pretreatment** | | | | ✓ | | | | | | | | | | | | ✓ | ✓ | | | | | |
| **Corrosion Control** | ✓ | | | ✓ | ✓ | | | ✓ | | | | | | ✓ | | | | | ✓ | | | ✓ |
| **FOG Management** | ✓ | | | | | ✓ | | | ✓ | ✓ | | | | | | | | | | | ✓ | |
| **Service Connection and Disconnection** | ✓ | | | ✓ | ✓ | | ✓ | | ✓ | | | ✓ | | | | | | ✓ | | | | |
| **Line Location** | | | ✓ | ✓ | ✓ | | | | ✓ | ✓ | | | | | | | ✓ | | | | | ✓ |
| **Gravity Line PM** | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ |
| **Maintenance of Way** | ✓ | | | ✓ | ✓ | | | | | | | | | | | | | | | | | ✓ |

✓ Indicates that the Program Plan references or is referenced in the associated Program Plan

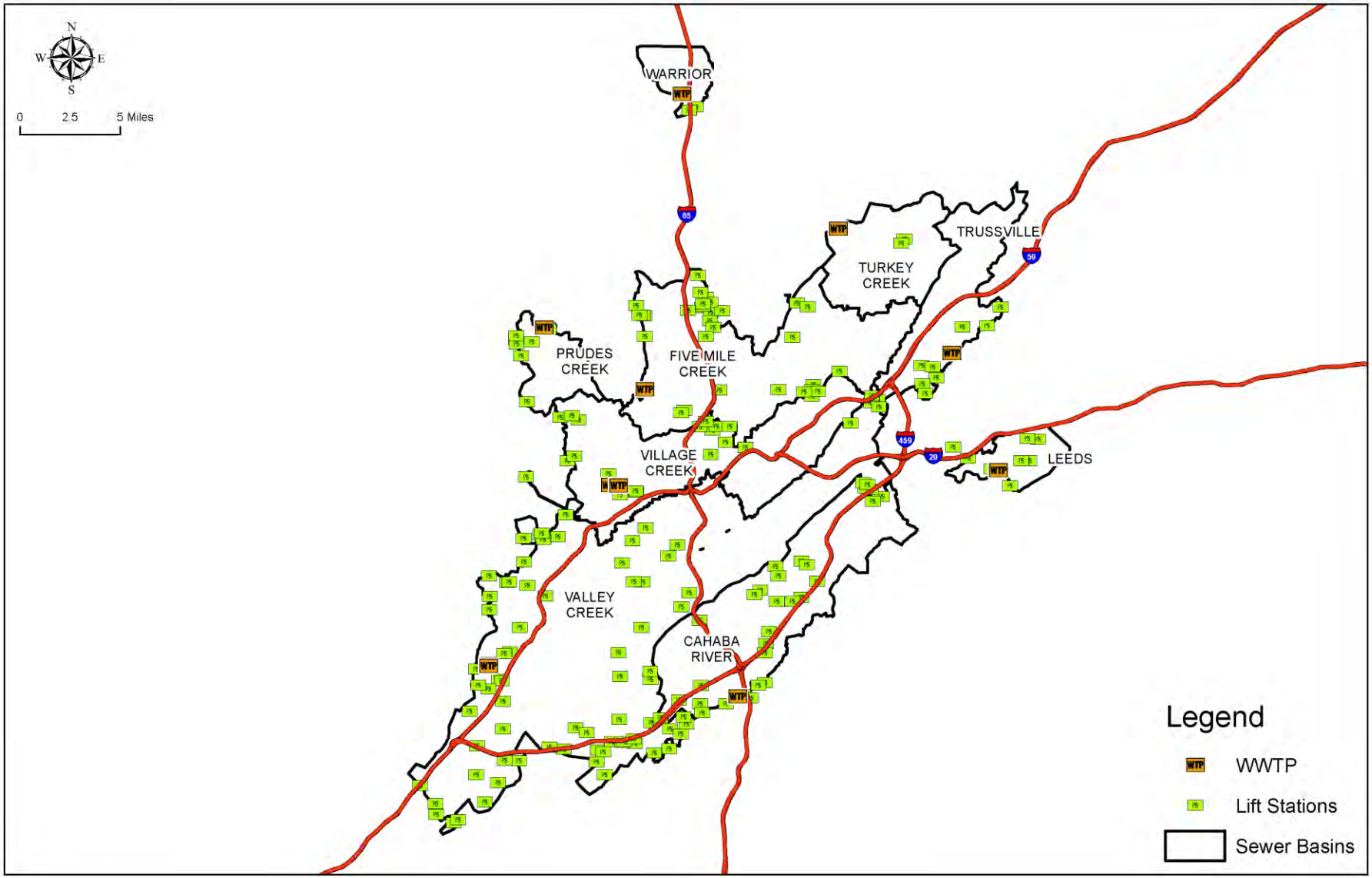



**Figure 1. Jefferson County Sewer Service Area**

**Table 3** provides a listing of JCESD's WWTPs and associated National Pollutant Discharge Elimination System (NPDES) permit numbers, as well as the lineal footage (LF) of force main and gravity sewers in each WWTP tributary area that are active (in-service) and owned by the County.

**Table 3. JCESD WWTPs and Collection System Overview**

| WWTP | NPDES Permit No. | Tributary Force Main (LF)* | Tributary Gravity Main (LF)* | Tributary Manholes |
|---|---|---|---|---|
| Cahaba River | AL0023027 | 64,827 | 1,824,116 | 10,510 |
| Five Mile Creek | AL0026913 | 49,777 | 2,230,266 | 11,344 |
| Leeds | AL0067067 | 23,118 | 249,628 | 1,264 |
| Prudes Creek | AL0056120 | 15,141 | 145,708 | 736 |
| Trussville | AL0022934 | 15,739 | 462,909 | 2,301 |
| Turkey Creek | AL0022926 | 4,515 | 578,057 | 3,210 |
| Valley Creek | AL0023655 | 240,138 | 7,218,930 | 35,424 |
| Village Creek | AL0023647 | 47,877 | 3,373,748 | 16,180 |
| Warrior | AL0050881 | 7,027 | 40,274 | 223 |
| **TOTAL** | | **468,159** | **16,177,636** | **81,192** |

**Note: Gravity and Force Main Length as of March 2016 Asset Inventory*

The lengths by diameters (in inches (in)) of force main within the JCESD collection system are shown in **Table 4.** The lengths (in lineal feet (LF)) by diameter of gravity sewers is shown in **Table 5**.

**Table 4. Force Mains in the JCESD Collection System**

| Diameter (in) | Length (LF) |
|---|---|
| 3 | 14,780.0 |
| 4 | 58,301.9 |
| 6 | 152,245.9 |
| 8 | 59,433.1 |
| 10 | 54,414.3 |
| 12 | 26,613.3 |
| 14 | 40,140.4 |
| 16 | 1,994.5 |
| 18 | 12,316.4 |
| 24 | 2,279.3 |
| 36 | 27,181.0 |
| 48 | 16,741.0 |
| 60 | 359.9 |
| unknown | 1,358.4 |
| **Total** | **468,159.4** |

**Table 5. Gravity Sewers in the JCESD Collection System**

| Diameter (in) | Length (LF) | Diameter (in) | Length (LF) | Diameter (in) | Length (LF) |
|---|---|---|---|---|---|
| 4 | 6,766.6 | 25 | 769.5 | 52 | 70.4 |
| 6 | 189,000.9 | 26 | 2,912.4 | 54 | 102,680.6 |
| 8 | 12,587,484.8 | 27 | 18,467.7 | 55 | 745.6 |
| 10 | 616,353.4 | 28 | 930.9 | 56 | 314.5 |
| 12 | 656,322.3 | 29 | 4,038.6 | 60 | 130,269.1 |
| 13 | 100.7 | 30 | 148,729.8 | 66 | 50,660.2 |
| 14 | 18,056.3 | 32 | 962.9 | 72 | 21,341.7 |
| 15 | 196,321.1 | 34 | 1,064.9 | 84 | 32,785.4 |
| 16 | 140,553.1 | 36 | 156,881.8 | 96 | 8,666.7 |
| 17 | 4,993.0 | 38 | 1,255.1 | 102 | 7,049.4 |
| 18 | 313,013.5 | 42 | 50,773.6 | 120 | 8,913.3 |
| 20 | 26,228.2 | 43 | 445.9 | 132 | 3,290.8 |
| 21 | 60,914.1 | 45 | 291.4 | 146 | 5,867.7 |
| 22 | 6,711.5 | 46 | 821.7 | 192 | 782.0 |
| 23 | 157.3 | 47 | 2,189.2 | unknown | 277,382.5 |
| 24 | 232,947.4 | 48 | 80,357.0 | **Total** | **16,177,636.5** |

## System Performance Information

JCESD documents and reports all SSO occurrences, regardless of the size of the spill. A listing of SSOs experienced within the JCESD collection system during the past 5 years is presented in **Table 6**.

**Table 6. Sanitary Sewer Overflow Occurrences, 2011 - 2015**

| Fiscal Year | Total Annual Rainfall (inches) | Number of SSOs | Number of Overflow Advisories Issued | SSO Rate per 100 Miles* |
|---|---|---|---|---|
| 2011 | 50.88 | 351 | 76 | 11.2 |
| 2012 | 49.36 | 256 | 62 | 8.2 |
| 2013 | 67.87 | 275 | 115 | 8.8 |
| 2014 | 49.77 | 344 | 165 | 11.0 |
| 2015 | 60.97 | 276 | 120 | 8.8 |

**Data obtained from the National Weather Service at the Birmingham Airport*
***Based on 3,140 total miles of sewer pipe*

JCESD is currently refining the method in which the root causes of SSO occurrences are characterized, so that the dominant root cause is more easily identifiable; however, this method will take time to implement.

# CMOM Program Resources

## JCESD CMOM Program Authority and Implementation Staffing

### Jefferson County Commission

Jefferson County is governed by five Commissioners elected from specific districts of the County. Each Commissioner is responsible for oversight of assigned departments and functions of County government.

The Commissioners elect one of their number to serve as President of the Commission. The President's duties include presiding over Commission meetings and authorization to execute contracts and other documents.

### Jefferson County Manager

In 2009, Jefferson County changed to a County Manager form of government. The Deputy County Manager is assigned to oversee the County's infrastructure, and as such, is responsible for overseeing the administration of the Environmental Services Department through the County Manager's office.

### Jefferson County Environmental Services Department

The JCESD is responsible for collecting, conveying, and treating sanitary sewage in the Jefferson County sanitary sewer service area. Each of the Department's divisions, discussed below, is responsible for a specific range of operations that work together to serve its customers, protect water quality, and meet all regulatory obligations.

**Table 7** on the following page lists specific JCESD divisions (with Munis financial software codes) and number of positions within each division for fiscal year (FY) 2016. Organizational charts showing individual staff members and classifications for each division (with Organizational Codes used by Jefferson County Paroll) are included in **Appendix A**.

#### Administration Division

The Administration Division is responsible for providing direction to all phases of JCESD's operations. The JCESD Director has the ultimate responsibility for all aspects of the Department's CMOM Program. The Director has the following four direct reports:

- Deputy Director
- Impact, Planning, and Plans Review Division Manager
- Barton Laboratory Manager
- Billing, Budget, & HR Manager

**Table 7. JCESD Staffing Details for FY 2016**

| Department Munis Code | Description | Number of Staff |
|---|---|---|
| 7100 | JCESD Administration | 47 |
| 7101 | Sewer Billing | 15 |
| 7102 | Barton Laboratory | 21 |
| 7210 | Inspection | 17 |
| 7211 | Survey | 10 |
| 7230 | Construction | 20 |
| 7240 | Pump Stations | 26 |
| 7250 | Line Maintenance - Administration | 11 |
| 7252 | Line Maintenance - Village | 22 |
| 7253 | Line Maintenance – Shades | 38 |
| 7270 | TV Inspection | 24 |
| 7301 | Cahaba WWTP | 18 |
| 7302 | Five Mile WWTP | 17 |
| 7303 | Leeds WWTP | 8 |
| 7304 | Trussville WWTP | 5 |
| 7305 | Turkey Creek WWTP | 6 |
| 7306 | Valley Creek WWTP | 45 |
| 7307 | Village Creek WWTP | 43 |
| 7308 | Prudes WWTP | * |
| 7309 | Warrior WWTP | * |
| 7320 | Five Mile Maintenance Shop | 8 |
| 7321 | Valley Maintenance Shop | 11 |
| 7322 | Village Maintenance Shop | 8 |
| 7323 | Village Electrical Shop | 12 |
| 7324 | Instrumentation Shop | 7 |
| 7330 | Biosolids | 14 |
| | **Total** | **453** |

** Personnel responsible for operating Prudes and Warrior WWTPs are assigned to other WWTP Departments*

*** All positions are not currently filled – see the Organization Charts in **Appendix A** for more information*

The Deputy Director oversees the following four groups:

- Engineering, Project Management, and Collection System Management
- Clerical
- Network Support
- Wastewater Treatment

### Impact, Planning, and Plans Review

The Impact, Planning, and Plans Review Division is responsible for field inspections and permitting of planned construction, as well as customer service related to private meters. Any proposed development requiring a sewer connection, even those located within the jurisdiction of a municipality within Jefferson County, must be reviewed by the JCESD Plan Review Department for issuance of an impact permit and sewer connection permit. Although not required, JCESD occasionally provides a sewer availability letter during the planning stages of a project.

The personnel responsible for developing and maintaining JCESD's ArcGIS geographic information system (GIS) work under this group. Additional related network support for Infor WWTP computerized maintenance management system (CMMS), collection system Cityworks CMMS, and Pipetech video inspection database are also assigned to this group. In addition, the personnel who oversee JCESD's mobile devices, computer network, and associated security are provided by staff under the direction of the Deputy Director.

### Billing, Budget, and HR

The Billing, Budget, and HR Division functions as the fiscal and human resources managers of JCESD. Activities of this Division include:

- Budget administration
- Customer billing
- Customer service
- Personnel coordination
- Customer interaction
- Accounting

### Engineering, Project Management and Collection System Management

The Engineering and Collection Systems Management Divisions are responsible for sewer line maintenance and construction activities, including:

- Engineering
- Project management
- Capital improvement program management
- Call center and dispatch
- Service request response
- Sewer line cleaning
- Sewer line television inspection
- Sewer line construction inspection
- Surveying
- Pump station operation and maintenance
- Sewer main point repairs and manhole repair/rehabilitation

### Regulatory Compliance and Public Outreach/Education

The JCESD staff responsible for regulatory compliance and public outreach and education are housed within Barton Laboratory Division. This Division is responsible for the following:

- Water quality monitoring activities
- WWTP laboratory quality control
- WWTP reporting requirements
- Pretreatment program administration
- FOG management program administration
- Industrial pretreatment sampling and surcharge determinations

### Treatment Division

The Wastewater Treatment Plants Division is responsible for the operation and maintenance of the County's wastewater treatment plants and biosolids land application program.

## Intradepartmental Functions

JCESD departments routinely work together to fulfill the requirements of the CMOM Program. For example, the Line Maintenance personnel serve as first responders to sanitary sewer overflow (SSO) occurrences, as defined in the **Sanitary Sewer Overflow Response and Reporting Program (SSORRP)** plan, and act as a service provider to the **FOG Management Program**.

Barton Laboratory personnel are responsible for the implementation of the **FOG Management and Pretreatment Programs**. Line Maintenance is also responsible for the reporting requirements of the **SSORRP**.

The Plan Review Department is responsible for compliance with JCESD design requirements during the design of a project, while the Engineering Department is responsible for compliance during the construction of a project.

## CMOM Responsibilities

Due to the expansive nature of a CMOM program, responsibilities for CMOM activities are distributed among various JCESD Departments, with some being shared by two or more Departments. See the individual CMOM Program plans for more information on specific functions, staffing, and responsibilities.

## Communications

JCESD understands communication between staff and management and for inter-departmental needs is critical to an organization operating in a large service area with multiple work activities requiring coordination. Internal communications include methods that work at inter-departmental levels between management and staff, and cross-departmental levels with other facets of the organization. These communication methods can be in the form of meetings, email, bulletin boards, telephone, conference calls, and cellular phone texts.

Communications from the senior management level to field Supervisors and operators is accomplished through email or cellphone, depending on the urgency of the need and complexity of the request. Communications from field supervisors to field operators utilizes email, cell phones, and group or individual meetings with personnel at each facility.

Senior management meetings that include the Sewer Construction/Maintenance Supervisors in charge of field operations for line maintenance and construction are held on a regular basis. Bimonthly meetings are held with the Director, Deputy Director, engineering managers, division managers, and supervisors to address safety, performance, budget, and equipment needs issues. Other meetings are held when needed to discuss FOG Management and Pretreatment Program-related issues.

# Intergovernmental Relationships and Coordination

## Unification Agreements

Intergovernmental Agreements (also referred to as "Unification Agreements") were established in 1998 with the 21 municipalities listed below, whose wastewater collection and conveyance system ownership and operations were transferred to JCESD:

- Adamsville
- Bessemer
- Birmingham
- Brighton
- Fairfield
- Fultondale
- Gardendale
- Graysville
- Homewood
- Hoover
- Hueytown
- Irondale
- Leeds
- Lipscomb
- Midfield
- Mountain Brook
- Pleasant Grove
- Tarrant
- Trussville
- Vestavia Hills
- Warrior

The agreements transferred the responsibility for ownership, maintenance, and operation of the conveyance system assets from the represented municipal government to JCESD. This includes transfer of all data related to past and future projects, as well as approval authority for proposed projects requiring sewer service or impacting the sewer system. For more information on these agreements, see the JCESD **Legal Support Program** plan.

Other municipalities in the JCESD service area include the cities of Center Point and Clay, which were both incorporated after the unification process was complete.

## Coordination with Other Agencies

Numerous CMOM program activities require coordination with other agencies and departments outside of JCESD, including the following:

- Jefferson County Department of Health (JCDH)
- Jefferson County Department of Storm Water Management
- Alabama Department of Environmental Management (ADEM)
- USEPA

For more information on the JCESD's participation with these agencies, see the **Legal Support Program** plan.

## CMOM Program Continuous Improvement

JCESD is committed to the continuous improvement of its CMOM Program initiatives and uses an adaptive management approach to improve the Department's decision-making process, as depicted in **Figure 2**. Adaptive management is an iterative learning process, producing improved understanding and improved management over time. As new or additional data is acquired through activities such as sewer system condition assessment, hydraulic modeling, and innovative technology evaluation, this information will be used to refine future capital improvement and system maintenance planning, prioritization, scheduling and operational practices.

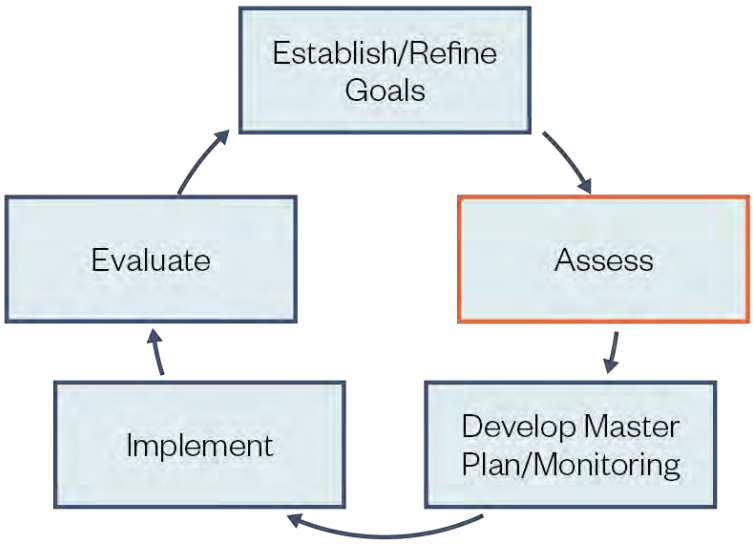



**Figure 2. JCESD's Adaptive Management Approach for CMOM Program Continuous Improvement**

The criteria used to recognize success in this adaptive management approach include the following:

- CMOM Program stakeholders (JCESD staff) are actively involved and committed to the process.
- Progress is made toward achieving management objectives and SSO reduction.
- Results from monitoring and assessment are used to adjust and improve management decisions and CMOM Program implementation.
- CMOM Program implementation is consistent with applicable laws.

Performance metrics have been developed for CMOM Program components that allow for continuous measurement and evaluation of program activities. Performance measures are designed to collect information that enable JCESD to determine if established goals and level of service are being met and, if not, what activities need to be adjusted to meet program goals.

The CMOM Program will be reviewed during the first quarter of each year for the previous year. This review will be conducted by the JCESD Management and Program Leaders. The review will include analyzing the programs that have been put in place and modifying them as necessary to better achieve the program goals.

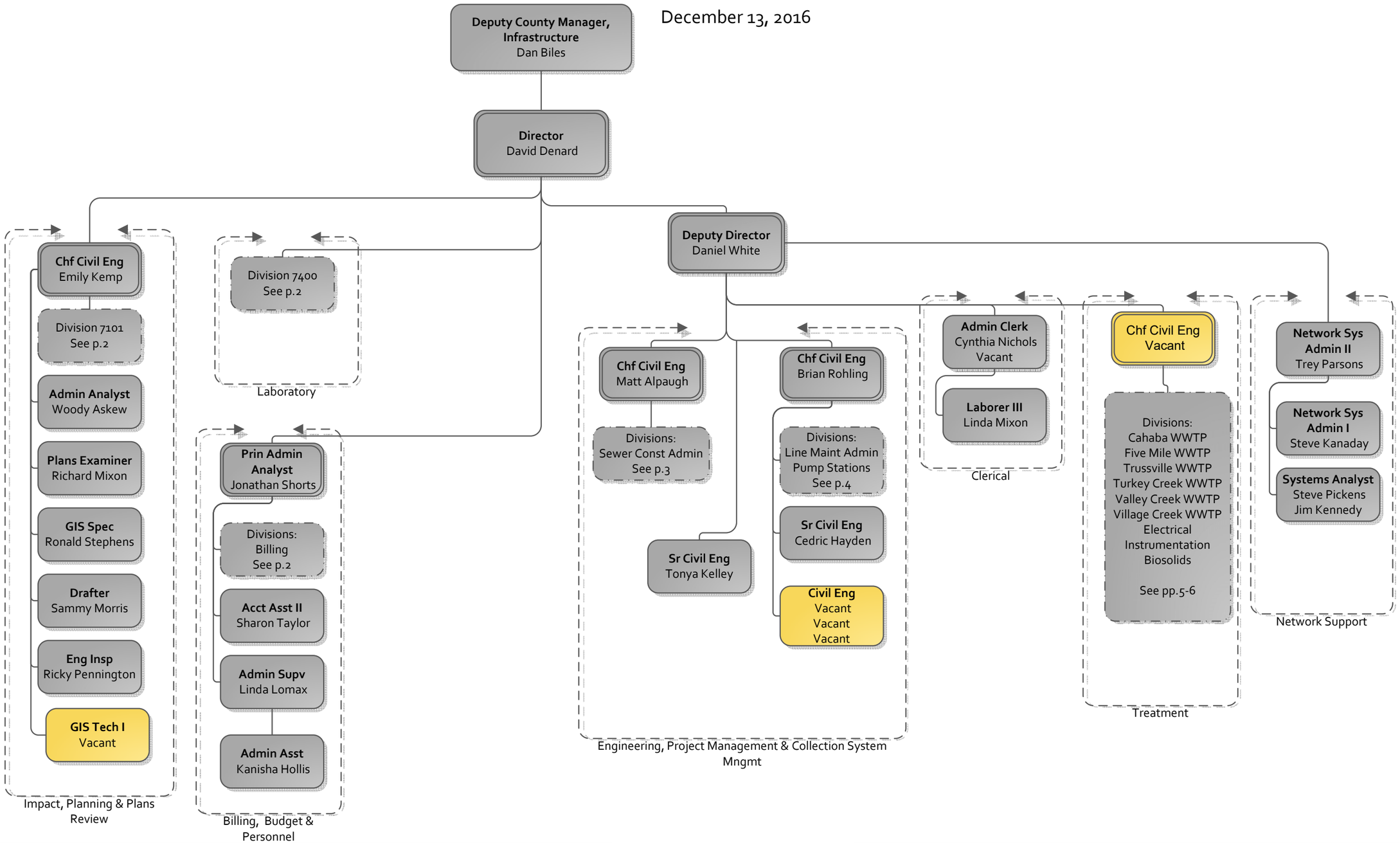
# APPENDIX

## Appendix A Department Organizational Charts

| Department Munis Code | Description |
|---|---|
| 7100 | JCESD Administration |
| - | Sewer Impact Office |
| - | Sewer Construction Administration |
| 7101 | Sewer Billing |
| 7102 | Barton Laboratory |
| 7210 | Inspection |
| 7211 | Survey |
| 7230 | Construction |
| 7240 | Pump Stations |
| 7250 | Line Maintenance - Administration |
| 7252 | Line Maintenance - Village |
| 7253 | Line Maintenance – Shades |
| 7270 | TV Inspection |
| 7301 | Cahaba WWTP |
| 7302 | Five Mile WWTP |
| 7303 | Leeds WWTP |
| 7304 | Trussville WWTP |
| 7305 | Turkey Creek WWTP |
| 7306 | Valley Creek WWTP |
| 7307 | Village Creek WWTP |
| 7308 | Prudes Creek WWTP |
| 7309 | Warrior WWTP |
| 7320 | Five Mile Maintenance Shop |
| 7321 | Valley Maintenance Shop |
| 7322 | Village Maintenance Shop |
| 7323 | Village Electrical Shop |
| 7324 | Instrumentation Shop |
| 7330 | Biosolids |

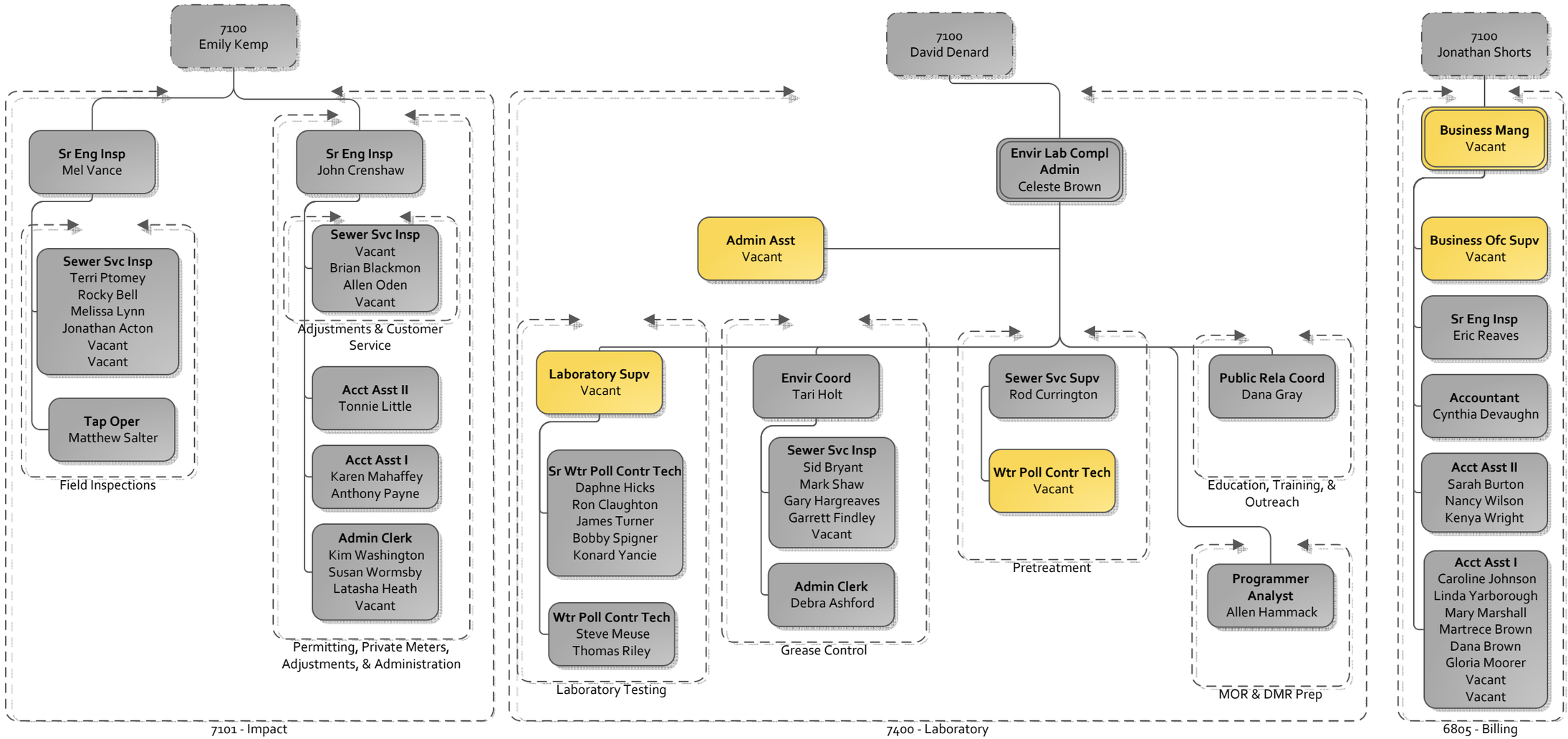
# ESD Organization Chart – 7100 Administration

December 13, 2016



# 6805, 7101, 7400

December 13, 2016



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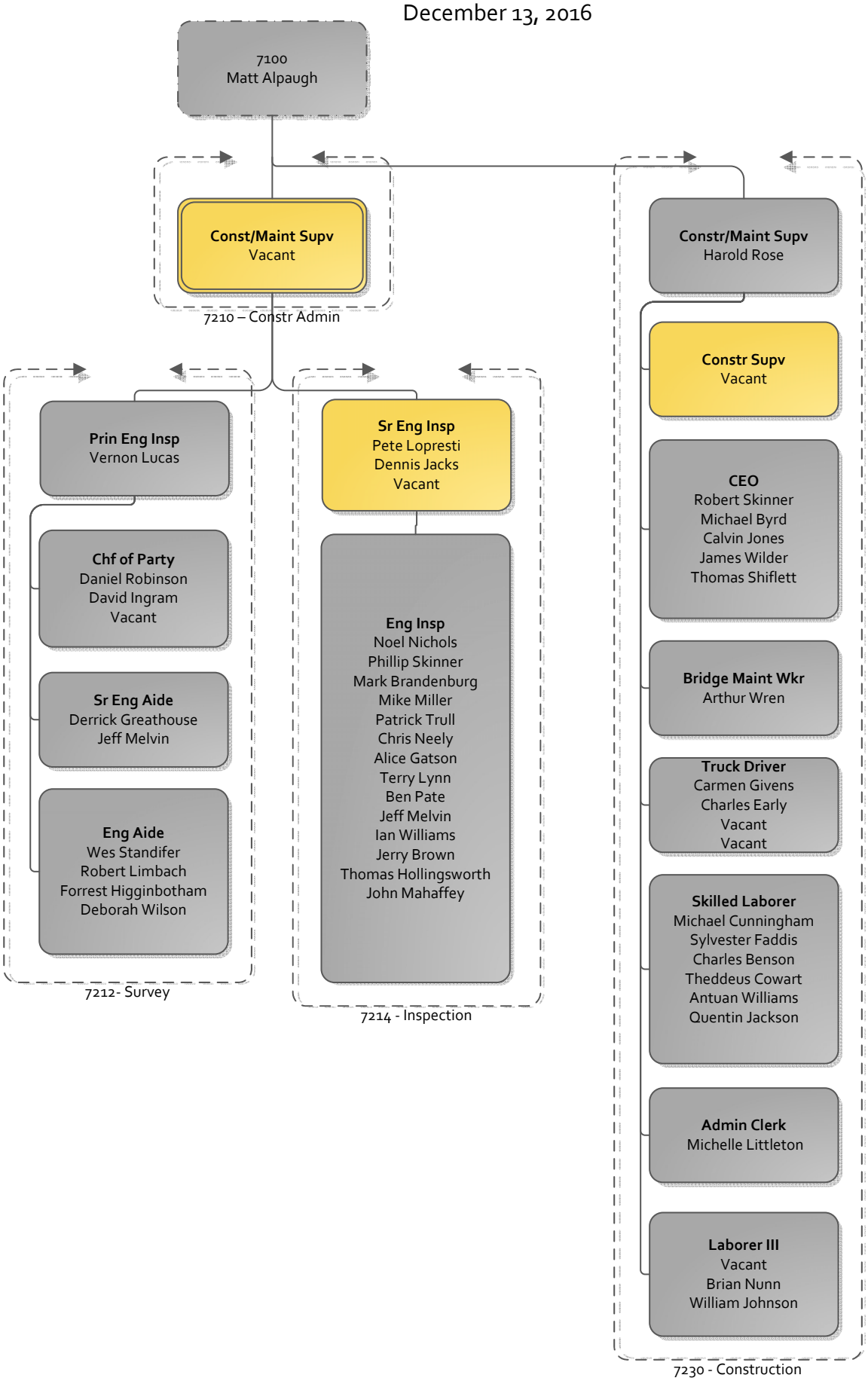
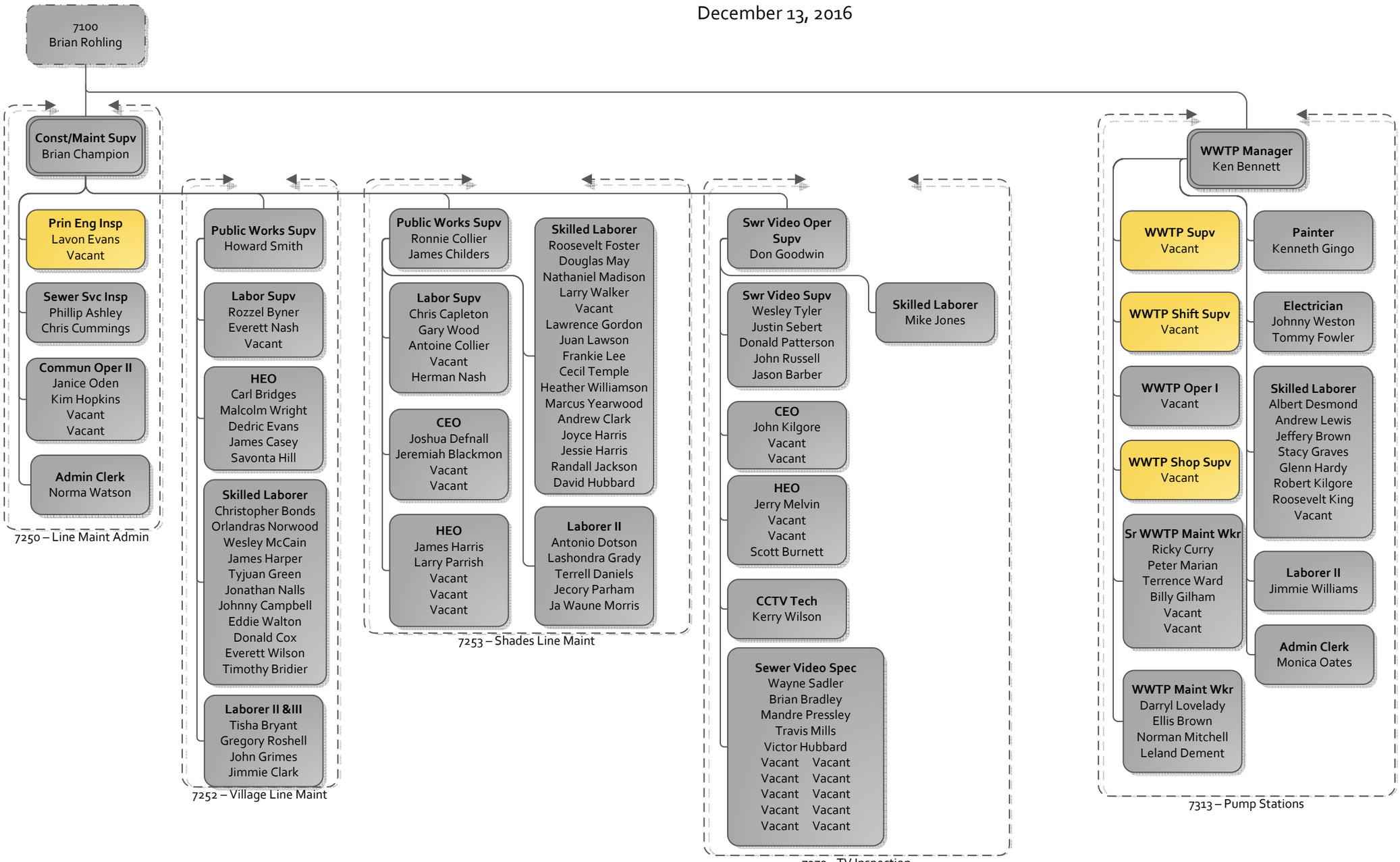


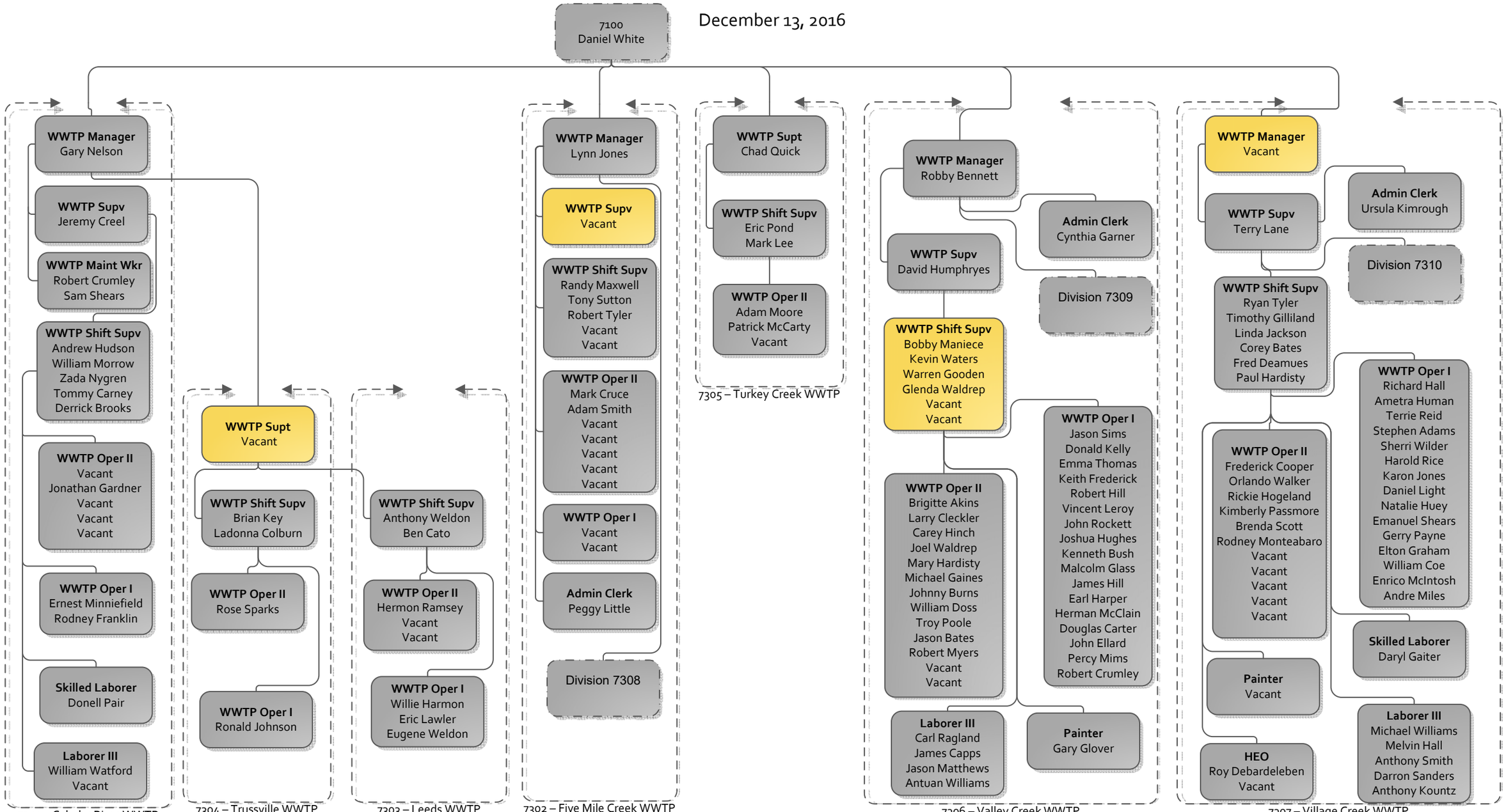
# 7250, 7252, 7253, 7270, 7313

December 13, 2016



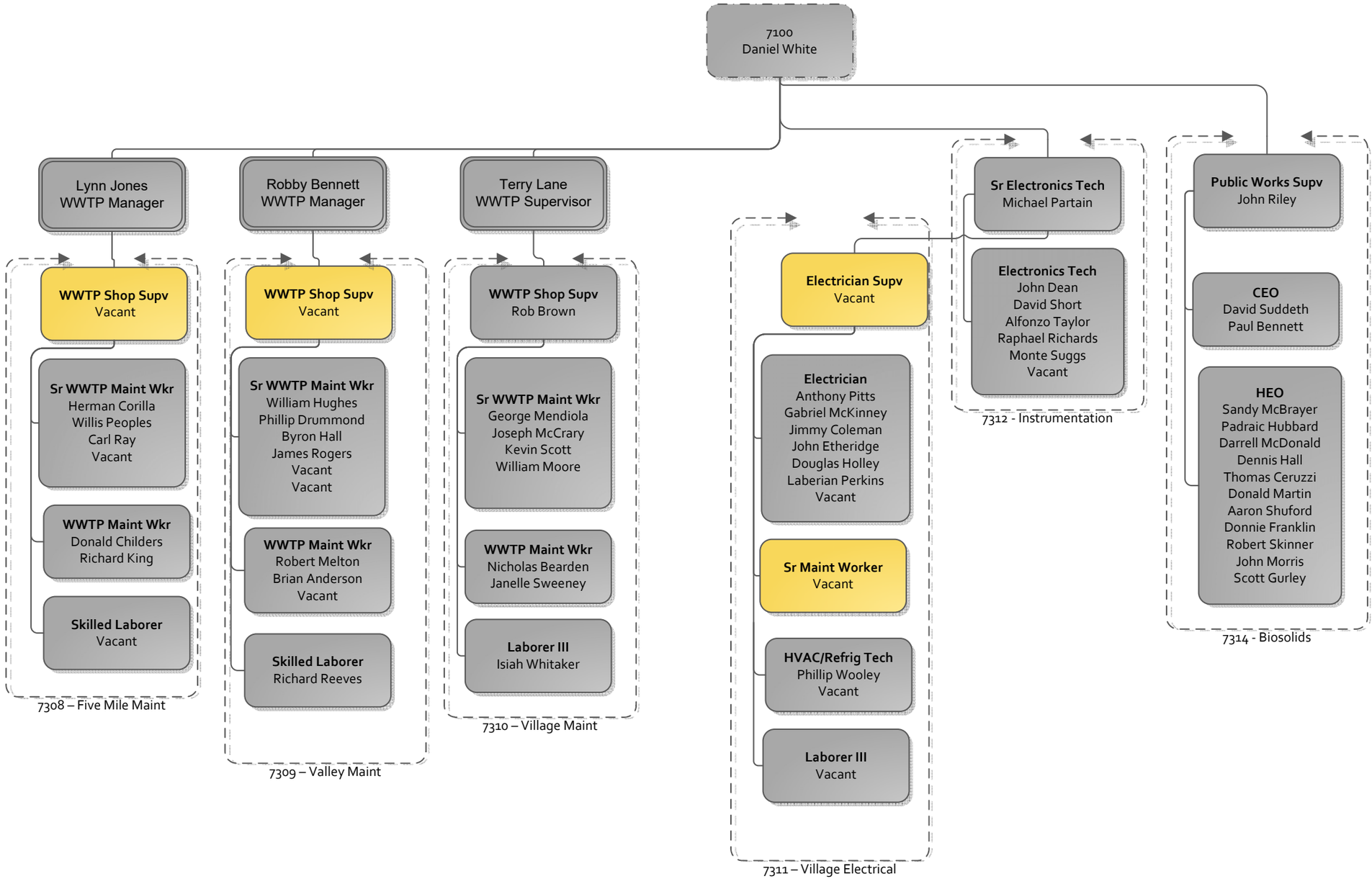
# 7301 - 7307

December 13, 2016



# 7308 – 7312, 7314

December 13, 2016



# Training Program

## Final

December 2016

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# Acronyms

| | |
|---|---|
| ADEM | Alabama Department of Environmental Management |
| AWEA | Alabama Water Environment Association |
| CEH | Continuing education hours |
| CCTV | Closed-circuit television |
| CMOM | Capacity, Management, Operations, and Maintenance |
| CPR | Cardiopulmonary resuscitation |
| FOG | Fats, oils, and grease |
| JCESD | Jefferson County Environmental Services Department |
| KPI | Key performance indicator |
| NASSCO | National Association of Sewer Service Companies |
| NPDES | National Pollutant Discharge Elimination System |
| OJT | On-the-job training |
| PACP | Pipeline Assessment and Certification Program |
| PBJC | Personnel Board of Jefferson County |
| QA/QC | Quality assurance and quality control |
| SOP | Standard operating procedure |
| SSO | Sanitary sewer overflow |
| SSORRP | Sanitary Sewer Overflow Response and Reporting Program |
| TVI | Television inspection |
| WEF | Water Environment Federation |
| WPD | Work process documentation |
| WWTP | Wastewater treatment plant |

# Training Program

## Program Overview

### Purpose and Goals

Jefferson County Environmental Services Department's (JCESD) ultimate training goal is to develop a highly skilled workforce to ensure that decisions are made and work is performed in the safest and most effective manner possible to minimize the opportunity for, and occurrence of, sanitary sewer overflows (SSOs).

### Program Components and Approach

JCESD employs personnel with a wide range of experience, talent, and abilities, including professional engineers, public relations and customer service specialists, scientists, sewer line cleaning and inspection personnel, wastewater and pump station operators, and construction workers. JCESD employees are provided with training opportunities in areas that focus on safety, technical development, and skills relevant to their job duties.

Several types of instruction methods are used, including interactive classroom sessions, in-field training, and one-on-one hands-on instruction. In addition, JCESD regularly enlists subject matter experts from a variety of internal and external sources to conduct training classes, including partnering agencies such as the Alabama Water Environment Association (AWEA) and the Water Environment Federation (WEF).

The **Collection System Training Program** is comprised of a comprehensive system of administrative, management, and documentation activities. This written plan includes a description of the following program components:

- The overall **Collection System Training Program**, including a summary of the Capacity, Management, Operations, and Maintenance (CMOM)-related training opportunities made available to JCESD Wastewater Treatment Plant (WWTP) and collection system personnel.
- A method for identifying and scheduling the appropriate training for personnel.
- Written standard operating procedures (SOPs) and work process documentation (WPD) that is used as a training platform for various activities supporting the work performed by JCESD personnel.
- Key Performance Indicators (KPIs) for tracking and documenting the performance and effectiveness of the **Collection System Training Program**.

JCESD's training initiatives assist the County in achieving compliance with National Pollutant Discharge Elimination System (NPDES) permit requirements related to the sanitary sewer collection system, as established by Federal and State regulators.

In addition, Collection System Operator Certification is required by the Alabama Department of Environmental Management (ADEM) per regulations outlined in Division 335-10-1 as follows: [1]

> *335-10-1-.14 Certification Required for Operation. Wastewater treatment plants, water treatment plants, water distribution systems, and public wastewater collection systems classified in 335-10-1-.03 must be operated by an operator holding a valid certificate of the same grade or higher. Any person without a valid certificate can only work under the direct supervision of a properly certified operator, and may not work a shift as specified in 335-10-1-.04 unless a properly certified operator is present to supervise the work at all times.*

The **Collection System Training Program** supports preparation for the written certification examination and fulfillment of required continuing education hours (CEH) in the wastewater collection field.

# Program Resources

## Related CMOM Program Documents and Other References

JCESD developed SOPs for various Capacity, Management, Operations, and Maintenance (CMOM)-related job duties. Copies of the SOPs are provided in the JCESD's **Standard Operation Procedures and Work Process Documentation for Field Operations.** Pump station, bypass pump, and generator SOPs are provided in the JCESD's **Pump Station Operations and Maintenance Program** plan. Procedures used when responding to and reporting SSOs are detailed in JCESD's **Sanitary Sewer Overflow Response and Reporting Program (SSORRP)** plan.

For more information on Safety Training Resources, see the **Safety Program** plan.

Other CMOM Program plans that are referenced in the **Collection System Training Program** are as follows:

- CMOM Program Organization
- Customer Service Program
- Contingency Planning Program

## Staffing

The Public Relations Coordinator, assigned to the Barton Lab, oversees the program coordination and is responsible for tracking the training provided to JCESD personnel (for more information, see the **CMOM Program Organization** plan). The Public Relations Coordinator arranges for training that is requested by JCESD supervisory and management staff using in-house personnel, vendors, and other subject matter experts.

The Public Relations Coordinator is also responsible for tracking the status of WWTP and collection system operator certifications, and sending reminders to Division Supervisors on recertification dates and required training hours. Division Supervisors are responsible for identifying the appropriate

[1] Code of Alabama 1975, §§ 22-22A-5, 22-22A-6, 22-22A-8, 22-25-11, 22-25-13.

required training for their personnel, and for notifying the Public Relations Coordinator that the training opportunities need to be scheduled.

## Outside Resources

Classroom and field training opportunities related to safety, technical development, and job skills are also provided by other Jefferson County departments, the Personnel Board of Jefferson County (PBJC), external trainers, manufacturers, and vendors.

As shown in **Figure 1**, JCESD's training facility at the Shades Valley Complex has adequate capacity and the state-of-the art technology necessary for hosting all-hands classroom training events.



**Figure 1.All-Hands Classroom Training**

JCESD supports participation in professional organization-sponsored events and training opportunities provided by the AWEA, WEF, and Office of Water Programs, California State University, Sacramento. A copy of the handbook from the Fats, Oils, and Grease (FOG) Management Workshop jointly sponsored by JCESD, WEF, and AWEA is shown in **Figure 2**.

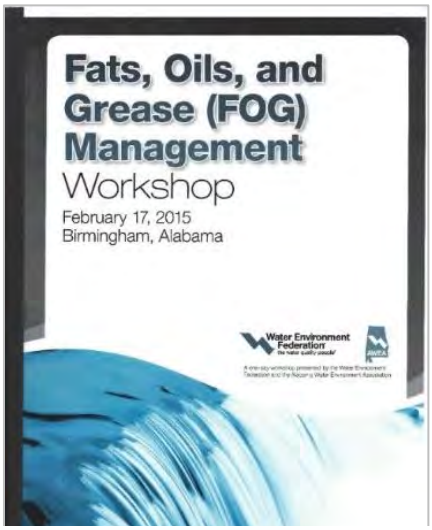


**Figure 2. FOG Management Workshop Handbook, February 2015**

## Data Management

Most of the training received by JCESD staff is recorded and tracked in Microsoft® Excel by the Public Relations Coordinator.

Whenever training that is not coordinated by the Public Relations Coordinator is provided to staff, it is the responsibility of whoever arranged for the training to obtain the necessary documentation (sign-in sheets, curriculum, and/or certificates of attendance) and forward it to the Public Relations Coordinator so that the training can be recorded.

The following training-related information is maintained in Excel spreadsheets:

- List of personnel holding certificates (WWTP and Collection System)
- Operator training hours completed by person
- Operator training hours by class (calendar year)

A copy of the 2015 Operator Training Hours Summary is provided in **Appendix A**.

# Program Implementation

## Safety Training

JCESD provides the following types of recurring safety training opportunities:

- Confined space entry
- Traffic management
- Trenching and shoring
- Cardiopulmonary resuscitation (CPR) / First Aid
- Chlorine and sulphur dioxide
- Arc flash

JCESD is developing a formal and documented safety training program that will include a schedule for specific training to be provided by in-house and contracted trainers. For more information on JCESD's Safety Program-related training, see the **Safety Program** plan.

## Skills and Technical Training

### Collection System Maintenance and Construction Development and Training Program

In 2012, JCESD initiated a best practices training program designed to empower and enable its collection system maintenance staff to achieve and maintain the level of proficiency and readiness needed to safely, efficiently, and effectively perform assigned duties. The results of this training program were demonstrated by reduced dry weather SSO occurrences.

In February 2015, JCESD entered into a 3-year professional services agreement with Tilson & Associates, LLC to continue to provide best practices training for its Collection System Maintenance and Construction Development and Training Program. As part of this initiative, best practice training is provided to Line Maintenance, Television Inspection (TVI), and Construction personnel on a quarterly basis.

Properly trained sewer maintenance and field operations personnel improve system reliability and sustainability by:

- Repairing and replacing sewer pipe and connections. Buried pipes and gravity sewer system components need to be repaired or rehabilitated.
- Installing, repairing and/or replacing manholes. Manhole structures, frames and covers need to be raised, lowered, or repaired.
- Maintaining sewer easements through wooded areas and unimproved rights-of-way.
- Cleaning sewer pipe to remove deposits and organic materials that can interrupt flow and result in SSOs.
- Internally inspecting gravity sewer pipes with closed circuit television (CCTV) cameras to assess pipe conditions, collect information needed to schedule future maintenance, locate and identify defects, determine causes of SSOs, and to provide pipe cleaning and repair quality assurance and quality control (QA/QC) documentation.

JCESD sewer maintenance and construction crews use different types of equipment and tools to maintain sanitary collection systems, and to prevent SSOs. As part of the best practices training program, JCESD developed SOPs and WPDs that serve as a training platform for field operations and are designed to:

- Minimize injury to personnel and bystanders,
- Minimize damage to equipment and property,
- Promote efficient and effective sewer maintenance and repair, and
- Provide continuity in equipment use between operators and crews.

A copy of the field operations SOPs and WPDs are provided in JCESD's **Standard Operation Procedures and Work Process Documentation for Field Operations**. Pump station, bypass pump, and generator SOPs are provided in the JCESD's **Pump Station Operations and Maintenance Program** plan.

## Onboarding Training

During the first year of employment, new employees receive onboarding training that focuses on critical job knowledge, job tasks, and soft skills that are relevant for their job classifications and assigned duties.

## On-the-Job Training (OJT)

Engineers, Inspectors, and Construction/Maintenance Supervisors are responsible for developing and implementing OJT for line maintenance, TVI, and construction field crews. The written Field Operations SOPs and WPDs are used as a resource for this type of training. OJT is also used for the onboarding process for new personnel.

Pump station personnel receive most of their training through the OJT platform, as deemed necessary by the WWTP Manager.

Currently all Dispatchers receive OJT training on service request calls and Cityworks (computerized maintenance management system software). For more information on the customer service-related training provided to Dispatchers, see the **Customer Service Program** plan.

## Sanitary Sewer Overflow Response and Reporting Program (SSORRP) Training

The JCESD provides training on the SSORRP program as part of new employee orientation and annually to all personnel involved in responding to and reporting of SSOs, including the:

- Director
- Deputy Director
- Engineering Staff
- Inspection Staff
- Line Maintenance Personnel
- Pump Station Operations Personnel
- Construction Personnel

The training sessions are documented, and lists of personnel attending training sessions are maintained. Additional training sessions will be conducted to train personnel on any new and/or changed SSORRP procedures when appropriate.

### NASSCO Pipeline Assessment & Certification Program (PACP) Training

The National Association of Sewer Service Companies (NASSCO) PACP Certification training is provided to engineer, inspectors, and TVI personnel. NASSCO PACP certification is necessary to properly code sewer line and manhole defect information stored in JCESD's asset management software system (Cityworks). PACP certificate holders are required to recertify every three years to keep their certification active. JCESD provides training opportunities for applicable personnel to obtain PACP certificates and recertify, when necessary.

### Personnel Board of Jefferson County (PBJC) Training Opportunities

The PBJC Training and Development Department provides essential employee development opportunities to Jefferson County's Merit System personnel by offering access to training classes in computer software, human relations, effective customer service, management, and leadership. Example course offerings are listed in a PBJC flyer shown in **Figure 3** on the following page.

### Training Matrix

**Table 1** lists the regular and routine training that is commonly provided to JCESD staff.

**Table 1. Staff Training Matrix**

| Training Opportunity* | Training Interval | JCESD Group or Job Classification |
|---|---|---|
| Onboarding Training | As Defined in Onboarding Training Matrix | All new employees |
| Best Practice Field Operations** | Quarterly (through 2018) | Line Maintenance, TVI Inspection, and Construction |
| SSORRP Refresher | Annual | All |
| PACP Recertification | Every 3 Years | Applicable Line Maintenance, TVI operators, engineers, inspectors, and others requiring PACP coding knowledge |

*See the **Safety Program** plan for more information on safety-related training opportunities

**As part of the Collection System Maintenance and Construction Development and Training Program

## Program Performance Metrics

Performance measures are important management tools that allow for continuous measurement and evaluation of program activities. Performance measures are designed to collect information that enable JCESD to determine if established goals and level of service are being met and, if not, what activities need to be adjusted to meet program goals.

The Training Program is evaluated on a consistent basis using employee performance reviews, post-training quizzes and questionnaires, field observations, and a review of training records. The success and effectiveness of JCESD's training initiatives can be evaluated by reviewing the following:

- Number of staff members that hold and maintain relevant certifications and licenses
- Hours of training for staff
- Accuracy of records maintained in training tracking spreadsheets
- Outcome of periodic staff evaluations, testing, and field observations




**Figure 3.Example of PBJC Course Offerings**

The following **Collection System Training Program** performance measures are established at JCESD:

**Table 2. Collection System Training Program Performance Metrics**

| Performance Measure | Formula | Definition | Desired Result | Data Interval | JCESD Group |
|---|---|---|---|---|---|
| # of Individuals with Certification or License | Value | Number of staff members that hold relevant certifications and licenses | No decrease | Annual | All |
| # of Personnel Receiving SSORRP Training | Value | Number of staff members involved in responding to and reporting SSOs that received training on the SSORRP | No decrease | Quarterly | All personnel involved in responding to and reporting of SSOs |
| # of Training Hours for Staff | Value | Total number of training hours provided to JCESD staff | No decrease | Annual | All |

# APPENDIX

## Appendix A 2015 Operator Training Hour Summary

# 2015 JCESD Collection System Training Summary

| | FOG Workshop | Stormwater | L&L Sprayroq | SSORRP | Pump Class | Barnhart L&L | Unity training | Loctite L&L | Sherwin Williams L&L | Red Cross CPR | LM Safety mtg | Op training | Red Cross CPR | Math for WW Op | Trench and Shore | Math for WW Op | L & L ADS pipe | Ops training | Applied math for WW | Applied Math for WW | PACP recert and new | PBJC classes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2/17/15 | 4/9/15 | 4/22/15 | 5/6/15 | 5/27/15 | 6/3/15 | 6/16-18/15 | 6/16/15 | 6/24/15 | 7/14/15 | 7/24/15 | 7/28/15 | 8/20/15 | /21 and 8/26/1 | 9/15-16/15 | 0/13 and10/21/1 | 10/13/15 | 11/3/15 | 1/5, 12, and 19/1 | 12/9/15 | 12/9-10/15 | various |
| Name | WEF and AWEA | J Creel | Sprayroq | Tilson | J House | Barnhart | various | Loctite | Sherwin Williams | Red Cross | various | Tilson | Red Cross | various | various | various | ADS | Tilson | Shorty | Shorty | Schroeder | various |
| Acton, Jonathan | | | | | | | | | | | | | | | | | | | | | | |
| Adams, Scott | | | | | | | | | | | | | | | | | | | 4 | | | |
| Adams, Stephen | | | | | | | | | | | | | | | | | | | | | | |
| Akins, Brigitte | | | | | | | | | | | | | | | | | | | | | | |
| Akins, James | | | | | | | | | | | | 8 | 6 | | | | | 4.5 | | | | |
| Alpaugh, Matt | | | 1 | | | 1 | | 1.5 | 1.5 | | | | | | | | | | | | | |
| Anderson, Brian | | | | 4 | 5 | | | 1.5 | | | | | | | | | | | | | | |
| Ashley, Jason Phillip | | | | 4 | | | | | | | | 8 | | | 6 | | | 3.5 | | | | |
| Barber, Jason | | | | 4 | | | | | | | | 8 | | | 6 | | | 3.5 | | | 8 | |
| Bates, Corey | | 4 | | | | | | | | 6 | | | | | 6 | | | | | | | |
| Bates, Jason | | | | | | | | | | | | | | | | | | | | | | |
| Bearden, Nick | | | | | | | | | | | | | | | | | | | | | | |
| Bell, Rocky | | | | | | | | | | | | | | | | | | | | | | |
| Bennett, Ken | 8 | | 1 | | 5 | 1 | | 1.5 | 1.5 | | | | | | 6 | | | | | | | |
| Bennett, Robby | | | | | | | | | | | | | | | | | 1 | | | | | |
| Benson, Charley | | | | 4 | 5 | | | | | | | 8 | 6 | | 6 | | | 7.5 | | | | |
| Blackmon, Bryan | | | | | | | | | | | | | | | | | | | | | | |
| Blackmon, Jeremiah | | | | 4 | | | | | | | | 8 | | | 6 | | | 3.5 | | | | |
| Bradford, Tommie | | | | | | | | | | | | | | | | | | | | | | |
| Bradley, Brian | | | | 4 | | | | | | | | 8 | | | | | | 3.5 | | | 8 | |
| Brandenburg, Mark | | | | | | | | | | | | | 6 | | | | | | | | 16 | |
| Brazzill, James | | | | | | | | | | | | | | | | | | | | | | |
| Bridges, Carl | | | | 4 | | | | | | | 2 | 8 | | | 6 | | | 3.5 | | | | |
| Bridier, Michael | | | | | | | | | | | 2 | 8 | | | 6 | | | 3.5 | | | | |
| Brooks, Derrick | | | | | | | | | 1.5 | 6 | | | | | | | | | | | | |
| Brown, Celeste | 8 | | | | | | | | | | | | | | | | | | | | | |
| Brown, Ellis | | | | | | | | | | | | | | | | | | | | | | |
| Brown, Jeff | | | | | | | | | | | | | | | | | | | | | | |
| Brown, Jerry | | | | | | | | | | | | | | | | | | | | | 8 | |
| Brown, Paddi | | | | | | | | | | | | | | | | | | | | | | |
| Brown, Raymond | | | | | | | | | | | | | | | | | | | | | | |
| Brown, Rob | | | | | | | | 1.5 | 1.5 | | | | | | | | | | | | | |
| Brown, Roger | | | | | | | | | | | | | | | | | | | | | | |
| Brundige, Lovie | | | | | | | | | | | | | | | | | | | | | | |
| Bryant, Sid | 8 | | | | | | | | | | | | | | | | | | | | | |
| Burnett, Scott | | | | 4 | | | | | | | | 8 | | | 6 | | | | | | | |
| Burns, Warren (Johnny) | | | | | | | | | | | | | | | | | | | | | | |
| Bush, Kenneth | | 4 | | | 5 | | | | | | | | | | | | | | | | | |
| Byner, Rozzel | | | | 4 | | | | | | | 2 | 8 | | | 6 | | | | | | | |
| Byrd, Micheal | | | | 4 | 5 | | | | | 6 | | 8 | | | 6 | | | 4.5 | | | | |
| Campbell, Johnny | | | | 4 | | | | | | | 2 | 8 | | | 6 | | | 3.5 | | | | |
| Campbell, Mike | | | | | | | | | | | | | | | | | | | | | | |
| Capleton, Chris | | | | 4 | | | | | | | | 8 | | | 6 | | | | | | | |
| Carl, Ray | | | | | | | | | | | | | | | | | | | | | | |
| Carney, Tommy | | 4 | | | | | | | | | | | | | 6 | | | | | | | |
| Carter, Douglas | | | | | | | | | | | | | | | | | | | 4 | | | |
| Casey, Keith | | | | 4 | | | | | | | 2 | 8 | | | 6 | | | 3.5 | | | | |
| Cato, Ben | | | | | | | | | | | | | | | | | | | | | | |
| Champion, Brian (C1) | 8 | | | 4 | | 1 | | 1.5 | 1.5 | | 2 | 8 | | | 6 | | 1 | | | | | |
| Childers, James Todd | | | | 4 | | | | | | | 2 | | | | 6 | | | 3.5 | | | 8 | |
| Childers, Wayne | | | | | 5 | | | | | | | | | | | | | | | | | |
| Clark, Decory | | | | | | | | | | | | | | | | | | | | | | |
| Clark, Jimmy | | | | 4 | | | | | | | 2 | 8 | | | 6 | | | 3.5 | | | | |
| Claughton, Ron | | | | | | | | | | | | | | | | | | | | | | |
| Cleckler, Larry | | | | | | | | | | | | | | | | | | | | | | |
| Coalburn, LaDonna | | | | | | | | | | | | | | | | | | | | 2 | | |
| Cockrell, Brian | | | | 4 | | | | | | | 2 | | | | | | | 3.5 | | | | |
| Coe, William | | | | | | | | | | | | | | | | 2 | | | | | | |
| Coleman, Dwayne | | | | | | | 24 | | | | | | | | | | | | | | | |
| Coles, Sylvester Jr. | | | | | | | | | | | | | | | | | | | | | | |
| Collier, Antione | | | | 4 | | | | | | | 2 | 8 | | | 6 | | | 3.5 | | | | |
| Collier, Ronnie | | | | 4 | | | | | | | 2 | 8 | | | 6 | | | 3.5 | | | 8 | |
| Cooper, Fred | | 4 | | | | | | | | | | | | | | | | | | | | |
| Corilla, Herman | | | | | | | | | | | | | | | | | | | | | | |
| Cox, Donald | | | | 4 | | | | | | | 2 | 8 | | | 6 | | | 3.5 | | | | |
| Creel, Jeremy | | | | | | 1 | | | | | | | | | | 2 | | | | | | 16 |
| Crenshaw, John | | | | | | | | | | | | | | | | | | | | | | |

# 2015 JCESD Collection System Training Summary

| | FOG Workshop | Stormwater | L&L Sprayroq | SSORRP | Pump Class | Barnhart L&L | Unity training | Loctite L&L | Sherwin Williams L&L | Red Cross CPR | LM Safety mtg | Op training | Red Cross CPR | Math for WW Op | Trench and Shore | Math for WW Op | L & L ADS pipe | Ops training | Applied math for WW | Applied Math for WW | PACP recert and new | PBJC classes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2/17/15 | 4/9/15 | 4/22/15 | 5/6/15 | 5/27/15 | 6/3/15 | 6/16-18/15 | 6/16/15 | 6/24/15 | 7/14/15 | 7/24/15 | 7/28/15 | 8/20/15 | /21 and 8/26/1 | 9/15-16/15 | 0/13 and10/21/1 | 10/13/15 | 11/3/15 | 1/5, 12, and 19/1 | 12/9/15 | 12/9-10/15 | various |
| Name | WEF and AWEA | J Creel | Sprayroq | Tilson | J House | Barnhart | various | Loctite | Sherwin Williams | Red Cross | various | Tilson | Red Cross | various | various | various | ADS | Tilson | Shorty | Shorty | Schroeder | various |
| Cruce, Mark | | | | | | | | | | | | 8 | | | | | | | | | | |
| Crumley, Eddie | | | | | | 1 | | | | | | | | | | | | | | | | |
| Crumley, Robert | | 4 | | | | | | | | | | | | | | | | | | | | |
| Cummings, Chris | | | | 4 | | | | | | | | 8 | | | 6 | | | 3.5 | | | | |
| Currington, Rodney | 8 | | | | | | | | | | | | | | | | | | | | | |
| Curry, Ricky | | | | | 5 | | | | | | | | | | | | | | | | | |
| David, Arand | | | | | | | | | | | | | | | | | | | | | | |
| Deamues, Frederick | | | | | | | | | | | | | | | | | | | | | | 48 |
| Dean, Bart | | | | | | | 24 | | | | | | | | | | | | | | | |
| Defnall, Josh | | | | | | | | | | | | 8 | | | 6 | | | 3.5 | | | | |
| Dement, Leland | | | | | 5 | | | | | | | | | | | | | | | | | |
| Denard, David | | | | 4 | | | | | | | | | | | | | | | | | | |
| Doss, William | | | | | | | | | | 6 | | | | | | | | | | | | |
| Durant, George | | | | | | | | | | | | | | | | | | | | | | |
| Early, Jason (Charles) | | | | | | | | | | 6 | | 8 | | | 6 | | | 5.5 | | | | |
| Ellard, John | | | | | | | | | | | | | 6 | | | | | | | | | |
| Erby, Patrick | | | | | | | | | | | | | | | | | | | | | | |
| Etheridge, John | | | | | | | | | | | | | | | | | | | | | | |
| Evans, Lavon (C1) | | | | 4 | | | | 1.5 | 1.5 | | | 8 | 6 | | | | 1 | 3.5 | | | | |
| Evans, Robert | | | | | | | | | | | | | | | | | | | | | | |
| Faddis, Slyvester | | | | 4 | 5 | | | | | | | 8 | 6 | | 6 | | | 4.5 | | | | |
| Findley, Garrett | 8 | | | | | | | | | | | | | | | | | | | | | |
| Finley, Augustus (Rick) | | | | | | | | | | | | | | | | | | | | | | |
| Fortenberry, Malcolm | | | | | | | | | | | | | | | | | | | | | | |
| Foster, Rosevelt | | | | 4 | | | | | | | 2 | 8 | | | 6 | | | 3.5 | | | | |
| Fowler, Tommy | | | | | 5 | 1 | | | | | | | | | 6 | | | | | | | |
| Franklin, Rodney | | | | | | | | | | | | | | | | 2 | | | | | | |
| Frederick,Keith | | | | | | | | | | | | | | | | | | | | | | |
| Gaines, Michael Anthony | | | | | | | | | | | | | | | | | | | | | | |
| Gaitor, Daryl | | | | | | | | | | | | | | | | | | | | | | |
| Gardner, Jonathan | | 4 | | | | | | 1.5 | | 6 | | | | | 6 | | | | | | | |
| Gatson, Alice | | | | | | | | 1.5 | 1.5 | | | | | | 6 | | | | | | | |
| Gilham, Jack | | | | | 5 | | | | | | | | | | | | | | | | | |
| Gill, Doris | | | | | | | | | | | | | | | | | | | | | | |
| Gillian, Jeff | | | | | | | | | | | | | | | | | | | | | | |
| Gilliland, Timothy | | | | | | | | | | | | | | | | | | | | | | |
| Gingo, Ken | | | | | | | | | | | | | | | | | | | | | | |
| Givens, Carmen | | | | 4 | 5 | | | | | 6 | | 8 | | | 6 | | | 4.5 | | | | |
| Gooden, Warren | | | | | 5 | | | 1.5 | 1.5 | 6 | | | | | | | | | 2 | | | |
| Goodson, John | | | | | | | | | | | | | | | | | | | | | | |
| Goodwin, Don (C1) | | | 1 | 4 | | | | | | | 2 | 8 | | | 6 | | | 3.5 | | | | |
| Goodwin, James | | | | | | | | | | | | | | | | | | | | | | |
| Gordon, Charles | | | | | | | | | | | | | | | | | | | | | | |
| Gordon, Lawrence | | | | 4 | | | | | | | 2 | 8 | | | 6 | | | 3.5 | | | | |
| Graham, Elton | | | | | | | | | | | | | | | | | | | | | | |
| Graves, Stacey | | | | 4 | | | | | | | | 8 | | | 6 | | | | | | | |
| Gray, Dana | | 4 | 1 | | | 1 | | 1.5 | 1.5 | | | | | | | | | | | | | |
| Greathouse, Derrick | | | | | | | | | | | | | | | 6 | | | | | | | |
| Green, Ric | | | | | | | | | | | | | | | | | | | | | | |
| Gurley, Scott | | | | | | | | | | | | | | | | | | | | | | |
| Hall, Byron | | | | | | | | | | | | | | | | | | | | | | |
| Hall, Richard | | | | | | | | | | | | | | | | | | | | | | |
| Hardisty, Jeff | | 4 | | | | | | | | | | | | | 6 | | | | | | | 76 |
| Hardisty, Mary | | 4 | | | | | | | | | | | 6 | | | | | | | | | 42 |
| Hargreaves, Gary | 8 | | | | | | | | | | | | | | | | | | | | | |
| Harmon, Willie Jr. | | | | | | | | | | | | | | | | 2 | | | 4 | 2 | | |
| Harper III, James | | | | 4 | | | | | | | 2 | 8 | | | 6 | | | 3.5 | | | | |
| Harper, Earl | | | | | | | | | | | | | | | | | | | | | | |
| Harris, Brandon | | | | 4 | | | | | | | 2 | 8 | | | 6 | | | 3.5 | | | | |
| Harris, David (James) | | | | 4 | | | | | | | | 8 | | | 6 | | | 3.5 | | | | |
| Hawkins, Wayne | | | | | | | | | | | | | | | | | | | | | | |
| Hayden, Cedric | 8 | | 1 | | | | | | | | | | | | | | | | | | | |
| Higginbotham, Forest | | | | | | | | | | | | | | | 6 | | | | | | | |
| Hill, James | | | | | | | | | | | | | | | | | | | | | | |
| Hill, Savonta | | | | 4 | | | | | | | 2 | 8 | | | | | | 3.5 | | | | |
| Hinch, Heath | | 4 | | | | | | | | | | | | | | | | | | | | |
| Hogeland, Rickie | | | | | | | | | | | | | | | | 2 | | | | | | |

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| | 2/17/15 | 4/9/15 | 4/22/15 | 5/6/15 | 5/27/15 | 6/3/15 | 6/16-18/15 | 6/16/15 | 6/24/15 | 7/14/15 | 7/24/15 | 7/28/15 | 8/20/15 | /21 and 8/26/1 | 9/15-16/15 | 0/13 and10/21/1 | 10/13/15 | 11/3/15 | 1/5, 12, and 19/1 | 12/9/15 | 12/9-10/15 | various |
| Name | WEF and AWEA | J Creel | Sprayroq | Tilson | J House | Barnhart | various | Loctite | Sherwin Williams | Red Cross | various | Tilson | Red Cross | various | various | various | ADS | Tilson | Shorty | Shorty | Schroeder | various |
| Hollingsworth, Thomas | | | | | | | | | | | | | | | 6 | | | | | | 8 | |
| Holt, Tari | 8 | | | | | | | | | | | | | | | | | | | | | 12 |
| Howard, Eric | | | | | | | | | | | | | | | | | | | | | | |
| Hubbard, David | | | | 4 | | | | | | | 2 | 8 | | | 6 | | | 3.5 | | | | |
| Hubbard, Robert | | | | | | | | | | | | | | | | | | | | | | |
| Hubbard, Vick | | | | | | | | | | | | 8 | | | 6 | | | 3.5 | | | | |
| Hudson, Andy | | 4 | | | | | | | | | | | 6 | | 6 | | | | | | | |
| Hudson, Kimberly | | | | | | | | | | | | | | | | | | | | | | |
| Huey, Donnie | | | | | | | | | | | | | | | | | | | | | | |
| Huey, Natalie | | | | | | | | | | | | | | | | | | | | | | |
| Hughes, Chris | | | | | | 1 | | | | | | | | | | | | | | | | |
| Hughes, Josh | | 4 | | | | | | | | 6 | | | | | | | | | | | | |
| Hughie, Donnie | | | | | | | | | | | | | | | | | | | | | | |
| Human, Ametra | | | | | | | | | | | | | | | | | | | | | | |
| Humphryes, David (James) | | | | | | | | | | | | | | | | | | | | | | 7 |
| Ingram, David | | | | | | | | | | | | | | | | | | | | | | |
| Jacks, Dennis | | | | | | | | | | 6 | | | | | 6 | | | | | | | |
| Jackson, Linda | | 4 | | | | | | | | | | | | | | | | | | | | 114 |
| Jackson, Randall | | | | 4 | | | | | | | 2 | 8 | | | 6 | | | 3.5 | | | | |
| James, Gregory | | 4 | | | | | | | | | | | | | | | | | | | | |
| Johnson, Michael (C1) | | | | | | | | | | | | | | | | | | | | | | |
| Johnson, Ronald | | | | | | | | | | | | | | | | | | | | | | |
| Johnson, William | | | | 4 | 5 | | | | | | | 8 | 6 | | 6 | | | 4.5 | | | | |
| Jones, Calvin | | | | 4 | 5 | | | | | 6 | | 8 | | | 6 | | | 7.5 | | | | |
| Jones, Haywood | | | | | | | | | | | | | | | | | | | | | | |
| Jones, Karon | | | | | | | | | | | | | | | | | | | | | | |
| Jones, Lynn | | | | | | | | | | | | | | | | | | | | | | |
| Jones, Mike | | | | 4 | | | | | | | 2 | 8 | | | | | | 3.5 | | | | |
| Kelley, Tonya | | | 1 | | | | | 1.5 | 1.5 | | | | | | | | 1 | | | | | |
| Kelly, Donald | | | | | | | | | | | | | | | | | | | 2 | | | |
| Kemp, Emily | | | 1 | | | | | 1.5 | 1.5 | | | | | | | | | | | | | |
| Key, Brian | | 4 | | | | | | | | | | | | | | 2 | | | | | | |
| Kilgore, Ricky | | | | 4 | | | | | | | 2 | 8 | | | 6 | | | 3.5 | | | | |
| Kilgore, Wesley (John) | | | | 4 | | | | | | | 2 | | | | 6 | | | | | | | |
| Kimbrough, Ursula | | | | | | | | | | 6 | | | | | | | | | | | | 43 |
| King, Charles | | | | | | | | | | | | | | | | | | | | | | |
| King, Richard "Buddy" | | | | | 5 | | | | | | | | | | | | | | | | | |
| King,Mike | | | | | | | | | | | | | | | | | | | | | | |
| Lane, Terrence | 8 | 4 | | | | | | | 1.5 | | | | | | | | | | | | | 108 |
| Lawler, Eric Sr. | | | | | | | | | | | | | | | | | | | 2 | | | |
| Lawson, Juan | | | | 4 | | | | | | | 2 | 8 | | | 6 | | | 3.5 | | | | |
| Lee, Frankie | | | | 4 | | | | | | | 2 | 8 | | | | | | 3.5 | | | | |
| Lee, Mark | | | | | | | | | | | | | | | | | | | | | | |
| LeRoy,Vincent | | 4 | | | 5 | | | | | | | | | | | | | | 2 | | | |
| Lewis, Andrew | | | | | | | | | | | | | | | | | | | | | | |
| Light, Daniel | | | | | | | | | | | | | | | | | | | | | | |
| Limbach, Bob | | | | | | | | | | 6 | | | | | 6 | | | | | | | |
| Little, Peggy | | | | | | | | | | | | | | | | | | | | | | |
| Littleton, Michele | | | | 4 | 5 | | | | | | | 8 | | | | | | 7.5 | | | | |
| Lopresti, Pete | | | | | | | | | | | | | | | 6 | | 1 | | | | | |
| Lovelady, Darryl | | | | | 5 | | | | | | | | | | | | | | | | | |
| Lucas, Vernon | | | | | | | | | | | | | | | | | | | | | | |
| Lynn, Melissa (C1) | | 4 | | | | | | | | | | | | | 6 | | | | | | | |
| Lynn, Terry (C1) | | | | | | | | | | | | | | | 6 | | 1 | | | | | |
| Madison, Nathaniel | | | | 4 | | | | | | | 2 | 8 | | | 6 | | | 3.5 | | | | |
| Mahaffey,Terry (Joe) | | | | | | | | | | | | | | | | | | | | | | |
| Maneice, Bobby Luelliott | | | | | | | | | | | | | | | | | | | 2 | | | |
| Marian, Peter | | | | | 5 | | | | | | | | | | | | | | | | | |
| Matthews, Jason | | | | 4 | | | | | | | | 8 | | | 6 | | | 3.5 | | | | |
| Maxwell, Randy | | 4 | | | | | | | | | | | | | | | | | | | | |
| May, Doug | | | | 4 | | | | | | | | 8 | | | 6 | | | 3.5 | | | | |
| McCain, Wesley | | | | | | | | | | | 2 | 8 | | | 6 | | | | | | | |
| McCarty, Patrick | | | | | | | | | | 6 | | | | | 6 | | | | | | | |
| McClain, Herman | | | | | | | | | | | | | | | | | | | 4 | | | |
| McCrary, Jody | | | | | | | | 1.5 | | | | | | | | | | | | | | |
| McIntosh, Enrico | | | | | | | | | | | | | | | | | | | 2 | | | |
| McKinney, Gabriel | | | | | | | | | | | | | | | | | | | | | | |

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| Melton, Robert | | | | | 5 | | | 1.5 | | | | | | | | | | | | | | |
| Melvin, Jeff | | | | | | | | | | 6 | | | | | 6 | | | | | | 16 | |
| Melvin, Jerry | | | | 4 | 5 | | | | | 6 | | 8 | | | 6 | | | 4.5 | | | | |
| Mendiola, George | | | | | | | | | | | | | | | | | | | | | | |
| Miles, Andre | | | | | | | | | | | | | | | | | | | | | | |
| Miller, Michael | | | | | | | | | | | | | | | 6 | | 1 | | | | 8 | |
| Mills, Travis | | | | 4 | | | | | | | | | | | 6 | | | 3.5 | | | 8 | |
| Mims, Percy | | 4 | | | | | | | | | | | | | | | | | 2 | | | |
| Minnifield, Ernest | | | | | | | | | | | | | | | | | | | | | | |
| Mixon, Linda | | | | | | | | | | | | | | | | | | | | | | |
| Mixon, Richard | | | | | | | | | | | | | | | | | | | | | | |
| Monteabaro, Rod | | 4 | | | | | | | | | | | | | | 2 | 1 | | | | | |
| Moore, Adam | | 4 | | | | | | | | | | | | | 6 | | | | | | | |
| Moore, Brad | | | | | | | | 1.5 | | | | | | | | | | | | | | |
| Moore, Dennis | | | | | | | | | | | | | | | | | | | | | | |
| Moore, William | | | | | | | | | | | | | | | | | | | | | | |
| Morrow, Bill | | 4 | | | | | | | | 6 | | | | | | | | | | | | |
| Morse, Kevin | | | | | | | | | | | | | | | | | | | | | | |
| Morton, Randy | | | | | | | | | | | | | | | | | | | | | | |
| Myers, Robert | | 4 | | | | | | 1.5 | 1.5 | 6 | | | | | | | | | | | | |
| Nabors, Gary | | | | | | | | | | | | | | | | | | | | | | |
| Nalls, Jonathan | | | | 4 | | | | | | | 2 | 8 | | | | | | | | | | |
| Nash, Everett | | | | 4 | | | | | | | 2 | 8 | | | 6 | | | | | | | |
| Nash, Herman | | | | 4 | | | | | | | | | | | | | | 3.5 | | | | |
| Neely, Chris | | | | | | | | | | 6 | | | | | | | | | | | 16 | |
| Nelson, Gary | | 4 | | | | 1 | | | 1.5 | 6 | | | | | | | | | | | | |
| Nichols, Noel | | | | | | | | 1.5 | | 6 | | | | | 6 | | | | | | 8 | |
| Norwood, Orlandras | | | | 4 | | | | | | | 2 | 8 | | | 6 | | | | | | | |
| Nunn, Brian | | | | 4 | 5 | | | | | | | 8 | 6 | | 6 | | | 4.5 | | | | |
| Nygren, Zada | | | | | | | | | | | | | | | | | | | | | | |
| Parrish, Larry | | | | 4 | | | | | | | 2 | 8 | | | 6 | | | 3.5 | | | | |
| Parsons, Joel Bruce | | | | | | | | | | | | | | | | | | | | | | |
| Partain, Michael | | | | | | | | | | | | | | | | | | | | | | |
| Passmore, Kimberly | | | | | | | | | | | | | | | | | | | | | | |
| Pate, Ben | | | | | | | | | | | | | | | | | | | | | 8 | |
| Patterson, Donald | | | | | | | | | | | | 8 | | | 6 | | | 3.5 | | | 8 | |
| Payne, Gerry | | | | | | | | | | | | | | | | | | | | | | |
| Pennington, Ametra | | | | | | | | | | | | | | | | | | | | | | |
| Pennington, Ricky | | | | | | | | | | | | | | | | | | | | | | |
| Peoples, Willis (Bud) | | | | | | | | | | | | | | | | | | | | | | |
| Pickens, LeDerain | | | | | | | | | | | | | | | | | | | | | | |
| Pickens, Steve | | | | | | | | | | | | 8 | | | | | | | | | | |
| Pilkington, James | | | | 4 | 5 | | | | | 6 | | 8 | | | 6 | | | 4.5 | | | | |
| Pitts, Anthony | | | | | | | | | | | | | | | | | | | | | | |
| Pond, Eric | | | | | | | | | | | | | | | | | | | | | | |
| Poole, Troy Neal | | 4 | | | 5 | | | | | | | | | | | | | | | | | |
| Pressley, De Andre | | | | | | | | | | | | | | | | | | 3.5 | | | | |
| Pressley, Mandre | | | | | | | | | | | | 8 | | | 6 | | | | | | 8 | |
| Ptomey, Terry | | | | | | | | | | | | | | | | | | | | | | |
| Quick, Chad | | | | | | | | | | | | | | | | | | | | | | |
| Ragland, Carl | | | | 4 | 5 | | | | | | | 8 | 6 | | 6 | | | 4.5 | | | | |
| Ramsey, Hermon | | | | | | | | | | | | | | | | | | | | | | |
| Reeves, Richard | | | | | 5 | | | 1.5 | | | | | | | | | | | | | | |
| Reid, Terrie | | | | | | | | | | | | | | | | 2 | | | | | | |
| Rice, Harold | | | | | | | | | | | | | | | | | | | | | | |
| Richards, Steve | | | | | | | 24 | | | | | | | | | | | | | | | |
| Rickett, Steve | | | | | | | | | | | | | | | | | | | | | | |
| Robb, Ronald | | | | | | | | | | | | | | | | | | | | | | |
| Roberts, Ginger | | | | | | | | | | | | | | | | | | | | | | |
| Roberts, John | | | | | | 1 | | | | | | | | | | | | | | | | |
| Robinson, Daniel | | | | | | | | | | 6 | | | | | 6 | | | | | | | |
| Rockett, John | | 4 | | | 5 | | | | | | | | | | | | | | | | | |
| Rogers, James | | | | | | | | | | | | | | | | | | | | | | |
| Rohling, Brian (C1) | 8 | | 1 | 4 | | 1 | | 1.5 | 1.5 | | | | | | | | | | | | | |
| Roper, Jim | | | | | | | | | | | | | | | | | | | | | | |
| Rose, Harold | | | | 4 | 5 | | | | | 6 | | 8 | | | 6 | | | 4.5 | | | | |
| Russell, Crandle (John) | | | | | | | | | | | | 8 | | | 6 | | | 3.5 | | | | |

# 2015 JCESD Collection System Training Summary

| | FOG Workshop | Stormwater | L&L Sprayroq | SSORRP | Pump Class | Barnhart L&L | Unity training | Loctite L&L | Sherwin Williams L&L | Red Cross CPR | LM Safety mtg | Op training | Red Cross CPR | Math for WW Op | Trench and Shore | Math for WW Op | L & L ADS pipe | Ops training | Applied math for WW | Applied Math for WW | PACP recert and new | PBJC classes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2/17/15 | 4/9/15 | 4/22/15 | 5/6/15 | 5/27/15 | 6/3/15 | 6/16-18/15 | 6/16/15 | 6/24/15 | 7/14/15 | 7/24/15 | 7/28/15 | 8/20/15 | /21 and 8/26/1 | 9/15-16/15 | 0/13 and10/21/1 | 10/13/15 | 11/3/15 | 1/5, 12, and 19/1 | 12/9/15 | 12/9-10/15 | various |
| Name | WEF and AWEA | J Creel | Sprayroq | Tilson | J House | Barnhart | various | Loctite | Sherwin Williams | Red Cross | various | Tilson | Red Cross | various | various | various | ADS | Tilson | Shorty | Shorty | Schroeder | various |
| Sadler, Wayne | | | | 4 | | | | | | | | 8 | | | 6 | | | 3.5 | | | 8 | |
| Salter, Matt | | | | | | | | | | | | | | | | | | | | | | |
| Salter, Mike | | | | | | | | | | | | | | | | | | | | | | |
| Santoro, Josh | | | | | | | | | | | | | | | | | | | | | | |
| Scott, Brenda | | | | | | | | | | | | | | | | | | | | | | |
| Scott, Kevin | | | | | | | | | | | | | | | | | | | | | | |
| Sebert, Justin | | | | 4 | | | | | | | | 8 | | | 6 | | | 3.5 | | | 8 | |
| Shaw, Mark | 8 | | | | | | | | | | | | | | | | | | | | | |
| Shears, Emanuel | | | | | | | | | | | | | | | | | | | 4 | | | |
| Shears, Samuel | | | | | | | | | | | | | | | | | | | | | | |
| Shiflett, Tommy | | | | 4 | 5 | | | | | 6 | | 8 | | | 6 | | | 7.5 | | | | |
| Short, David | | | | | | | 24 | | | | | | | | | | | | | | | |
| Sims, Jason | | 4 | | | | | | | | | | | | | | | | | | | | |
| Skinner, Phillip | | | | | | | | | | | | | | | | | | | | | 8 | |
| Skinner, Robert | | | | 4 | | | | | | | | 8 | | | 6 | | | 3.5 | | | | |
| Slatsky, Chris | | | | | | | | | | | | | | | | | | | | | | |
| Smith, Adam | | | | | | | | | | | | | | | | | | | | | | |
| Smith, Anthony | | | | | | | | | | | | | | | | | | | | | | |
| Smith, Charles | | | | | | | | | | | | | | | | | | | | | | |
| Smith, Wayne | | | | 4 | | | | | | | | 8 | | | 6 | | | 3.5 | | | 16 | |
| Sparks, Rose Mary | | 4 | | | | | | | | | | | | | | 2 | | | | | | |
| Standifer, Wes | | | | | | | | | | | | | | | | | | | | | | |
| Stell, Larry | | | | | | | 24 | | | | | | | | | | | | | | | |
| Suggs, Monte | | | | | | | 24 | | | | | | | | | | | | | | | |
| Sutton, Tony | | | | | | | | | | | | | | | | | | | | | | |
| Sweeney, Janelle | | | | | | | | | | | | | | | | | | | | | | |
| Taylor, Alfonzo | | | | | | | 24 | | | | | | | | | | | | | | | |
| Temple, Cecil | | | | 4 | | | | | | | 2 | 8 | | | 6 | | | 3.5 | | | | |
| Terrell, James | | | | | | | | | | | | | | | | | | | | | | |
| Thomas, Emma | | | | | | | | | | | | | | | | | | | | | | |
| Trull, Patrick | | | | | | | | | | | | | | | | | | | | | 8 | |
| Turner, Richard | | | | | | | | | | | | | | | | | | | | | | |
| Tyler, Robert | | | | | | | | | | | | | | | | | | | | | | |
| Tyler, Russell | | | | | | | | | | | | | | | | | | | | | | |
| Tyler, Ryan | | 4 | | | | | | | | | | | | | 6 | | | | | | | |
| Tyler, Wesley | | | | 4 | | | | | | | | | | | | | | | | | | |
| Vance, Mel | | | | | | | | | | | | | | | | | | | | | | |
| Wade, Jasper | | | | 4 | | | | | | | 2 | | | | 6 | | | | | | | |
| Waihenya, James | | | | | | | | | | | | | | | | | | | | | | |
| Waldrop, Glenda | | 4 | | | 5 | | | | | | | | | | | | | | | | | |
| Waldrop, Joel | | | | | | | | | | | | | | | | | | | | | | |
| Walker, Larry Jr. | | | | | | | | | | | 2 | 8 | | | 6 | | | 3.5 | | | | |
| Walker, Orlando | | 4 | | | | | | | | | | | | | | | | | | | | |
| Walton, Eddie | | | | 4 | | | | | | | 2 | 8 | | | 6 | | | 3.5 | | | | |
| Ward, Terrence | | | | | 5 | | | | | | | | | | | | | | | | | |
| Waters, Kevin | | | | | | | | | | | | | | | | | | | | | | |
| Watford III, William | | | | | | | | | | | | | | | | | | | | | | |
| Weams, Fred | | | | | | | | | | | | | | | | | | | | | | |
| Weldon, Anthony | | | | | | | | | | | | | | | | | | | | | | |
| Weston, Max | | | | | 5 | | | | | | | | | | | | | | | | | |
| White, Daniel | | | 1 | | | | | | 1.5 | | | | | | | | | | | | | |
| Wilder, Harold | | | | 4 | 5 | | | | | 6 | | 8 | | | 6 | | | 7.5 | | | | |
| Wilder, Sherri | | | | | | | | | | | | | | | | | | | | | | |
| Williams (Hall), Rachel | | | | | | | | | | | | | | | | | | | | | | |
| Williams, Michael | | | | 4 | | | | | | | 2 | | | | 6 | | | | | | | |
| Williamson, James | | | | | | | | | | | | | | | | | | | | | | |
| Willoughby, David | | | | | | | | | | | | | | | | | | | | | | |
| Willoughby, Joe | | | | | | | | 1.5 | | | | | | | | | | | | | | |
| Wilson, Debra | | | | | | | | | | 6 | | | | | 6 | | | | | | | |
| Wilson, Everette | | | | 4 | | | | | | | 2 | | | | 6 | | | | | | | |
| Wilson, Kerry | | | | 4 | | | | | | | | 8 | | | 6 | | | 3.5 | | | | |
| Wilson, Steven | | | | | | | | | | | | | | | | | | | | | | |
| Windham, Preston | | | | | | | | | | | | | | | | | | | | | | |
| Wood, Gary | | | | 4 | | | | | | | 2 | | | | | | | | | | | |
| Wooley, Phillip | | | | | | | | | | | | | | | | | | | | | | |
| Wren, Arthur | | | | | 5 | | | | | | | 8 | 6 | | 6 | | | 4.5 | | | | |
| Wright, Malcolm | | | | 4 | | | | | | | 2 | 8 | | | 6 | | | 3.5 | | | | |

## 2015 JCESD Collection System Training Summary

| | FOG Workshop | Stormwater | L&L Sprayroq | SSORRP | Pump Class | Barnhart L&L | Unity training | Loctite L&L | Sherwin Williams L&L | Red Cross CPR | LM Safety mtg | Op training | Red Cross CPR | Math for WW Op | Trench and Shore | Math for WW Op | L & L ADS pipe | Ops training | Applied math for WW | Applied Math for WW | PACP recert and new | PBJC classes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| Name | WEF and AWEA | J Creel | Sprayroq | Tilson | J House | Barnhart | various | Loctite | Sherwin Williams | Red Cross | various | Tilson | Red Cross | various | various | various | ADS | Tilson | Shorty | Shorty | Schroeder | various |
| Wright, Michael | | | | | | | | | | | | | | | | | | | | | | |
| Wyatt, Napoleon | | | | | | | | | | | | | | | | | | | | | | |
| Wyman, Gary | | | | | | | | | | | | | | | | | | | | | | |
| Mahaffey, John | | | | | | | | | | | | | | | | | | | | | 16 | |
| Williams, Ian | | | | | | | | | | | | | | | | | | | | | 16 | |
| Stephens. Ronald | | | | | | | | | | | | | | | | | | | | | 16 | |
| Harris, Joyce O'Hara | | | | | | | | | | | | | | | | | | 3.5 | | | | |
| Mixon, Rodney C. | | | | | | | | | | | | | | | | | | 3.5 | | | | |
| Yearwood, Marcus D | | | | | | | | | | | | | | | | | | 3.5 | | | | |
| Kennedy, Jimmy | | | | | | | | | | | | | | | | | | | | | | 4 |
| Oates, Monica | | | | | | | | | | | | | | | | | | | | | | 8 |
| | 96 | 128 | 9 | 292 | 175 | 11 | 168 | 30 | 24 | 162 | 78 | 584 | 72 | | 558 | 18 | 8 | 274.5 | 34 | 4 | 240 | 478 |

## OPERATOR ACADEMY CLASS SYLLABUS
## HAND RODDING AND FLUSHING/VACUUM MACHINES
## July 9 - 20, 2012

**July 9, 2012 Classroom Training**

The class will start at 7:30 am and conclude at 3:15 pm. We will need an appropriate training space for the number of people that will be in attendance, a marker board/black board (flip chart can be used), an LCD projector/screen, and extension cord with multiple plugs or power strip.

**Introduction and Basics**
Opening comments from Senior Management
The importance of collection systems
Overview of operations, data accuracy, and managing information
The Change concept and why it is necessary in progressive organizations

**Maintenance Strategies**
Reactive, basin cleaning, and Information based maintenance strategies
How each works and the role of operators in them

**Rodding Machines**
Brief history of hand rodding and the Rodding Machine
Operation parameters and deployment use

**Rodding Tools and Applications**
Tools and accessories necessary for safe and effective operation
Function and application of tools used with hand rodding
Selecting the proper tool for a specific situation

**Root and Grease Formation**
How roots and grease accumulate in pipes
Principles of removal and various techniques

**Rodding Machine Set Up and Operation**
Set up procedures at arrival to access point
Rod guide pipe placement and securing procedures
How and when rod turning machine is used
Controlling torque
Techniques for various cleaning situations

**Rod Care and Failure Causes**
Rod inspection
Determining causes of rod failure

**Flushing Machines**
Brief history of hydraulic cleaning and the Flushing Machine
Operation parameters and designed functions

**Tools and Applications**
Nozzle anatomy, functions of degree, pressure, and flow
Tools and accessories necessary for safe and effective operation
Function and application of tools used with Flushers
Selecting the proper tool for a specific situation

**Flushing Machine Controls**
Primary controls and operational functions

**Set Up and Operation**
Discussion of set up procedures including direction of cleaning and easement issues
Discussion of safe stoppage removal and full manhole avoidance
Proper machine pressure set up
Operation techniques for various cleaning situations

**Vacuum Use**
Vacuum tubes set up and use
Cautions of overhead and other obstructions
How vacuums can be used in spill mitigation
Hydro-excavation and other uses

**Debris Quantification**
Trapping during the cleaning process
Developing a quantification scale for data management and maintenance strategy

**Safety**
Personal safety in the collection system
Confined space awareness and hazards
Equipment hazards and avoidance
Traffic hazards and avoidance

**Jefferson County Environmental Services Department**
Collection System Maintenance and Construction Development & Training Program

**All-Hands Meeting**
July 28, 2015 8:30 am – 3:00 pm

## Agenda

Purpose of the Meeting: Combine both Sewer Maintenance and Construction personnel in a single group meeting to: reinforce importance work the Operator Corps is performing, provide training on basic math and photography skills, review Hazen & Sawyer's progress to date on their efforts, and begin leadership training by addressing conflict resolution techniques.

1. Welcome and opening remarks
2. Basic math for field operations - SSO volume estimating, trench gravel/bedding volume estimating
3. Overview of sewer performance improvement programs - Review by Hazen
4. Photography basics for SSOs and other job related field photographs
5. Lunch
6. Conflict resolution presentation – Pete Blank Jefferson County Personnel Board
7. Adjourn

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# Collection System Safety Program

**Final**

December 2016

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# Acronyms

| | |
|---|---|
| CMOM | Capacity, Management, Operations and Maintenance |
| JCESD | Jefferson County Environmental Services Department |
| JCPB | Jefferson County Personnel Board |
| O&M | Operations and maintenance |
| SOP | Standard operating procedure |
| SSO | Sanitary sewer overflow |
| SSORRP | Sanitary Sewer Overflow Response and Reporting Program |

# Collection System Safety Program

## Program Overview

The Jefferson County Environmental Services Department (JCESD) considers safety to be a top priority in all duties performed by all employees.

The **Collection System Safety Program** (herein referred to as "**Safety Program**") followed by JCESD personnel to conduct Capacity, Management, Operations, and Maintenance (CMOM)-related work is described in this plan. This plan was developed for JCESD Collection System personnel as a basis on which each employee can establish the minimum actions and behavior necessary to work safely.

This plan is intended to meet the minimum safety requirements of local, state, and federal laws; and follows generally accepted industry standards and practices. In many instances, working safely will require actions and behavior beyond the general provisions of this plan. Each employee is expected to work safely, be alert for potential dangers, and seek and follow any information on further protection that may be necessary in particular situations.

All employees will be trained in the hazards and protective measures associated with the particular jobs they are assigned to accomplish. It is necessary that each employee performs their work in a safe manner to develop a culture of safety within the organization. It is especially necessary that supervisors assist in identifying hazards and communicate the protective measures required by this manual.

This plan will be reviewed regularly and updated as new legislation is passed, as new hazards are identified, and as new processes are developed. All employees are expected to assist in keeping this plan current by submitting any needed changes or additions to the safety personnel in their divisions for the next manual update. Copies of the plan are available through Collection System supervisors and safety representatives.

### Purpose and Goals

JCESD is in the process of developing and implementing a comprehensive **Safety Program** to meet the goals and objectives set forth in its Safety Policy. JCESD's Safety Policy is as follows:

> *The Jefferson County Environmental Services Department intends to provide a safe work environment for all our workers and the public. A well-managed workplace safety program will benefit our organization and the community in measurable ways.*
>
> *The success of the program is dependent on the cooperative effort and active engagement of all JCESD employees, as well as the enforcement of program policies and standards.*
>
> *Both management and operations employees must become familiar with the program, follow and enforce the procedures, and become an active participant in this workplace safety program.*

JCESD is currently refining its **Safety Program**.

# Program Resources

## Related CMOM Program Documents and Other References

Jefferson County's **Employee Handbook** (current version) provides general guidance regarding the policies and procedures of the Jefferson County Commission, as well as the rules and regulations of the Jefferson County Personnel Board (JCPB). The **Jefferson County Employee Safety Handbook** (current version) provides guidelines on the following issues:

- Loss Prevention Policy
- Department Directors' Safety Responsibilities
- Department Supervisors' Safety Responsibilities
- Employee Safety Responsibilities
- General Safety Rules
- Safety Meetings
- Employee Accident/Injury Reporting Policy
- Driver Safety Rule and Procedures
- Driver Vehicle Accident/Injury Reporting Procedures
- Drug Testing Policy Statement
- Hazard Communication Program
- Your "Right to Know"
- Rules for Safe Lifting

The handbooks are available on the County's intranet site at http://courthouse.jcc.jccal.org. Copies of the **Personnel Board Rules & Regulations** (current version) are available from the JCPB at www.pbjcal.org.

Required dress codes for Line Maintenance, Television Inspection, and Pump Station personnel are described in internal policy books available from Department Supervisors.

Information on the following JCESD initiatives are provided in the **Contingency Planning Program** plan:

- Jefferson County Multi-Hazard Mitigation Plan
- Risk Management Plan
- Emergency Planning and Community Right-to-Know Act (SARA III) Reporting
- Chemical Accident Prevention
- Oil Spills Prevention and Preparedness

JCESD developed standard operating procedures (SOPs), work process descriptions and checklists for its collection system operations and maintenance (O&M) practices. These SOPs are provided in the JCESD **Standard Operation Procedures and Work Process Documentation for Field Operations** handbook. This handbook also contains Jefferson County's Lockout/Tagout and Confined Space Entry policies and procedures.

Procedures used when responding to and reporting sanitary sewer overflows (SSOs) are detailed in JCESD's **Sanitary Sewer Overflow Response and Reporting Program (SSORRP)** plan.

Other CMOM Program plans that reference or are referenced in the JCESD **Collection System Safety Program** plan include:

- CMOM Program Organization
- Customer Service Program
- Equipment and Supplies Management Program
- Gravity Line Preventive Maintenance Program
- Pump Station Operations and Maintenance Program
- Training Program

### Staffing

All JCESD personnel are responsible for familiarizing themselves with applicable components of the **Safety Program**, and engaging in safe work practices. Supervisors and managers are responsible for enforcing safety procedures.

For more information on the departments and personnel involved with the **Safety Program** initiatives, see the Organizational Charts provided in the **CMOM Program Organization** plan.

### Data Management

Information related to the **Safety Program** training efforts is documented and maintained by the Public Relations Officer assigned to Barton Labs. The training requirements, courses provided, employee participation are tracked in Microsoft Excel.

## Program Implementation

JCESD's **Safety Program** consists of many initiatives, including the following:

- Hazard identification and risk assessment
- Communications
- Training

A description of these initiatives is provided below.

### Hazard Identification and Risk Assessment

Following industry standards, the following steps are taken to address potential collection system safety hazards:

1. Identify collection system safety hazards.
2. Take steps to reduce or eliminate exposure to collection system safety hazards.
3. Control the hazard when it is not possible to eliminate.

Hazards are controlled using the following methods (in order, when feasible)

- Engineering controls
- Administrative controls
- Personal protective equipment

Applying this hierarchy is a systematic approach to identify the most effective method of risk reduction.

Field supervisors conduct routine field crew visits to observe the jobsite and discuss and/or correct any safety concerns. JCESD has initiated several safety-related programs and processes to better ensure personnel are protected and have the necessary equipment to perform their work safely and effectively. Examples of the controls that have been put in place recently include the following:

- Standardization of traffic management devices and deployment strategies that result in higher visibility on roadways for construction and line maintenance operations.
- Provisions for a steel toed shoe annual allowance for all field personnel that encourages routine replacement of footwear.
- Use of trenching and shoring equipment on all construction jobsites, regardless of estimated depth, to increase trench safety.
- Standardization of work practices in line maintenance, which improves safety awareness.

Additionally, field personnel are trained on the following:

> *If any employee sees, suspects, or knows of a potential safety hazard, including equipment components, tools, set up conditions, or traffic conditions, it is his/her responsibility to immediately bring it to the attention of the crew leader or the operator in charge of the work crew, and other crew members.*
>
> *The person in charge of the work site shall take appropriate corrective or preventive measures in addressing the situation. If the hazard is not able to be resolved with these actions, the person in charge of the work site shall notify the Field Supervisor (or onsite Supervisor or Inspector).*
>
> *Any additional actions should be made with this information in mind if corrective, anticipatory, or preventive measures are needed. If the hazard is not able to be resolved with these actions, the person in charge of the work site shall notify the Field Supervisor (or onsite Supervisor or Inspector).*
>
> *If the situation cannot be resolved, then the Field Supervisor (or onsite Supervisor or Inspector) shall consult with the Public Works Supervisor or his/her representative prior to proceeding.*

## Communications

JCESD understands that communication between staff and management, and for inter-departmental needs, is critical to maintaining the safe operations of an organization operating in a large service area, with multiple work activities requiring coordination. Internal communications include methods that

work at inter-departmental levels between management and staff, and cross-departmental levels with other facets of the organization. These communication methods can be in the form of meetings, email, bulletin boards, telephone, conference calls, and cellular phone texts.

Safety topics are discussed at morning tailgate meetings, department meetings, operator training events (in classrooms and in the field), and inter-departmental meetings.

For more information on the communication efforts within JCESD, see the **CMOM Program Organization** plan.

## Safety Training

JCESD provides annual training on confined space entry, trenching and shoring, and other important safety topics. For more information on past training events, see the JCESD **Training Program** plan.

The training tracking process shown in **Table 1** is used to identify the applicable training for employees and ensure the required training opportunities are provided.

**Table 1. Training Tracking Process**

| Step | Tracking System Element |
|---|---|
| 1 | Request lists of required training and required employee attendance from Department Supervisors and senior managers |
| 2 | Set up a monthly action schedule for the required training of employees by position |
| 3 | Confirm staff availability and schedule training; resolve conflicts or schedule course if unforeseen conflict arises |
| 4 | Post training notices when courses are scheduled and issue training notices to individual employees with adequate lead time before scheduled training events |
| 5 | Maintain a directory of each course conducted, including: name of course, name of instructor, course duration, attendee roster, and curriculum (if available) |
| 6 | Review roster after training to confirm scheduled employees were in attendance |
| 7 | If directed by employees' supervisors, reschedule training for employees who were unable to attend |
| 8 | Log employee attendance in tracking system and file roster in master training file |
| 9 | Collect certificate of attendance signed by trainer or issue certificates for the training coordinator to each attendee |
| 10 | File copies of certificates in employee training files |

# Program Performance Metrics

Performance measures are important management tools that allow for continuous measurement and evaluation of program activities. Performance measures are designed to collect information that enable JCESD to determine if established goals and level of service are being met and, if not, what activities need to be adjusted to meet program goals.

The indicators that JCESD uses to measure the performance of its wastewater collection system and effectiveness of its **Safety Program** are listed below.

**Table 2. Safety Program Performance Indicators**

| Performance Measure | Formula | Definition | Data Interval |
|---|---|---|---|
| # Employee Injuries | Value | Number of injuries reported by JCESD employees | Monthly |
| Days Lost w/Pay | Value | Number of days employees were absent from work due to injury sustained while on the job | Monthly |




# CMOM Information Management Systems Program

## Final

December 2016

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Table 1. JCESD Information Management Systems ..... 4

# Acronyms

| | |
|---|---|
| CCTV | Closed-circuit television |
| CMMS | Computerized maintenance management system |
| CMOM | Capacity, Management, Operations and Maintenance |
| EAM | Enterprise asset management |
| FOG | Fats, oils, and grease |
| GIS | Geographic Information System |
| IMS | Information management system |
| JCESD | Jefferson County Environmental Services Department |
| LIMS | Laboratory information management system |
| O&M | Operations and maintenance |
| PACP | Pipeline Assessment and Certification Program |
| PM | Preventive maintenance |
| SSO | Sanitary sewer overflow |
| TVI | Television inspection |

# CMOM Information Management Systems Program

## Program Overview

Jefferson County Environmental Services Department (JCESD) utilizes a variety of off-the-shelf and customized computer hardware and software tools to manage the vast amount of data it collects, maintains, and analyzes to conduct its daily operations and maintain compliance with regulatory requirements.

The information management systems (IMSs) utilized by JCESD personnel to conduct CMOM-related work are described in this plan.

### Purpose and Goals

JCESD is in the process of developing and implementing an integrated asset management system that effectively utilizes existing geographic information system (GIS) capabilities for the management of system attributes (pipes, manholes, etc.), inspection findings and actions (grease traps, construction sites, spills, etc.), and maintenance activities (pipe cleaning, defect rating and prioritization). The asset management system is designed to automate processes for compliance and monitoring, sewer line operations and maintenance (O&M), pump station O&M, continual sewer system assessment, and performance evaluation.

The objective of the integrated asset management system is to implement a web-based solution to achieve benefits such as:

- Enhance data sharing through efficient systems integrations.
- Enhance functionality offered by current solutions to further develop and improve business processes.
- Increase the availability of pertinent information by appropriate users.
- Decrease system support costs.
- Improve current systems by implementing the new asset management system in conjunction with current business processes, as well as key process improvements.
- Provide easy access to centralized geographic information by establishing a seamless integration with ESRI GIS.

JCESD is currently refining its IMS (a.k.a., computerized maintenance management system or CMMS) program strategy using Cityworks software, and is reviewing the relationship between maintenance, operation, and management activities related to the various software products and databases used by JCESD.

The **CMOM IMS Program** enables JCESD management to adequately evaluate financial, operation, maintenance, customer service, and system rehabilitation, along with other capital improvement activities, to assess the overall system performance and make informed decisions concerning future strategies.

The IMS is used to track scheduled operations activities, to enhance operations performance, and to ensure timely and standardized reporting of field data and reports completed or derived from field activities. The IMS also is used to track scheduled maintenance activities and to enhance maintenance performance. The IMS is used to enhance customer service by tracking service requests to completion, as well as track previous similar requests.

The goal of the IMS Program is to have a robust means to document, store, and track maintenance, operation, and management activities to optimize system operations and level of service.

# Program Resources

## Related CMOM Program Documents and Other References

Other CMOM Program plans that reference or are referenced in the JCESD **CMOM Information Management System Program** plan include:

- CMOM Program Organization
- Contingency Planning Program
- Corrosion Control Program
- Customer Service Program
- Engineering Program
- Equipment and Supplies Management Program
- Financial Analysis Program
- Fats, Oils, and Grease Management Program
- Gravity Line Preventive Maintenance Program
- Legal Support Program
- Line Location Program
- Maintenance of Way Program
- Overflow Tracking Program
- Pretreatment Program
- Pump Station Operation and Maintenance Program
- Safety Program
- Service Connections and Disconnections Program
- Training Program
- Water Quality Monitoring Program

## Staffing

For more information concerning staffing the IMS Program, see the organization charts presented in the **CMOM Program Organization** plan.

There are many individuals with read and write access to specific IMS software programs and databases, depending on responsibilities to the organization. Primary responsibility for maintaining IMS-related records is assigned to the Systems Analyst.

### Data Management

The various computer software programs currently in use by JCESD are listed in **Table 1** on the following pages.

## Program Performance Metrics

Current software is purchased on user or license agreements that provide updates as new releases are issued. Additionally, JCESD will evaluate new technology and software releases to implement improvements to enhance operations, data management, and data analysis.

**Table 1. JCESD Information Management Systems**

| Software / Database | Responsible Party | Description | CMOM Program | Application |
|---|---|---|---|---|
| Cityworks | Systems Analyst | GIS-centric asset management data management repository for linear asset attribute information, mapping, and service request and work order system assignment and tracking | Customer Service | Track calls and complaints through service requests entered by Customer Service Department and executed by line departments |
| | Systems Analyst | | Overflow Tracking | Recording SSOs and backups and tracking cleanup and repairs |
| | Systems Analyst | | Engineering | PACP module for Cityworks to import PipeTech television inspection (TVI) field data from inspection vehicles to database |
| Infor Enterprise Asset Management (EAM) | Systems Analyst | Asset management database for vertical assets | Pump Station O&M | Pump station asset data, preventive maintenance (PM) and O&M schedules and work orders |
| Capacity Assurance | Systems Analyst | Database of proposed projects requesting sewer reserved flow | Engineering | Tracks projects until they are completed and part of measured flow in the system |
| Grease Control Program | Environmental Coordinator | Database of food service facilities that could discharge grease into JCESD sewers | FOG | Tracks inspection and enforces compliance with FOG ordinances; provides licenses to facilities and inspects yearly |
| Munis | Finance Department | Enterprise-wide financial system used by many personnel with specific areas of responsibility concerning JCESD finances and budgeting | Financial Analysis | Tracks JCESD financial and budgeting information |

| Software / Database | Responsible Party | Description | CMOM Program | Application |
|---|---|---|---|---|
| Private Meter | Senior Systems Analyst | Database of water meters used for water that does not enter the sewer system (lawn and garden sprinklers, etc.). | Customer Service | Tracks water usage that does not discharge into JCESD sewer system and reimbursement of sewer charges made for that water usage |
| Sewer Impact and Sewer Connection Permits | Administrative Analyst | Database to track permits issued and inspections performed on new and upgraded sewer connections | Engineering | Tracks sewer impact and connection permits issued |
| Private Developed Sewer Projects (PDSIMS) | Administrative Analyst | Privately developed sewer projects (subdivisions or malls, etc.) wishing to donate their project to Jefferson County for maintenance | Engineering | Tracking and collecting proposed and as-built drawings and assigning reference numbers. Repository of proposed and as-built drawings of privately developed sewer projects |
| LIMS | Programmer Analyst | Barton Labs database of water quality samples | Water Quality Monitoring | Tracks water quality samples and test results |
| PipeTech | Systems Analyst | CCTV gravity line inspection data collection | Engineering | Software resides on TVI trucks for viewing inspections and coding defects and other findings from a gravity line TVI inspection |




# Engineering Program

## Final

December 2016

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# Acronyms

| | |
|---|---|
| AMP | Asset Management Program |
| CAP | Capacity Assurance Program |
| CCM | Consultant Construction Manager |
| CCTV | Closed-circuit television |
| CMMS | Computerized maintenance management system |
| CMOM | Capacity, Management, Operations, and Maintenance |
| COF | Consequence of failure |
| CSSAP | Continuous Sewer System Assessment Program |
| GIS | Geographic information system |
| GLPMP | Gravity Line Preventative Maintenance Program |
| GP | Gravity pipe |
| I/I | Infiltration and inflow |
| ID | Identification |
| IMS | Information management system |
| JCESD | Jefferson County Environmental Services Department |
| LDSAP | Large Diameter Sewer Assessment Program |
| MH | Manhole |
| NPDES | National Pollutant Discharge Elimination System |
| O&M | Operations and maintenance |
| OSARP | Ongoing Sewer Assessment and Rehabilitation Program |
| PACP | Pipe Assessment and Certification Program |
| POF | Probability of failure |
| QA/QC | Quality assurance and quality control |
| ROW | Right-of-way |
| SIMS | Sewer Infrastructure Management System |
| SL-RAT | Sewer Line Rapid Assessment Tool |
| SOP | Standard operating procedure |
| SSES | Sanitary sewer evaluation survey |
| SSO | Sanitary sewer overflow |
| TVI | Television inspection |
| USEPA | United States Environmental Protection Agency |
| WWTP | Wastewater treatment plant |

# Engineering Program

## Overview

The **Engineering Program** is truly the "backbone" of Jefferson County Environmental Services Department's (JCESD's) Capacity, Management, Operations, and Maintenance (CMOM) Program. This **Engineering Program** plan outlines a framework for:

- Maintaining an accurate inventory of JCESD's collection system assets.
- Maintaining current mapping and supporting documentation related to the collection system.
- Monitoring sewer flows, developing hydraulic models, and ensuring available system capacity for new development.
- Assessing the condition of existing collection system assets and prioritizing rehabilitation and replacement projects, when necessary.
- Ensuring collection system projects are designed and constructed in accordance with JCESD standards.
- Securing required utility easements and rights-of-way (ROWs) related to JCESD construction projects, and ensuring sanitary sewer assets are transferred to JCESD from new development projects, when applicable.

Maintaining accurate records of what JCESD owns facilitates the asset management and operations and maintenance activities described in the remaining CMOM program plans. And through standardized design requirements and inspection procedures, JCESD can ensure that the collection system is constructed correctly and in accordance with industry best practices, which will ultimately minimize sanitary sewer overflows (SSOs) from the system.

The **Engineering Program** is comprised of the following initiatives:

- System Inventory Program
- Collection System Plans and Mapping Program
- System Design Standards Program
- New Construction and Rehabilitation Inspection Program
- Acquisitions Program
- Continuous Sewer System Assessment Program
- Infrastructure Rehabilitation Program
- Capacity Assurance Program

The purpose and goals of the individual program components are discussed in each program section.

# System Inventory Program

## Program Activities

### Purpose and Goals

This program ensures an inventory of JCESD's collection and transmission system is present, updated, and cataloged by wastewater treatment plant (WWTP) service areas. The inventory lists the system components with their attributes and characteristics (e.g., pipe age, pipe size, pipe material, invert elevation, pump sizes, location of inverted siphons, pump stations, manholes, etc.).

### Program Components and Approach

JCESD maintains over 3,100 miles of gravity and pressure sewer lines, 177 collection system pump/lift stations, and nine wastewater treatment plants. For more information on JCESD's wastewater treatment and collection system, see the **CMOM Program Organization** plan.

JCESD has incorporated its entire collection and transmission system into an ESRI ArcSDE geographic information system (GIS) and the Sewer Infrastructure Management System (SIMS) database. The database is continuously updated as the collection system is maintained, inspected, rehabilitated and expanded.

More recently, SIMS database was integrated into JCESD's overall asset management system. JCESD uses Cityworks software for managing system inventory and mapping. Cityworks is a computerized maintenance management system (CMMS) software that is GIS-centric (i.e., it uses an ArcGIS platform), and has an extensive sewer system asset data management repository.

The GIS component of Cityworks enables users to view the collection system in relation to other County information, including parcels, street centerline, topography, water features, and other data layers. **Figure 1** on the following page represents a portion of JCESD's wastewater sytem GIS data, as viewed in Cityworks.

See the JCESD **Information Management Systems (IMS) Program** plan for more information on ESRI ArcSDE GIS, SIMS, and Cityworks.

Each sewer system asset has a unique identification (ID) number consisting of three parts [2 Letter Feature Type, and Mini-Basin]-[Unique Numeric ID] For example, one gravity pipe (GP) asset ID within mini-basin 1076 is GP001076-058897. Asset attributes and characteristics such as pipe size, material, invert elevation, etc., are included in the GIS database.

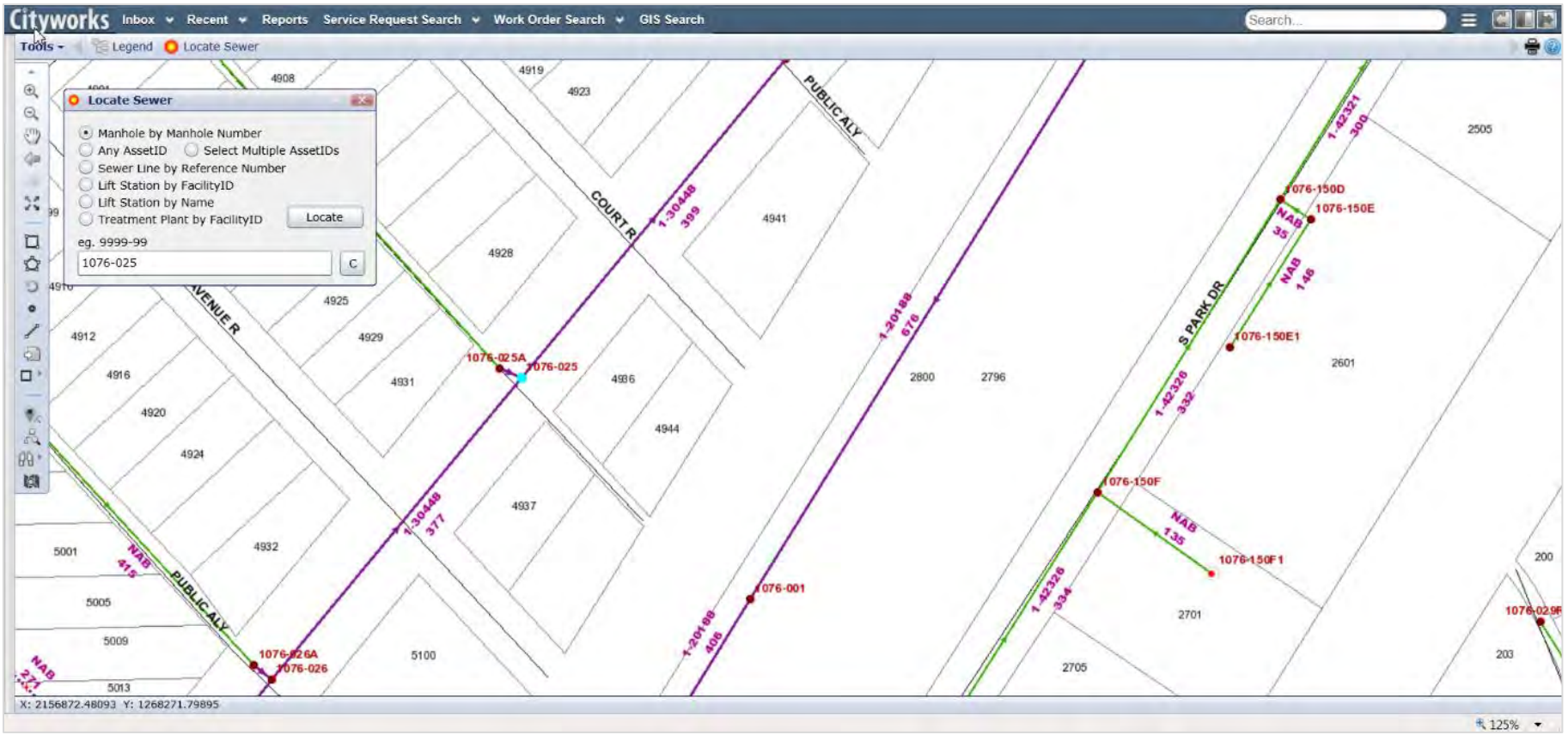


**Figure 1.GIS Data as Viewed in Cityworks**

# Program Resources

## Related CMOM Program Documents and Other References

JCESD developed standard operating procedures (SOPs) for various CMOM-related job duties, including the SOP for GIS Updates. Copies of the SOPs are provided in the JCESD's **Standard Operation Procedures and Work Process Documentation for Field Operations** manual.

Other CMOM program plans that are referenced and/or are related to the **System Inventory Program** include:

- Collection System Plans and Mapping Program, Continuous Sewer System Assessment Program (CSSAP), and System Design Standards Program, which are all described in this Engineering Program plan
- CMOM IMS Program
- CMOM Program Organization
- Equipment and Supplies Management Program
- Gravity Line Preventive Maintenance Program (GLPMP)
- Legal Support Program
- Line Location Program

## Staffing

The system inventory is managed by JCESD GIS staff who reside in Department 7100 Administration, as shown in the Organizational Chart located in the **CMOM Program Organization** plan.

Applying changes to the GIS database is restricted to a single appointed GIS staff member with editing permissions (GIS editor), in accordance with the JCESD SOP for GIS Updates. The GIS editor reviews field crew and survey department data, as described below, and edits the GIS database accordingly. No other staff are allowed to make changes to the GIS database.

## Data Management

For more information on JCESD's data management strategy, including the use of GIS and Cityworks, see the **CMOM IMS Program** plan.

# Program Implementation

System inventory updates and changes are made using GIS desktop software and applied to JCESD's centralized ESRI ArcSDE geodatabase, as described under Program Components and Approach. The minimum required asset attribute data required by JCESD are listed in **Table 1** on the following page.

GIS updates are performed based on the following procedures, in accordance with the GIS Updates SOP:

- **Record Drawings** - Record drawings documenting changes to the system made during construction by outside contractors is entered by the GIS editor.

**Table 1. Minimum Required Asset Attribute Data**

| Manholes (MH) | Gravity Lines | Force Mains | Lift Stations |
|---|---|---|---|
| Asset ID | Asset ID | Asset ID | Asset ID |
| MH Rim Elevation | Install or Replace Date | Install or Replace Date | Install or Replace Date |
| MH Depth | Upstream Invert Elevation | Line Diameter | Station Firm Capacity |
| Install or Replace Date | Downstream Invert Elevation | Pipe Material | Number of Pumps |
| Abandoned Date | Line Diameter | | Station Pump Type (centrifugal, suction-lift, other) |
| Barrel Diameter | Pipe Material | | Wet Well Shape (circular, rectangular, irregular) |
| Sealed? | Cross Section Shape | | Wet Well Cross Sectional Area (if not regular) |
| Drop Manhole | Siphon | | Standby Generator |
| | Upstream MH Asset ID | | Upstream MH Asset ID |
| | Downstream MH Asset ID | | Downstream MH Asset ID |

- **Closed-Circuit Television (CCTV) Inspection Data** - The GIS editor is responsible for comparing height, width, shape, and material from the Pipe Assessment and Certification Program (PACP) inspection database for CCTV inspections by both County and outside contractor staff. GIS fields to be updated include date televised, Upstream Rim to Invert, Upstream Grade to Invert, Upstream Rim to Grade, Downstream Rim to Invert, Downstream Grade to Invert, and Downstream Rim to Grade.
- **New Assets Identified in the Field** - The GIS editor creates new asset IDs for manholes discovered in the field that are not currently in GIS and associated gravity lines.
- **Quality Assurance and Quality Control (QA/QC)** – Discrepancies in GIS are verified by field visits, survey, and CCTV.

In cases where the GIS editor requires it, JCESD survey department staff will be responsible to verify the attribute information and/or physical location of utility assets in the field, as directed. Survey staff are responsible for providing information back to the GIS department, ensuring that the locations are accurate using GPS, and providing "points" to the GIS editor.

The GIS editor is responsible for regularly coordinating with operations and maintenance (O&M) staff to determine which work orders have been completed that require GIS updates.

All County staff, including engineers, inspectors, and maintenance workers, are responsible to communicate any discrepancies to the collection system during the normal course of their work and the GIS editor is responsible for all updates.

# Collection System Plans and Mapping Program

## Program Activities

### Purpose and Goals

This program ensures that a full set of as-built plans for JCESD's collection and transmission system are available, field crews have ready access to the plans, and a written standard procedure is present to account for changes, update the plans, and supply revised versions to field crews in a timely manner. It also ensures that adequately detailed maps are available to be used in conjunction with other JCESD's CMOM programs.

### Program Components and Approach

All of JCESD's collection system plans are located in the SIMS database, as described in the **System Inventory Program**. Collection system plans are tracked at every point, from submission, to plan approval, all the way to construction completion. All available detailed collection system mapping information is included in GIS and can be viewed in Cityworks, as previously described in the **System Inventory Program**.

Additionally, other project specifics, including sewer plans and profiles, engineer, developer, and contractor, are also entered into the SIMS and can be queried later by JCESD staff using Cityworks for detailed information about sewer assets from as-built data. Field crews use tablets equipped with Freeance, a mobile application designed for use with Cityworks. Using the tablets, field crews have remote/on-demand access to GIS maps, photos, GPS, and other tools useful for locating system assets and asset information.

An example of a Cityworks drawing query is shown in **Figure 2** on the following page. An example plan as-built drawing accessed through Cityworks is shown in **Figure 3**.

## Program Resources

### Related CMOM Program Documents and Other References

JCESD developed SOPs for various CMOM-related job duties, including the SOP for GIS Updates. Copies of the SOPs are provided in the JCESD's **Standard Operation Procedures and Work Process Documentation for Field Operations** manual.

## SIMS Drawings and Image Data

| Field | Value |
|---|---|
| OBJECTID | 72561 |
| ENABLED | 1 |
| ADMINISTRATIVEAREA | 6 |
| FACILITYID | 1076-202A-1076-202 |
| LOCATION | 2111 FULTON AVE SW, BIRMINGHAM, 35 |
| INSTALLDATE | |
| OPERATIONALAREA | VAL |
| SUBBASIN | 1076 |
| LIFECYCLESTATUS | ACT |
| SUBTYPE | 5 |
| WORKORDERID | |
| LEGACYID | 321 |
| WARRANTYDATE | |
| RECORDEDLENGTH | 321.07200000 |
| INSTALLCONTRACTOR | |
| FLOWMEASUREMENTID | VALLEY_VA22B |
| WATERTYPE | Sewage |
| MATERIAL | CLAY |
| GROUNDTYPE | |
| EXTERIORCOATING | |
| JOINTTYPE1 | |
| JOINTTYPE2 | |
| LININGTYPE | <Null> |
| PIPECLASS | <Null> |
| ROUGHNESS | |
| NAME | FULTON AVE. SAN. SEWER |
| CROSSSECTIONSHAPE | |
| WIDTHTOP | |
| UPSTREAMINVERT | 525.57000000 |
| DOWNSTREAMINVERT | 524.93000000 |

### Gravitymain: GP001076-058897

**All Lines in Project:** FULTON AVE. SAN. SEWER

**Reference Drawings**
01-42318

**Proposed_Reference_Drawings**
none

**Alias_Reference_Drawings**
none

**GPS_Reference_Drawings**
01-70856

**Rehab_Reference_Drawings**
01-80343 01-80350

**R_R_Reference_Drawings**
none

**R_R_Proposed_Reference_Drawings**
none

**Manhole Photos:** **Upstream MH:** 202a-s.jpg **Downstream MH:** 202-e.jpg
(Due to differing naming conventions you may see several wrong manhole names di
compass direction and some do not. In order to find the correct ones the wrong on

**CCTV:** View TV Inspections

**Deeds:** N/A

**Figure 2.Record Drawing Query**

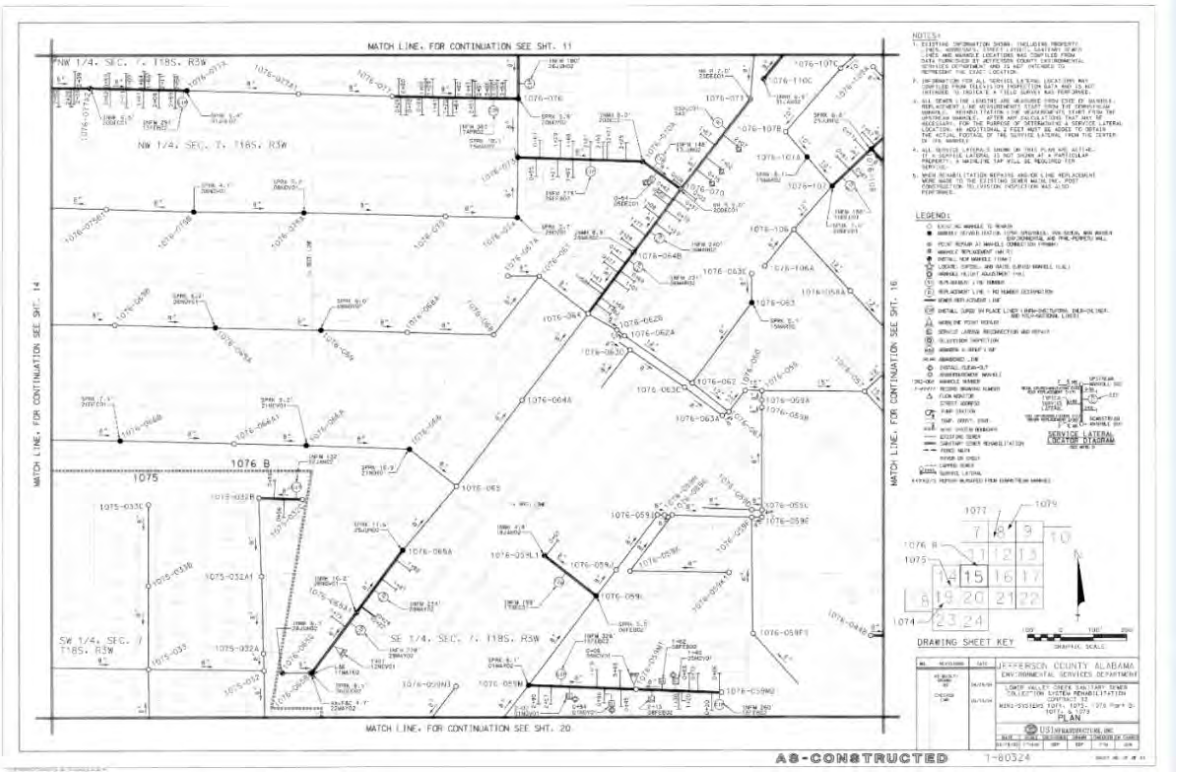


**Figure 3.As-Built Drawing**

Other CMOM program plans that are referenced and/or are related to the **Collection System Plans and Mapping Program** plan include:

- System Inventory Program, System Design Standards Program, and CSSAP, which are described in this Engineering Program plan
- CMOM IMS Program
- CMOM Program Organization
- Gravity Line Preventative Maintenance Program
- Line Location Program

### Staffing

Updating collection system plans and mapping is managed by JCESD GIS staff. GIS staff reside in Department 7100 Administration, as indicated in the **CMOM Program Organization** plan.

Applying changes to the GIS database is restricted to a single appointed GIS staff member with editing permissions (GIS editor), in accordance with the JCESD SOP for GIS Updates. No other staff are allowed to make changes to the GIS database. The GIS editor reviews as-built information provided by Contractors and edits the GIS database accordingly.

### Data Management

For more information on JCESD's data management strategy, including the use of GIS, Cityworks, and Freeance, see the **CMOM IMS Program** plan.

## Program Implementation

Record drawings documenting changes to the system made during construction by outside contractors are submitted to JCESD project engineers and incorporated into to JCESD's centralized database, described in the **System Inventory Program**. The constructed assets are assigned reference numbers. The GIS editor then reviews the provided information and updates the GIS database accordingly.

### As-Constructed Drawing Standards and Requirements

As indicated in the JCESD **Commercial and Residential Sanitary Sewer System Design and Construction Manual** (current version):

> "Upon completion of construction, the JCESD/Developer shall have the project surveyed by an Alabama Licensed Surveyor to locate the constructed facilities on the As-Constructed Drawing(s) also commonly known as "record drawings." Information from the survey and from construction records will be incorporated into the approved Construction Drawings by the surveyor to accurately show pump station, force main, and/or main sewer installation."

# System Design Standards Program

## Program Activities

### Purpose and Goals

This program ensures all new sewer system construction in JCESD will be adequately designed and constructed according to requirements and specifications that assure the integrity of the infrastructure. System components included are sanitary sewer service lines, connections, gravity sewers, force mains, and pump stations.

The purpose of these requirements is to provide uniform design and construction standards, in addition to establishing a minimum allowed level of quality and performance for these commercial and residential sanitary sewer systems. The system components are to be designed and constructed in a manner that minimizes sanitary sewer overflows and back-ups and ensures effective long-term maintenance with the acquisition of new wastewater collection system assets. The end result should be public infrastructure that is cost-effective to operate and maintain by JCESD for the anticipated life of the asset.

### Program Components and Approach

Since unification of the sanitary sewer system was completed in mid-1998, all additions to the system are subject to JCESD design and construction standards. Sewer system additions may be constructed by the municipalities or by private developers, provided that the addition meets JCESD requirements. JCESD adopted its original *Standards for Construction of Commercial and Residential Sanitary Sewer Systems, and Standard Guidelines for Design and Construction of Commercial and Residential Sanitary Sewer Pumping Stations* in November 1999, and the *Standard Guidelines for Design and Construction of Commercial and Residential Sanitary Sewer Pumping Stations* were updated in August 2006.

Most recently, a new design manual was drafted and opened for public comments. The **Commercial and Residential Sanitary Sewer System Design and Construction Manual** (current version), (hereafter referred to as "Manual"), will be adopted in 2017.

This Manual identifies a single set of standards, submittal, and approval procedures to be used in the planning, design, and construction of projects within the JCESD service area. The Manual is not intended to serve as a step-by-step design guide. The application of sound engineering, surveying, construction principles and judgment, combined with the information contained therein, are necessary to complete the planning, design, and construction of commercial and residential sanitary sewer system projects. In addition, other JCESD departments, as well as state and federal agencies, may have requirements other than those contained in the Manual that must be addressed to obtain approval.

# Program Resources

## Related CMOM Program Documents and Other References

Other CMOM program plans that are referenced and/or are related to the **System Design Standards Program** plan include:

- System Inventory Program, Collection System Mapping and Plans Program, New Construction and Rehabilitation Program, Acquisitions Program, CSSAP, and Capacity Assurance Program, which are all described in this Engineering Program plan
- CMOM Program Organization Plan
- Gravity Line Preventative Maintenance Program
- Legal Support Program

## Staffing

JCESD is responsible for engineering, project management, and plans review. Staff reside in Department 7100 Administration as shown on the organizational chart located in the **CMOM Program Organization** plan.

# Program Implementation

The JCESD **Commercial and Residential Sanitary Sewer System Design and Construction Manual** (current version) is to be used as a guide during the design and construction of projects connecting to the JCESD's sanitary sewer system. The manual should be referenced to verify necessary permits and design requirements for residential and commercial projects that include designs for service lines, main sewers, grease removal devices, force mains, and pump stations. Although requirements and specifications are included in the manual, the JCESD/Developer and the Designer/Engineer should take any special project conditions into consideration throughout design and construction.

Larger additions to JCESD's sanitary sewer system, such as major trunk sewer extensions, have been traditionally managed by JCESD staff or designee. These projects are intended to expand the area served by County sewers in a systematic manner. For large trunk line additions, JCESD establishes the basic scope of a sewer extension project. A design consultant is retained to complete the detailed design. Consultants incorporate into the design those established County practices and standards found in the Manual, ensuring system uniformity and quality. Upon completion, review and approval of design, JCESD lets the project for bid.

## Program Updates

As stated, the Manual is intended to be a living document. As design and construction criteria and technology evolve, the Manual will require revisions and improvements. It is therefore recommended that, prior to the start of a project, consultants verify that the designer is using the latest version of the requirements and the associated details and specifications.

# New Construction and Rehabilitation Inspection Program

## Program Activities

### Purpose and Goals

This program ensures that new construction or rehabilitative work is properly inspected and built using the JCESD **Commercial and Residential Sanitary Sewer System Design and Construction Manual** (Manual) (current version). The program includes use of standardized construction procedures, standardized construction testing procedures, and standardized inspection and testing forms/reports. The program also provides for subsequent CCTV inspection (also referred to as television inspection "TVI") of line construction prior to expiration of the warranty, and retention of the information for reference.

### Program Components and Approach

#### JCESD Inspections

JCESD staff make inspections on sewer projects project during construction. It is JCESD's intent that all main sewers, sewer service lines, pump stations, and force mains are constructed using acceptable materials and in a manner that meets the requirements of the Manual. Supervision, and inspection by JCESD helps ensure that construction is completed in accordance with these standards. Contractors are responsible for contacting JCESD for inspection of constructed assets.

#### Consultant Inspections

Full and/or part time resident project representatives are provided by consultants as part of JCESD's Asset Management Program (AMP), to monitor progress and conduct on-site observations of a contractor's work to determine if the work generally conforms to the construction contract documents and that the design concept is implemented and integrity preserved by the contractor.

## Program Resources

### Related CMOM Program Documents and Other References

Other documents that are referenced and/or are related to the **New Construction and Rehabilitation Inspection Program** plan include:

- JCESD Construction Management Plan, prepared by Hazen and Sawyer in May 2015
- JCESD Construction Management Procedures Manual, prepared by Hazen and Sawyer in May 2015
- CMOM Program Organization
- Legal Support Program

### Staffing

JCESD is responsible for Engineering, Project Management, Construction Administration and Inspections for the addition to existing assets, as well as new assets for the sanitary sewer system. More details concerning the staffing resources that support the functions of the Engineering Program are provided in the **CMOM Program Organization** plan.

AMP consultant staff are provided as needed to JCESD staff to supplement staffing for ongoing construction projects. Additional staff are requested by the JCESD Director from the AMP Manager.

## Program Implementation

The following is a list of the minimum collection system-related inspection requirements:

- All main line sewers, service lines, manholes, force mains, pump stations, pipe connections, repairs, and disconnections shall be visible for inspection. Inspection shall be made of the construction materials, pipe joints, alignment and grade, pipe bedding, and any other items the inspector deems necessary to ensure full compliance.
- No backfilling shall take place until construction of the item to be covered has been approved by a JCESD Inspector or JCESD designee.
- Hydrostatic and all other specified testing shall be witnessed by a JCESD Inspector or JCESD designee. If the work does not pass the required test(s) or other issues are noted during the inspection associated with faulty materials or workmanship, the work shall be re-inspected and retested after the contractor makes the necessary corrections.

### Asset Management Program (AMP)

As a part of the AMP, JCESD is contracting construction management services that supplement current JCESD staff, to ensure that these corrective measures are implemented effectively and properly per contract documents and industry accepted construction standards.

The Construction Manager (CCM) will assist JCESD in the procurement of contractors and provide construction administration services, as well as providing resident engineers for each project to monitor progress and conduct on-site observations of the contractor's work, as well as assisting in the resolution of field issues by bringing to bear collective construction experience. Further, inspectors are also provided to manage and QA/QC television inspection (TVI) contracts.

**Figure 4** on the following page shows the relationship between JCESD and AMP Staff.

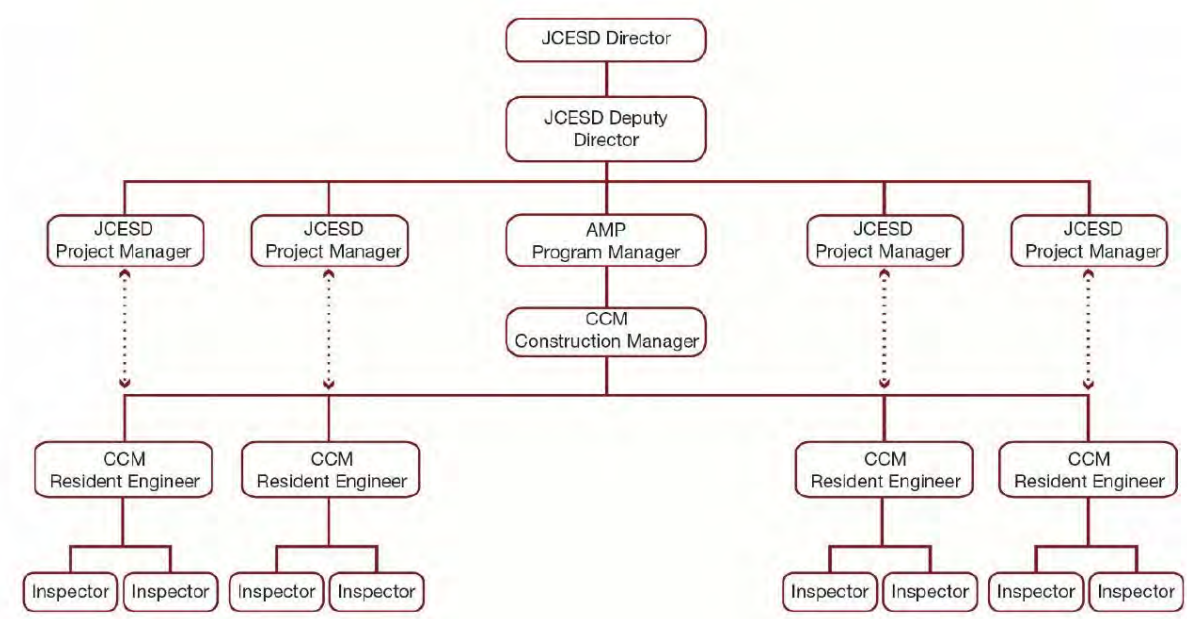


**Figure 4.AMP Inspection Program Management and Staffing**

# Acquisitions Program

## Program Activities

### Purpose and Goals

JCESD obtains sanitary sewer easement ROWs for the purpose of future sewer maintenance and for ready access to the sewer lines. As indicated in the JCESD **Commercial and Residential Sanitary Sewer System Design and Construction Manual** (current version), upon completion of pump stations, force mains, and/or main sewers and their acceptance by the JCESD, such work shall become the property of JCESD.

### Program Components and Approach

The Acquisitions process includes obtaining a ROW deed either by a written offer or a condemnation (eminent domain) procedure. The written offer states that the landowner acknowledges the sale of said ROW and easement to JCESD. Condemning property to obtain a ROW deed includes involvement from the probate office and must be presented before the County Commission. Obtaining ROW can be a time consuming task depending on the circumstances (e.g., railroad crossings and other utility crossings). In the case of private development, ROW must be acquired and deeded to JCESD prior to plans being approved.

In addition to sanitary sewer easement/ROW, there are also times when a utility easement/ROW is needed. In some cases, sewer lines will require crossing an existing utility (e.g., gas lines, underground power lines, water lines and railroad tracks). In those cases, an easement from the utility is normally obtained prior to plans being approved. Plans specifically identify the location of proposed sewer lines in relation to the existing utilities. Properties used for pump stations require fee simple ownership.

## Program Resources

### Related CMOM Program Documents and Other References

Other documents that are referenced and/or are related to the **Acquisitions Program** plan include:

- JCESD Construction Management Plan, prepared by Hazen and Sawyer in May 2015
- JCESD Construction Management Procedures Manual, prepared by Hazen and Sawyer in May 2015
- CMOM Program Organization Program
- Legal Support Program

### Staffing

JCESD staff are responsible for administering the Acquisitions Program. Staff reside in Department 7100 Administration, as shown in the Organizational Chart located in the **CMOM Program Organization** plan.

JCESD is also supported by the ROW Division of the Jefferson County Roads and Transportation Department.

# Program Implementation

## Deeds

Deeds are prepared on JCESD standard deed forms. Copies of deeds may be obtained from the Sewer Plans Review Office, located in the JCESD Courthouse at 716 Richard Arrington Jr. North, Suite A-300, Birmingham, AL 35203.

## State Road ROWs

Additional permits are required for project sites requiring right of entry access to any state road right-of-way. The JCESD Impact Division – 2015 Commercial Project Checklist, located on the JCESD website at www.jeffcoes.org, states that right of entry access to any state road right-of-way or easement for utility installation requires the issuance of a state permit without exception.

Evidence of this permit is required at the time of project submission and may affect the project's sewer availability and/or approval status. The Alabama Department of Transportation is the governing authority for state right-of-way permit applications, with JCESD being the pathway entity through which permits are preliminarily routed.

## Railroad ROWs

In the event that a proposed main sewer or force main is to cross or be located within property and/or tracks owned by a railway, the Designer/Engineer or JCESD/Developer is responsible for providing all required information and a complete application packet, as required by the railway, to the JCESD. The JCESD will contact the railway and submit the documents as part of the process to obtain an agreement. The Designer/Engineer is responsible for designing the sewer or force main in accordance with the requirements of the railway and the JCESD. Costs, such as crossing fees and application fees, imposed by the railway are to be paid by the JCESD/Developer.

## Existing Utility ROWs

In the event a proposed main sewer or force main is to cross or be located within property owned by a utility, the Designer/Engineer or JCESD/Developer is responsible for providing all required information and a complete application packet, as required by the utility, to the JCESD. The JCESD will contact the utility and submit the documents as part of the process to obtain an agreement. The Designer/Engineer is responsible for designing the sewer or force main in accordance with the requirements of the utility and the JCESD. Costs such as crossing fees and application fees imposed by the utility are to be paid by the JCESD/Developer.

# Continuous Sewer System Assessment Program

## Program Activities

### Purpose and Goals

The purpose of the Continuous Sewer System Assessment Program (CSSAP) is to use a proactive and coordinated asset management-based approach to assessing, maintaining, and rehabilitating JCESD's sanitary sewer system. This program will serves as a guide to effectively and proactively prioritize and implement system inspection, cleaning, and rehabilitation/replacement needs, in order to identify and address wet weather infiltration and inflow (I/I) sources, prevent structural failures and blockage-related overflows.

### Program Components and Approach

Under the **CSSAP**, sewer service areas are prioritized for sewer system assessment activities, which include CCTV, manhole inspections, and smoke testing where appropriate. Prioritization is based upon a risk analysis performed using information such as GIS data flow monitoring, modeling (where available), historical location of sewer overflows, field crew work orders, and other relevant information. JCESD has implemented an asset management-based approach to the overall **CSSAP**.

One key feature of this approach is the prioritization of assets for assessment and subsequent rehabilitation or replacement. Typically, areas where problems are known to exist or where there is a high likelihood of problems are inspected first. Other factors, such as consequence of failure (criticality), also play a key role. These factors are balanced against the need to perform assessments in a logical, contiguous manner.

The following sections describe how the prioritization process was developed. It is important to note that this process is dynamic and as system characterization improves, the prioritization is updated to reflect this new information on an as-needed basis. The prioritization process and **CSSAP** goal is to assist JCESD in completing an assessment of the collection system within 15 years in a prioritized manner completing the most critical assets earlier in the program.

## Program Resources

### Related CMOM Program Documents and Other References

JCESD developed SOPs for various CMOM-related job duties, including the SOPs for flow monitoring and CCTV inspection. Copies of the SOPs are provided in the JCESD's **Standard Operation Procedures and Work Process Documentation for Field Operations** manual.

Other CMOM program plans that are referenced and/or are related to the **CSSAP** include:

- CMOM IMS Program
- CMOM Program Organization
- Corrosion Control Program
- Customer Service Program
- Gravity Line Preventative Maintenance Program

## Staffing

### JCESD Staff

JCESD is responsible for Engineering and Project Management. Engineering Staff reside in Department 7100 Administration, as shown in the Organizational Chart located in the **CMOM Program Organization** plan.

### AMP Staff

As part of the AMP program, JCESD's Consultant, Hazen and Sawyer, assists JCESD in the development and implementation of the CSSAP.

## Data Management

For more information on JCESD's data management strategy, including the use of GIS, Infor, PipeTech, and Cityworks, see the **CMOM IMS Program** plan.

# Program Implementation

## Prioritization Program Setup

The key to setting up the program was to leverage existing data to prioritize the assessment and rehabilitation of the system using: GIS, CCTV, flowmeter, Infor and Cityworks data. Other key activities of the program development were the creation of detailed SOPs, training and implementation of Cityworks, as well as the development of mobile solutions to optimize the generation and implementation of work orders.

## Risk Analysis

The first step in the program setup was to conduct the risk analysis, which is a combination of the consequence of failure (COF) and probability of failure (POF). The goal of the risk analysis was to prioritize the complete assessment of the nearly 3,100 mile collection system (gravity sewers and force main) within the next 15 years.

The overall approach to the risk analysis was to utilize a mini-basin approach. That is, risk scores were developed by individual asset, but were also developed for each of the 499 mini-basins. The mini-basin prioritization approach allows for efficiencies in planning and scheduling condition assessment and rehabilitation. It is important to note that some system assets should be given priority regardless of their mini-basin. These sewers are typically larger diameter (greater than 24-inch diameter) trunks and are along creeks and rivers. Therefore, the highly critical pipes were given priority in addition to the basin priorities.

## Consequence of Failure (COF)

The first step in developing a risk score for the collection system assets was to establish a COF score for the collection system assets. The criteria used to assess the COF included:

- Diameter
- Surface Type (roads, railroad, buildings)
- Risk of Public Contact
- Depth
- Vicinity to Water Body
- Near Critical Facilities

Each criterion was given a weight based on the severity of the risk for the consequence risk factors, and each asset was given a score of 1-5 based on its attributes or spatial location relative to certain features. The spatial location relative to various features was conducted using the powerful "near" function within ArcGIS. Each pipe was given attributes based on its closest proximity to roads (including road type), railroads, buildings, critical facilities, and water bodies. GIS attribute information was used for diameter and depth.

Once the near analysis was complete, JCESD's Consultant, Hazen and Sawyer, utilized its in-house risk analysis software (Hazen Risk) to conduct the risk scoring. The risk scoring is done by entering weights and scoring criteria. The software then automatically generated the risk scores based on the user-defined values. The tool includes spatial views and can display data from almost any source. The key benefit of the tool is the ability to create any number of risk scenarios, which allows for comparison of results. **Figure 5** shows a screen capture of the software interface.

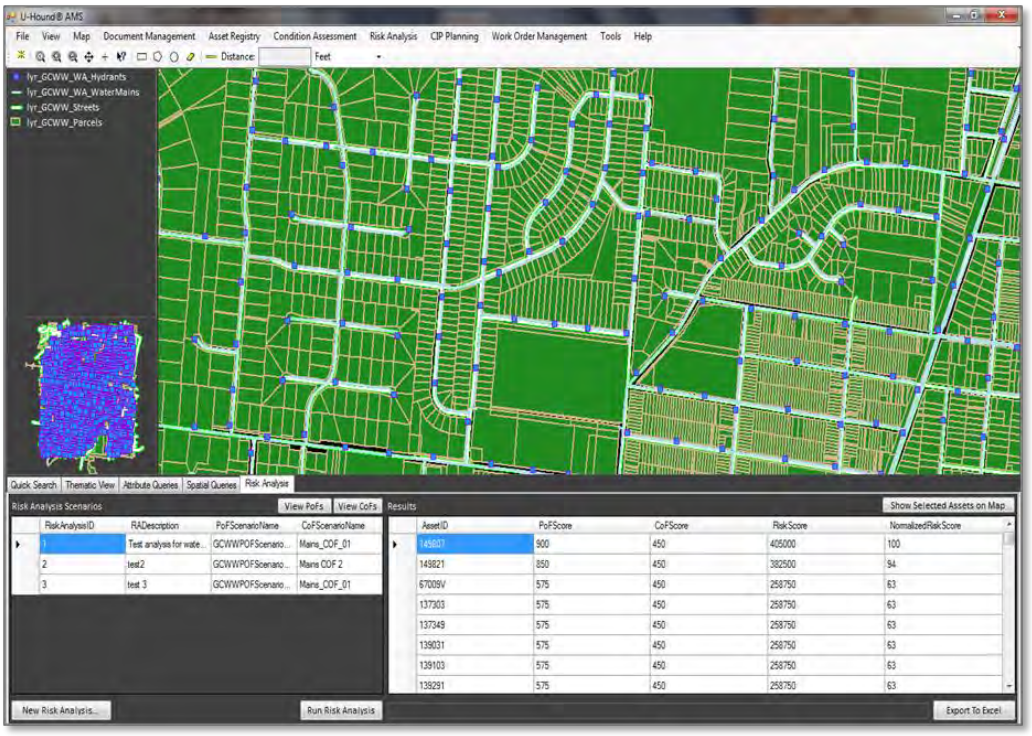


**Figure 5.Hazen Risk Analysis Software Screen Capture**

## Probability of Failure (POF)

The probability of failure scores were based on three modes of failure:

1. Structural collapse
2. Blockage resulting in overflow
3. Overflow caused by excessive I/I

Individual pipe POF scores and mini-basin POF scores were developed using available data, such as overflow history, which was broken down into blockage and I/I related overflow causes. For the mini-basins, overflows were normalized in each mini-basin to overflows/100 miles/year. In addition to overflow data, 12 months of flowmeter data from 150 flowmeters was used to quantify I/I in each meter basin, which was further correlated to each mini-basin. This was done utilizing a powerful software tool developed by JCESD's Consultant, Hazen and Sawyer, called HazenQ, which automatically conducts detailed flow-based metrics such as base sanitary flow, groundwater flow, and rainfall derived I/I for every rainfall event in seconds. **Figure 6** shows is a screen capture from the software showing auto-generated base flow patterns and flow statistics.

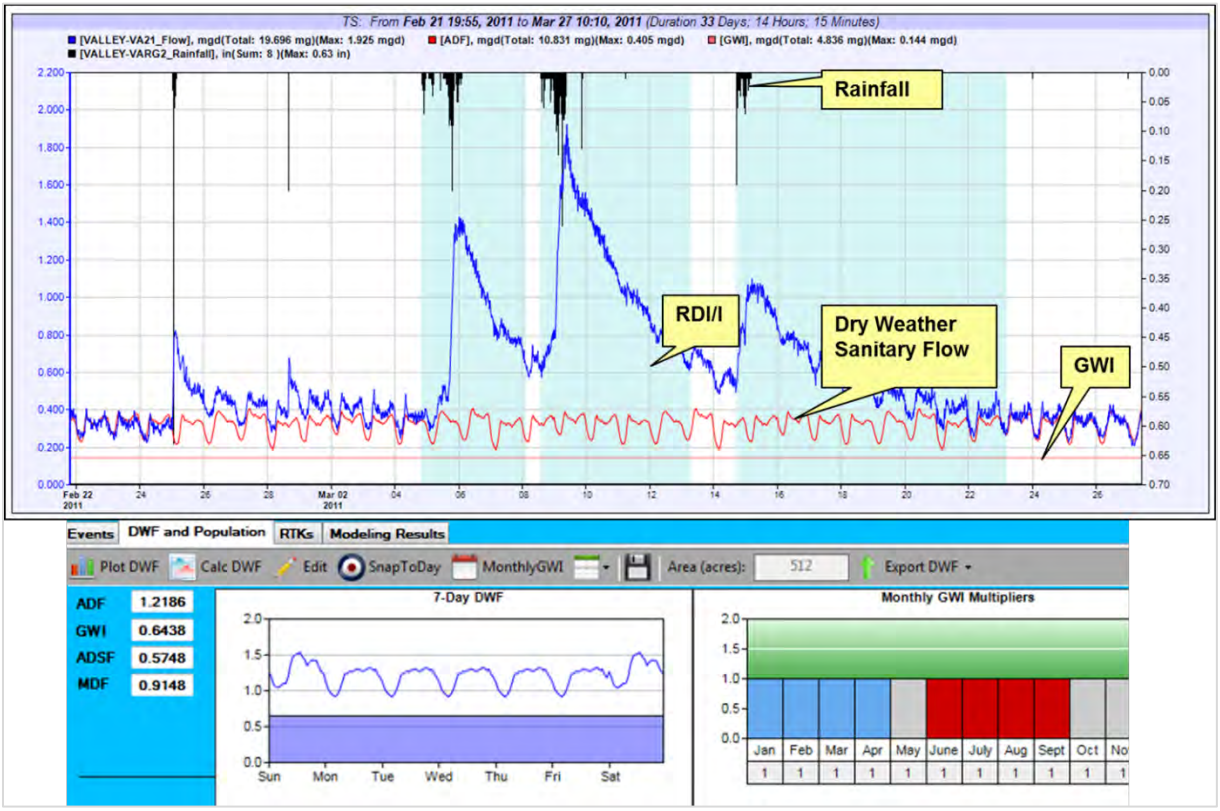


**Figure 6.HazenQ Flow Based Statistics**

JCESD is currently developing a system wide wastewater collection system model for each individual sewer shed based on the conveyance system that transports wastewater to the individual treatment plant. To date, JCESD has developed fully calibrated wastewater collection system models for the Leeds WWTP, Trussville WWTP, Prudes Creek WWTP, and Warrior WWTP sewer sheds. Additionally, the

wastewater collection system model for the Valley Creek WWTP sewer shed will be completed in 2016. The remaining wastewater collection system hydraulic models for the Five Mile Creek WWTP, Cahaba River WWTP, Turkey Creek WWTP, and Village Creek WWTP sewer sheds are scheduled to be completed by 2018. Currently, for basins that do not have calibrated models, a tool (HazenQ software) has been implemented that assists in the assessment of peak flows in the collection system. This tool allows the user to generate a unit hydrograph model corresponding to fast, medium, and slow I/I responses. The benefit is the ability to calculate design storm peak flows emanating from each mini-basin. These peak flows were used to prioritize basins based on their normalized contribution to peak flows.

**Figure 7** is a screen capture that shows the unit hydrograph generator. The red line represents the unit hydrograph model matched against the blue flowmeter data, and the values on the bottom left show the R values for fast (R1), medium (R2) and slow I/I (R3). This information is much more useful than just static R values, which is a total volume metric and does not directly measure impacts on peak flows. Using the unit hydrograph allowed Hazen and Sawyer to better understand and predict mini-basins that contribute more to peak flows that may result in recurrent SSOs.

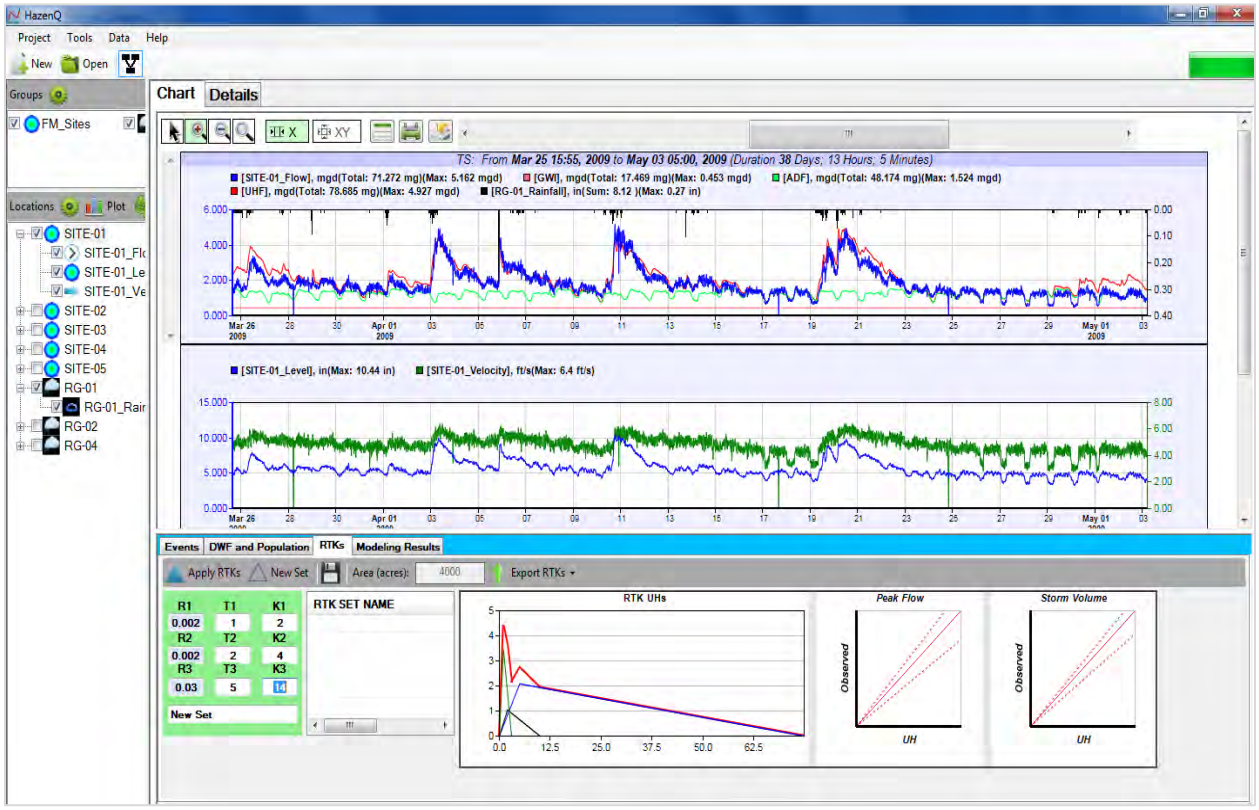


**Figure 7.HazenQ RTK Generator**

### Structural POF

The structural POF was developed using the following criteria:

1 Historical work order data

2 PACP CCTV scores

3 Pipe Age

For pipes with CCTV data, the PACP scoring was used for the POF score. For pipes without CCTV data, the historical work order data and pipe age were used. Work order data was obtained from JCESD's Cityworks software, entered into the risk analysis software, and joined to each pipe and mini-basin. **Figure 8** on the following page shows an example of the POF scoring for each mini-basin using the risk of blockage-related overflows.

The POF and COF scores were used to inform inspection, rehabilitation, and cleaning priorities. The following components further develop the prioritization of rehabilitation, inspection, and cleaning work.

## Service Request Management

Service request management is a component of JCESD's **Customer Service Program**. JCESD generated service requests in response to calls from customers who suspect they have a problem related to their sanitary sewer. These calls may be a result of a building back-up, sinkhole formation, surface flooding, odor, or other type of service problem.

JCESD will send a crew to investigate the cause of the problem and will identify the necessary corrective action, such as cleaning and/or structural repair. The key identification activity is to determine if the problem is in the homeowner's lateral or if it in the main sewer. Under certain circumstances, the service request will result in the investigation of surrounding sewers to see if other issues exist in the vicinity. Since this program is generally reactive, one goal of the overall **CSSAP** is to reduce the frequency of service requests.

For more information on service request management, see the **Customer Service Program** plan.

## Ongoing Sewer Assessment and Rehabilitation Program (OSARP)

The OSARP program comprises activities designed to identify sewers with structural issues that may be sources of I/I. Assessment activities include, but are not limited to, CCTV and smoke testing. This program is conducted by inspecting entire mini-basins at a time. Mini-basins are selected each year to achieve the assessment targets and are based on the basin prioritization described previously.

## Large Diameter Sewer Assessment Program (LDSAP)

The LDSAP program is targeted toward County sewers where the consequence of failure (criticality) is high, and generally includes all pipes 24-inches in diameter or greater. These pipes are inspected on a schedule outside the OSARP.

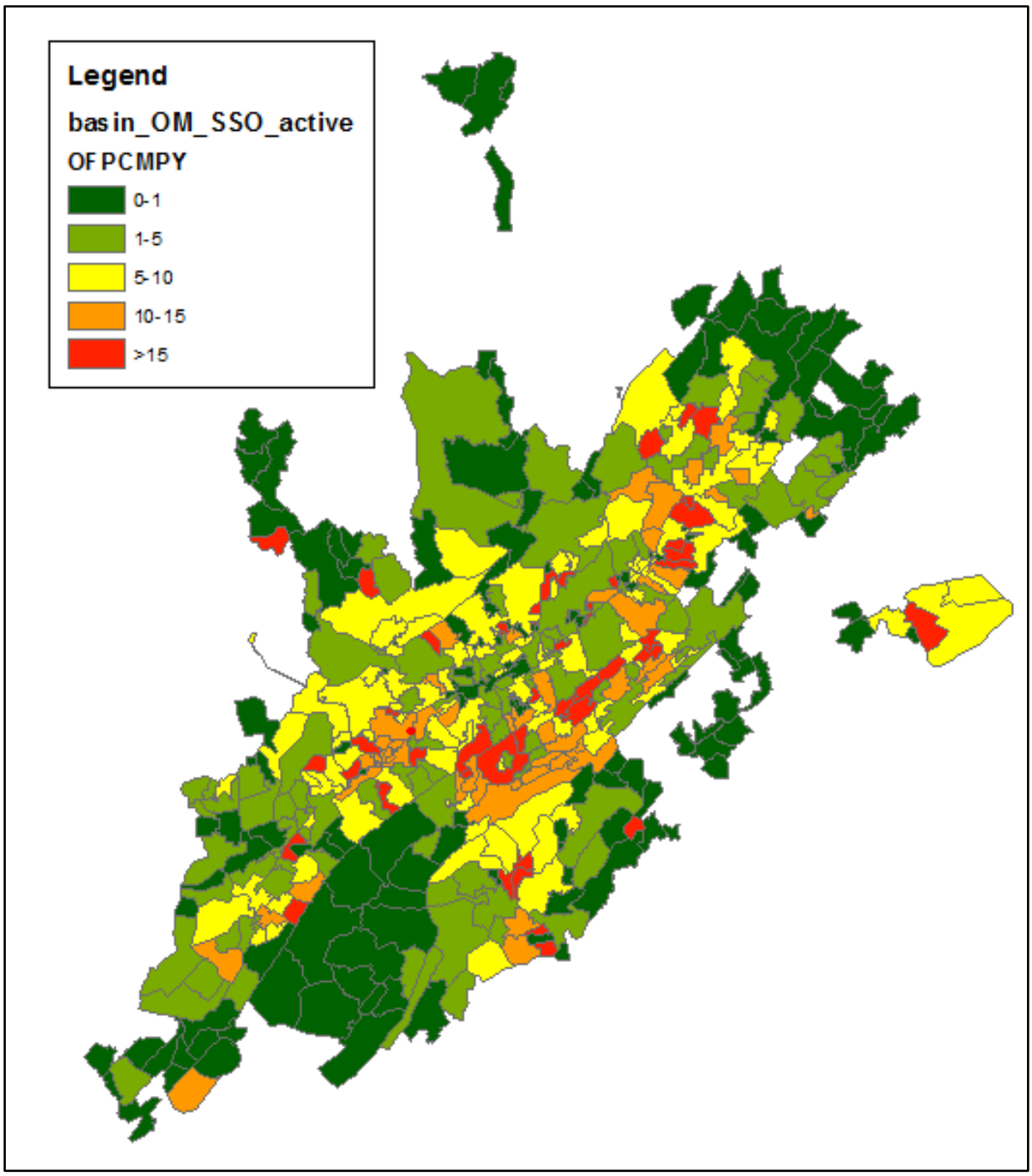


**Figure 8.Blockage Overflow Risk by Mini-Basin (overflows/100 miles/year)**

## Rapid Assessment Program

The rapid assessment program uses acoustic technologies such as InfoSense's SL-RAT. Acoustic technologies require a minimal amount of equipment when compared to traditional CCTV inspection systems. This acoustic based technology has the potential to provide information in a matter of minutes to assist an operator in determining whether a sewer pipe might be partially or fully blocked and require cleaning or renewal. The speed of the assessment, using minimal equipment, has the potential to result

in significant cost-savings compared to traditional methods, such as CCTV inspection. For more information, see the **Gravity Line Preventive Maintenance Program** plan.

This acoustic inspection device will be a powerful tool in prioritizing cleaning and identifying re-cleaning frequencies. This data is recorded and then the result is used to determine the next SL-Rat inspection. The goal is to become more predictive when cleaning the pipes, due to the limited resources available and the significant challenges faced by the County with roots and grease.

## Flow Monitoring

The purpose of JCESD's Flow Monitoring Program is to measure the flows in the sewer system for a specified period of time for various uses, including to:

- Refine and calibrate hydraulic models to be used for capacity assessment and assurance for current and future growth.
- Understand the frequency and volume of spills during wet weather.
- Support I/I studies in targeted areas by measuring flows before and after rehabilitation.
- Evaluate post monitoring for effectiveness of various remedial measures.
- Support ongoing assessment of the collection system performance over time.
- Provide alerts for active SSOs.

The goal of the Flow Monitoring Program is to provide adequate and accurate data to support JCESD's capacity assessment and assurance analyses and I/I investigation needs, as well as a gauge to determine the effectiveness of rehabilitation programs.

The County currently contracts with an outside firm to install, maintain, and manage over 150 flow monitors throughout the system. The monitors are broken into 3 categories:

1. **Long Term**: These monitors are intended to serve as long term back bone monitors located throughout the entire service area. The data is used to inform ongoing system performance and to alert to potential issues in the collection system. These monitors can also serve as calibration and ongoing validation data or the collection system models.
2. **Movable**: These monitors are strategically located for the purposes of model calibration. Data is gathered for 12 months in each location to understand the range of flows throughout each season.
3. **Temporary**: These are short term monitors that are installed for at least 45 days and are used to characterize smaller sections of the collection system where data from only a few events is needed. These can be areas to inform pre- and post-rehabilitation characterization where I/I removal is desired.

## Flow Data Analysis

Flow data undergoes rigorous QA/QC and analysis from both the flow monitoring contractor and with the HazenQ software, which was described previously. The software includes robust features to perform

volume balances, scatterplots, and other features to identify potential flow meter or system performance issues, such as upstream overflows, rapidly and cost-effectively.

**Figure 9** on the following page shows how two meters were added together into one hydrograph and compared to a single downstream monitor. **Figure 10** shows how flow monitor subtraction can be used to create a new hydrograph representing the net contribution to a downstream monitor. Not only can the user graphically observe the comparison, flow metrics can be seen on the screen, such as peak flows and total flow volume. This allows quantification of the comparison at a glance, and will enable the County to better and more quickly leverage its flow data into information it can use to make more informed decisions.

## Manhole Inspection

The purpose of JCESD's Manhole Inspection Program is to conduct visual inspections of the manholes in the service area to confirm the accuracy of system mapping, determine the extent of I/I problems, and to provide an overall assessment of rehabilitation/replacement needs for each manhole. The ongoing goal of the Manhole Inspection Program is to gather sufficient and accurate data regarding the condition of manholes throughout the service area to identify sources of I/I and plan for rehabilitation needs.

The Manhole Inspection Program is an integral part of the **CSSAP**. It is linked to the same schedule as CCTV inspections, with visual inspections of the upstream and downstream manholes occurring at the same time as televised inspections of sewer segments. Crews also typically conduct manhole inspections during responses to service requests and during special projects, such as I/I investigations and smoke and dye testing in targeted areas. In addition, manhole inspections are occasionally performed in association with flow monitoring activities, and are routinely performed for newly constructed manholes by the Engineering Inspectors

## Pump Station Performance and Adequacy

This program is conducted as part of the **CSSAP** for evaluating the performance and adequacy of pump stations in the collection system. The program includes regular assessment of vital information such as pump run-time, mechanical issues documented during the pump life, and a historical review of the fundamental causes of pump failures.

## Corrosion Defect Identification

A separate **Corrosion Control Program** has been developed and included in the CMOM Program. The purpose of the **Corrosion Control Program** is to identify and inspect infrastructure within JCESD's Wastewater Collection and Conveyance System that is corroded or at risk of corrosion, conduct defect analysis, and prioritize repairs and rehabilitation.

For more information, see the **Corrosion Control Program** plan.

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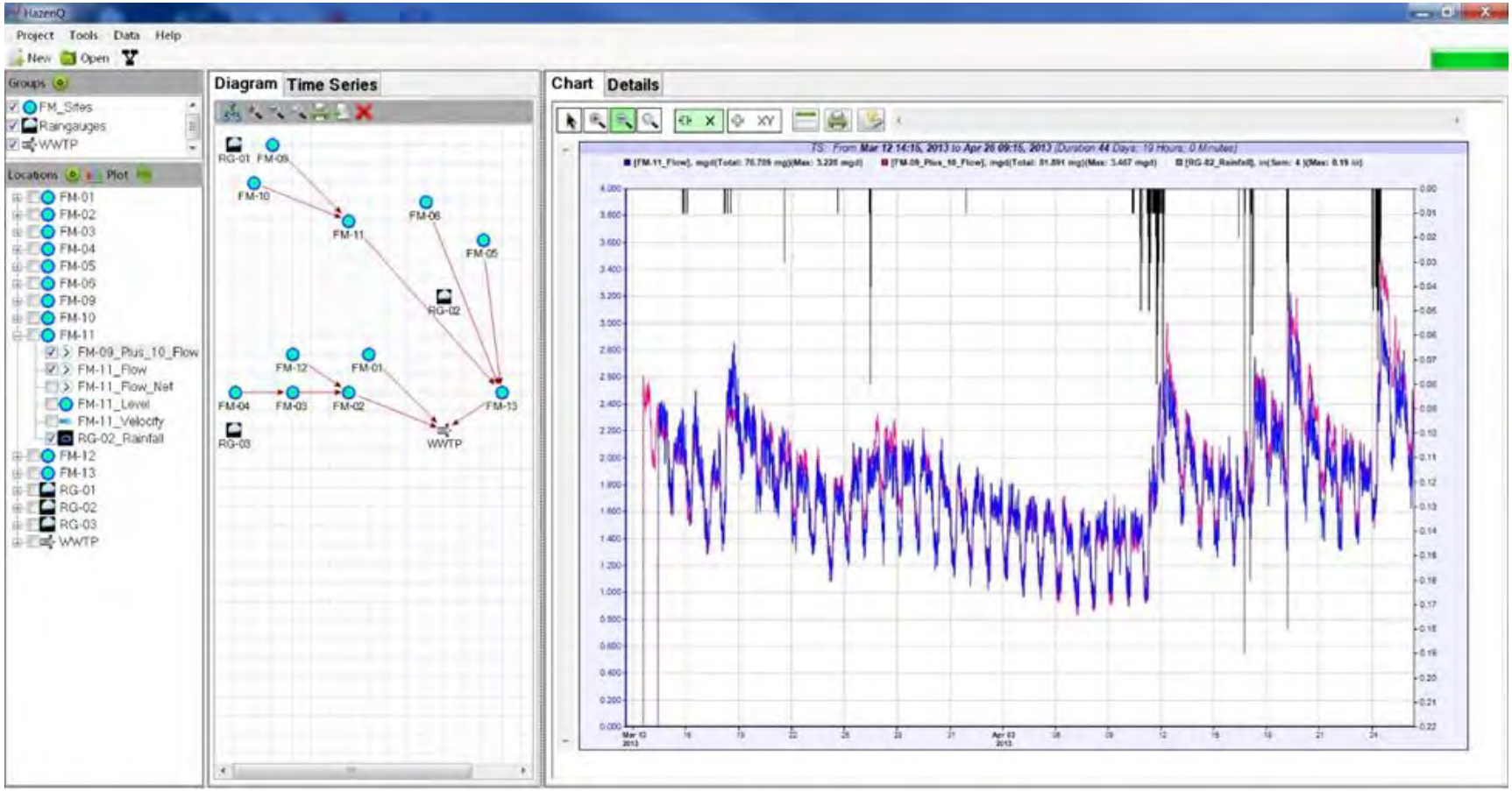


**Figure 9.HazenQ Screenshot Showing Combined Upstream Flow Compared to Downstream Meter**

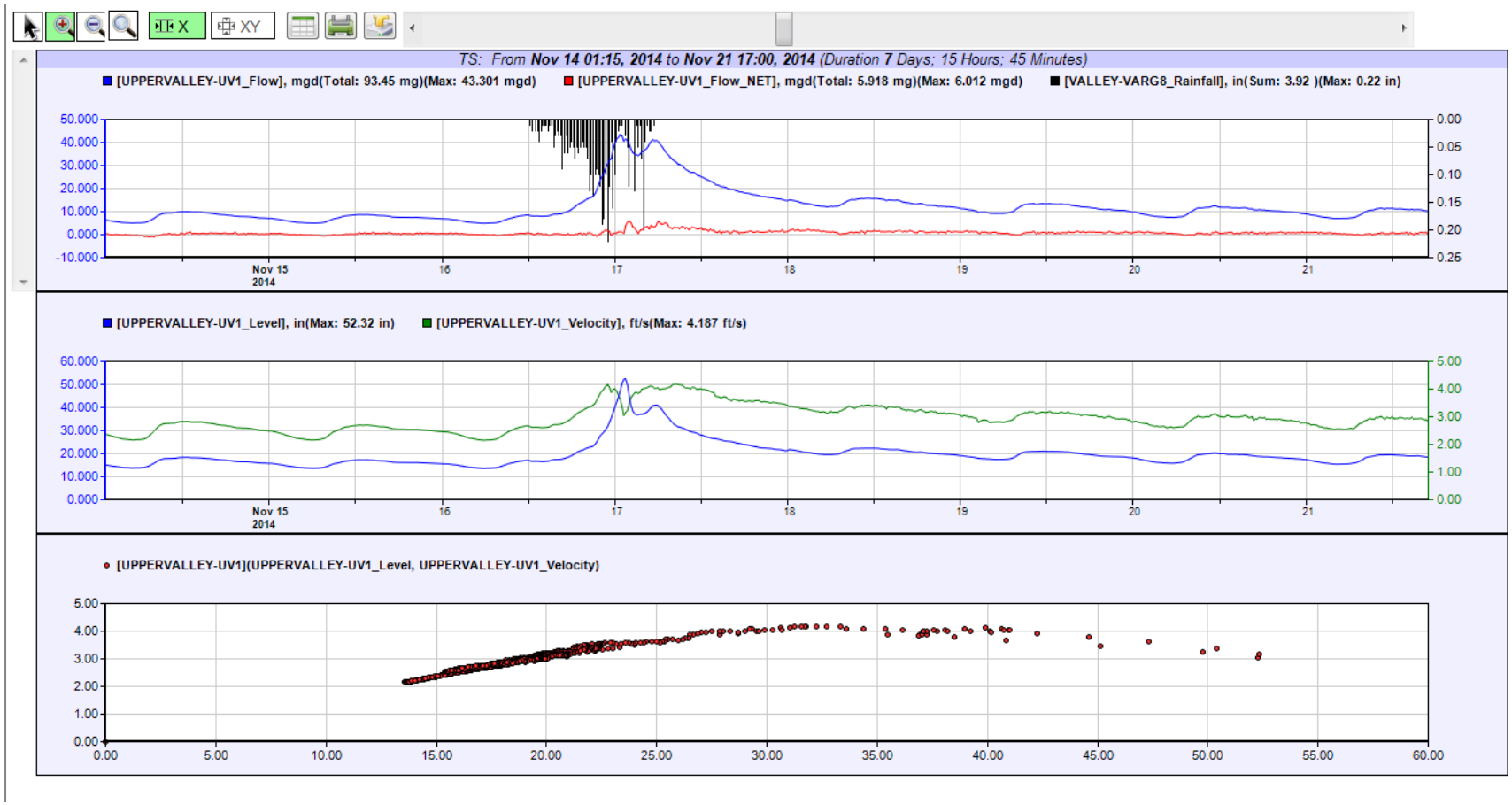


**Figure 10. HazenQ Screenshot Showing the Downstream Meter Flow and the Net Flow to the Meter After Subtracting Upstream Meters**

# Infrastructure Rehabilitation Program

## Program Activities

### Purpose and Goals

This program assists in planning for the rehabilitation of gravity sewer lines, force mains, manholes, pump stations, and related appurtenances.

### Program Components and Approach

JCESD entered into a Consent Decree with the United States Environmental Protection Agency (USEPA) in December 1996 to address SSOs. Approximately $2.4 billion was spent between 1996 and 2006 on system improvements. Under the original Phase 3 activities of the Consent Decree, 203 projects were completed and an aggressive sanitary sewer evaluation survey (SSES) program was implemented in 1998.

In addition to in-house efforts, JCESD is implementing an AMP to address remaining collection system challenges, which include recurring wet-weather SSOs and ongoing O&M related overflows. JCESD contracted with consultant Hazen and Sawyer in 2011 to develop and implement its AMP. This project expands the previous Pilot Asset Management Plan County-wide, leveraging tools, processes, and procedures developed under the previous Pilot Asset Management Contract. The AMP assists JCESD in prioritizing preventative and corrective measures related to the sanitary sewer collection system, with the main goal of reducing SSOs.

## Program Resources

### Related CMOM Program Documents and Other References

The following documents provide additional guidance and/or are related, or have components related to the **Infrastructure Rehabilitation Program**.

- Commercial and Residential Sanitary Sewer System Design and Construction Manual (current version)
- JCESD Construction Management Plan, prepared by Hazen and Sawyer in May 2015
- JCESD Construction Management Procedures Manual, prepared by Hazen and Sawyer in May 2015
- CMOM Program Organization
- CMOM IMS Plan
- Financial Analysis Program

### Staffing

JCESD is responsible for Engineering, Project Management, Construction Administration and Inspections. Engineering Staff reside in Department 7100 Administration; Construction Administration in Department 7210 Sewer Construction Administration; and Inspection staff reside in department 7214 Inspection, as shown in the Organizational Chart located in the **CMOM Program Organization** plan.

### Data Management

For more information on JCESD's data management strategy, see the **CMOM IMS Program** plan.

## Program Implementation

AMP services are provided by a consultant for a variety of professional engineering and related duties, including general AMP management and implementation; collection system operational, capacity and structural engineering assessments; rehabilitation and replacement design, planning, implementation and management; detailed design phase management; construction engineering services and construction observation oversight; Capital Improvements Program support; and other miscellaneous support services.

The consultant works in close coordination with JCESD staff to provide the necessary planning and administration of design and construction tasks as projects proceed.

### Capital Projects

JCESD, in cooperation with the AMP, manage and update the long-range capital improvement plan. For more information, see the **Financial Analysis Program** plan.

# Capacity Assurance Program

## Program Activities

### Purpose and Goals

The purpose of the Capacity Assurance Program (CAP) is to ensure that the entire County wastewater system, both collection and treatment, has sufficient capacity to convey and treat all wastewater generated by County customers. It also ensures there is adequate capacity to collect, transmit, and treat additional sewage expected as a result of prospective new sewer connections. Additionally, it tracks growth and provides numerical data for near and long term capital planning

The goal of the CAP is to promote compliance with the Clean Water Act, through both prevention of SSOs and compliance with National Pollutant Discharge Elimination System (NPDES) permits at County WWTPs, by ensuring that County collection systems and WWTPs have capacity sufficient to convey flows and treat all flows received.

### Program Components and Approach

JCESD's previous Capacity Assurance Program (CAP) was developed in 2008 to take a proactive approach at assessing the capacity of the existing conveyance system for current and future flow, based on proposed expansions of the system. The current CAP was submitted to and accepted by USEPA. This CAP is being updated to reflect the use of the collection system models as a tool to further assess system capacity.

The CAP was initially developed by JCESD and included near and long term plans. The near-term plan used historical flow monitoring data from JCESD's flow monitors, pump station capacities and run times, and WWTP flow data, which was entered into a series of databases. The long-term plan proposed to utilize results from hydraulic models to predict and manage available capacity. Currently, the County is implementing the long-term plan by developing a series of calibrated InfoWorks hydraulic models. Calibrated models for the Leeds, Prudes, Trussville, and Warrior areas have been completed and the model for the Valley system will be complete in 2016. The development of models for the Cahaba, Shades, and Turkey basins has been contracted and each are a work in progress. As models are completed, the model will be used as the primary tool for capacity assurance, in accordance with the long-term plan.

One minor change will be the use of a new software tool called HazenCAP to track, analyze, and manage capacity requests and permits. This software will utilize the model output results to "route" flows to the WWTP, and will automatically flag locations where capacity does not meet the required threshold. The capacity threshold will be based on a combination of dry weather and wet weather conditions and resulting impacts on flows and levels in the collection system. These impacts will be evaluated on a case by case basis.

The **Capacity Approval Decision Tree** that will be used to implement the CAP is shown in **Figure 11**. The decision tree includes a series of checks to assess capacity in the system with all current and approved future connections tied in.

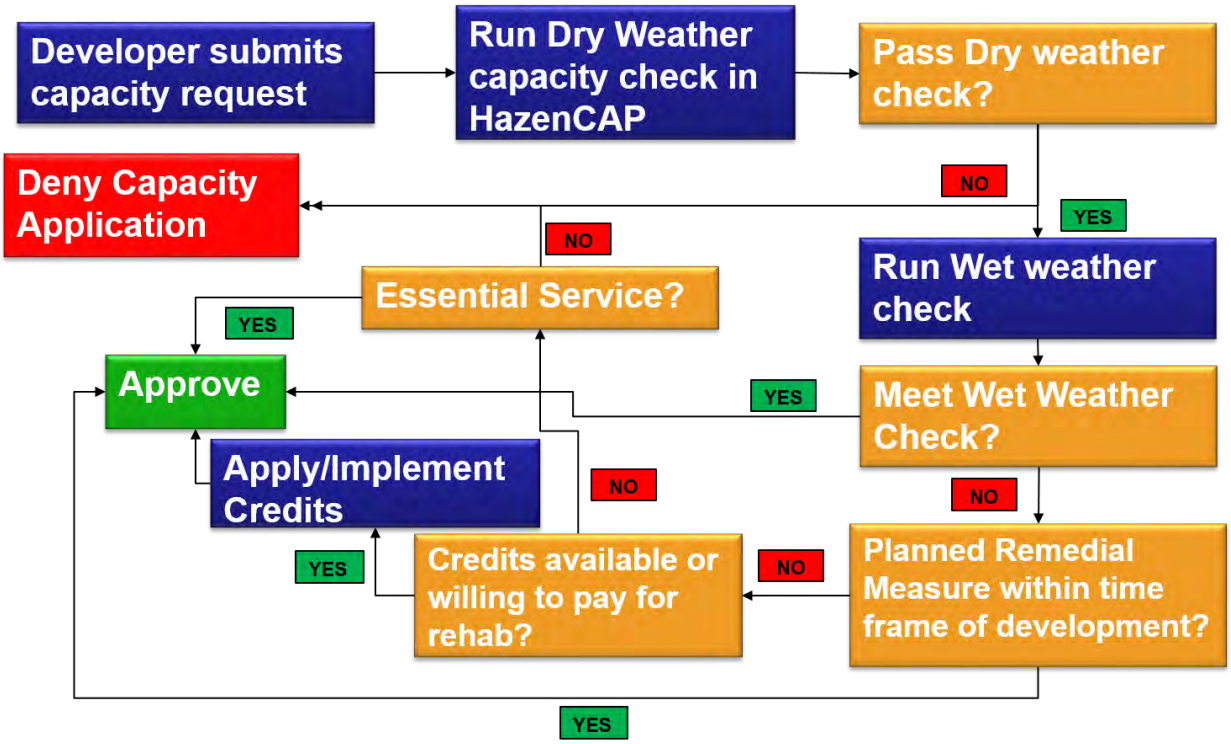


**Figure 11. Capacity Approval Decision Tree**

As shown in the figure above, the decision tree includes a few ways that a capacity connection can be approved even if there is not wet weather capacity available, including:

- **Planned Remedial Measure**: Under this condition, JCESD has a planned project that will provide adequate capacity to meet the wet-weather criteria when flows are expected to reach their peak from the proposed development.

- **Credits Available**: Jefferson County is investing significant resources into rehabilitating the sanitary sewers within its system. While much of the effort is for structural renewal, there are locations where comprehensive rehabilitation is being conducted with the goal of maximizing removal of infiltration and inflow (I/I). JCESD has a robust pre-and post-monitoring program that will be utilized to quantify the amount of I/I removed and will apply a "credit" for a portion of this I/I removal to allow for connections into the system where the wet-weather check is currently violated.

- **Essential Services**: The use of capacity exceptions for essential services such as Hospitals, Schools, Fire, and Police stations is a standard practice for CAP programs throughout the Country including many utilities within Region 4 EPA. JCESD will allow this exception on a case by case basis depending on the proposed facility and other factors.

# Program Resources

## Related CMOM Program Documents and Other References

JCESD developed SOPs for various CMOM-related job duties, including the SOP for GIS Updates. Copies of the SOPs are provided in the JCESD's **Standard Operation Procedures and Work Process Documentation for Field Operations** manual.

Other CMOM program plans that are referenced and/or are related to the **Capacity Assurance Program** plan include:

- Collection System Plans and Mapping Program and System Design Standards Program, which are described in this Engineering Program plan
- CMOM IMS Program
- CMOM Program Organization

## Staffing

At present, Capacity Assurance is performed collaboratively at the individual project level by the JCESD Plans Review Office staff and JCESD Engineering staff, residing in Department 7100 Administration, as shown in the Organizational Chart located in the **CMOM Program Organization** plan.

## Data Management

For more information on JCESD's data management strategy, see the **CMOM IMS Program** plan.

# Program Implementation

When the JCESD receives a request for sewer availability from an engineer or developer, the information is entered into the CAP for analysis as shown in **Figure 12** on the following page. A sewer availability letter is honored for one year from the date of issue, unless the request is renewed.

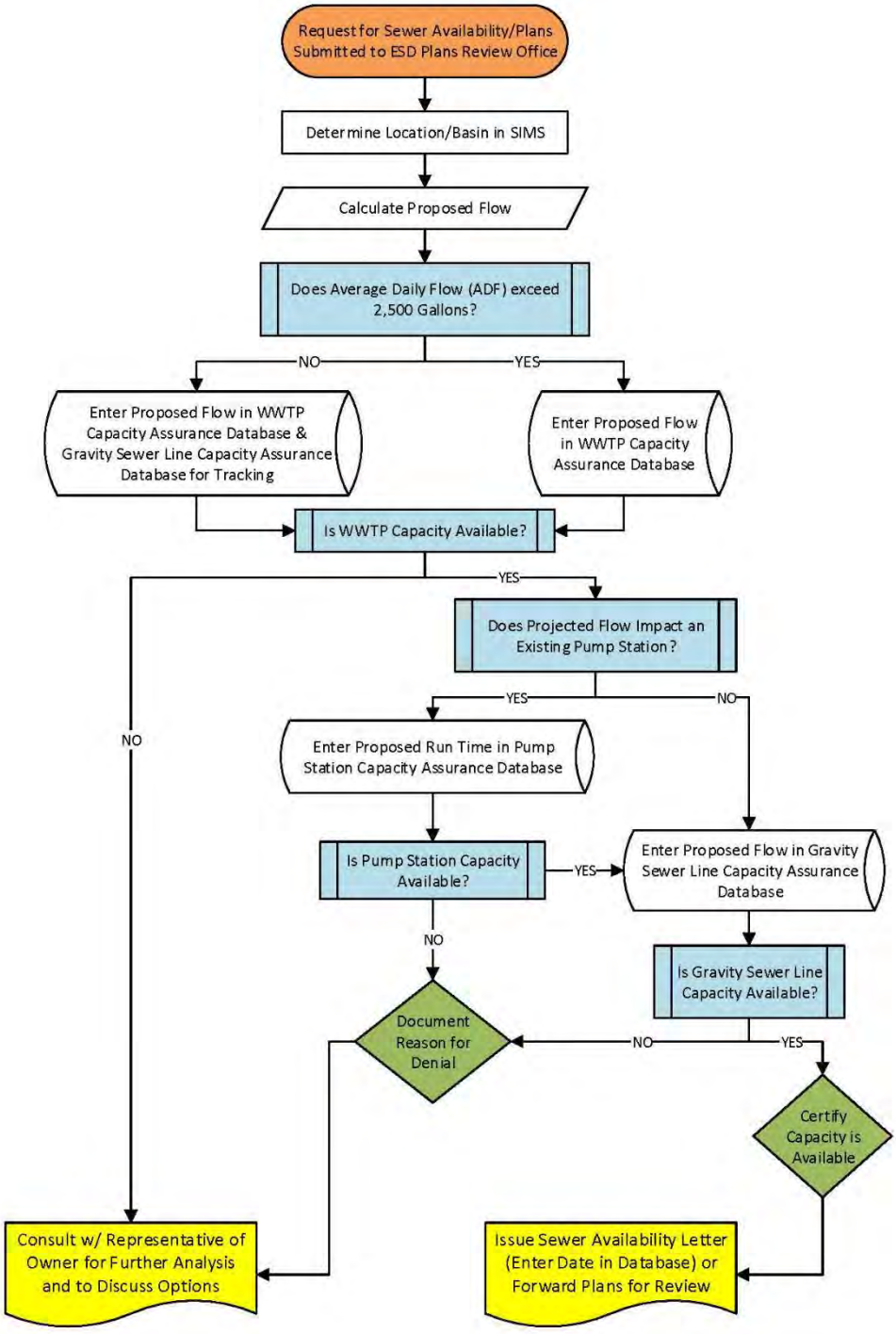


**Figure 12. Permit and CAP Process Flow Diagram**




# Overflow Tracking Program

## Final

December 2016

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# Acronyms

| | |
|---|---|
| ADEM | Alabama Department of Environmental Management |
| CIP | Capital Improvement Plan |
| CMOM | Capacity, Management, Operations, and Maintenance |
| CSSAP | Continuous Sewer System Assessment Program |
| FOG | Fats, oils, and grease |
| GIS | Geographic Information System |
| JCDH | Jefferson County Department of Health |
| JCESD | Jefferson County Environmental Services Department |
| NPDES | National Pollutant Discharge Elimination System |
| QA/QC | Quality assurance and quality control |
| SOP | Standard operating procedure |
| SSO | Sanitary sewer overflow |
| SSORRP | Sanitary Sewer Overflow Response and Reporting Plan |
| USEPA | United States Environmental Protection Agency |

# Overflow Tracking Program

## Program Overview

### Purpose and Goals

The Jefferson County Environmental Services Department (JCESD) is currently developing its Overflow Tracking Program so that it utilizes leading edge technology and implements best practices to track, analyze, mitigate, and prevent collection system surcharges and sanitary sewer overflows (SSOs).

The **Sanitary Sewer Overflow Response and Reporting Program (SSORRP)** plan describes the policies and procedures taken by JCESD personnel to respond to, mitigate, report, categorize, and track SSOs. A copy of the SSORRP plan is available for download at http://www.jeffcoes.org/Sites/Jefferson_County_Environmental_Services/Documents/SSORRP%20FINAL%20JULY%202012-1%20TOTAL2.pdf

The JCESD's **Overflow Tracking Program** supports the implementation of the SSORRP and the additional steps taken to track the locations and categories of SSOs, evaluate root causes, and identify and implement targeted approaches to prevent SSOs. These targeted approaches may include, but are not limited to:

- Accelerating the frequency of cleaning specific sewer pipe sections. For more information on sewer pipe cleaning, see the Gravity Line Preventive Maintenance Program plan.
- Using chemical root control in certain areas.
- Investigating upstream sources of fats, oils, and grease (FOG) dischargers and/or industrial wastewater dischargers. For more information, see JCESD's FOG Management Program and Pretreatment Program plans.
- Performing additional condition assessments or flow monitoring, which may result in rehabilitating, repairing, or replacing defective or failing sewer infrastructure. Information regarding JCESD's Continuous Sewer System Assessment Program (CSSAP) is provided in the Engineering **Program** plan.

### Program Components and Approach

The **Overflow Tracking Program** involves the coordinated efforts of JCESD personnel assigned varying levels of responsibilities to properly verify information and complete the following program components that are described in this plan:

- Track and record relevant and required information related to SSO occurrences
- Make SSO event-related information available to all required parties
- Review the data and conduct trending analyses
- Identify measures to prevent recurrent SSOs
- Apply new knowledge of system performance to other potential areas at risk

- Provide SSO reporting in accordance with National Pollutant Discharge Elimination System (NPDES) permits
- Provide SSO reporting in accordance with Consent Decree requirements

JCESD's overflow tracking and follow-up activities assist the County in achieving compliance with the United States Environmental Protection Agency (USEPA) Consent Decree and provisions of its NPDES permits.

# Program Resources

## Related CMOM Program Documents and Other References

Policies and procedures observed when responding to and reporting SSOs are detailed in JCESD's **SSORRP** plan. JCESD developed standard operating procedures (SOPs) for various CMOM-related job duties related to response to SSO and backup reports, as well as documentation, reporting, and mitigation of SSOs. Copies of these SOPs are provided in the JCESD's **Standard Operation Procedures and Work Process Documentation for Field Operations**.

Other CMOM Program plans that are referenced in the **Overflow Tracking Program** include:

- CMOM Program Organization
- CMOM Information Management Systems Program
- Customer Service Program
- Engineering Program
- FOG Management Program
- Gravity Line Preventive Maintenance Program
- Pretreatment Program

## Staffing

The JCESD Director has the ultimate responsibility for SSO reporting, as designated by the Jefferson County Commission in accordance with NPDES permit requirements. The Supervisor overseeing the Line Maintenance Division is responsible for signing SSO forms submitted to the Alabama Department of Environmental Management (ADEM).

The **Overflow Tracking Program** is supported by JCESD personnel who respond to and document SSO events, take measures to prevent recurrent SSOs, and implement strategies to prevent SSOs throughout the County's service area. This includes, but is not limited to:

- Director
- Deputy Director
- Engineering Staff
- Inspection Staff
- Line Maintenance Personnel
- Pump Stations Personnel
- Construction Personnel
- Call Center and Dispatch Staff
- FOG Program Staff
- Public Relations Coordinator

For more information on the Department's organization charts, see the **CMOM Program Organization** plan.

## Data Management

JCESD maintains a Microsoft Access database of SSO reports that originated as a result of the Consent Decree and continues to be maintained, even with terminated basins. The information maintained in the SSO database is updated monthly. JCESD created a real-time report and archive of SSO service requests that is available on the JCESD website, to give the public information concerning SSOs, located at http://www.jeffcoes.org/Default.asp?ID=44&pg=SSO+DATABASE, as shown in **Figure 1**. The real-time report is updated as new information is made available.




| Date | Location | City | Zip | Affected Waterway | Downstream Of | Reason |
|---|---|---|---|---|---|---|
| 2016-02-19 | 200 2ND AVENUE SW | BIRMINGHAM | 35211 | Valley Creek | 1ST AVENUE SW | Roots, Grease or I |
| 2016-02-17 | 445 MEDFORD ROAD | BIRMINGHAM | 35235 | NONE | N/A | Roots, Grease or I |
| 2016-02-13 | 1930 ABRAHAM WOOD JR. BLVD | BIRMINGHAM | 35023 | NONE | N/A | Roots, Grease or I |
| 2016-02-12 | 607 BASSWOOD DRIVE | ADAMSVILLE | 35005 | PRUDES CREEK | TUNDRIDGE CIRCLE | Roots, Grease or I |
| 2016-02-12 | 6076 SOUTHERN INDUSTRIAL DRIVE | TRUSSVILLE | 35173 | PINCHGUT CREEK TO TRUSSVILLE BASIN | DAWNS WAY | Roots, Grease or I |
| 2016-02-12 | 1908 11TH AVENUE S | BIRMINGHAM | 35205 | Valley Creek | N/A | Roots, Grease or I |
| 2016-02-12 | 8948 GLENDALE DRIVE | BIRMINGHAM | 35206 | NONE | N/A | Roots, Grease or I |
| 2016-02-12 | 1801 FULTON ROAD | FULTONDALE | 35068 | NONE | N/A | Roots, Grease or I |

**Figure 1.JCESD Sanitary Sewer Advisory Webpage**

# Program Implementation

## SSO Response

JCESD operates a Call Center that is monitored twenty-four hours a day, every day, to receive calls regarding SSOs and backups. These calls may be received from other utilities, municipalities, JCESD staff, the public, or any individual that believes an SSO is occurring. Once a call is received, Dispatch creates a service request and Line Maintenance crews respond to the reported location to determine if an SSO is occurring or has occurred, mitigate and control the sewer spill, identify the cause, and estimate the volume of the overflow.

For more information on SSO responses and service requests, see the **Customer Service Program** plan.

## SSO Data Collection and Reporting

The steps JCESD personnel take to document and report SSO information are described as follows:

1. SSO is observed and reported to JCESD Call Center.
2. Call Center Dispatcher creates service request and notifies Line Maintenance Supervisor or crew.
3. Line Maintenance crew responds to SSO location.
4. Line maintenance crew determines the cause, estimates the volume, and reports the information to the Line Maintenance Supervisor by radio or cell phone.
5. Line Maintenance crew reports SSO information to the Dispatcher.
6. Dispatcher enters the SSO information into the Sanitary Sewer Overflow Advisory website application.
7. Dispatcher submits 24-hour SSO notification by phone or fax to parties as identified in the **SSORRP** plan.
8. Dispatcher hands the 24-hour report to the responding crew's Public Works Supervisor.
9. Public Works Supervisor reviews the 24-hour report and forwards it to the Line Maintenance Supervisor.
10. Line Maintenance Supervisor prepares the 5-day report.
11. At the end of each month, the Line Maintenance Supervisor sends all SSO reports to the Chief Civil Engineer for quality assurance and quality control (QA/QC) review.
12. Chief Civil Engineer enters SSO report information into the USEPA SSO database.
13. GIS Specialist personnel enters SSO report information into Cityworks IMS.

Information that is recorded for each SSO is based primarily on completed SSO reporting forms and includes, but may not be limited to:

- Date/time the SSO began
- Date/time the SSO stopped
- Estimated volume discharged (in gallons)
- Date and time of verbal notification to ADEM (if appropriate), name and phone number of the person who made the notification, and if the ADEM SSO hotline was contacted
- Source of the discharge event (i.e., manhole, cleanout, lift station, treatment plant, broken line, or other (with description))
- Location of discharge (street address if appropriate)
- Known or suspected cause of the discharge
- Ultimate destination of the discharge (i.e., ground absorbed, creek or river (name), storm drain, drainage ditch, or other (with description))

- Efforts taken to notify the public (if applicable) (i.e., press release, placement of signs, or other (with description))
- Officials that were notified (if applicable) (i.e., Jefferson County Department of Health (JCDH) or other (with description))
- Name and title of the JCESD personnel who signed SSO form
- Date the SSO form was submitted

Responding personnel adhere to the policies and procedures outlined in the **SSORRP** plan to complete the appropriate reporting forms. As required, all notifications and report submittals are made as described in the **SSORRP** plan and in accordance with the requirements of the USEPA Consent Decree.

Information related to the SSO occurrence, including SSO reporting forms, photographs and sketches, are maintained in the Administration offices.

## SSO Root Cause Analysis

JCESD Line Maintenance, FOG Management, Engineering staff, and Asset Management Program Support review the data collected for each event and evaluate location, cause, and potential corrective action that may reduce the risk of a recurrent overflow. Actions that may result from this root cause analysis include:

- Accelerated cleaning of sewer segments upstream of the SSO location.
- Television inspection of certain suspect sewer segments.
- Investigation of FOG dischargers upstream of the SSO location.
- Point repair of sewer defect (e.g., collapsed pipe, severely offset joint, or dropped service connection).
- Follow up with other departments or agencies that may have caused a blockage to occur (e.g., contractor damage to a structure, or utility pole or crossbore through sewer line).

## Trend Analysis

Data from SSO tracking activities and rain events are used to develop graphs and charts that are included in a monthly SSO Trend Analysis Report (see **Appendix A** for an example report). The summary identifies and compares changes from past months and current months, and provides trending information on SSO occurrences related to seasonal, wet weather, temperature, causes, and pipe sizes. A geographical analysis of spatial parameters, such as sewer basins and sub-basins, is also used to evaluate trends. JCESD produces maps using different layers of data stored in its geographic information system (GIS) to assist in data analysis.

A trend analysis is conducted on the compiled SSO-related information monthly. A comprehensive annual review of the SSO-related information is performed by Engineering Staff to examine longer trends, repeat occurrences, and related information to update the Capital Improvement Plan (CIP) and update procedures. An internal report is completed for review at monthly meetings attended by senior management from the Line Maintenance, Engineering, Grease Control Program staff, and

representatives from other groups if appropriate. The SSO events and JCESD's responses to the events for the prior month are reviewed, and practices that can be improved or added to help reduce and/or prevent future SSOs are discussed. Analyses of data and maps are completed by the JCESD leadership and Line Maintenance staff.

Results of these analyses, coordination, and meetings are used to determine measures that could be taken to prevent SSOs, such as:

- Areas within the collection system where aggressive cleaning requirements could be addressed through sewer repairs, rehabilitation, or replacement.
- Where new lines could be installed and pump stations prone to failure and resultant SSOs could be taken out of service.
- FOG dischargers who are not in compliance with program requirements.

# Program Performance Metrics

Performance measures are important management tools that allow for continuous measurement and evaluation of program activities. Performance measures are designed to collect information that enable JCESD to determine if established goals and level of service are being met and, if not, what activities need to be adjusted to meet program goals.

JCESD has performance metrics to track components of the **Overflow Tracking Program**, as listed in **Table 1**.

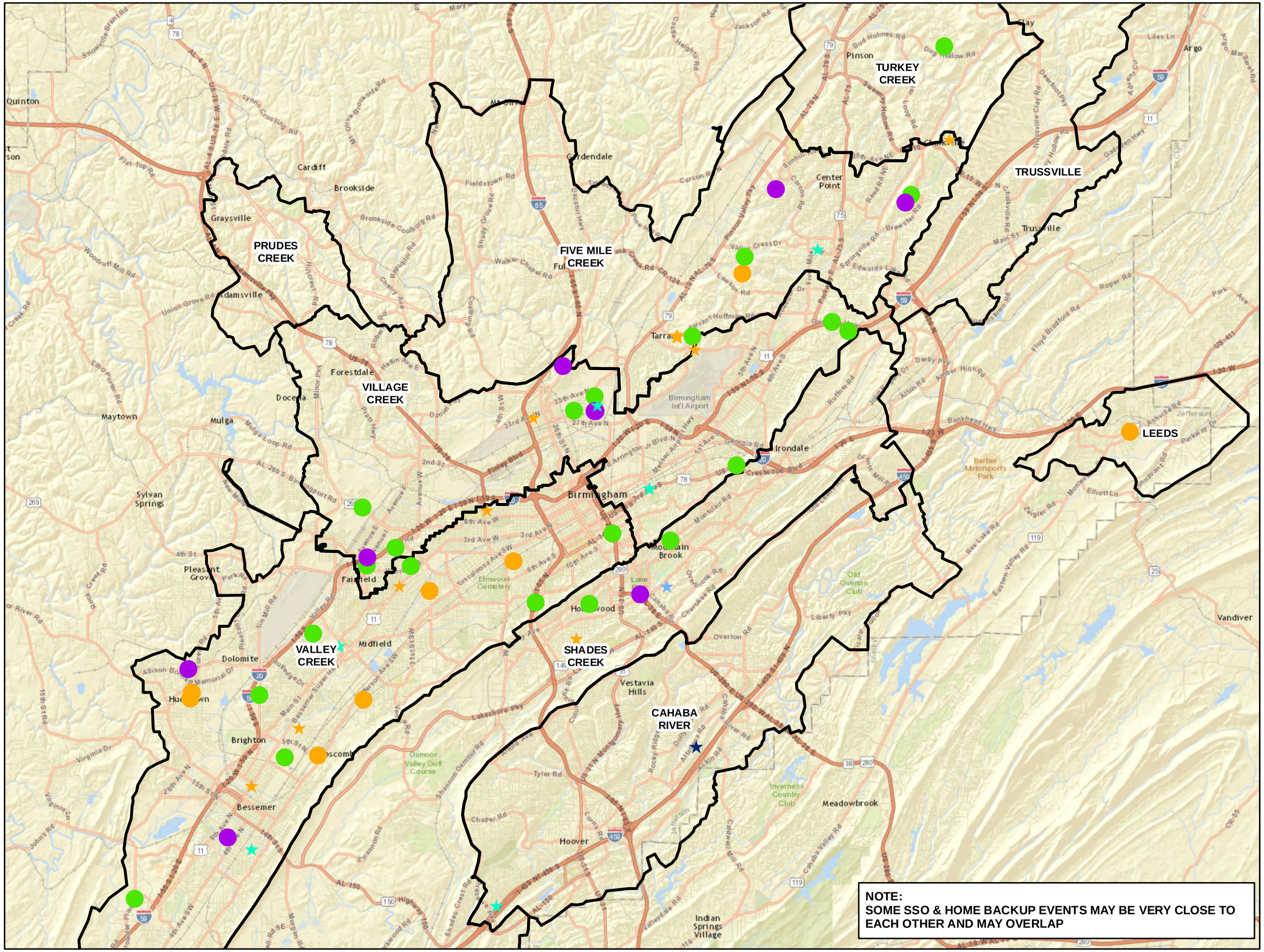
**Table 1. Overflow Tracking Program Performance Measures**

| Performance Measure | Formula | Definition | Desired Result | Data Interval | JCESD Group |
|---|---|---|---|---|---|
| Total SSOs reported | Value | Number of total SSOs | Decrease as result of tracking and related response | Monthly | Line Maintenance |
| Total SSOs reported by Cause | Value | Number of total SSOs by Cause of Event | Decrease as result of tracking and related response | Monthly | Line Maintenance |
| Total SSOs reported by Basin | Value | Number of total SSOs by Basin of Event | Decrease as result of tracking and related response | Monthly | Line Maintenance |
| Total SSOs reported by Volume | Value | Number of total SSOs by Volume of Event | Decrease as result of tracking and related response | Monthly | Line Maintenance |
| Building Backups | Value | Number of total Building Backups | Decrease as result of tracking and related response | Monthly | Line Maintenance |

# APPENDIX

## Appendix A Example Monthly SSO Trend Analysis Report

# JEFFERSON COUNTY, ALABAMA




NOTE:
SOME SSO & HOME BACKUP EVENTS MAY BE VERY CLOSE TO EACH OTHER AND MAY OVERLAP

## REPORTED SSO EVENTS VOLUME AND HOME BACKUPS

### Legend

**HOME BACKUPS**

- Grease/Rags/Roots
- Roots/Rags
- Grease
- Rags
- Roots
- Surcharge
- Blowback
- Unknown

**SSO DATA**

**EST. VOLUME (GAL)**

- 0 - 10,000
- 10,001 - 50,000
- 50,001 - 10,000
- 10,001 - 500,000
- 500,001 - 3,231

**PRELIMINARY DATA**

**NO. OF SSO EVENTS IN DEC 2015**
**43**

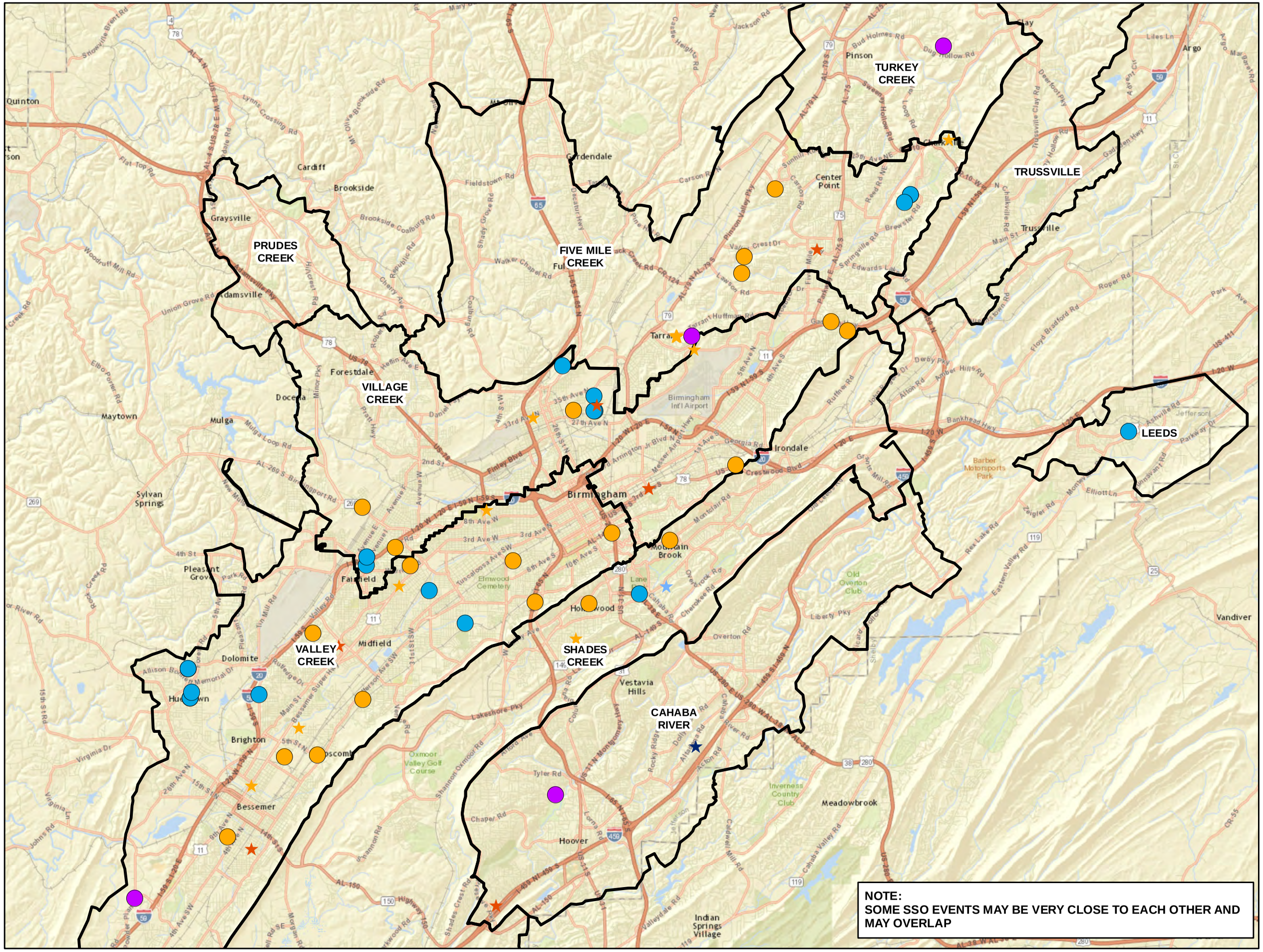
**NO. OF LOCATIONS WITHIN THE REPORTED EVENTS IN DEC 2015**
**43**

**NO. OF HOME BACKUPS IN DEC 2015**
**22**

**TOTAL ESTIMATED VOLUME (GAL)**
**6,097,648**

ASSET MANAGEMENT PROGRAM
Hazen

# JEFFERSON COUNTY, ALABAMA




N
W E
S

## REPORTED SSO EVENTS BY CAUSE

### Legend

**HOME BACKUPS**

- Backup in Home/Basin
- Blowback
- Grease
- Grease/Rags/Roots
- Roots/Rags
- Rags
- Roots
- Surcharge

**SSO CAUSE**

- I/I - 19 Events
- Roots, Grease, Debris - 20 Events
- Other - 4 Events

**PRELIMINARY DATA**

**NO. OF SSO EVENTS IN DEC 2015**
**43**

**NO. OF LOCATIONS WITHIN THE REPORTED EVENTS IN DEC 2015**
**43**

**NO. OF HOME BACKUPS IN DEC 2015**
**22**

**TOTAL ESTIMATED VOLUME (GAL)**
**6,097,648**

NOTE:
SOME SSO EVENTS MAY BE VERY CLOSE TO EACH OTHER AND MAY OVERLAP

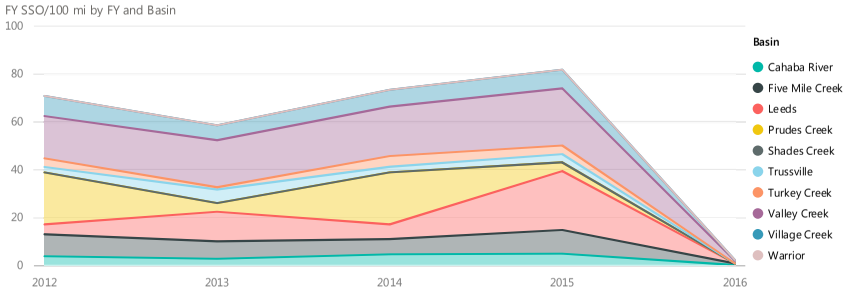
JEFFERSON COUNTY ALABAMA

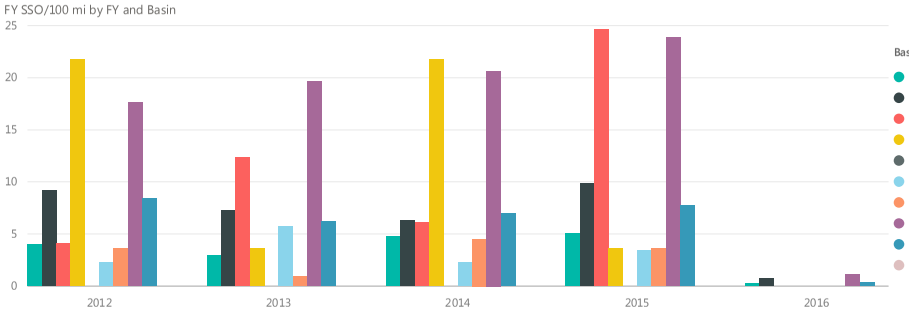
ASSET MANAGEMENT PROGRAM

Hazen

# KPI: SSOs per 100 miles

| Basin | Number of SSOs/100 mi | | | | |
|---|---|---|---|---|---|
| | 2012 | 2013 | 2014 | 2015 | 2016 |
| Cahaba River | 3.98 | 2.92 | 4.78 | 5.04 | 0.27 |
| Five Mile Creek | 9.14 | 7.27 | 6.33 | 9.84 | 0.70 |
| Leeds | 4.10 | 12.31 | 6.16 | 24.62 | 0.00 |
| Prudes Creek | 21.73 | 3.62 | 21.73 | 3.62 | 0.00 |
| Trussville | 2.28 | 5.71 | 2.28 | 3.43 | 0.00 |
| Turkey Creek | 3.61 | 0.90 | 4.51 | 3.61 | 0.00 |
| Valley Creek | 17.63 | 19.64 | 20.64 | 23.88 | 1.12 |
| Village Creek | 8.40 | 6.22 | 7.00 | 7.78 | 0.31 |
| Warrior | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Shades Creek | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | 8.96 | 8.67 | 9.31 | 11.03 | 0.51 |




| Basin | Total Length (mi) |
|---|---|
| Valley Creek | 896.20 |
| Village Creek | 642.90 |
| Shades Creek | 500.67 |
| Five Mile Creek | 426.62 |
| Cahaba River | 376.89 |
| Turkey Creek | 110.82 |
| Trussville | 87.56 |
| Leeds | 48.74 |
| Prudes Creek | 27.62 |
| Warrior | 8.60 |
| **Total** | **3,126.61** |

# Financial Analysis Program

## Final

December 2016

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# Acronyms

| | |
|---|---|
| BWWB | Birmingham Water Works Board |
| CIP | Capital Improvement Plan |
| CMOM | Capacity, Management, Operations, and Maintenance |
| FOG | Fats, oils, and grease |
| I/I | Infiltration and inflow |
| JCESD | Jefferson County Environmental Services Department |
| NPDES | National Pollutant Discharge Elimination System |
| SSO | Sanitary sewer overflow |
| TVI | Television inspection |
| WWTP | Wastewater treatment plant |

# Financial Analysis Program

## Program Overview

To ensure that financial resources are available when needed, and that they are used efficiently and effectively to accomplish Jefferson County Environmental Sewer Department (JCESD) goals and objectives, sound financial management processes have been put into place. These processes include the following:

- Budgeting and forecasting,
- Accounting and reporting,
- Identifying and implementing financing strategies,
- Auditing and analyzing, and
- Maintaining financial information management and reporting systems

Pursuant to Amendment 73 to the Constitution of Alabama of 1901, the governing body of Jefferson County has sole authority to set sewer rates and charges for the system and to provide for the collection, payment, and enforcement thereof.

The financial management processes included in JCESD's **Financial Analysis Program** are described in this plan.

### Purpose and Goals

The financial management initiatives undertaken by JCESD involve:

1. Planning for and acquiring the resources needed to achieve the Department's goals.
2. Planning, monitoring, analyzing, and reporting on the use of those resources.

The fundamental purpose of these efforts is to ensure that the resources are available when needed, and that the resources are used effectively and efficiently.

The goals of the Financial Analysis Management Program are to:

- Ensure the Department has the resources needed to meet all regulatory requirements and provide a high level of service for its customers.
- Manage the Department's finances to ensure the sustainability of its infrastructure.
- Perform long-term capital investment planning for regulatory compliance and reinvestment in aging infrastructure.

# Program Resources

## Related CMOM Program Documents and Other References

The following documents provide additional guidance and/or are related, or have components related to the **Financial Analysis Program**:

- Jefferson County Annual Budget, current version. Available for download at http://jeffconline.jccal.org/Default.asp?ID=138&pg=Budget+Management+Office
- **Jefferson County Sewer Use Administrative Ordinance**, effective version. Available for download at http://www.jeffcoes.org/Default.asp?ID=36&pg=ORDINANCES
- **Jefferson County Sewer Use Charge Ordinance**, effective version. Available for download at http://www.jeffcoes.org/Default.asp?ID=36&pg=ORDINANCES

Other CMOM Program plans that reference or are referenced in the **Financial Analysis Program** plan are as follows:

- CMOM Program Organization
- CMOM Information Management Systems Program
- Equipment and Supplies Management Program
- Fats, Oils, and Grease (FOG) Management Program
- Legal Support Program
- Pretreatment Program
- Pump Station Operations and Maintenance Program
- Service Connections and Disconnections Program

## Staffing

The ultimate responsible authorities for the **Financial Analysis Program** are the Jefferson County Chief Financial Officer and the County Commission. All the financial analysis functions report to the Administration Division. In addition, JCESD management in each division and functional area is responsible for developing, expending, tracking, and reporting elements of the Operations and Capital Improvement budgets.

For more information on JCESD staffing, see the **CMOM Program Organization** plan.

## Data Management

Jefferson County utilizes the Munis Enterprise-wide financial system. A COBOL-based mainframe system is used to manage the County-billed customer accounts. The County receives regular reports from its contract billing providers that it periodically reviews and maintains in a separate database.

For more information on JCESD's data management strategy, see the **CMOM Information Management Systems Program** plan.

# Program Implementation

This section describes the major processes that comprise JCESD's financial management approach.

## Budgeting and Forecasting

Budgeting involves developing monetary plans for specified time periods. Budgets are financial plans that are developed in response to forecasts of expected circumstances and events in the environment in which JCESD functions. By comparing budgeted activity to the actual results of the operation of its organization, management can identify areas that should be further evaluated for effectiveness and efficiency improvements.

## Operating Budget

Jefferson County is required by Alabama Law to operate under a balanced budget. The County's fiscal year operates from October through September under an annual budget approved by the Jefferson County Commission. Each year, JCESD develops a budget that is reflective of the expected cost to operate its facilities, provide customer services, and meet regulatory requirements.

The JCESD operating budget can be summarized into the following seven major categories:

- Personnel
- Utilities
- Billing Services
- Legal & Professional Services
- Contractual Operations and Maintenance Support
- Functional Support Services
- Parts, Supplies, and Miscellaneous Equipment

In order to ensure that the appropriate supplies and parts are on hand for the wastewater treatment and collection system when needed, an adequate budget is established annually. Approximately 30% of the annual JCESD operating budget is allocated to collection system maintenance.

Jefferson County currently provides support services to JCESD for finance, accounting, purchasing, payroll, budget management, legal services, human resources, right-of-way, and fleet management. The costs allocated to JCESD for these services are based on a County-wide indirect cost allocation study and direct charges for parts and labor.

As part of the budgeting process, managers from 23 divisions are asked to develop division budget requests for operations and maintenance needs and provide appropriate documented justification. Standard forms for itemizing equipment, personnel, operating costs, and performance measures are used to justify expenditures against performance, mission statements, measureable goals, and improvement strategies.

The division budget requests are reviewed by the JCESD Director and Deputy Director for accuracy and appropriateness. Workshops with division managers and engineering managers are conducted. Each request is evaluated against other budget needs and anticipated costs. When necessary, division budget requests are modified to fit within expected revenue projections.

The division budget requests are then assembled into a total departmental budget. Upon approval, the JCESD Director submits the draft departmental budget request to the County Manager. The County Manager and Finance Department review JCESD's budget request, along with the other County departments' requests. When approved by the County Manager, the draft budgets for all County departments are presented to the Jefferson County Commission for consideration and approval.

## Capital Improvement Program

JCESD maintains a 10-year Capital Improvement Plan (CIP) that is used as a planning and fiscal management tool to coordinate the location, timing and financing of capital improvements and equipment purchases. The CIP is designed to:

- Meet specific utility needs,
- Provide operational reliability,
- Achieve Consent Decree compliance and termination,
- Provide a platform for long-term sustainability, and
- Help ensure compliance with the Clean Water Act, the Alabama Clean Waters Act, the County's National Pollutant Discharge Elimination System (NPDES) permits and other regulatory and customer service requirements.

In order to reach the goal of a sustainable utility, JCESD has committed to have its capital improvements planned, designed, and constructed in a rational, methodical, defensible and prioritized manner. JCESD has established an Asset Management Program for its wastewater treatment plant (WWTP) and collection system assets, focused on minimizing the life-cycle costs of assets at acceptable levels of risk through a disciplined approach to assessing project needs. This assessment is based on prevailing risks and prioritizing asset investments. For more information on various elements of the Asset Management Program, including continuous sewer system assessment, infrastructure rehabilitation, and capacity assurance, see the JCESD **Engineering Program** plan.

Recurring, wet weather-related sanitary sewer overflow (SSO) abatement and sewer system rehabilitation capital improvement projects are identified and developed through the Asset Management Program following the processes described below:

<u>Recurring Wet Weather SSO Abatement</u>

1. Recurring SSO locations are identified and prioritized.
2. Internal television inspection (TVI) is conducted in area upstream of the SSO (extent of TVI work is dependent on system configuration and SSO prioritization).

3. Remedial measures (initial project scopes) are developed to eliminate recurring SSO, such as replacement, relief sewer and lining where considered effective and needed to provide structural renewal.
    a. If SSO is located in an area that is already included in a calibrated hydraulic model, the model is used to characterize and to develop remedial measures.
    b. If a calibrated model is not currently available for the area in which the recurrent SSO is located, and it is within a high priority area, flow monitoring is conducted to characterize the infiltration and inflow (I/I) response within the sewer system.

       A unit hydrograph hydraulic model is developed and calibrated to assess capacity and peak flows.
4. Projects are ranked and scheduled based on the priority, severity of the SSO, and budget constraints.
5. Remedial measures are designed and projects bid based on priority.
6. Projects are constructed.
7. Post-construction monitoring is conducted to evaluate effectiveness.

Sewer System Rehabilitation

Sewer lines that require rehabilitation or replacement may be identified through TVI as a result of responses to service requests or mini-basin-wide inspection efforts.

1. Inspection videos and reports of sewer lines with significant defects are reviewed and evaluated. Sewer lines with significant defects that warrant rehabilitation or replacement work that are not immediate in nature are put onto the rehabilitation list.
2. Mini-basin inspection results are reviewed using in-house screening and assessment tools.
3. Rehabilitation and replacement recommendations are developed based on extent and type of defects identified.
4. Rehabilitation and replacement bid documents are developed as separate projects and bid.
5. Projects are constructed.
6. If I/I removal was targeted, post construction monitoring is conducted to evaluate effectiveness.

Capital financing is provided by a combination of funds on hand, current revenues and warrant proceeds.

## Accounting and Reporting

Accumulating, categorizing, and recording financial and other statistical data is the primary function of the account and reporting process of JCESD's financial management approach. Appropriate summaries of financial and management reporting are distributed to JCESD's internal and external users.

## Monthly Reports

Each month, division managers prepare and submit a comprehensive report to JCESD senior management. These reports include financial and performance metrics, and are used to gauge the effectiveness and efficiency of each division's operations.

# Financing

The financing process of JCESD's financial management approach involves managing the flow of funds into the utility and acquiring needed funds. The following section provides an overview of the sources of funds collected by JCESD.

## Sewer Use Charges and Fees

Amendment No. 73 to the Alabama Constitution (referred to as the "County Sewer Amendment") empowers the Jefferson County Commission to set sewer rates and charges and collect those use charges from its sewer system users. The County Sewer Amendment provides that the County Commission shall have a lien against properties served by the County's sewer system to secure the payment of any related service charges, and that the lien may be enforced by foreclosure. Monies derived by the sewer service charges may be expended by the County for purposes only related to the improvement, extension, maintenance and operation of the sewer system.

Jefferson County's monthly sewer charges reflect base charges, volume charges, and other usage and class-related billing determinates. Adjustments can be made to the recorded sewer charges to account for private water meter credits, leaks or usage anomalies, or misread meters. Other adjustments that may affect monthly billed revenues include account charge-offs, returned check charges, application of customer overpayments, and final bill adjustments.

An online residential bill calculator, shown in **Figure 1** on the following page, is available for customers at http://www.jeffcoes.org/Default.asp?ID=76&pg=RESIDENTIAL+BILL+CALCULATOR.

For more information on sewer rates and charges, see the **Jefferson County Sewer Use Charge Ordinance**, effective version. Additional information on the fees associated with JCESD's Grease Control Program, see the **FOG Management Program** plan.

Some industrial and commercial users are subject to a surcharge based on the composition, strength, and/or temperature of their discharged waste. The program that addresses industrial and commercial surcharges is administered by the JCESD Pretreatment staff. For more information on the surcharge and fees associated with that program, see the **Pretreatment Program** plan.

See the JCESD website for more information on sewer use charges and fees at http://www.jeffcoes.org/Default.asp?ID=67&pg=RATE+INCREASE+INFO.

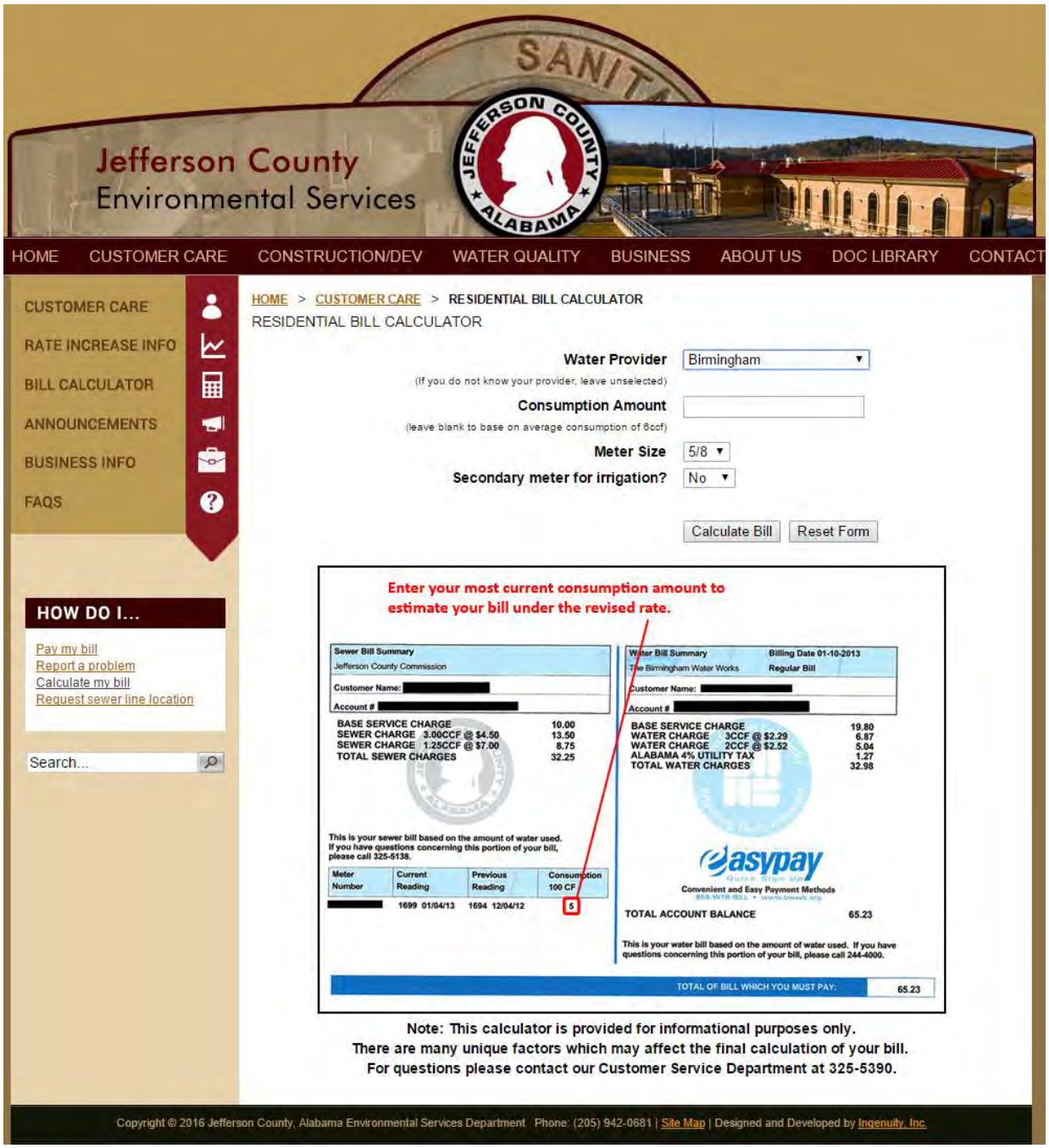


**Figure 1.Online Residential Bill Calculator**

### *Sewer Accounts and Billing*

For more information on the JCESD service area and the sewer customers served, see the **CMOM Program Organization** plan.

Sewer users receive water service from the Birmingham, Bessemer, Trussville, Irondale, Leeds, Graysville, Warrior River, and Mulga water utilities. The Birmingham Water Works Board (BWWB) and Bessemer Utilities provide combined water and sewer billing through contractual agreements with

Jefferson County. Sewer users served by other water utilities are billed directly by the County for sewer service only.

### Sewer Tax

A sewer tax is levied and collected by the County to be allocated, in addition to sewer revenues, for the purpose of paying a portion of the costs of improving, maintaining, and operating the County's collection system. The County does not possess the power to increase the sewer tax without authorization from the Alabama Legislature and approval by the public at a State-wide election.

### Auditing and Analysis

Analysis of JCESD's operation is an important component of its financial management approach. JCESD has financial audits performed annually by independent auditors.

## Program Performance Measures

Performance measures are important management tools that allow for continuous measurement and evaluation of program activities. Performance measures are designed to collect information that enables JCESD to determine if established goals and level of service are being met, and, if not, what activities need to be adjusted to meet program goals.

The **Financial Analysis Program** performance measures established by JCESD are shown in **Table 1** through **Table 3**.

**Table 1. Operating Budget Performance Metrics**

| Performance Measure | Formula | Definition | Desired Result | Data Interval | JCESD Group |
|---|---|---|---|---|---|
| $ Expended per month | Value | The amount of money spent on all operating expenses | Value | Monthly | All |
| $ Personnel | Value | The amount of money expended on personnel salary and benefits | Value | Monthly | All |
| $ Utilities | Value | The amount of money expended on electricity and natural gas each month | Value | Monthly | All |
| $ Operations | Value | The amount of money expended on communications; facility maintenance; vehicle titling, insurance, fuel, tires, spare parts, maintenance, and repair; staff development and travel; janitorial services, supplies; and other operations-related expenses | Value | Monthly | All |
| % Expended of Total Budget | $ Expended per month / total annual budget | The percent of the total annual budget that is expended | Value | Monthly | All |

**Table 2. Capital Budget Performance Metrics**

| Performance Measure | Formula | Definition | Desired Result | Data Interval | JCESD Group |
|---|---|---|---|---|---|
| $ Capital | Value | The amount of money spent on capital improvements, equipment, and vehicles each month | Value | Monthly | All |

**Table 3. Revenue Performance Metrics**

| Performance Measure | Formula | Definition | Desired Result | Data Interval | JCESD Group |
|---|---|---|---|---|---|
| Total Revenue | Value | Compared to prior period revenue | Value | Monthly /year to date | All |
| Sewer Use Revenue by Billing Entity | Values | Compared to prior month revenue | Value | Monthly | All |
| Industrial Surcharge | Value | Compared to prior month revenue | Value | Monthly | All |
| Septage | Value | Compared to prior month revenue | Value | Monthly | All |
| Sewer Impact Fees | Value | Compared to prior month revenue | Value | Monthly | All |
| # of Permits Issued | Value | Compared to prior month revenue | Value | Monthly | All |
| Other Revenues | Value | Compared to prior month revenue | Value | Monthly | All |

# Equipment and Supplies Management Program

**Final**

December 2016

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# Acronyms

| | |
|---|---|
| CCTV | Closed-circuit television |
| CMOM | Capacity, Management, Operations, and Maintenance |
| JCESD | Jefferson County Environmental Services Department |
| O&M | Operations and maintenance |
| OEM | Original equipment manufacturer |
| SSO | Sanitary sewer overflow |
| SSORRP | Sanitary Sewer Overflow Response and Reporting Program |
| TVI | Television inspection |
| WWTP | Wastewater treatment plant |

# Equipment and Supplies Management

## Program Overview

An appropriate inventory of vehicles, equipment, tools, supplies, and critical spare parts is needed to ensure the safe, efficient, and effective operation and maintenance of a collection system. The inventory used by the Jefferson County Environmental Services Department (JCESD) collection system cleaning, inspection, and repair personnel is maintained and stored at the Shades Valley Complex, the Village Creek Wastewater Treatment Plant (WWTP), and the Fleet Management maintenance shops at 1717 Vanderbilt Road in Birmingham and 1121 15th Avenue in Bessemer).

While JCESD's **Equipment and Supplies Management Program** is continuing to evolve, the following elements of the program are described in this document:

- **Vehicle and Equipment Repair**: JCESD's fleet of vehicles and most towed equipment (e.g., air compressors, backhoes, generators, and trailered equipment like backhoes) are purchased, maintained, and repaired by the County's Fleet Management Division personnel or the JCESD.
- **Spare Parts Inventory**: this program component ensures that critical spare parts are maintained in stock or are readily available from outside vendors in order to maintain vehicles, equipment, and tools in proper working order. This inventory is based on equipment manufacturer's recommendations, historical experience, and anticipated needs identified as a part of contingency planning efforts (for more information, see the **Contingency Planning Program** plan).
- **Equipment and Tools Inventory**: the equipment, tools, supplies, and materials used on a daily basis are stored in locations that are conveniently accessed by JCESD personnel. A complete inventory listing has been compiled, and a maximum-minimum inventory control system for the Main Line Cleaning, Television Inspection (TVI), and Construction Division is under development.

### Purpose and Goals

The purpose of JCESD's **Equipment and Supplies Management Program** is to ensure collection system personnel are provided with reliable and appropriate resources needed to properly perform their work. Without these readily available resources, a collection system may experience accelerated deterioration or periods of inefficient operation, in the event of a system breakdown or malfunction.

The goals of the **Equipment and Supplies Management Program** are to:

- Identify critical spare parts necessary to keep the collection system operating, and ensure adequate inventory is on hand.
- Maintain organized storage areas for equipment, supplies, and spare parts at key locations that are accessible to field personnel.
- Coordinate the budgeting, purchasing, and maintaining/repairing of vehicles and equipment with the Fleet Management Department.

# Program Resources

## Related CMOM Program Documents and Other References

Procedures used when responding to and reporting sanitary sewer overflows (SSOs) are detailed in JCESD's **Sanitary Sewer Overflow Response and Reporting Program (SSORRP)** plan.

See the **Engineering Program** plan for more information on the County's sanitary sewer pump station design requirements, construction standards and specifications, and approved materials.

For more information on pump station-related safety issues, see the **Safety Program** plan.

Other CMOM Program plans that reference or are referenced in the **Equipment and Supplies Management Program** plan are as follows:

- CMOM Program Organization
- Gravity Line Preventive Maintenance Program
- CMOM Information Management Systems Program
- Pump Station Operation and Maintenance Program

## Staffing

Each Division is responsible for developing a critical spare parts list, maintaining storage areas, and coordinating the purchase of vehicles, equipment, materials, and supplies used by Division personnel. At this time, this work is performed by a wide variety of employees in differing job classifications. Division Managers and Supervisors are ultimately responsible for procurement and directing personnel to organize and stock the storage areas.

Personnel assigned to Five Mile Creek, Valley Creek and Village Creek WWTP maintenance shops provide repair services to Pump Station and Line Maintenance equipment.

All of the rolling stock, including cars, trucks, heavy trucks, trailers, and heavy equipment, and most of the towed equipment is maintained by the County's Fleet Management Division. Pump Station personnel perform routine maintenance and repair pumps and pump station equipment, including some of the permanently mounted emergency generators (large pump station heavy Caterpillar generators are maintained and repaired by contracted service providers).

For more information on staffing, including Division organization charts, see the **CMOM Program Organization** plan.

## Data Management

Currently, Microsoft™ Excel spreadsheets are used to track inventory items, locations, and quantities. Examples of these spreadsheets are provided in the Appendices.

For more information on the Munis software program (Tyler Technologies, Inc.) used to requisition equipment, see the JCESD **CMOM Information Management Systems Program** plan.

# Program Implementation

## Vehicle and Equipment Repair

Acquisition of new and replacement vehicles and equipment is done by JCESD in conjunction with Fleet Management. Requests for equipment are made through the online Munis software program. Vehicles and equipment are budgeted by JCESD, and once approved, Fleet Management personnel procure the requested items through a competitive pricing based requisition process. Vehicle replacement is generally based vehicle condition, mileage and/or age. Replacement criteria is determined by Roads and Transportation-Fleet Management Department.

Fleet Management maintains a current list of vehicles and equipment serviced for each JCESD Division (see **Table 1** on the following page), and keeps records of all preventive maintenance and repairs. Preventive maintenance requirements are established by Fleet Management, and it is the responsibility of the Department staff to schedule service and coordinate with Fleet Management when vehicles or equipment are damaged. Repairs are made by Fleet Management personnel when possible; however, complex repairs are sometimes performed by outside contractors.

The turn-around time for equipment service and repairs performed by Fleet Management varies. It is common for simple preventive maintenance work (e.g., oil changes) to take up to 1 week and non-complex repairs (e.g., brake repairs and air-conditioning system repairs) to take longer.

Hard copies of original equipment manufacturer (OEM) user manuals are kept at the Birmingham and Bessemer shops. These are used to identify critical spare parts and develop written equipment maintenance procedures.

Vehicles and motorized equipment are fueled at stations located at the Shades Valley Complex and Village Creek WWTP, as well as other County Department fueling stations. Fuel can also be purchased at select gas stations using Fuelman cards.

## Spare Parts Inventory

Fleet Management maintains a stock of certain critical spare parts for rolling stock, including vehicles, sewer cleaning machines, and other heavy equipment. If needed, Fleet Management and each Division have relationships with local vendors who will provide access to their inventory on a 7-day, 24-hour basis. In addition, the Construction and Pump Station crews can obtain loaned and/or rented equipment if needed.

## Pump Station Spare Parts

Pump stations identified as “Critical” and associated spare parts necessary to keep these pump stations in operation during emergencies have been identified. The spare parts inventory for these pump stations and others is stored at the Shades Valley Complex. Due to the variations between pump station designs and years of construction, there is little standardization of items except for pumps that are common to some stations. This makes it more difficult to maintain an adequate inventory of spare parts for all pump stations. However, adequate spare parts are on hand to conduct repairs at several critical pump stations concurrently, if necessary.

**Table 1. Inventory of Collection System Vehicles and Equipment (as of 12/1/2016)**

| Division | Equipment |
|---|---|
| Administration Line Maintenance | 4 light duty truck and 1 automobile |
| Village Line Maintenance | 3 pickup trucks and 3 crew trucks<br>4 jet wash trucks<br>1 dump truck<br>1 small combination cleaning machine<br>1 trailer mounted rodding machine<br>1 backhoe<br>2 trailers<br>1 all-terrain vehicle<br>3 air compressors<br>6” bypass pump<br>1 tower light (towable) |
| Shades Line Maintenance | 3 pickup trucks and 3 crew trucks<br>7 jet wash trucks<br>4 Combination cleaning machines<br>1 flatbed truck<br>2 tractors<br>1 all-terrain utility vehicle<br>1 back hoe<br>2 dump trucks<br>1 forestry mulching machine<br>1 skid steer |
| TV Inspection | 5 pickup trucks<br>6 TV inspection trucks<br>5 jet washers<br>1 combination cleaning machine<br>1 jet wash/camera truck |
| Sewer Line Construction | 6 pickup trucks, 2 service trucks and 2 crew cab work trucks, 1 automobile<br>1 flatbed truck<br>1 lowboy trailer, 4 trailers, and 1 utility trailer<br>1 single axle dump truck, 1 tandem axle dump trucks, and 4 tri-axle dump trucks<br>1 dozer<br>2 skid steers<br>2 rubber tire loaders<br>1 tandem boom truck<br>4 track excavators<br>1 tractor (lawnmower) and 1 landscaping tractor<br>3 trench box and 1 build-a-box<br>3-inch pump, 2 3-inch trash pumps, and 1 8-inch pump<br>1 5550-watt generator<br>3 2-inch pneumatic air pumps<br>2 air compressors<br>2 air spade/clay diggers<br>2 chainsaw<br>4 pipe saws<br>1 pipe laser beam<br>1 light source<br>2 jack hammer<br>1 hoe ram<br>1 drill, 1 rock sinker drill and 2 core drills<br>1 chainsaw<br>2 hand-held gas powered air blower<br>2 gas-powered packers |
| Pump Station | 18 pickup and service trucks<br>1 tractor with flail mower<br>3 riding lawn mowers<br>1 boom truck<br>1 forklift |

The Pump Station Operations and Maintenance (O&M) Group, which operates out of Shades Valley Complex, manages the repairs and maintenance of all station components. When necessary, outside contractors may be used (see the **Pump Station Operations and Maintenance Program** plan for more information).

### Equipment and Tools Inventory

The equipment, tools, supplies, and materials that are used daily by JCESD crews are stored in locations that are conveniently accessible.

### Mainline Cleaning and TVI Tools and Supplies

Mainline cleaning inventory is stored at both the Shades Valley Complex and Village Creek WWTP. TVI inventory is stored at the Shades Valley Complex. Lists of tools and supplies used by each group are provided in **Appendix A** (Shades Valley) and **Appendix B** (Village Creek).

The equipment and tool inventory used for sewer cleaning and TVI has been standardized. Copies of inventory checklists used to stock jet wash trucks/combination cleaners, rod trucks, and TVI vans are provided in **Appendices C**, **D**, and **E**, respectively.

Some electrical and mechanical repairs are made onsite. The available area is adequate for the small repairs made on equipment such as closed-circuit television (CCTV) inspection cameras and sewer cleaning nozzles.

### Construction Division Equipment, Tools, and Materials

Equipment, tools, construction and repair materials, and supplies used by the Construction Division are stored at the construction yard located at the Village Creek WWTP. A list of the Construction Division tool room inventory is provided in **Appendix F**.

### Pump Station Equipment and Tools

All pump station equipment, tools, and bulk inventory supplies are stored at the Pump Station storage area located at the Shades Valley Complex (see **Appendix G** for listing). Discarded equipment is salvaged for parts (i.e., impellers, cable, electrical components) and is kept in the storage area.

The pump station staff has the equipment available to perform required maintenance activities. Completed work orders serve as the maintenance logs for each pump station and the maintenance work performed on the force main system.

If necessary, JCESD can utilize an open purchase order to obtain pump or electrical components and rebuilding services.

## Program Performance Metrics

Performance measures are important management tools that allow for continuous measurement and evaluation of program activities. Performance measures are designed to collect information that enable JCESD to determine if established goals and level of service are being met and, if not, what activities need to be adjusted to meet program goals.

The **Equipment and Supplies Management Program** performance measures established at JCESD are shown in **Table 2**.

**Table 2. Equipment and Supplies Management Program Performance Metrics**

| Performance Measure | Formula | Definition | Desired Result | Data Interval |
|---|---|---|---|---|
| Vehicle Inventory | Value | Inventory of Vehicles critical to the performance of CMOM Activities | Maintain accurate records of vehicles | Annual |
| Equipment Inventory | Value | Inventory of Equipment critical to the performance of CMOM Activities | Maintain accurate records of equipment that support CMOM related activities | Annual |
| Tools Inventory | Value | Inventory of tools critical to the performance of CMOM Activities | Maintain accurate records of tools that support CMOM related activities | Annual |
| Vehicle and Equipment Maintenance Records | Value | Records of preventive and reactive maintenance to vehicles and equipment integral to performing duties related to the JCESD CMOM Program | Track maintenance records to predict useful life of equipment integral to implementation of CMOM activities and to predict renewal and replacement of equipment and vehicles | Annual |
| Spare Parts Inventory | Value | Inventory of critical spare parts for equipment and tools used that are integral to the successful implementation of the JCESD CMOM Program | Track records to maintain sufficient inventory of critical spare parts at JCESD facilities | Annual |

# APPENDIX

## Appendix A Shades Valley Complex – Collection System Tool Room Inventory

**Shades Valley Complex - Collection System Tools and Supplies Inventory**

| Item | Invntry |
|---|---|
| 3" hose clamp - S/Steel band type | 3 |
| Acetlyn/Oxygen cutting torch - w/cart | 1 |
| Air filter - Air compressor | 1 |
| Air filter - main - CAT skid steer loader | 3 |
| Air filter - secondary - CAT skid steer loader | 1 |
| Air hammer bit - breaker point | 3 |
| Air hammer bit - chisel point | 1 |
| Anchor shackle - ¾ inch | 4 |
| Anchor shackles - 1⅜ inch | 2 |
| Anti-freeze - 1 gallon | 8 |
| Bar and chain oil - 1 gallon | 6 |
| Broom - pole mount brush | 3 |
| Brush axe | 1 |
| Bypass pump - portable 3 inch | 2 |
| Bypass pump - portable 4 inch | 1 |
| Camlock fitting - female 6 inch | 6 |
| Camlock fitting - male 6 inch | 5 |
| Carburator cleaner - 12 ounce aerosol | 12 |
| Chain saw - pole type | 1 |
| Chopper tool head for threaded pole | 4 |
| CP Clamp - S/Steel - 3 in | 50 |
| CP Clamp - S/Steel - 3 in x ⅝ in | 50 |
| CP Clamp - S/Steel - 4 in x ⅝ in | 45 |
| CP Clamp - S/Steel - 4½ in x ⅝ in | 50 |
| CP Clamps - galvanized - 2 in x 5 in | 46 |
| Electric extension cord - 10 ga - 50 foot | 1 |
| Face shield | 8 |
| Fire extinquisher - 5 pound | 11 |
| Fork tool head for threaded pole | 2 |
| Fuel can - 2 gallon poly | 8 |
| Fuel can - 2 gallon steel - safety can | 2 |
| Fuel can - 2.5 gallon poly - with fuel | 1 |
| Fuel can - 5 gallon poly - with fuel | 2 |

| Item | Invntry |
|---|---|
| Fuel can - 5 gallon steel - safety can w/fuel | 2 |
| Fuel can - 6 gallon poly | 3 |
| Garden sprayer - backpack type - 4 gal | 1 |
| Garden sprayer - hand pump - 2.5 gal | 2 |
| Generator - portable - 3500 Wattd | 1 |
| Grabber - 3 foot | 2 |
| Grease cartridges - 14 ounce | 150 |
| Hand cleaner - 1 gallon | 4 |
| Handi-Clam (pinchers) - 10 foot | 2 |
| Handi-Clam (pinchers) - 12 foot | 1 |
| Handi-Clam (pinchers) - 16 foot | 1 |
| Hard hat - Pot type | 17 |
| Hedge trimmer - Stihl | 1 |
| Hickory handle - Bush Axe 36" | 16 |
| Hickory handle - Bush Axe 40" | 31 |
| Hickory handle - Dble Bit Axe 36" | 5 |
| Hickory handle - Sledge 6lb - 16lb | 3 |
| Hickory handle - Sledge/Maul 36" | 10 |
| Hoe - 5 foot | 3 |
| Hoe - 6 foot | 3 |
| Hose clamp - snaplock - 6 inch | 4 |
| Hydraulic root saw motor oil - 1 gallon | 3 |
| Leader hose - 10 foot | 1 |
| Mattock - tool head only | 8 |
| Mattock - with handle | 3 |
| Garden sprayer - hand pump - 2.5 gal | 2 |
| Work light - free standing portable 500 w | 1 |
| Paper towel dispenser | 2 |
| Nozzle - Anti-blast | 0 |
| Nozzle - Bulldog | 0 |
| Nozzle - Grenade Bomb | 0 |
| Nozzle - invert cleaner 18" - 30" pipe | 1 |
| Nozzle - invert cleaner - Tadpole 18" - 30" pipe | 1 |

## Shades Valley Complex - Collection System Tools and Supplies Inventory

| Item | Invntry |
|---|---|
| Nozzle - Penetrator - chisel point large | 0 |
| Nozzle - Penetrator - chisel point small | 0 |
| Nozzle - Radial | 0 |
| Paper towel dispenser | 2 |
| Pole - fiberglass threaded - 5 foot | 4 |
| Post hole digger | 4 |
| Pressure washer - ext. Pole - 10 ft | 1 |
| Rake - earth type - 5 foot | 1 |
| Rake - earth type - 7 foot | 1 |
| Rock bar (crowbar) - 5 foot | 4 |
| Rod pipe bell end - 2" pipe | 6 |
| Rod turning machine - 8 hp | 2 |
| Rope - Nylon - ½ inch - spool (feet) | 100 |
| Round-Up weed killer - 5 gallon | 2.5 |
| Safety harnes for tripod use | 5 |
| Shovel - flat - 5 foot | 6 |
| Shovel - round/pointed - 5 foot | 8 |
| Shovel - trenching - 4 foot | 5 |
| Sledge hammer - 16 lb | 2 |
| Sledge hammer - 4 lb | 2 |
| Snake chaps | 1 |
| Socket & wrench set - with case | 5 |
| Starting fluid - 12 ounce aerosol | 12 |
| Submersible pump - portable - air operated | 1 |
| T handle probe - 5 foot | 5 |
| Tarp (blue) - 17 ft x 23 ft | 1 |
| Threaded couplings - M/F set - 3 inch | 10 |
| Threaded couplings - M/F set - 4 inch | 8 |
| Tiger tail - hose protectors 4 inch | 7 |
| Tiger tail - sewer hose protective guide | 0 |
| Trap - 10 inch open top scoop type | 0 |
| Trap - 12 inch open top scoop type | 0 |
| Trap - 6 inch open top scoop type | 0 |

| Item | Invntry |
|---|---|
| Trap - 8 inch open top scoop type | 0 |
| Trap - stand pipe elbow - 6 inch | 3 |
| Trap pole - Fiberglass, threaded 5 foot | 5 |
| Trash cans - 30 gallon metal w/lid | 7 |
| Two cycle oil - 12 ounce bottle | 60 |
| Water cooler - Igloo type - 5 gallon | 1 |
| Weed cutter - Gas | 2 |
| Wheel barrow | 1 |
| Wheel barrow - handles | 9 |
| Wheel chocks - rubber | 1 |
| Winch - tripod hand type | 2 |
| Work light - free standing portable 500 w | 1 |
| **Rod Tools in Loft** | |
| Root saw - 4 inch w/adaptor rod | 41 |
| Root saw - 6 inch w/adaptor rod | 29 |
| Root saw - 8 inch w/adaptor rod | 106 |
| Root saw - 10 inch w/adaptor rod | 33 |
| Root saw - 12 inch w/adaptor rod | 40 |
| Root saw - 15 inch w/adaptor rod | 2 |
| Auger - 8 inch w/adaptor rod | 16 |

## Appendix B Village Creek WWTP – Collection System Tool Room Inventory

Village Creek WWTP - Collection System Tool and Supplies Inventory

| Item | Invntry |
|---|---|
| Adaptor rods - 5/16 inch x 8 inch | 98 |
| Adjustable wrench - 15 inch | 2 |
| Air compressor - towable | 1 |
| Air hammer - 30 lb w/buster point | 1 |
| Auger - 10 inch only | 24 |
| Auger - 10 inch w/adaptor rod | 30 |
| Auger - 4 inch only | 1 |
| Auger - 4 inch w/adaptor rod | 6 |
| Auger - 6 inch w/adaptor rod | 3 |
| Auger - 8 inch w/adaptor rod | 14 |
| Backhoe - small utility type (on trailer) | 1 |
| Barricade - foot stakes for nylon barricade straps | 11 |
| Barricade - nylon extension/retraction type | 20 |
| Boots - calf high water resistant type size 10 pairs | 8 |
| Boots - calf high water resistant type size 11 pairs | 2 |
| Boots - calf high water resistant type size 12 pairs | 5 |
| Boots - calf high water resistant type size 14 pairs | 1 |
| Boots - calf high water resistant type size 9 pairs | 2 |
| Brick tong - carrier | 1 |
| Broom - push type heavy bristle | 1 |
| Broom - push type medium bristle | 4 |
| Broom - std straw sweeping type | 8 |
| Brush axe | 3 |
| Brush axe | 2 |
| Bucket machine roller w/yoke - 12 inch | 1 |
| Bypass Lay flat hose - 6 inch bolting flanges | 2 |
| Bypass Lay flat hose w/ends - 6 inch x (unable to count) | 2 |
| Bypass lay flat hose with ends - 3 inch x 50 feet | 5 |
| Bypass pump - 3 inch (on towing trailer) | 1 |
| Bypass pump - 6 inch (on towing trailer) | 1 |
| Bypass pump - portable 3 inch | 3 |
| Bypass pump suction hose - 12 foot | 1 |
| Bypass suction hose - 35 foot | 1 |
| Bypass suction hose - 6 inch debris filters | 2 |
| Cement mixer - towable | 1 |
| Chain saw - 24 inch bar | 2 |
| Chisel blades - assorted types/sizes for electric hammer | 4 |
| Cooler - Igloo 5 gallon | 1 |
| Cutting wheel - 12 inch | 10 |
| Cutting wheel - gas operated | 1 |
| Cutting wheel blade - masonry | 32 |
| Cutting wheel blade - metal | 18 |
| Drain cleaner - electric eel coiled rod type, 100 foot | 1 |
| Drain cleaner - pressure water type, 16 hp | 1 |
| Duct tape - 2 inch, roll | 3 |
| Dye - yellow/green, liquid in plastic bottles | 13 |
| File - 10 inch standard | 1 |
| Fill hose w/ends 2.5 inch x 50 feet | 4 |
| Filter - rebreathing dust masks | 2 |
| Fisher pipe detector - w/expanders | 2 |
| Fisher pipe detector - with expanders | 5 |
| Flagging tape - plastic type in roll | 26 |
| Flat snake - 50 foot w/assorted tools | 2 |
| Floor cleaner - 5 gallon jelled type | 1 |
| Floor cleaner - 5 gallon jelled type | 2 |
| Fuel container - 2 gallon safety type | 1 |
| Fuel container - diesel fuel type - 2 gallon | 1 |

| Item | Invntry |
|---|---|
| Galvanized pipe 3/4" straight 5 foot | 1 |
| Galvanized pipe 3/4" Z Pole 5 foot | 7 |
| Galvanized pipe coupling - 2.5 inch | 5 |
| Galvanized pipe coupling - 2.5 inch to 1.5 inch reducer | 4 |
| Gas meter calibrating kits | 2 |
| Generator - portable - 5000 watt | 1 |
| Grease cartridge - 14 ounce standard | 12 |
| Grease gun - small | 1 |
| Grinding tool - electrical type, 6" wheel (Milkita) | 1 |
| Grinding wheel tool - electric, 4.5 inch wheel | 1 |
| Handi-Clam (pinchers) - 16 foot | 3 |
| Handi-Clam (pinchers) - 6 foot | 3 |
| Handi-Clam (pinchers) - 8 foot | 2 |
| Hard hat - pot type | 9 |
| Hedge trimming machine | 1 |
| Hickory handle - axe, 36 inch | 7 |
| Hickory handle - brush axe, 36 inch | 10 |
| Hickory handle - pick, 36 inch | 2 |
| Hickory handle - sledge hammer, 36 inch | 9 |
| Hoe - concrete mixing type | 1 |
| Hydraulic Root Saw Coupling (HRC) for saw blades | 3 |
| Hydraulic swage tool | 1 |
| Insecticide - std bug killer in spray can | 22 |
| Jet Power - 5 gallon bucket | 13 |
| Level - 4 foot wood type | 1 |
| Lower manhole hose roller | 3 |
| Lower manhole rod guide tube - short, 20 degree | 1 |
| Lower manhole rod guide tube with bell end - std bend | 8 |
| Mop handle - rag mophead type | 3 |
| Nozzle - Anti-blast | 0 |
| Nozzle - Brass washdown type new | 1 |
| Nozzle - Bulldog | 0 |
| Nozzle - Grenade Bomb | 0 |
| Nozzle - Penetrator - chisel point large | 0 |
| Nozzle - Penetrator - chisel point small | 0 |
| Nozzle - Polywog 1" - used | 1 |
| Nozzle - Radial | 0 |
| Nozzle - Shamrocket 1" - used | 1 |
| Pavement cutter | 1 |
| Pick w/handle | 1 |
| Pintle hitch - bolt on type | 1 |
| Pipe wrench - 24 inch | 1 |
| Pipe wrench - 24 inch | 4 |
| Pitchfork - 5 foot | 2 |
| Proofing tool - 10 inch pipe | 1 |
| Proofing tool - 12 inch pipe | 1 |
| Proofing tool - 8 inch pipe | 8 |
| Quick couple chucks - for Rod Turning Machines | 2 |
| Rachet chain binder | 3 |
| Rake - asphalt type | 4 |
| Rake - asphalt type, 10 foot | 1 |
| Rake - earth type, 5 foot | 20 |
| Rake - extension for asphalt rake 10 foot | 4 |
| Rake - extension for asphalt rake 10 foot | 1 |
| Rake - metal lawn type | 5 |
| Rappo manhole cover cushion | 9 |
| Ratchet wrench - 3/8 inch drive | 1 |

## Village Creek WWTP - Collection System Tool and Supplies Inventory

| Item | Invntry |
|---|---|
| Reel - for wash down hose | 1 |
| Road cone post for vehicle mounting | 1 |
| Road cones - 28 inch orange | ? |
| Rock bar (crowbar) - 5 foot | 1 |
| Rod - sectional 36 inch x 5/16 inch (loose) | 54 |
| Rod Assembly Wrench | 1 |
| Rod assembly wrench - 5/16" rod | 25 |
| Rod pick up tool | 8 |
| Rod Pull Out tool | 14 |
| Rod puller | 2 |
| Rod Storage Reel - 350 foot capacity | 4 |
| Rod storage reel "eye" guide | 20 |
| Root saw - 10 inch concave blade only | 4 |
| Root saw - 10 inch standard blade only | 5 |
| Root saw - 10 inch standard blade w/adaptor rod | 1 |
| Root saw - 10 inch standard blade w/HRC adaptor | 3 |
| Root saw - 12 inch concave blade only | 10 |
| Root saw - 12 inch concave blade w/adaptor rod | 7 |
| Root saw - 12 inch extra curl blade only | 6 |
| Root saw - 12 inch extra curl blade w/adaptor rod | 11 |
| Root saw - 12 inch standard blade only | 9 |
| Root saw - 12 inch standard blade w/adaptor rod | 6 |
| Root saw - 12 inch standard blade w/HRC adaptor | 5 |
| Root saw - 15 inch extra curl blade only | 3 |
| Root saw - 15 inch standard blade only | 6 |
| Root saw - 15 inch standard blade w/adaptor rod | 3 |
| Root saw - 15 inch standard blade w/HRC adaptor | 9 |
| Root saw - 18 inch extra curl blade only | 3 |
| Root saw - 18 inch extra curl blade w/adaptor rod | 5 |
| Root saw - 4 inch concave blade w/adaptor rod | 9 |
| Root saw - 4 inch standard blade w/adaptor rod | 15 |
| Root saw - 6 inch concave blade w/adaptor rod | 6 |
| Root saw - 6 inch standard blade only | 4 |
| Root saw - 6 inch standard blade w/adaptor rod | 11 |
| Root saw - 8 inch concave blade only | 27 |
| Root saw - 8 inch concave blade w/adaptor rod | 31 |
| Root saw - 8 inch standard blade w/HRC coupling | 2 |
| Root saw - 8 inch with extra curl blade only | 1 |
| Root saw - 8 inch with extra curl blade w/adaptor rod | 19 |
| Root saw coupling - two tandem blades (Winters) | 2 |
| Safety harness | 2 |
| Safety harness | 1 |
| Sand trap elbow - 10 inch | 1 |
| Sand trap elbow - 15 inch | 1 |
| Sand trap elbow - 8 inch | 2 |
| Saw - reciprocating electrical type (Sawsall) | 1 |
| Sewer hose - 1 inch hose male end coupling | 8 |
| Sewer hose - 1 inch hose splice coupling | 26 |
| Sewer hose - 3/4 inch female end coupling - swivel type | 45 |
| Sewer hose - 3/4 inch hose male end coupling | 68 |
| Sewer hose - 3/4 inch hose splice coupling - long type | 50 |
| Sewer hose - 3/4 inch hose splice coupling - short type | 25 |
| Sewer hose -1 inch female end coupling - swivel type | 2 |
| Sewer hose reel - new, 1 inch sewer cleaning hse | 9 |
| Sewer hose reel - new, 3/4 inch sewer cleaning hose | 4 |

| Item | Invntry |
|---|---|
| Shovel - flat - 5 foot | 11 |
| Shovel - round/pointed - 5 foot | 7 |
| Shovel - spoon type - 8 foot | 2 |
| Shovel - trenching - 4 foot | 2 |
| Shovel extension for spoon shovel | 1 |
| Sledge hammer - 3 lb | 3 |
| Spear head cutter - 1.75 inch only | 1 |
| Spear head cutter - 1.75 inch w/adaptor rod | 1 |
| Spray lubrication - 3-36 type in can | 91 |
| Spray paint - Green | 58 |
| Sprayer - hand pump type | 3 |
| Squarebar Corkscrew - 10 inch only | 9 |
| Squarebar Corkscrew - 10 inch w/adaptor rod | 4 |
| Squarebar Corkscrew - 12 inch w/adaptor rod | 11 |
| Squarebar Corkscrew - 14 inch only | 1 |
| Squarebar Corkscrew - 14 inch w/adaptor rod | 4 |
| Squarebar Corkscrew - 4 inch w/adaptor rod | 4 |
| Squarebar Corkscrew - 6 inch w/adaptor rod | 3 |
| Three blade cutter - 10 inch blades | 16 |
| Three blade cutter - 12 inch blades | 18 |
| Three blade cutter - 6 inch blades | 39 |
| Three blade cutter - 8 inch blades | 3 |
| Three blade cutter - Chuck only | 2 |
| Tiger tail - sewer hose protective guide | 0 |
| Tracka sub surface locator, device w/sonds in case | 1 |
| Trap - 10 inch open top scoop type | 0 |
| Trap - 12 inch open top scoop type | 1 |
| Trap - 6 inch open top scoop type | 0 |
| Trap - 8 inch open top scoop type | 0 |
| Trap pole - Fiberglass, threaded 5 foot | 0 |
| Tripod only - manhole entry | 3 |
| Upper manhole hose roller | 2 |
| Utility trailer - flat with ramps | 1 |
| Wash down gun - machine gun grip type | 1 |
| Wash down hose - 1/2 inch x 10 foot | 1 |
| Wash down hose - 1/2 inch x 20 foot | 1 |
| Weed trimmers - gas operated | 4 |
| Wheel barrow complete | 1 |
| Wheel barrow kid - opened but not assembled | 2 |
| Wheel barrow kit - boxed | 2 |
| Wheel chock sets - small | 8 |

## Appendix C Inventory Checklist for Wash Trucks and Combination Cleaners

### Standard Inventory List for Wash Trucks and Combination Cleaners

| Nozzles | |
|---|---|
| Radial Enz | 1 |
| Chisel Enz | 1 |
| Bull Dog | 1 |
| Hydraulic root cutter | 1 |
| Grenade | 1 |
| Brass nozzle | 1 |

| Skids/Proofers | |
|---|---|
| 2" finned skid | 1 |
| 6" proofer | 1 |
| 8" proofer | 1 |
| 10" proofer | 1 |
| 12" proofer | 1 |
| | 1 |

| Hose aids | |
|---|---|
| Leader hose - 10' | 1 |
| Tiger tail | 2 |
| Upper MH hose roller | 1 |

| Traffic Safety | |
|---|---|
| Road cones orange | 12 |
| Stop/slow paddles | 1 |

| PPE | |
|---|---|
| Gloves - leather (pair) | 2 |
| Gloves - rubber (pair) | 2 |
| Gloves - latex (box) | 1 |
| Safety glasses | 2 |
| Hard Hat | 2 |
| Hearing - push-ins | 1 |
| Tyvek suits | 2 |
| Dust mask - box | 1 |
| Mirror | 1 |
| Magnet | 1 |
| Snake chaps | 1 |

| Traps | |
|---|---|
| 6" Open top | 1 |
| 8" Open top | 1 |
| 10" Open top | 1 |
| 12" Open top | 1 |
| 5' Fiberglass poles | 4 |

| Access/Measuring tools | |
|---|---|
| MH cover hook - JC type | 2 |
| Hydrant wrench | 1 |
| Wheel chocks | 2 |
| Counter wheel | 1 |
| 100' Reel tape | 1 |
| 50' fill hose rolls | 1 |

| Long Tools | |
|---|---|
| Fork head | 1 |
| Chopper head | 1 |
| 12' Handi Clam | |
| 10' Handi Clam | 1 |
| 8' Handi Clam | 1 |
| Rock bar | 1 |

| Hand Tools | |
|---|---|
| Brush cutter - Gerber | 1 |
| Brush axe | 1 |
| Shovel - round | 1 |
| Shovel - flat | 1 |
| Sledge - 12 lb | 1 |

| Mech Tools | |
|---|---|
| Socket set tool box | 1 |
| Assorted tools - tool box | 1 |
| Grease gun | 1 |
| Spray lube | 1 |
| Pipe wrench - 18" | 2 |
| Hose reel crank | 1 |

| Misc Items | |
|---|---|
| Green paint | 2 |
| Rags - some/several | 1 |
| Dye - yellow/green | 2 |
| Atlas map | 1 |
| Caution/flag tape roll | 2 |
| Rain gear sets | 2 |
| Radio - hand held set | 1 |
| Boots - calf high pair | 2 |
| Spot light | 1 |
| Flashlight | 1 |
| Water jug or cooler | 1 |
| Anti bacteria soap dspns | 1 |
| Burlap sacks | 5 |
| 5- gal bucket | 1 |
| SSO measuring stick | 1 |
| SSO Signage | 2 |
| Vice mounted on bed | 1 |
| Nozzle cleaning kit | 1 |

## Appendix D Inventory Checklist for Rod Trucks

### Standard Inventory List for Rod Trucks

| Rod Operation | | Set Up & Access Tools | | Misc Items | |
|---|---|---|---|---|---|
| 5/16" x 36" rod on reel | 350' | MH cover hook - JC type | 2 | Green paint | 2 |
| Rod Turning Mach 5hp | 1 | MH cover hook - cold rolled | 1 | Rags - some/several | 1 |
| Gas can - 2 gal | 1 | wheel chocks | 2 | Dye - yellow/green | 2 |
| | | Counter wheel | 1 | Atlas map | 1 |
| **Galvanized Pipe** | | 100' Reel tape | 1 | Petzl head lamps | 4 |
| 2' pipe | 2 | Mirror | 1 | Caution/flag tape roll | 2 |
| 3' pipe | 2 | Magnet with rope | 1 | Rain gear sets | 4 |
| 4' pipe | 3 | Snake chaps (sets) | 4 | Radio - hand held | 4 |
| 5' pipe | 2 | | | Boots - calf high sets | 4 |
| 6' pipe | 2 | **Long Tools** | | Flashlight | 4 |
| 8' pipe | 2 | Fork head for poles | 1 | Water jug or cooler | 1 |
| 10' pipe | 2 | Chopper head for poles | 1 | Anti bacterial soap | 1 |
| Couplings (not on pipe) | 6 | 12' Handi Clam (pinchers) | 1 | SSO measuring stick | 1 |
| 30° Bend with end | 2 | Rock bar - 12' | 1 | 10' Chain 3/8" link | 1 |
| | | Rock bar - 6' | 1 | Level - 4' | 1 |
| **Rod Tools** | | | | Manhole cushion | 5 |
| 4" Root saw | 2 | **Traffic Safety** | | | |
| 6" Root saw | 2 | Road cones orange | 12 | **Mechanical Tools** | |
| 8" Root saw | 2 | Road work sign set | 1 | Socket set tool box | 1 |
| 4" Auger | 2 | Stop paddles | 2 | Asstd tools - tool box | 1 |
| 6" Auger | 2 | | | Grease gun | 1 |
| 1.5" Spear head | 2 | **CSE Equipment** | | Assorted sprays | 1 |
| 3" Spear head | 2 | Tripod | 1 | Pipe wrench 24" | 2 |
| Assembly wrench | 2 | Winch (manual haul) | 1 | Bolt/Chain cutter | 1 |
| Pull out handle | 1 | Blower | 1 | | |
| | | Bellows 20' min | 1 | **Misc Supplies** | |
| **Traps** | | Harness | 1 | Water in 50 gal tank (gals) | 25 |
| 6" Open top | 1 | Gas detector | 1 | 5- gal bucket lime | 3 |
| 8" Open top | 1 | | | 5- gal bucket quickcreet mix | 3 |
| | | **Hand Tools** | | 5- gal bucket concrete mix | 2 |
| **PPE/Safety** | | Brush cutter - Gerber | 1 | 5- gal bucket sand | 3 |
| Gloves - leather (pair) | 8 | Brush axe | 2 | Spare MH cover 20" | 2 |
| Gloves - rubber (pair) | 8 | Shovel - round | 2 | Spare MH cover 22" | 2 |
| Gloves - latex (box) | 1 | Shovel - flat | 2 | MH Riser - steel | 2 |
| Safety glasses | 4 | Shovel - trench | 1 | MH Frame - 20" | 1 |
| Hard Hat | 4 | Sledge 16 lb | 1 | Burlap sacks | 12 |
| Boots - knee high (pairs) | 4 | Rake - metal leaf type | 1 | 5-gallon bucket | 2 |
| Rain gear (sets) | 4 | Rake - metal earth type | 2 | | |
| Hearing - push-ins - box | 1 | Post hole digger | 1 | | |
| Tyvek suits | 2 | Mattock | 2 | | |
| Dust masks - box | 1 | T handle probe - 5' | 1 | | |
| SSO Signs | 5 | Concrete mixing hoe | 1 | | |
| | | Wheel barrow | 1 | | |
| | | Concrete trowel | 2 | | |
| | | Push broom | 1 | | |

## Appendix E Inventory Checklist for TVI Vans

### Standard Inventory List for CCTV Vans

| Nozzles | |
|---|---|
| Hydraulic root cutter | 1 |
| Assorted cutter blades | 1 |
| Camera cleaning nozzle | 1 |

| Cable Aids | |
|---|---|
| Tiger tail | 1 |
| Upper MH roller | 1 |
| Lower MH roller | 1 |
| 5' Fiberglass poles | 8 |

| Access tools | |
|---|---|
| Manhole cover hook - JC type | 1 |
| Wheel chocks | 2 |
| Counter wheel | 1 |
| 100' Reel tape | 1 |

| Traffic Safety | |
|---|---|
| Road cones orange | 12 |
| Road work signs | 1 |
| Stop paddles | 2 |

| Hand Tools | |
|---|---|
| Brush cutter - Gerber | 1 |
| Broom | 1 |
| Shovel - round | 1 |
| Shovel - flat | 1 |
| Sledge - 8 lb | 1 |
| Pick or mattock | 1 |

| Misc Item | |
|---|---|
| Green paint | 2 |
| Rags - some/several | 1 |
| Dye - yellow/green | 2 |
| Atlas map | 1 |
| Flag/Survey tape rolls | 2 |
| Rain gear sets | 2 |
| Radio - hand held (set) | 1 |
| Boots - calf high sets | 2 |
| Spot light | 1 |
| Flashlight | 1 |
| Water jug or cooler | 1 |
| Anti bacterial soap | 1 |
| 3-5 gallon bucket | 1 |
| SSO measuring stick | 1 |
| SSO Signage | 4 |
| 5' T Probe | 1 |

| Mechanical Tools | |
|---|---|
| Socket set tool box | 1 |
| Asstd tools - tool box | 1 |
| Grease gun | 1 |
| Spray lube | 1 |

| PPE | |
|---|---|
| Gloves - leather (pair) | 2 |
| Gloves - rubber (pair) | 2 |
| Gloves - latex (box) | 1 |
| Safety glasses | 2 |
| Hard Hat | 2 |
| Hearing - push-ins (box) | 1 |
| CSE Harness | 1 |
| Gas detector | 1 |

## Appendix F Construction Division Tool Room Inventory

| Item | Inventory |
|---|---|
| Air Compressor, Towable | 2 |
| Air Spade | 2 |
| Asphalt Cutter w/ trailer | 1 |
| Bend, 11° - 4" | 18 |
| Bend, 22° - 4" | 11 |
| Bend, 45° - 4" | 17 |
| Bend, 90° - 4" | 3 |
| Blower - Yard Type | 1 |
| Blower - for manholes | 2 |
| Boots, Rubber, Size 7 | 2 |
| Boots, Rubber, Size 8 | 3 |
| Boots, Rubber, Size 9 | 0 |
| Boots, Rubber, Size 10 | 1 |
| Boots, Rubber, Size 11 | 3 |
| Boots Rubber, Size 12 | 5 |
| Boots Rubber, Size 14 | 3 |
| Brick | 125 |
| Broom, Household | 1 |
| Broom, Push | 2 |
| Broom, Street | 12 |
| Burlap Bags | 1000 |
| Bush Axe | 0 |
| C-900 Pipe - 4", 20ft. Joint | 75 |
| C-900 Pipe - 6", 20ft. Joint | 17 |
| C-900 Pipe - 8", 20ft. Joint | 33 |
| C-900 Pipe - 10", 20ft. Joint | 10 |
| C-900 Pipe - 12", 20ft. Joint | 5 |
| C-900 Pipe - 16", 20ft. Joint | 1 |
| Chain Saw -18" bar | 1 |
| Chain Saw -24" bar | 1 |
| Concrete Bucket | 2 |
| Cone, Orange w/ reflective stripes | 30 |
| Cooler, 1-Gal. | 0 |
| Cooler, 5-Gal. | 5 |
| Discharge Hose, 3" | 500' |
| Discharge Hose, 8" | 800' |
| Disposable Coveralls | 50 |
| Duct Tape, Roll | 1 |
| Ductile Iron Pipe - 4", 20ft. Joint | 1 |
| Ductile Iron Pipe - 6", 20ft. Joint | 1 |
| Ductile Iron Pipe - 8", 20ft. Joint | 1.5 |
| Dust Mask - Box | 1 |
| Ear Plugs - Corded, Pair | 30 |
| Flange & Gasket - 4" | 145 |
| Flange & Gasket - 6" | 50 |
| Flange & Gasket - 8" | 21 |
| Flange & Gasket - 10" | 20 |
| Flange & Gasket - 12" | 11 |
| Flat Snake, 50' | 1 |
| Flex Pipe - 18" | 3 |
| Flex Pipe - 24" | 3 |
| Flex Pipe - 32" | 1 |
| Floor Buffer | 1 |
| Gas Can, 2-Gal. | 6 |
| Gas Monitor | 2 |
| Generator, Portable | 2 |
| Grease, 5-Gal. Bucket | 1 |
| Grease Gun - Small | 2 |
| Grease Pump, for 5-Gal. Bucket | 1 |
| Hard Hat | 2 |
| Hoe - for concrete mixing | 3 |
| Inserta Tee, 4" - for 6" C-900 | 24 |
| Inserta Tee, 4" - for 6" D.I. | 5 |
| Inserta Tee, 4" - for 8" D.I. | 5 |
| Inserta Tee, 4" - for 8"C-900 | 24 |
| Inverted Marking Paint, Green | 87 |
| Jackhammer | 2 |
| Lawn Mower, Push | 1 |
| Lawn Mower, Riding | 1 |
| Level - 4' | 5 |
| Lifting Sling - 4' | 14 |
| Lifting Sling - 6' | 5 |
| Lifting Sling - 8' | 11 |
| Light Source w/ generator | 1 |
| Machete | 6 |
| Manhole Base - 2' | 4 |
| Manhole Base - 3' | 2 |
| Manhole Base 4' | 3 |
| Manhole Base/Cone | 1 |
| Manhole Cone - 2' | 2 |
| Manhole Cone - 3' | 0 |
| Manhole Cone - 4' | 3 |
| Manhole Ring & Cover, Bolt-down | 3 |
| Manhole Ring & Cover, Low profile | 0 |
| Manhole Ring & Cover, Standard | 19 |
| Manhole Riser - 16" | 5 |
| Manhole Riser - 32" | 2 |
| Manhole Riser - 48" | 2 |
| Mission Coupling, Clay-D.I - 4" | 65 |
| Mission Coupling, Clay-D.I. - 10" | 0 |
| Mission Coupling, Clay-D.I. - 12" | 21 |
| Mission Coupling, Clay-D.I. - 15" | 6 |
| Mission Coupling, Clay-D.I. - 6" | 61 |
| Mission Coupling, Clay-D.I. - 8" | 149 |
| Mission Coupling, D.I.-D.I. - 8" | 0 |
| Mission Coupling, D.I.-Liner - 8" | 30 |
| Mop Handle | 3 |
| Mop Head | 3 |
| Mop Bucket | 2 |
| Multi-Range Pipe Plug | 2 |
| Oil Dry, Bag | 60 |
| Pick - with handle | 1 |
| Pintle Hitch | 5 |
| Pipe Saw | 3 |
| Pipe Saw Blade - Concrete | 40 |
| Pipe saw Blade - Metal | 50 |
| Plug - 8" | 2 |
| Plug - 12" | 3 |
| Plug - 18" | 1 |
| Posthole Digger | 2 |
| Pressure Washer | 1 |
| Pump, 3" - Gas Powered | 2 |
| Pump, 3" - Electric | 2 |
| Pump, 3" - Air Powered | 2 |
| Pump, 8" | 1 |
| Quickset, 5-Gal. Bucket | 34 |
| Quikrete, 80lb Bag | 24 |
| Rain Suit, XL | 8 |
| Rain Suit, 2X | 13 |
| Rain Suit, 3X | 11 |
| Rake, Street | 4 |
| Rake, Yard | 1 |
| Ratchet Chain Binder | 8 |
| Recipricating Saw (Sawsall) | 1 |
| Saddle - 4" | 65 |
| Road Ramp for Pumps | 2 |
| Safety Harness | 1 |
| Sand blaster | 1 |
| ShopVac | 2 |
| Shovel, Flat | 15 |
| Shovel, Round | 6 |
| Shovel, Track, Short Handle | 9 |
| Shovel, Track, Long Handle | 13 |
| Sledge Hammer, 36" | 2 |
| Sleeve, D.I. - 4" | 16 |
| Sleeve, D.I. - 6" | 11 |
| Sleeve, D.I. - 8" | 8 |
| Sleeve, D.I. - 12" | 2 |
| Sleeve, D.I. - 16" | 1 |
| Spray Lubricant | 11 |
| Sprayer - yard type | 1 |
| Suction Hose, 3" | 20' |
| Suction Hose, 8" | 40' |
| Tee - 6"x6"x6" | 6 |
| Tee - 8"x8"x4" | 1 |
| Tee - 8"x8"x6" | 2 |
| Tee - 8"x8"x8" | 2 |
| Tracing Dye, Green, Bottles | 116 |
| Tracing Dye, Orange, Bottles | 72 |
| Tracing Dye, Red, Bottles | 4 |
| Trench Box - Build-A-Box 8' and 10' length | 1 |
| Trench Box, for Manholes | 2 |
| Trench Box, Steel - 10' | 2 |
| Trench Box, Steel - 24' | 1 |
| Tripod - for manhole entry | 1 |
| Utility Trailer - flat w/ ramps | 4 |
| Vacuum, Household | 1 |
| Weed Trimmer | 1 |
| Wheelbarrow | 5 |
| Wrap-around, Stainless, Liner, 8" | 10 |

7/26/07

# Inventory Standard

7/26/2007 JEFFERSON COUNTY ENVIRONMENTAL SERVICES Pa

| Item No. | Description | Mfg Part No. | Manufacturer | Stock Location | Qty on Hand | Average Unit Cost | Inventory Type |
|---|---|---|---|---|---|---|---|
| | Hyd. Pump 20 Hp, *See Specs. | 6308ZZ | KBC | MS-R4A-S3 | 2.00 | $23.33 | BRNG |
| AIR-COMP-GR002 | Air Compressor Mays Village AC Voltage | 1119696000 | Gorman Rupp | EL-C3-S3 | 1.00 | $0.00 | COMPRE |
| AIR-COMP-VAC-001 | Air Compressor | M01310T5 | Air Dimensio | EL-C2-S2 | 0.00 | $0.00 | COMPRE |
| AIR-COMP-VAC-003 | | 4Z436 | THOMAS | EL-C2-S1 | 0.00 | $1.00 | COMPRE |
| AIR-COMP-VAC-004 | 1/20 HP 5 Max/5 Constant | 5Z347 | GRAINGER | MZ-R10-S2 | 6.00 | $201.00 | COMPRE |
| AIR-COMP-VAC-005 | Compressor, 1/12 HP, 115 Volt, Frame, Mason City | | GRAINGER | MZ-R10-S1 | 0.00 | $249.00 | COMPRE |
| AIR-COMP-VAC-006 | Compressor, 1/8 HP, 115 Volt, 3.1 Amp, 26" Max | 5Z646 | GRAINGER | MZ-R10-S2 | 3.00 | $200.25 | COMPRE |
| AIR-COMP-VAC-007 | 1/20 HP Compressor For Blueridge | 5Z-346 | GRAINGER | MZ-R10-S2 | 0.00 | $148.05 | COMPRE |
| AIR-COMP-VAC-008 | 1/12 HP Compressor, For Chapel Drive #2 | 4Z791 | GRAINGER | MZ-R10-S2 | 1.00 | $138.80 | COMPRE |
| AIR-COMP-VAC-009 | Air Compressor, 1/2 HP Max/50 Constant, Morgan/Grn | 819 | GRAINGER | MZ-R10-S2 | 3.00 | $589.48 | COMPRE |
| AIR-COMP-VAC-010 | Air Compressor for Mississippi & Collegeville | b49 | GRAINGER | MZ-R10-S1 | 2.00 | $376.45 | COMPRE |
| AIR-COMP-VAC-011 | 1/6 Hp Compressor For Warrior WWTP | 2Z 867 | GRAINGER | MZ-R10-S1 | 1.00 | $279.90 | COMPRE |
| AIR-COMP-VAC-012 | Vacuum Prime Pump For Ellis Road | 1VBF-10-M100X | GAST | MZ-R10-S1 | 2.00 | $514.00 | COMPRE |
| AIR-COMP-VAC-FAN001 | Fan For GH505B Vaccum Prime Purmp | 1868025 | GRAINGER | EL-C7-S6 | 4.00 | $12.70 | COMPRE |
| AIR-COMP-VAC-S&L001 | Air Compressor For Walker Avenue | 9L25 | S & L | MZ-R9-S2 | 1.00 | $1.00 | COMPRE |
| AIR-COMP-VAC-VREED001 | Valve Reed For GH 505B Vacuum Prime Pump | 1868728 | GRAINGER | EL-C7-S6 | 20.00 | $6.54 | COMPRE |
| AIR-PUMP-D.C.-GR001 | D.C. Air Pump, Gorman Rupp, Lake Sterling | 48221-044 | GORMAN RUPP | EL-C3-S3 | 0.00 | $323.00 | AIRPUM |
| AIR-PUMP-D.C.-GR002 | D.C. Air Pump For Gorman Rupp Pump Stations | 26813-009 | GORMAN RUPP | EL-C3-S3 | 2.00 | $160.95 | AIRPUM |
| AIR-PUMP-WISA-001 | Wisa Air Pump For Gorman Rupp Bubbler System | 03048221-022 | WISA | ELEC-C3-2 | -1.00 | $322.55 | AIRPUM |
| AIR-PUMP-WISA-002 | Wisa Air Pump For Gorman Rupp Bubbler System | 26813-007 | WISA | EL-C3-S3 | 3.00 | $284.28 | AIRPUM |
| AIR-PUMP-WISA-REP-001 | Wisa Air Pump Repair Kit | 03026813-903 | WISA | ELEC-C3-3 | 3.00 | $19.75 | AIRPUM |
| AIR-SEAL-001 | Large Air Seal For Scotts Blower | 8500390 | GAR/DEN | GA-C14 | 0.00 | $312.00 | BRNG |
| AIR-SEAL-002 | Small Rotor Shaft Seal For Scotts Blower | 8500389 | GAR/DEN | GA-C14 | 2.00 | $342.62 | BRNG |
| BACK-FLPV-001 | BackFlow Preventer 3/4" | 6A770A | GRAINGER | MS-R5-S2 | 1 00 | $183.00 | BFLPV |
| BACK-FLPV-002 | BackFlow Preventer 1" | 6A771 | GRAINGER | MS-R5-S2 | 0.00 | $182.55 | BFLPV |
| BACK-FLPV-003 | BackFlow Preventer 3/4" - Watts Brand Overton 1 | 009-QT RPZ | WATTS | MS-R5-S2 | 2.00 | $148.00 | BFLPV |
| BACK-FLPV-004 | BackFlow Preventer 1" - Watts Brand | 009-QT RPZ | WATTS | MS- | 1.00 | $160.00 | BFLPV |
| BACK-FLPV-005 | BackFlow Preventer 2" For Shades Site & BIO Filter | 909-QT RPZ | WATTS | MS-R5-S2 | 0.00 | $439.84 | BFLPV |
| BACK-FLPV-006 | BackFlow Preventer 3/4" For Shades Site | 909-QT RPZ | WATTS | MS-R5-S2 | 2.00 | $155.00 | BFLPV |
| BACK-FLPV-007 | BackFlow Preventer 1" Mt. View, Maysvillage | 909 -QT RPZ | WATTS | MS-R5-S2 | 1.00 | $189.00 | BFLPV |
| BACK-FLPV-008 | BackFlow Prventer 2", Watts Bio-Filter/Shades Site | 909- QT RPZ | WATTS | MS-R5-S2 | 1.00 | $542.00 | BFLPV |
| BACK-FLPV-009 | BackFlow Preventer 1/2" Watts Brand | 009-QT RPZ | WATTS | MS-R5-S2 | 1.00 | $104.00 | BFLPV |
| BACK-FLPV-010 | BackFlow Preventer 2" | 009-QT RPZ | WATTS | MS-R5-S2 | 1.00 | $343.00 | BFLPV |
| BATT-RAD-001 | Battery For Radio | HNN-9629 | ALLCOM | HC1-R1-S5 | 4.00 | $51.00 | BATTRY |
| BATT-RAD-002 | Battery For Radio | NTN-7144 | ALLCOM | HC1-R1-S5 | 2.00 | $90.00 | BATTRY |
| BATTERY-PS-001 | Emergency Rechargeable Battery Pack For Patton #1 | PS670 | POWERSONICS | EL-C3-S1 | 10.00 | $22.00 | BATTRY |
| BATTERY-RADIO-001 | Radio Batteries, High Capacity For GTX Portable Ra | MNN9628 | | - | 5.00 | $70.00 | BATTRY |
| BATTERY-RADIO-002 | Radio Batteries, Ultra Capacity For MTS-2000 Radio | NTN7144 | | - | 3.00 | $90.00 | BATTRY |
| BATTERY-SAMPLER-001 | AC Back Up Power Supply For Sigma 900 Sampler at W | 1803 | HACH CO. | CHMS-R2-S1 | 1.00 | $488.00 | BATTRY |
| BELT-001 | Belt | | | GA | 0.00 | $0.00 | BELT |
| BELT-002 | Belt | 3L-290 | INDU SUPPLY | GA-W61 | 5.00 | $0.00 | BELT |
| BELT-003 | Belt | | | GA | 0.00 | $0.00 | BELT |
| BELT-004 | Belt | | | GA | 0.00 | $0.00 | BELT |
| BELT-005 | Belt For Edgewater Oaks Pump #2 | 3VX710 | DAYCO | GA-W64 | 6.00 | $8.21 | BELT |
| BELT-006 | BeltScotts Inf. P/House Exfan | 4L340 | | GA-W58 | 6.00 | $0.00 | BELT |
| BELT-007 | Belt | | | GA | 0.00 | $0.00 | BELT |
| BELT-008 | BeltMorgan G/wood 2 Pump 1 | 5V900 | | GA-W47 | 3.00 | $0.00 | BELT |
| BELT-009 | Belt | 5VX600 | | GA-W28 | 25.00 | $0.00 | BELT |
| BELT-010 | Belt | | | GA | | | BELT |
| BELT-011 | Belt | | | GA | | | BELT |
| BELT-012 | Belt | 9480 | | GA-W13 | 9.00 | $0.00 | BELT |
| BELT-013 | Belt | AP60 | | GA-W22 | 5.00 | $0.00 | BELT |
| BELT-014 | Belt | B33 | | GA-W08 | 2.00 | $0.00 | BELT |
| BELT-015 | Belt | B46 | | GA-W12 | 6.00 | $0.00 | BELT |
| BELT-016 | Belt | B51 | | GA-W16 | 5.00 | $0.00 | BELT |
| BELT-017 | Belt | | | GA | | | BELT |
| BELT-018 | Belt for John D. 345 & Carbon T #5 (Scotts)& Bio | B62 | DAYCO | GA-W78 | 15.00 | $7.13 | BELT |
| BELT-019 | Belt | B64 | | GA-W34 | 26.00 | $0.00 | BELT |
| BELT-020 | Belt | B67 | | GA-W35 | 3.00 | $0.00 | BELT |

Belt, Scotts Scum Pump B63

# Inventory Standard

## JEFFERSON COUNTY ENVIRONMENTAL SERVICES



| Item No. | Description | Mfg Part No. | Manufacturer | Stock Location | Qty on Hand | Average Unit Cost | Inventory Type |
|---|---|---|---|---|---|---|---|
| BELT-021 | Belt | | | GA | 0.00 | $0.00 | |
| BELT-022 | Belt | B81 | | GA-W44 | 1.00 | $0.00 | BELT |
| BELT-023 | Belt | | | GA | 0.00 | $0.00 | BELT |
| BELT-024 | Belt | | | GA | | | BELT |
| BELT-025 | Belt for #1 Clarifier Exhaust Fan at Scotts | BP64 | CARLISLE | GA-W80 | 4.00 | $6.17 | BELT |
| BELT-026 | Belt Hopewell Fan | ~~BP68~~ B68 | | GA-~~73~~ W72 | 0.00 | $0.00 | BELT |
| BELT-027 | Belt | BX100 | | GA-W50 | 0.00 | $0.00 | BELT |
| BELT-028 | Belt | BX120 | | GA-W90 | 5.00 | $0.00 | BELT |
| BELT-029 | Belt | | | GA | | | BELT |
| BELT-030 | Belt RAS Pump at Scotts | BX90 | | GA-W65 | 5.00 | $0.00 | BELT |
| BELT-031 | Belt | | | GA | 0.00 | $0.00 | BELT |
| BELT-032 | Belt | | | GA | | | BELT |
| BELT-033 | Belt | | | GA | | | BELT |
| BELT-034 | Belt | | | GA | 0.00 | $1.00 | BELT |
| BELT-035 | Belt | | GATES | GA | | | BELT |
| BELT-036 | Belt | 3VX500 | | GA-W15 | -1.00 | $0.00 | BELT |
| BELT-037 | Belt | B 128 | | GA-W57 | 3.00 | $0.00 | BELT |
| BELT-038 | Belt | | | GA | 0.00 | $0.00 | BELT |
| BELT-039 | Belt For Brummitt Heights, K-Mart Med. C/East, Greenwood | 5VX800 | | GA-W59 | 12.00 | $0.00 | BELT |
| BELT-040 | Belt G/R,Acad. Dr ,Vin.Trace, SeeSpec's | 3 V X 850 → X | DAYCO | GA-W63 | 7.00 | $9.86 | BELT |
| BELT-041 | Belt | BP60 | | GA-W26 | 4.00 | $0.00 | BELT |
| BELT-042 | Belt | | | GA | 0.00 | $0.00 | BELT |
| BELT-043 | Belt | 5 L 310 | | GA-W06 | 6.00 | $0.00 | BELT |
| BELT-044 | Belt | BP63 | INDU SUPPLY | GA-W60 | 3.00 | $6.32 | BELT |
| BELT-045 | Multi V-Belt | BP118 | INDU SUPPLY | GA-W91 | 4.00 | $11.38 | BELT |
| BELT-046 | Belt, Academy Drive Pump #2 | 3VX670 | DAYCO | GA-W81 | 3.00 | $7.76 | BELT |
| BELT-047 | Belt, Vineyards Pump #1 | 3VX800 | DAYCO | GA-W82 | 3.00 | $9.20 | BELT |
| BELT-048 | Belt, Edgewater Oaks Pump #1 | 3VX900 | DAYCO | GA-W83 | 3.00 | $10.72 | BELT |
| BELT-049 | Belt, The Cottages For Engine | 5VX710 | DAYCO | GA-W84 | 3.00 | $19.12 | BELT |
| BELT-050 | Cottages P#2, Crosshaven Eng, Bio F. Fans, Vineyar | 5VX750 | DAYCO | GA-W85 | 7.00 | $20.31 | BELT |
| BELT-051 | Belt, Crosshaven Pump #2, ~~Morgan Greenwood #1~~ Pump | 5VX850 | DAYCO | GA-W92 | 15.00 | $23.19 | BELT |
| BELT-052 | Belt, Morgan Greenwood Pumps 1 & 2 | 5VX900 | DAYCO | GA-W87 | 3.00 | $24.07 | BELT |
| BELT-053 | Belt, The Cottages Pump #1, Crosshaven Pump #1 | 5VX950 | DAYCO | GA-W88 | 3.00 | $26.02 | BELT |
| BELT-054 | Belt For #4 Carbon Tower at Scotts | BP 75 — | | GA-W94 | 12.00 | $6.85 | BELT |
| BELT-055 | Belt For RAS Pumps at Scotts Branch | BP93 | CARLISLE | GA-W75 | 9.00 | $8.78 | BELT |
| BELT-056 | Belt For RAS P / Scotts /Parkwood CT | BX94 | | GA-W79 | 9.00 | $15.41 | BELT |
| BELT-057 | Belt For #3 Carbon Tower at Scotts | BX41 — | CARLISLE | GA-W73 | 6.00 | $5.75 | BELT |
| BELT-058 | Belt For Muffin M. at I-59 (See Belt-059/3VX315) | 2L381 | GRAINGER/DAY | GA-W72 | 6.00 | $9.06 | BELT |
| BELT-059 | Belt For Riverchase (See BELT-058) | 3VX315 | GOODYEAR | GA-W67 | 6.00 | $5.48 | BELT |
| BELT-060 | Belt For Generator at Overton II | 178597 | CUMMINS | GA-W57 | 6.00 | $40.37 | BELT |
| BELT-061 | Belt, The Cottages, For Engine | GA-W84 | DAYCO | GA-W84 | 3.00 | $19.12 | BELT |
| BELT-062 | Belt For Edgewater Oaks | 3VX710 | GOODYEAR | GA-W56 | 4.00 | $9.56 | BELT |
| BELT-BAND-BLWR-001 | 5 Matched Belts - Band - Makes One (1) Set, Scotts | R5VX1000-BAND | INDU SUPPLY | MS-R7-S3 | 2.00 | $195.05 | BELT |
| BELT-BLWR-001 | Belt Blowers at Scotts & GR/P Fox Hollies/SEE SPEC | 5VX1000 | | GA-W89 | 25.00 | $33.66 | BELT |
| BELT-BLWR-002 | G/R, War.Blwr, Truss.#2, Scotts Br.See Spec's | 3VX560 | | GA-W86 | 12.00 | $7.63 | BELT |
| BELT-BLWR-003 | Belt For Blower at Warrior | 3 V X 450 | | GA | 0.00 | $0.00 | BELT |
| BELT-BLWR-004 | Belt | AP31 | INDU SUPPLY | GA-W7 | 2.00 | $3.15 | BELT |
| BELT-BLWR-005 | Belt For Blower at Newfound | 3L430 | DAYCO | GA-W60 | 7.00 | $3.80 | BELT |
| BELT-CLAR-001 | Belt For Scott's Clarifier | B 60 | | GA | | | BELT |
| BELT-EDGER-001 | Belt For the Edger | 84300 | | GA | | | BELT |
| BELT-LNMR-001 | Belt For the Gravley Lawnmower, 44" Deck | A115 | | GA-W51-52 | 6.00 | $0.00 | BELT |
| BELT-LNMR-002 | Belt For the Flail Mower | B58 | | GA-W20 | 5.00 | $0.00 | BELT |
| BELT-LNMR-003 | Belt For Kubota Mower Small PTO | 6931 | GATES | GA-W68 | 6.00 | $14.01 | BELT |
| BELT-LNMR-004 | Belt For Kubota Mower Large PTO | 6934 | GATES | GA | 0.00 | $0.00 | BELT |
| BELT-LNMR-005 | Belt For Kubota Mower Large 54" | 76529-34710 | | GA | 1.00 | $0.00 | BELT |
| BELT-LNMR-006 | Belt For Gravley Mower Large 54" | A128 | | GA-W53 | 10.00 | $0.00 | BELT |
| BELT-LNMR-007 | Belt For Kubota Mower Small 44' ( Scotts RAS Pump) | B94 | GATES | GA-W49 | 1.00 | $0.00 | BELT |
| BELT-LNMR-008 | Belt For PTO on Kubota 1800, *See Specs. | L534 | DAYCO | GA-W70 | 0.00 | $21.30 | BELT |
| BELT-LNMR-009 | Belt For John Deer 345 | M118685 | TRAC & TURF | GA-W76 | 5.00 | $29.25 | BELT |

7/26/2007

# Inventory Standard

## JEFFERSON COUNTY ENVIRONMENTAL SERVICES



| Item No. | Description | Mfg Part No. | Manufacturer | Stock Location | Qty on Hand | Average Unit Cost | Inventory Type |
|---|---|---|---|---|---|---|---|
| BELT-LNMR-010 | Belt For PTO on Kubota 1600 | L531 | DAYCO | GA-W02 | 0.00 | $6.57 | BELT |
| BELT-LNMR-011 | Belt For Lawnmower | L532 | DAYCO | GA-W66 | 10.00 | $6.73 | BELT |
| BELT-LNMR-012 | Belt For Deck on B7300 Kubota | 70000-73997 | KUBOTA | GA-W77 | 4.00 | $34.65 | BELT |
| BELT-LNMR-013 | Belt For PTO 1600 Kubota | 58X310 | CARLISLE | GA-W62 | 10.00 | $4.75 | BELT |
| BELT-LNMR-014 | Belt For JD #345 NEW DECK 48" | M110313 | LAWN&TRACTO | GA-W63 | 0.00 | $28.75 | BELT |
| BELT-PUMP-001 | Belt For the Pump at Airport& Maysvillage | 3VX630 | | GA-W31 | 20.00 | $0.00 | BELT |
| BELT-PUMP-002 | Belt For Pump at Gdale and Truss 2 | 5VX560 | INDU SUPPLY | GA-W71 | 8.00 | $0.00 | BELT |
| BELT-PUMP-003 | Belt For Pump at McAdory | 3VX600 | | GA-W24 | 10.00 | $0.00 | BELT |
| BELT-PUMP-004 | | | | GA | 0.00 | $0.00 | BELT |
| BELT-ROTOR-001 | Belt For Rotors at Warrior | B70 | | GA-W40-42 | 2.00 | $0.00 | BELT |
| BELT-VLR-001 | Poly Chain Belt For VLR at Scotts Branch | 14MGT-4410-68 | GATES | MS-R6-S3 | 2.00 | $620.32 | BELT |
| BLADE-LAWNM-001 | Lawn Mower Blade For Promaster60 Gravely | 25124 | RIVER-LAWN | GA-LN-C | 12.00 | $7.95 | BLADE |
| BLADE-LAWNM-002 | Lawn Mower Blade For 50" Deck Gravely | 11234 | RIVER-LAWN | GA-LN-C | 6.00 | $6.95 | BLADE |
| BLADE-LAWNM-003 | Lawn Mower Blade For John Deere 345 | M115496 | TRAC & TURF | GA-LN-C | 11.00 | $9.50 | BLADE |
| BLADE-LAWNM-004 | Lawn Mower Blade For 1600 Kubota-Replaces Blade #7 | 70000-00604 | CAHABA TRAC | GA-LN-C | 21.00 | $6.33 | BLADE |
| BLADE-LAWNM-005 | Lawn Mower Blade For Kubota 7300 & 1800 | 76529-34330 | CAHABA TRAC | GA-LN-C | 9.00 | $12.94 | BLADE |
| BLWR-EXPANCHAM-001 | Expansion Chamber #AST 60195, Scotts Blower | | | - | | | GRSL |
| BLWR-FANW-001 | Fan Wheel For Allegro Blower Model 9505 | 9509-09 | | - | | | BLOWER |
| BLWR-OILER-001 | Constant Level Oiler #AST 60196, Scotts Blower | | | - | 1.00 | $165.00 | GRSL |
| BLWR-ROOTS-001 | Roots Blower 33-U-RAI | 33-U-RAI | ROOTS | MS-R1B-S3 | -1.00 | $1,115.00 | BLOWER |
| BLWR-SCRN-001 | Socket Set Screen For Portable Allegro Blower | 9500-01 | | - | | | BLOWER |
| BLWR-SEALMAG-001 | Magnetic Seal, ISOMAG, For Scotts Blower | 2625 MS3500 | SEAL/RES. | GA-C3 | 0.00 | $315.00 | SEAL |
| BLWR-SHAFK-001 | Shaft Key For Allegro Blower Model 9505 | 9505-09A | | - | | | |
| BLWR-SHIM-001 | Shim Set, Large Shaft, PN 8500257, Scotts Blower | 8500257 | GAR/DEN | GA-C14 | 12.00 | $13.05 | SHIMS |
| BLWR-SHIM-002 | Shim Set, Small Shaft, PN 8500253, Scotts Blower | 8500253 | GAR/DEN | GA-C14 | 6.00 | $12.96 | SHIMS |
| BLWR-SP-001 | 3/4" Sight Plug For Blower | IU916 | GRAINGER | GA-C25 | 10.00 | $8.20 | PLUGS |
| BLWR-SP-002 | 1/2" Sight Plug For Blower | IU917 | EBARA | GA-C25 | 10.00 | $7.84 | PLUGS |
| BRNG-001 | Bearing For Ashville Road | 7305 | BL | MS-R4A-S2 | 4.00 | $39.28 | BRNG |
| BRNG-002 | Spare Bearing - No Name | 35950 | | MS-R4A-S2 | 0.00 | $14.55 | BRNG |
| BRNG-003 | Bearing For Clarifier at Scotts | B 2816 | TIMKEN | MS-R3A-S1 | 0.00 | $7.26 | BRNG |
| BRNG-004 | Bearing For Clarifier at Scotts | SJ 8406 | RBC | MS-R4A-S1 | 1.00 | $26.43 | BRNG |
| BRNG-005 | Bearing For Parkwood Carbon Tower | 6308 2Z | SKF | MS-R4A-S2 | 1.00 | $35.08 | BRNG |
| BRNG-006 | Bearing For Parkwood Carbon Tower | 308 WG | TIMKEN | MS-R3A-S2 | 3.00 | $27.00 | BRNG |
| BRNG-007 | Bearing For Graysville Pump Station | 6308 ZZ | KBC | MS-R4A-S2 | 1.00 | $16.48 | BRNG |
| BRNG-BLWN-004 | Bearing For Blower at Warrior | MR 1304 | | MS-R3A-S1 | 0.00 | $0.00 | BRNG |
| BRNG-BLWR-001 | Bearing For Blower at Warrior | 6206-2ZTN | BEARINGS | MS-R4A-S3 | 0.00 | $3.03 | BRNG |
| BRNG-BLWR-CON001 | Bearing For Scotts Blower ( Non Drive End) | NJ315E | CONSOL | MS-R3A-S1 | 0.00 | $0.00 | BRNG |
| BRNG-BLWR-FAG-001 | Bearing For Blower (Non. Dr) | NJ315E | SNR | MS-R1-S8 | 2.00 | $1.00 | BRNG |
| BRNG-BLWR-FAG001 | Bearing For Blower at Scotts ( Non Drive End) | NJ315E | FAG | MS-R3A-S1 | -1.00 | $0.00 | BRNG |
| BRNG-BLWR-FAG002 | Bearing For Blower at Scotts Branch | NJ312E.M1A.P53 | FAG | MS-R3A-S2 | 1.00 | $142.07 | BRNG |
| BRNG-BLWR-FF001 | Bearing For Blower at Warrior | 304K | FAFNIR | MS-R3A-S1 | 11.00 | $9.66 | BRNG |
| BRNG-BLWR-FF002 | Bearing For Blower at Warrior | 304KDD | FAFNIR | MS-R3A-S1 | 1.00 | $42.00 | BRNG |
| BRNG-BLWR-KO-001 | Bearing For Blower at Scott's Branch | 7415 BGC3 | KOYO | MS-R4A-S1 | 1.00 | $380.00 | BRNG |
| BRNG-BLWR-MRC001 | Bearing For Blower at Scotts Branch | 7415PJDU | MRC | MS-R4A-S1 | | $370.60 | BRNG |
| BRNG-BLWR-NS001 | Bearing For 5 HP Blower at Warrior | 6205ZZ | NSK | MS-R4A-S3 | | $1.00 | BRNG |
| BRNG-BLWR-NS002 | Bearing For 5 HP Blower at Warrior | 6206ZZ | NSK | MS-R4A-S3 | -1.00 | $1.00 | BRNG |
| BRNG-BLWR-NTN-001 | Bearing For Scotts blower ( Non Drive End) | NJ315EC3 | NTN | MS-R3A-S1 | 0.00 | $0.00 | BRNG |
| BRNG-BLWR-NTN-002 | Bearing For Scotts blower ( Non Drive End) | NU312 | NTN | MS-R3A-S2 | 1.00 | $0.00 | BRNG |
| BRNG-BLWR-NTN003 | Bearing For Blower at Warrior | NR 304 | NTN | MS-R3A-S2 | 5.00 | $34.60 | BRNG |
| BRNG-BLWR-NTN004 | Bearing For Scotts Blower | 7312 BL1G | NTN | MS-R4A-S2 | 0.00 | $72.20 | BRNG |
| BRNG-BLWR-NTN005 | Bearing For Blower at Scotts | 312 EV2 | NTN | MS-R3A-S2 | 2.00 | $127.69 | BRNG |
| BRNG-BLWR-NTN006 | Bearing For Blower at Scotts | 7415 BMG | NTN | MS-R4A-S1 | 0.00 | $344.28 | BRNG |
| BRNG-BLWR-SK001 | Bearing For Blower at Scotts Branch (Dr. End) | 7312 BECBM | SKF | MS-R4A-S2 | 0.00 | $164.73 | BRNG |
| BRNG-BLWR-SK002 | Bearing For Blower at Scotts Branch | 7415 BCBM | SKF | MS-R4A-S1 | 3.00 | $541.17 | BRNG |
| BRNG-BLWR-SK003 | Bearing For Blower at Scotts Branch | NJ312ECM | SKF | MS-R3A-S2 | 0.00 | $183.05 | BRNG |
| BRNG-BLWR-SK004 | Bearing For Warrior Blower | NJ304ECP | SKF | MS-R3A-S2 | 1.00 | $33.32 | BRNG |
| BRNG-BLWR-SK005 | Bearing For Blower at Warrior | 6304-2Z-JEMUE01 | SKF | MS-R4A-S3 | 1.00 | $13.15 | BRNG |
| BRNG-BLWR-SK006 | Bearing For Blower at Warrior | 6304-2Z/C3HT | SKF | MS-R4A-S2 | 0.00 | $33.32 | BRNG |
| BRNG-BLWR-SK007 | Bearing For Blower At Scotts | 7312BMG | SKF | MS-R4A-S2 | 1.00 | $114.29 | BRNG |

Blade-Lawn Kubota Zero Turn #103212 K5576-34340

# Inventory Standard

## JEFFERSON COUNTY ENVIRONMENTAL SERVICES



| Item No. | Description | Mfg Part No. | Manufacturer | Stock Location | Qty on Hand | Average Unit Cost | Inventory Type |
|---|---|---|---|---|---|---|---|
| BRNG-BLWR-SK008 | Bearing-Blower at Scotts (Non Dr. End) *See Specs. | NJ315ECM | SKF | MS-R3A-S1 | 0.00 | $292.62 | BRNG |
| BRNG-BLWR-SK009 | Bearing Pump Woods T. Scotts Blower Motor | 6315-2ZJEM | SKF | MS-R4A-S2 | 1.00 | $179.50 | BRNG |
| BRNG-BLWR-SNR001 | Bearing For Scotts blower ( non drive end) | NJ315E | SNR | MS-R3A-S1 | | $0.00 | BRNG |
| BRNG-BLWR-SNR002 | Bearing For Blower at Amerex | NJ 306.E.615 | SNR | MS-R3A-S2 | 2.00 | $0.00 | BRNG |
| BRNG-BLWR-SNR003 | Bearing For Blower (Non. Dr) | NU312E | SNR | MS-R3A-S2 | 3.00 | $0.00 | BRNG |
| BRNG-BLWR-URB001 | Bearing For Scotts Blower (Non Drive End) | NJ 315 EMAC3 | URB | MS-R3A-S1 | 1.00 | $104.03 | BRNG |
| BRNG-BLWR-URB002 | Bearing For Blower at Scotts | NJ 312 EMC3 | URB | MS-R3A-S2 | 0.00 | $127.69 | BRNG |
| BRNG-CARRIER-001 | Bearing Carrier Inlet Housing at Scotts/Blower | 8502791 | G DENVER | SHOP | 1.00 | $3,500.38 | BRNG |
| BRNG-COMM-001 | Bearing For Comminuter at Amerex | 6309 | | MS-R4A-S3 | 0.00 | $30.16 | BRNG |
| BRNG-COMM-FF001 | Bearing For Chicago Comminuter at Collegeville | 215WDD | FAFNIR | MS-R3A-S2 | 4.00 | $71.42 | BRNG |
| BRNG-COMM-FF002 | Bearing For Chicago Comminuter at Collegeville | 5212W | FAFNIR | MS-R3A-S1 | 1.00 | $69.32 | BRNG |
| BRNG-COMM-FF003 | Bearing For Comminuter at I-59 | W307PP | FAFNIR | MS-R3A-S2 | | $1.00 | BRNG |
| BRNG-COMM-FF004 | Bearing For Chicago Comminuter at Pinewood | 211KDD | FAFNIR | MS-R3A-S3 | 1.00 | $37.55 | BRNG |
| BRNG-COMM-FF005 | Bearing For Comminutor at Pinewood | 309KG | FAFNIR | MS-R3A-S2 | 2.00 | $34.58 | BRNG |
| BRNG-COMM-FM001 | Bearing For Chicago Comminuter at Pinewood | 211CC | FEDMOGAL | MS-R3A-S3 | 2.00 | $49.85 | BRNG |
| BRNG-COMM-MR002 | Bearing For Chicago Comminuter at Pinewood | 309ZZC | MRC | MS-R3A-S2 | 0.00 | $0.00 | BRNG |
| BRNG-COMM-MRC001 | Bearing For Chicago Comminuter at Pinewood | 211KDD | MRC | MS-R3A-S3 | 1.00 | $37.55 | BRNG |
| BRNG-COMM-NS001 | Bearing For Chicago Comminuter at Pinewood | 63309DDU | NSK | MS-R4A-S2 | 2.00 | $0.00 | BRNG |
| BRNG-COMM-SNR001 | Bearing For Chicago Comminuter at Pinewood | 3609NR | SNR | MS-R3A-S1 | 0.00 | $0.00 | BRNG |
| BRNG-CON001 | Bearing Motor | 5404 | CONSOL | MS-R4A-S3 | 4.00 | $75.56 | BRNG |
| BRNG-FA001 | Myer Pump at Oak Grove | 6305-2RSRC3 | FAG | MS-R4A-S2 | 0.00 | $1.00 | BRNG |
| BRNG-FF001 | Fafnir Bearing For Blue Ridge P.S. | 316 WDDN | FAFNIR | MS-R3A-S1 | 2.00 | $207.20 | BRNG |
| BRNG-FF002 | Bearing For Warrior Rotors | 5306WG | FAFNIR | MS-R3A-S1 | 2.00 | $0.00 | BRNG |
| BRNG-FF003 | Unknown | 314K | FAFNIR | MS-R3A-S1 | 1.00 | $0.00 | BRNG |
| BRNG-FF004 | Bearing For Prudes #1 - #1 Pump | 308W | FAFNIR | MS-R3A-S2 | 0.00 | $32.00 | BRNG |
| BRNG-FF005 | Bearing For Clarifier at Scotts | 317 K | FAFNIR | MS-R3A-S1 | 1.00 | $194.85 | BRNG |
| BRNG-FF006 | Bearing For Pump at Lewisburge #1 | 5310K | FAFNIR | MS-R4A-S3 | 4.00 | $74.66 | BRNG |
| BRNG-FLAIL-001 | Bearing For Flail Mower | 204 KRR | FAFNIR | MS-R3A-S3 | 4.00 | $17.33 | BRNG |
| BRNG-GU001 | UNKNOWN | 6212 | GULF | MS-R4A-S3 | 1.00 | $0.00 | BRNG |
| BRNG-GU002 | Riverchase Chicago Pumps | 6215zz | GULF | MS-R4A-S3 | 2.00 | $0.00 | BRNG |
| BRNG-LNMR-FF001 | Bearing For Flail Mower Can Use 207 KLL | 207 KRR | MRC | MS-R3A-S3 | 1.00 | $29.96 | BRNG |
| BRNG-LNMR-MRC001 | Bearing For Gravely 16G | 5307C | MRC | MS-R3A-S1 | 1.00 | $35.31 | BRNG |
| BRNG-LNMR-MRC002 | Bearing For Flail Mower ( can use 207 KRR ) | 207 KLL | MRC | MS-R3A-S3 | 2.00 | $24.96 | BRNG |
| BRNG-LNMR-SK001 | Bearing For Deck on Kubota Mower | 6205ZZ | SKF | MS-R4A-S3 | -2.00 | $0.00 | BRNG |
| BRNG-LNMR-TI001 | Bearing For Deck On The Gravely Mower | L44643 | TIMKEN | MS-R4A-S2 | 1.00 | $5.20 | BRNG |
| BRNG-LNMR-TI002 | Bearing For Jack Shaft On Gravely Mower | L44610 | TIMKEN | MS-R4A-S2 | 5.00 | $2.19 | BRNG |
| BRNG-LNMR-TI003 | For Gravely Mower - 16G Use With LM11949 | LM11910 | TIMKEN | MS-R4A-S2 | 7.00 | $2.58 | BRNG |
| BRNG-LNMR-TI004 | For Gravely Mower - 16G Use With LM11910 | LM11949 | TIMKEN | MS-R4A-S2 | 7.00 | $4.84 | BRNG |
| BRNG-MCSL-001 | Bearing With Seal Assembly For Channel Monster at | A34320 | JWC-ENV | MS-R4A-S2 | 0.00 | $543.18 | BRNG |
| BRNG-MCSL-002 | For Muffin Monster Model 3005-18 at Visionland | A35320 | JWC-ENV | MS-R1B-S3 | 0.00 | $559.48 | BRNG |
| BRNG-MM-001 | Bearing/Bushing, Outer For M/Monster, Mod#CMO 1800 | 068027 | NAT. HYD. | MS-R1B-S3 | 0.00 | $10.80 | BRNG |
| BRNG-MM-002 | Bearing Thrust For M/Monster, Mod#CMO 1800 | 069017 | NAT. HYD. | MS-R1B-S3 | 0.00 | $11.70 | BRNG |
| BRNG-MM-003 | Bearing/Bushing, Inner For M/Monster, Mod#CMO 1800 | 071019 | NAT. HYD. | MS-R1B-S3 | 0.00 | $15.30 | BRNG |
| BRNG-MM-004 | Bearing Thrust For M/Monster, Mod#CMO 1800 | 68024 | NAT. HYD. | MS-R1B-S3 | 0.00 | $4.37 | BRNG |
| BRNG-MM-005 | Bearing Muffin Monster at Birmingham Zoo | 30047-003 | NACHI | MS-R4A-S2 | 4.00 | $24.70 | BRNG |
| BRNG-MOTOR-001 | Motor Bearing at Jackson Heights, Kubota | 205SFF | MRC | MS-R3A-S3 | 2.00 | $8.15 | BRNG |
| BRNG-MOTOR-002 | Bearing For Motor at Wenonah | 6212ZZ | CHINA | - | 2.00 | $14.51 | BRNG |
| BRNG-MOTOR-BL001 | Motor Bearing For Harriman | 6206 2RS | | MS-R4A-S3 | 5.00 | $8.93 | BRNG |
| BRNG-MOTOR-FAG001 | Bearing For Motor On S&L Pump at Rice Creek | 6207-ZZ/C3 | FAG | MS-R4A-S3 | 0.00 | $7.75 | BRNG |
| BRNG-MOTOR-FF001 | Bearing For Motor on S&L Pump at Morgan, Greenwood | 207W | FAFNIR | MS-R3A-S3 | 3.00 | $21.87 | BRNG |
| BRNG-MOTOR-FF002 | Bearing For Motor on S&L Pump at Morgan, Greenwood | 5212CZZ | FAFNIR | MS-R3A-S1 | -1.00 | $57.19 | BRNG |
| BRNG-MOTOR-FF003 | Bearing For Motor on S&L Pump at Rice & Tin Mill | 207KDD | FAFNIR | MS-R3A-S3 | 0.00 | $13.12 | BRNG |
| BRNG-MOTOR-FF004 | Bearing For Motor on S&L Pump at Roberts | 310KDD | FAFNIR | MS-R3A-S2 | 0.00 | $39.05 | BRNG |
| BRNG-MOTOR-FF005 | Bearing For Motor on S&L Pump at Roberts,Tin Mill | 209KDD | FAFNIR | MS-R3A-S3 | 3.00 | $27.61 | BRNG |
| BRNG-MOTOR-FF006 | Motor Bearing at Sandusky | 310KDDW | FAFNIR | MS-R3A-S2 | 3.00 | $39.05 | BRNG |
| BRNG-MOTOR-FF007 | Bearing For Motor on Fairbanks Pump at Second Cree | 314K FAFNIR | FAFNIR | MS-R3A-S1 | 0.00 | $0.00 | BRNG |
| BRNG-MOTOR-FF008 | Bearing For Motor on S&L Pump at Tin Mill Road | 207KDD | FAFNIR | MS-R3A-S3 | 2.00 | $13.12 | BRNG |
| BRNG-MOTOR-FF009 | Bearing For #2 Pump Motor at Wenonah | 212KDD | FAFNIR | MS-R3A-S3 | 0.00 | $39.04 | BRNG |
| BRNG-MOTOR-FF010 | Bearing For Motor on S&L Pump at Tin Mill Road | 310KDDW | FAFNIR | MS-R3A-S2 | -1.00 | $0.00 | BRNG |

# Inventory Standard

## JEFFERSON COUNTY ENVIRONMENTAL SERVICES



| Item No. | Description | Mfg Part No. | Manufacturer | Stock Location | Qty on Hand | Average Unit Cost | Inventory Type |
|---|---|---|---|---|---|---|---|
| BRNG-MOTOR-FF011 | Bear./Motor Jack/Heights Harriman, Wen. SEE SPECS | 206KDD | FAFNIR | MS-R3A-S3 | 1.00 | $8.50 | BRNG |
| BRNG-MOTOR-FF012 | Motor Bearing at Second Creek | 214KDD | FAFNIR | MS-R3A-S2 | 1.00 | $0.00 | BRNG |
| BRNG-MOTOR-FF013 | Motor Bearing For Jackson Heights | 205KDD | FAFNIR | MS-R3A-S3 | 1.00 | $8.00 | BRNG |
| BRNG-MOTOR-FF014 | Motor Bearing at Sandusky | 310W | FAFNIR | MS-R3A-S2 | 4.00 | $39.12 | BRNG |
| BRNG-MOTOR-FF015 | Motor Bearing (Top) at Vail, *See Specs. | 210KDD | FAFNIR | MS-R3A-S3 | 4.00 | $27.67 | BRNG |
| BRNG-MOTOR-FF016 | Bottom Motor Bearing For Bessemer Hospital | 7310WN | FAFNIR | MS-R4A-S2 | 3.00 | $64.18 | BRNG |
| BRNG-MOTOR-KBC001 | Laura Motor/ Hillshire Motor *See Specs. | 6207ZZ | KBC | MS-R4A-S3 | 1.00 | $10.06 | BRNG |
| BRNG-MOTOR-KO-001 | Bearing For Motor at Rice C. & Hillshire | 6207 ZZC3 | KOYO | MS-R4B-S3 | 1.00 | $10.08 | BRNG |
| BRNG-MOTOR-MRC001 | Bearing For Motor On S&L Pump at Rice Creek, Harri | 5211CFF | MRC | MS-R3A-S1 | -1.00 | $64.98 | BRNG |
| BRNG-MOTOR-MRC002 | Motor Bearing at Sandusky | 207SFF | MRC | MS-R3A-S3 | 0.00 | $13.12 | BRNG |
| BRNG-MOTOR-MRC003 | Bearing For Motor on Fairbanks Pump at Second Cree | MRC 207M | MRC | MS-R3A-S3 | 1.00 | $0.00 | BRNG |
| BRNG-MOTOR-MRC004 | Bearing For Motor on Roberts & Tin Mill Motor | 209SFF | MRC | MS-R3A-S3 | 3.00 | $27.61 | BRNG |
| BRNG-MOTOR-MRC005 | Motor Bearing For S&L Morgan/Greenwood | 5212CZZ | MRC | MS-R3A-S1 | 4.00 | $0.00 | BRNG |
| BRNG-MOTOR-MRC006 | Motor Bearing For S&L Morgan/Greenwood | 5212MFF | MRC | MS-R3A-S1 | 1.00 | $0.00 | BRNG |
| BRNG-MOTOR-MRC007 | Motor Bearing at Sandusky | 207KDD | MRC | MS-R3A-S3 | 4.00 | $13.84 | BRNG |
| BRNG-MOTOR-MRC008 | Bearing For Motor (Top) at Vail Avenue | 210KDD | MRC | MS-R3A-S3 | 1.00 | $30.50 | BRNG |
| BRNG-MOTOR-MRC009 | Bearing For Motor Southpark Pump #3 | 314KDD | MRC | MS-R3A-S1 | 4.00 | $2,385.00 | BRNG |
| BRNG-MOTOR-MRC010 | Bearing For Jackson H. & Harriman | 206-SFF | MRC | MS-R3A-S3 | 1.00 | $8.92 | BRNG |
| BRNG-MOTOR-MRC011 | Bearing For Motor For Rotors at Warrior Plant | 207-SFF | MRC | MS-R3A-S3 | 0.00 | $11.67 | BRNG |
| BRNG-MOTOR-NTN001 | | 207 | NTN | MS-R3A-S3 | 1.00 | $13.12 | BRNG |
| BRNG-MOTOR-SK001 | Motor Bearing (Top) at Vail, *See Specs.& Tin Mill | 6210 2Z JEM | SKF | MS-R4A-S3 | 2.00 | $27.67 | BRNG |
| BRNG-MOTOR-SK002 | Motor Bearing (Bottom) For Cunningham II | 5217A | SKF | MS-R3A-S1 | 2.00 | $127.37 | BRNG |
| BRNG-MOTOR-SK003 | Bearing For Tin Mill | 6310-2RSNRJEM | SKF | MS-R4A-S2 | 1.00 | $32.24 | BRNG |
| BRNG-MOTOR-SK004 | Motor Bearing For Harriman | 6206 2ZJEM | SKF | MS-R4A-S3 | 1.00 | $9.87 | BRNG |
| BRNG-MOTOR-SK005 | Motor Bearing - Harriman | 5211-A-2Z/C3 | SKF | MS-R3A-S1 | 3.00 | $82.63 | BRNG |
| BRNG-MOTOR-SNR001 | Top Motor Bearing For Vail Avenue | 6210-ZZ J30D43A50 | SNR | MS-R4A-S3 | 0.00 | $1.00 | BRNG |
| BRNG-MRC001 | Prudes Creek # 1 For # 1 Pump | 308W | MRC | MS-R3A-S2 | 0.00 | $0.00 | BRNG |
| BRNG-MRC002 | Bearing | 5306 | MRC | MS-R3A-S1 | 5.00 | $0.00 | BRNG |
| BRNG-MRC003 | Unknown | 5310C | MRC | MS-R4A-S3 | 2.00 | $71.22 | BRNG |
| BRNG-MRC004 | Unknown | 5313CZZ | MRC | MS-R4A-S3 | 0.00 | $197.38 | BRNG |
| BRNG-NT001 | Spare Pump Bearing ( Ebara ) | 6305 | NTN | MS-R4A-S3 | 0.00 | $0.00 | BRNG |
| BRNG-NTN001 | UNKNOWN | NJ305 | NTN | MS-R3A-S2 | 0.00 | $0.00 | BRNG |
| BRNG-NTN002 | UNKNOWN | NJ305 | NTN | MS-R3A-S2 | 0.00 | $0.00 | BRNG |
| BRNG-NTN003 | Bearing For Vacuum Truck Blower | 6415 | NTN | MS-R4A-S2 | 0.00 | $252.17 | BRNG |
| BRNG-PB001 | Pillow Block Bearing For Scotts Rotor (Floating ) | ERPB 307-C2 | SEALMASTER | MS-R1B-S1 | 2.00 | $968.70 | BRNG |
| BRNG-PB002 | Pillow Block Bearing For Scotts Rotor (Fixed) | RPB 307-C2 | SEALMASTER | MS-R1B-S1 | 2.00 | $807.13 | BRNG |
| BRNG-PB003 | Pillow Block Bearing For Parkwood Carbon Tower | P2-U335 | LINKBELT | MS-R4-S1 | 2.00 | $263.34 | BRNG |
| BRNG-PB004 | P/Block Bearing (Fixed) Scotts Rotor 4 7/16" Bore | RPB 407-C2 | SEALMASTER | MS-R1B-S1 | 0.00 | $1,957.46 | BRNG |
| BRNG-PBLOCK-001 | Pillow B. Bearing Drives. S/P and C/ville | RAS 1 3/16 | FAFNIR | MS-R1-S1 | 8.00 | $107.32 | BRNG |
| BRNG-PBLOCK-003 | Pillow Block Bearing - Drive Shaft at S/P, C/Ville | RAS 1 3/16 | TIMKEN | MS-R1B-S1 | 0.00 | $127.44 | BRNG |
| BRNG-PBLOCK-FF001 | Pillow Block Bearing, PN YAS1-3/16 | YAS1-3/16 | FAFNIR | MS-R1B-S1 | 6.00 | $33.91 | BRNG |
| BRNG-PBLOCK-SK001 | Pillow Block Bearing For #4 & #5 Carb. Tower at Sc | SAF 509 | SKF | MS-R4A-S2 | 2.00 | $171.71 | BRNG |
| BRNG-PUMP-001 | Bearing For Pump at Amerex Big Station | 5309CF | MRC | MS-R3A-S1 | 1.00 | $0.00 | BRNG |
| BRNG-PUMP-003 | Bearing For Pump at Chapel I & Bham Zoo /Hillshire | 203KDD | FAFNIR | MS-R3A-S3 | 7.00 | $4.09 | BRNG |
| BRNG-PUMP-004 | Bearing For Clow Pump at Hooper,Woodbrook | 5210 | MRC | MS-R3A-S1 | 0.00 | $0.00 | BRNG |
| BRNG-PUMP-005 | Bearing For Clow Pump at Hooper,Lanceway | 6311 | | MS-R4A-S2 | 0.00 | $65.35 | BRNG |
| BRNG-PUMP-006 | Bearing For Hydro Pump at K-Mart | 5216W | | MS-R3A-S2 | 0.00 | $0.00 | BRNG |
| BRNG-PUMP-007 | Bearing For Hydro Pump at K-Mart | 6313/313KDD | | MS-R4A-S2 | 0.00 | $0.00 | BRNG |
| BRNG-PUMP-009 | Bearing For Clow Pump at Lanceway | 6312 | | MS-R4A-S2 | 0.00 | $0.00 | BRNG |
| BRNG-PUMP-010 | Bearing For S&L Pump at Morgan | 321B | | MS-R3A-S1 | | $1.00 | BRNG |
| BRNG-PUMP-012 | Bearing For Pump No 3 at Southpark | 6313 | | GA-R3-S2-3 | 3.00 | $0.00 | BRNG |
| BRNG-PUMP-015 | Bearing For Pump at Adamsville | NU/NJ313 ? | | MS-R3A-S2 | 3.00 | $113.93 | BRNG |
| BRNG-PUMP-016 | Bearing For Pump at Adamsville, Jeff Memo | 7313 WN SU | FAFNIR | MS-R4A-S2 | 0.00 | $114.93 | BRNG |
| BRNG-PUMP-017 | Bearing For Pump at Jefferson Memorial | 6309W | | MS-R4A-S3 | 0.00 | $0.00 | BRNG |
| BRNG-PUMP-019 | Bearing For Pump at Jefferson Mem. & Adamsville | 7313-PJDU/H503 | MRC | MS-R4A-S2 | 0.00 | $127.59 | BRNG |
| BRNG-PUMP-020 | Bearing For Pump at Woods Trace | 6309 | | MS-R4A-S3 | -1.00 | $30.16 | BRNG |
| BRNG-PUMP-021 | Bearing For Pump at Chapel 1 | 6205 | | MS-R4A-S3 | | $1.00 | BRNG |
| BRNG-PUMP-022 | Bearing For Pump at Cades Code | 6309 ZZ | | MS-R4A-S3 | | | BRNG |
| BRNG-PUMP-023 | Bearing For Pump at Adamsville, Jeff Memo. | 7313-AGGA | BEARINGS | MS-R4A-S2 | 0.00 | $80.00 | BRNG |

# Inventory Standard

## JEFFERSON COUNTY ENVIRONMENTAL SERVICES



| Item No. | Description | Mfg Part No. | Manufacturer | Stock Location | Qty on Hand | Average Unit Cost | Inventory Type |
|---|---|---|---|---|---|---|---|
| BRNG-PUMP-024 | Upper Bearing For Hydromatic Pump SPGF 5000 M 3-4 | 650301 | SST | MS-R4A-S2 | 4.00 | $16.64 | BRNG |
| BRNG-PUMP-BL001 | Pump Bearing at Adamsville | 5313A-2RS | BEARINGS | MS-R4A-S3 | 3.00 | $188.71 | BRNG |
| BRNG-PUMP-BL002 | Bearing For Pump at Bessemer Hospital | 5308E-NR1 | BEARINGS | MS-R3A-S1 | 0.00 | $50.00 | BRNG |
| BRNG-PUMP-BW001 | Spare Pump Bearing | MR1305 | BOWER | MS-R3A-S1 | 0.00 | $0.00 | BRNG |
| BRNG-PUMP-CON001 | Pump Bearing Newfound | 7313 BMG | | MS-R4A-S2 | 0.00 | $0.00 | BRNG |
| BRNG-PUMP-CON002 | Pump Bearing Newfound | NU22 15E | CONSOL | MS-R3A-S1 | 0.00 | $0.00 | BRNG |
| BRNG-PUMP-CON003 | Pump Bearing Newfound | NJ 313 EC/3 | CONSOL | MS-R3A-S2 | 2.00 | $131.42 | BRNG |
| BRNG-PUMP-FA001 | Bearing For Pump at Oak Grove PS | 6202 | FAG | MS-R4A-003 | 0.00 | $5.34 | BRNG |
| BRNG-PUMP-FA002 | Second Creek Pump Bearing | 214K | FAG | MS-R3A-S2 | 1.00 | $0.00 | BRNG |
| BRNG-PUMP-FA003 | Jefferson Memorial, | 6309-2ZR C3 | FAG | MS-R4A-S2 | 0.00 | $22.00 | BRNG |
| BRNG-PUMP-FA004 | Pump Bearing | 212K | FAG | MS-R3A-S3 | 2.00 | $1.00 | BRNG |
| BRNG-PUMP-FA005 | Hooper & Lanceway *See Specs. | 311 KDD | FAG | MS-R3A-S2 | 0.00 | $62.42 | BRNG |
| BRNG-PUMP-FA006 | Pump Bearing #3 Pump at Southpark | 314 KDD | FAG | MS-R3A-S1 | -1.00 | $0.00 | BRNG |
| BRNG-PUMP-FA007 | Bearing for Pump at Adamsville, Jeff. Mem. | 7313 B MP UA | FAG | MS-R4A-S2 | 2.00 | $110.68 | BRNG |
| BRNG-PUMP-FE001 | Bearing For Roots Dresser Pump at Warrior | ZF5212 | FEDERAL | MS-R3A-S1 | | | BRNG |
| BRNG-PUMP-FF001 | Bearing For Clow Pump at Amerex | 5209 WD | FAFNIR | MS-R3A-S1 | 6.00 | $37.40 | BRNG |
| BRNG-PUMP-FF002 | Bearing For Clow Pump at Amerex | 5309 WD | FAFNIR | MS-R3A-S1 | 3.00 | $61.45 | BRNG |
| BRNG-PUMP-FF0023 | Unknown | 203K | FAFNIR | MS-R3A-S3 | 0.00 | $0.00 | BRNG |
| BRNG-PUMP-FF003 | Bearing For Chicago Pump at Bess. Hospital | 5308WD | FAFNIR | MS-R3A-S1 | 5.00 | $68.72 | BRNG |
| BRNG-PUMP-FF004 | Bearing For Chicago Pump at Bess. Hospital | G1108KRR+Col | FAFNIR | MS-R3A-S1 | 3.00 | $47.43 | BRNG |
| BRNG-PUMP-FF005 | Bearing For Hydro Pump at Graysville 3rd St. | 5304K | FAFNIR | MS-R3A-S1 | 7.00 | $0.00 | BRNG |
| BRNG-PUMP-FF006 | Bearing For Pump at Fairmont | 310KDDN | FAFNIR | MS-R3A-S2 | 1.00 | $39.05 | BRNG |
| BRNG-PUMP-FF007 | Bearing Used on Chicago Pump at Halls | 217K | FAFNIR | MS-R3A-S2 | 3.00 | $0.00 | BRNG |
| BRNG-PUMP-FF008 | Bearing For Ebara Pump at Valewood | 6308KDDN | FAFNIR | MS-R4A-S3 | 0.00 | $30.19 | BRNG |
| BRNG-PUMP-FF009 | Bearing For Ebara Pump at Valewood | 6308KDDW | FAFNIR | MS-R4A-S3 | | | BRNG |
| BRNG-PUMP-FF010 | Spare Pump Bearing | 309WPP FAFNIR | FAFNIR | MS-R3A-S2 | 3.00 | $75.90 | BRNG |
| BRNG-PUMP-FF011 | Bearing For Pump at Oak Grove | 202KDD | FAFNIR | MS-R3A-S3 | 2.00 | $5.34 | BRNG |
| BRNG-PUMP-FF012 | Bearing For Bessemer Hospital | 5308W | FAFNIR | MS-R3A-S1 | 1.00 | $63.80 | BRNG |
| BRNG-PUMP-FF013 | Bearing For Clow Pump at Lanceway, (Coosa-Motor) | 312NPP | FAFNIR | MS-R3A-S2 | 2.00 | $83.46 | BRNG |
| BRNG-PUMP-FF019 | Bearing For Pump at Woods Trace, Scotts Blow Motor | 315KDD | FAFNIR | MS-R3A-S1 | 0.00 | $153.05 | BRNG |
| BRNG-PUMP-FF020 | Jefferson Memorial | 309KDD | FAFNIR | MS-R3A-S2 | 0.00 | $0.00 | BRNG |
| BRNG-PUMP-FF021 | Double Wide Bearing | W309PP | FAFNIR | MS-R3A-S2 | 3.00 | $75.90 | BRNG |
| BRNG-PUMP-FF022 | Hooper, Lance Way, & Blue Ridge | 311 KDD | FAFNIR | MS-R3A-S2 | -1.00 | $63.05 | BRNG |
| BRNG-PUMP-FF023 | Ball Bearing, Jefferson Memorial | 309K | FAFNIR | MS-R3A-S2 | 1.00 | $20.00 | BRNG |
| BRNG-PUMP-FF024 | Bearing For Ebara Pump at Valewood | 308KDD | FAFNIR | MS-R3A-S2 | 0.00 | $30.19 | BRNG |
| BRNG-PUMP-FF025 | Hooper & Lanceway | 311NPP | FAFNIR | MS-R3A-S2 | 0.00 | $1.00 | BRNG |
| BRNG-PUMP-FF026 | Pump Bearing at Second Creek | 214K | FAFNIR | MS-R3A-S2 | 1.00 | $1.00 | BRNG |
| BRNG-PUMP-FF027 | Pump Bearing For 7 HP Hydromatic Pumps | 5305K | FAFNIR | MS-R3A-S1 | 2.00 | $1.00 | BRNG |
| BRNG-PUMP-FF028 | Bearing For Pump at Airport | SM-1108-KT | FAFNIR | MS-R3A-S1 | 1.00 | $58.53 | BRNG |
| BRNG-PUMP-FF029 | Pump Bearing For Lance Way, *See Specs. | 312PP | FAFNIR | MS-R3A-S2 | 0.00 | $86.24 | BRNG |
| BRNG-PUMP-FF030 | Pump Bearing For Lance Way, *See Specs. | 312K | FAFNIR | MS-R3A-S2 | -2.00 | $69.51 | BRNG |
| BRNG-PUMP-FF031 | Pump Bearing at Fairmont, K-Mart 'See Specs. | 313KDD | FAFNIR | MS-R3A-S2 | 1.00 | $62.42 | BRNG |
| BRNG-PUMP-FF032 | Pump Bearing For Chapel II | 306KDD | FAFNIR | MS-R3A-S2 | 4.00 | $18.61 | BRNG |
| BRNG-PUMP-FF033 | Bearing For Pump at Airport/Southpark #3 motor | 310KDDN | FAFNIR | MS-R3A-S2 | 3.00 | $43.47 | BRNG |
| BRNG-PUMP-FF034 | Bearing For Lance Way | 6311-2ZJEM | SKF | MS-R4A-S2 | 4.00 | $63.19 | BRNG |
| BRNG-PUMP-FF035 | Bearing For Newfound | NJ313 ECP/C3 | FAFNIR | MS-R3A-S2 | 4.00 | $229.60 | BRNG |
| BRNG-PUMP-FM001 | Double Wide Bearing | W309CC | FEDMOGAL | MS-R3A-S2 | 4.00 | $78.64 | BRNG |
| BRNG-PUMP-JE001 | Bearing For Pump at Larkway | 6310ZZWRJEM | JEM | MS-R4A-S2 | 3.00 | $0.00 | BRNG |
| BRNG-PUMP-JE002 | Bearing For Chicago Pump at Pinewood | 6213 | JEM | MS-R4A-S3 | 0.00 | $44.64 | BRNG |
| BRNG-PUMP-JE003 | Pump Bearing For Larkway | 6231 | JEM | MS-R4A-S3 | 0.00 | $0.00 | BRNG |
| BRNG-PUMP-K0-001 | Bearing For Pump at Larkway & Airport | 6310 ZZC3 | KOYO | MS-R4A-S2 | 1.00 | $29.96 | BRNG |
| BRNG-PUMP-KBC002 | Pump Bearing For Lewisbruge, *See Specs. | 6311ZZ | KBC | MS-R4A-S2 | -1.00 | $48.16 | BRNG |
| BRNG-PUMP-KBC003 | (Pump B) For Mixer P.C. & Jeff. M., *See Specs. | 6309ZZ | KBC | MS-R4A-S2 | -1.00 | $25.22 | BRNG |
| BRNG-PUMP-KBC004 | Pump Bearing For Lewisburge, *See Specs. | 6311DD | KBC | MS-R4A-S2 | 1.00 | $48.16 | BRNG |
| BRNG-PUMP-KO-001 | Bearing For Pump at Larkway & Airport | 6310 ZZC3 | KOYO | MS-R4A-S2 | 4.00 | $29.96 | BRNG |
| BRNG-PUMP-KO-002 | Bearing P. at Woods Trace - Scott's Blower Motor | 6315 ZZC3 | KOYO | MS-R4A-S2 | 2.00 | $84.62 | BRNG |
| BRNG-PUMP-KO-003 | Bearing For Pump at Chapel I & B'ham Zoo/Hillshire | 6203 ZZC3 | KOYO | MS-R4A-S3 | 4.00 | $3.35 | BRNG |
| BRNG-PUMP-MAX001 | Bearing For Clow Pump at Brighton | 6313 | MAX | MS-R4A-S2 | 0.00 | $0.00 | BRNG |
| BRNG-PUMP-MRC001 | Bearing For Clow Pump at Brighton | 5312 | MRC | MS-R4A-S3 | -1.00 | $75.00 | BRNG |

# Inventory Standard

## JEFFERSON COUNTY ENVIRONMENTAL SERVICES



| Item No. | Description | Mfg Part No. | Manufacturer | Stock Location | Qty on Hand | Average Unit Cost | Inventory Type |
|---|---|---|---|---|---|---|---|
| BRNG-PUMP-MRC002 | Bearing For Pump at Fairmont | 313SFF | MRC | MS-R3A-S1 | 2.00 | $109.03 | BRNG |
| BRNG-PUMP-MRC003 | Bearing Used on Chicago Pump at Halls | 217S | MRC | MS-R3A-S2 | 2.00 | $0.00 | BRNG |
| BRNG-PUMP-MRC004 | Bearing For Chicago Pump 2,3 at Riverchase | 5212 | MRC | MS-R3A-S1 | 4.00 | $0.00 | BRNG |
| BRNG-PUMP-MRC005 | Hooper and Lanceway Heather Tatum | 311SFF | MRC | MS-R3A-S2 | 1.00 | $0.00 | BRNG |
| BRNG-PUMP-MRC006 | Unknown | 203K | MRC | MS-R3A-S3 | 1.00 | $0.00 | BRNG |
| BRNG-PUMP-MRC007 | Bearing For #1 Amerex Station OSS | 5209W | MRC | MS-R3A-S1 | 1.00 | $0.00 | BRNG |
| BRNG-PUMP-MRC008 | K-mart Pump Bearing | 5216M | MRC | MS-R3A-S1 | 0.00 | $0.00 | BRNG |
| BRNG-PUMP-MRC009 | Bearing For Myers Pump Leeds City Hall | 5303SBKFF | MRC | MS-R3A-S1 | 2.00 | $0.00 | BRNG |
| BRNG-PUMP-MRC010 | Pump at Jeff Memo, Adamsville | 7313 PJDU | MRC | MS-R4A-S2 | 1.00 | $100.15 | BRNG |
| BRNG-PUMP-MRC011 | Bearing For Pump Halls | 414S | MRC | MS-R3A-S1 | 3.00 | $0.00 | BRNG |
| BRNG-PUMP-MRC012 | Bearing For Pump at Larkway | 310 KDD | MRC | MS-R3A-S2 | 0.00 | $37.40 | BRNG |
| BRNG-PUMP-MRC013 | Bearing For Chicago Pump, Riverchase, Pinewood | 409K | MRC | MS-R3B-S1 | 2.00 | $56.00 | BRNG |
| BRNG-PUMP-MRC014 | Pump Bearing - Also See 203K | 203S | MRC | MS-R3A-S3 | -1.00 | $1.00 | BRNG |
| BRNG-PUMP-MRC015 | Pump Bearing For 7 Hp Hydromatic Pumps Heather T. | 5305CFF | MRC | MS-R3A-S1 | 2.00 | $42.49 | BRNG |
| BRNG-PUMP-MRC016 | Bearing For Pump at Chapel #2 P.S. | 306KDD | MRC | MS-R3A-S2 | 2.00 | $18.58 | BRNG |
| BRNG-PUMP-MRC017 | Pump Bearing at Walker P.S. | 305SFF | MRC | MS-R3A-S2 | 3.00 | $11.40 | BRNG |
| BRNG-PUMP-MRC018 | Hyd. Pump - 20 Hp | 308KDD | MRC | MS-R3A-S2 | -2.00 | $27.70 | BRNG |
| BRNG-PUMP-MRC019 | Pump Bearing For Lance Way | 309KDD | MRC | MS-R3A-S2 | 1.00 | $40.00 | BRNG |
| BRNG-PUMP-MRC020 | Bearing For Pump at Summit | 5214 A/C3 | MRC | MS-R3A-S1 | 4.00 | $100.01 | BRNG |
| BRNG-PUMP-NA001 | For Adam., PC #1, Newfound, *See Specs. | 7313 BMU | NACHI | MS-R4A-S2 | 1.00 | $105.35 | BRNG |
| BRNG-PUMP-NAC001 | Bearing For Pump at Adamsville | 5313-2NS | NACHI | MS-R4A-S3 | 0.00 | $192.49 | BRNG |
| BRNG-PUMP-NS001 | Chicago Pump at Patton 2, Pump Sears | 6309ZZC3 | NSK | MS-R4A-S3 | 0.00 | $30.15 | BRNG |
| BRNG-PUMP-NS002 | Bearing For Chicago Pump at Patton 2 | 6311-ZZ | NSK | MS-R4A-S2 | 0.00 | $65.35 | BRNG |
| BRNG-PUMP-NTN001 | Bearing - Lance Way Pump | 6311ZZ | NTN | MS-R4A-S2 | 1.00 | $62.00 | BRNG |
| BRNG-PUMP-NTN003 | Pump Bearing Newfound | NJ313G1C3 | NTN | MS-R3A-S2 | 0.00 | $0.00 | BRNG |
| BRNG-PUMP-SK001 | Bearing For Chicago Pump 2,3 at Riverchase,Pinewd | 6409 | SKF | MS-R4A-S2 | 2.00 | $56.38 | BRNG |
| BRNG-PUMP-SK002 | Bearing For Larkway and Airport | 6310 2ZNRJEM | SKF | MS-R4A-S2 | 1.00 | $69.47 | BRNG |
| BRNG-PUMP-SK003 | Pump Bearing For Valewood and McNail | 63082ZJEM | SKF | MS-R4A-S3 | 0.00 | $0.00 | BRNG |
| BRNG-PUMP-SK004 | Bearing For Chicago Pump at Pinewood | 6213ZZ | SKF | MS-R4A-S3 | 6.00 | $44.64 | BRNG |
| BRNG-PUMP-SK005 | Bearing For Ebara Pump at Valewood | 6305 | SKF | MS-R4A-S3 | 8.00 | $55.41 | BRNG |
| BRNG-PUMP-SK006 | Bearing For Ebara Pump Valewood | 5216A | SKF | MS-R3A-S1 | 1.00 | $0.00 | BRNG |
| BRNG-PUMP-SK007 | Bearing For Pump No. 3 at Southpark | 6314 2Z JEM | SKF | MS-R4A-S2 | 5.00 | $118.42 | BRNG |
| BRNG-PUMP-SK008 | Bearing/Pump/Newf./Jeff.Met/Adamsville | 7313 BECY | SKF | MS-R4A-S2 | 6.00 | $145.87 | BRNG |
| BRNG-PUMP-SK009 | Pump Bearing Newfound (Bottom) | NU 2215 ECP | SKF | MS-R3A-S1 | 6.00 | $115.81 | BRNG |
| BRNG-PUMP-SK010 | Pump Bearing, Valewood, Scott Blower Motor | 6313-2ZJEM | SKF | MS-R4A-S2 | 3.00 | $150.55 | BRNG |
| BRNG-PUMP-SK011 | Bearing For Pump at Airport | 5307-AC3 | SKF | MS-R3A-S1 | 0.00 | $28.87 | BRNG |
| BRNG-PUMP-SK012 | Bearing for pump at Highland | 6203-2ZJEM | SKF | MS-R4A-S3 | 0.00 | $37.40 | BRNG |
| BRNG-PUMP-SK013 | Bearing For Pump at the Summit | 5214 A/ C3 | SKF | MS-R3A-S1 | 0.00 | $133.00 | BRNG |
| BRNG-PUMP-SK014 | Bearing For Pump At Hopper, Woodbrook | 5210 AC3 | SKF | MS-R3A-S1 | 3.00 | $45.20 | BRNG |
| BRNG-PUMP-SK016 | Bearing Pump at Woods T./Scotts Blwr Motor | 6315 2Z/C3 | SKF | MS-R4A-S2 | 1.00 | $152.00 | BRNG |
| BRNG-PUMP-SK017 | Bearing | 6909 2Z JEM | SKF | MS-R4A-S2 | 4.00 | $55.41 | BRNG |
| BRNG-PUMP-SK018 | Bearing For PUmp at Brighton | 5312 E | SKF | MS-R4A-S3 | 2.00 | $175.53 | BRNG |
| BRNG-PUMP-SNR-001 | Bearing For Pump at Larkway | 6310-ZZ | SNR | MS-R4A-S2 | 1.00 | $30.00 | BRNG |
| BRNG-PUMP-SNR-002 | Motor Bearing For Vail Avenue | 6310-ZZ | SNR | MS-R4A-S3 | 2.00 | $23.00 | BRNG |
| BRNG-PUMP-URB001 | Bearing Pump at Woods T., Scotts Blower Motor | 6315-2ZC3 | URB | MS-R4A-S2 | 2.00 | $106.40 | BRNG |
| BRNG-ROTOR-001 | Bearing For VLR rotor gear box at Scotts | 208W | FAFNIR | MS-R3A-S3 | 3.00 | $22.68 | BRNG |
| BRNG-ROTOR-004 | Bearing For Rotor/Envirex at Scotts Branch | 208KG | | MS-R3A-S3 | 6.00 | $22.68 | BRNG |
| BRNG-ROTOR-005 | Bearing For Rotor/Envirex at Scotts Branch | 305MG | MRC | MS-R3A-S2 | 0.00 | $11.86 | BRNG |
| BRNG-ROTOR-008 | Bearing For Rotor at Warrior | | | GA-R3-S2-3 | 1.00 | $0.00 | BRNG |
| BRNG-ROTOR-009 | Bearing For Rotor at Scotts, PN 305K | 305K | FAFNIR | MS-R3A-S2 | 2.00 | $13.00 | BRNG |
| BRNG-ROTOR-FF006 | Bearing For Rotor/Envirex at Scotts Branch | 308WG | FAFNIR | MS-R3A-S2 | 0.00 | $23.79 | BRNG |
| BRNG-ROTOR-FF007 | Bearing For Rotor at Warrior | 306WG | FAFNIR | MS-R3A-S2 | 1.00 | $0.00 | BRNG |
| BRNG-ROTOR-FF008 | Bearing For Rotor gearbox at Warrior | 9117KG | FAFNIR | MS-R4A-S2 | 2.00 | $0.00 | BRNG |
| BRNG-ROTOR-FF009 | Bearing For Rotor/Envirex at Scotts Branch | 208DWW | FAFNIR | MS-R4A-S2 | 0.00 | $24.97 | BRNG |
| BRNG-ROTOR-FF010 | Bearing For Rotor/Envirex at Scotts Branch | 208WDD | FAFNIR | MS-R3A-S3 | 4.00 | $24.57 | BRNG |
| BRNG-ROTOR-FF011 | Bearing For Rotor at Scotts Branch | 208WG | FAFNIR | MS-R3A-S3 | 3.00 | $22.68 | BRNG |
| BRNG-ROTOR-FF012 | Top Motor Bearing For Bessemer Hospital | 208KDD | FAFNIR | MS-R3A-S3 | 4.00 | $19.07 | BRNG |
| BRNG-ROTOR-MRC001 | Rotor at VLR Scotts Branch | 305MG | MRC | MS-R3A-S2 | 8.00 | $22.24 | BRNG |
| BRNG-ROTOR-MRC002 | Bearing For Rotor at Scotts VLR Gear Box | 208W | MRC | MS-R3A-S3 | 9.00 | $23.78 | BRNG |

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# Inventory Standard

## JEFFERSON COUNTY ENVIRONMENTAL SERVICES



| Item No. | Description | Mfg Part No. | Manufacturer | Stock Location | Qty on Hand | Average Unit Cost | Inventory Type |
|---|---|---|---|---|---|---|---|
| BRNG-ROTOR-TI002 | Bearing For Rotor/Envirex at Scotts Branch | 39520 | TIMKEN | MS-R4A-S2 | 7.00 | $10.75 | BRNG |
| BRNG-ROTOR-TI003 | Bearing For Rotor/Envirex at Scotts Branch | 39590 | TIMKEN | MS-R4A-S2 | 6.00 | $17.10 | BRNG |
| BRNG-SK001 | SKF Bearing | 6211 JEM | SKF | MS-R4A-S3 | 3.00 | $0.00 | BRNG |
| BRNG-SK003 | UNKNOWN | 6304ZZ | SKF | MS-R4A-S3 | 5.00 | $0.00 | BRNG |
| BRNG-SK004 | UNKNOWN | 6212JEM | SKF | MS-R4A-S3 | 2.00 | $0.00 | BRNG |
| BRNG-SNR001 | | 6215ZZ J30D43A50 | SNR | MS-R4A-S3 | 2.00 | $0.00 | BRNG |
| BRNG-SPACER-001 | Large Bearing Spacer For Scotts Blower | 8500037 | GAR/DEN | GA-C14 | 6.00 | $260.68 | BRNG |
| BRNG-SPACER-002 | Small Bearing Space For Scotts Blower | 8504506 | GAR/DEN | GA-C14 | 8.00 | $153.79 | BRNG |
| BUSHING-001 | Bushing For Morgan/Greenwood #1 | SFX 2 3/8 | WOODS | MS-R1B-S2 | 0.00 | $19.51 | BUSHIN |
| BUSHING-BLWR-001 | Bushing For Blower at Scotts | E 2 5/8 | BROWNING | MS-R1B-S2 | 2.00 | $38.16 | BUSHIN |
| BUSHING-BLWR-002 | Bushing | E2- 7/8 | BROWNING | MS-R1B-S2 | 0.00 | $38.00 | BUSHIN |
| CABLE-COMM-001 | | HMI-CAB-C93 | MAYER | EL-C7-S8 | 2.00 | $97.30 | ELEC |
| CABLE-THR-001 | Throttle Cable For 1800 Kubota | 66101-43243 | CAHABA TRAC | GA-LN-C | 1.00 | $25.05 | CABLE |
| CAM-FOLLOW-001 | Cam Followers For Blue Ridge Elevator | 856L | S & L | EL-C5-S5 | 0.00 | $38.83 | CAM |
| CARB-NGAS-001 | N-GAS Carb. For Wisconsin Eng. #VG4DG - For Gorman | L-94-C | JIM HOUSE | MS-R1B-S2 | 1.00 | $235.72 | CARB |
| CARTG-RESP-001 | North Brand | 4RM25 | | - | 4.00 | $9.68 | SFTY |
| CARTG-RESP-002 | Respirator Cartage Cabot Safety | R53-A | | - | 16.00 | $6.60 | SFTY |
| CHAIN-M/M-001 | Chain 1/2 Pitch For M/M at Airport #CMD 1800 MS | CMC 0040 | JWC-ENV | MS-M1B-S3 | 1.00 | $0.00 | CHAIN |
| CHARGER-BATT-001 | 12 Volt Battery Charger For Hidden Trace | GM 11849-KP1 | Onan | EL- | 0.00 | $196.68 | ELEC |
| CHARTS-FLOW-001 | Cir. Charts, For Scotts Fits Fish/Port 1392 Rec. | 216A020U08 | CHARTS INC | CHMS-C1 | 11.00 | $12.94 | CHARTS |
| CHARTS-FLOW-002 | Cir. Charts, For Prudes C. Fits Sparling Ins. PR76 | CC-2441 | CHARTS INC | CHMS-C1 | 14.00 | $9.69 | CHARTS |
| CHARTS-FLOW-003 | Flow Charts, To Fit Bailey-Fisher & Porter Flow Re | 216A020U68 | FISCHER-PORT | - | | | CHARTS |
| CHARTS-FLOW-004 | Cir. Charts For Prudes C. For Euro Chess. Brand - | GDTW0100U100 | EURO CHESS | CHMS-C1 | 8.00 | $23.50 | CHARTS |
| CHARTS-FLOW-ROLL001 | Plotter Paper To Fit Fisher Porter Flow Recorder F | GD204080U50 | CHARTS INC | CHMS-C1 | 25.00 | $6.23 | CHARTS |
| CHARTS-FLOWR-001 | Flow Recorder Pens, For Sparkling Ins. Model RR 76 | 141D001U25 | | - | | | CHARTS |
| CHARTS-FLOWR-002 | Flow Rec Pens - Prudes C. For Euro. Chess Brand - | LA203291 | EURO CHESS | CHMS-C1 | 2.00 | $18.50 | CHARTS |
| CHEM-ANTIF-COOL-001 | Antifreeze and Coolant | | NAPA | STORRM-F | 49.25 | $4.99 | CHEM |
| CHEM-BYOGENPX-001 | 109 Biological Stimulant For Grease Removal & Cont | | | - | | | CHEM |
| CHEM-CITRIC-ACID-001 | Grainular Citric Acid -50 Lb Bags For Prudes Creek | CITRIC ACID | HARCROS | COPS-F | 5.00 | $45.00 | CHEM |
| CHEM-CITRUS-DEO-001 | Citrus Floating PS Deodorant, 55 Gal. Per Drum | | | - | 1.00 | $295.00 | CHEM |
| CHEM-DEGREAS-001 | Floating Digest Assist Degreaser, 55 Gal. Drum | | AMEROSMNT | OIL-H | -94.50 | $326.00 | CHEM |
| CHEM-HTH-001 | Calcium Hypochloryte, Granular 100 Lb. Drum | CALCIUM HYPOCHLORYTE | CHEM IND | COPS-F | 5.00 | $1.15 | CHEM |
| CHEM-HTH-002 | Calcium Hypochloryte, Granular 100 Lb. Container | CALCIUM HYPROCHILORYTE | LESLIE'S | COPS-F | 5.00 | $88.29 | CHEM |
| CHEM-ODOR-CONTRL-001 | Ban Air Odor Control For Fan #2 55 Gal Per Drum | 511441-001 | PAPER & CHEM | COPS - F | 3.00 | $735.00 | CHEM |
| CHEM-OIL-DISP-001 | Oil Dispersant, K-Chem, 55 Gal Drum | OIL-DISP-K-CHEM | K-CHEM | OIL-H | 1.00 | $297.00 | CHEM |
| CHEM-PERMATE-001 | Potassium Permangantate, 110 Lb. Drum | POTASSIUM PERMANGANATE | CHEM IND | COPS-F | -1.50 | $1.38 | CHEM |
| CHEM-PTS-WASH-001 | Parts Washer Fluid | PRO-POWER II RED | MANTEK | MSHOP | 7.00 | $22.00 | CHEM |
| CHEM-ROUNDUP-001 | Round Up Weed Killer | | MONSAN | MEZZ-F | -51.33 | $45.00 | CHEM |
| CHEM-START-FLUID-001 | Starting Fluid, CRC, 16 Oz. Can | 20B | MILL/TEXT | STOR RM-C3 | 4.00 | $12.72 | CHEM |
| CK-VAL-001 | 4"" WAFFER SLEEVES PIN CHECK VALVE | | GORMAN-RUPP | GA-R6A-S3 | 2.00 | $1.00 | CKVAL |
| CK-VAL-002 | 4"" CAST IRON 11 1/2"" F/F NIA (8 BOLT) | | | GA-R6A-S3 | 3.00 | $1.00 | CKVAL |
| CK-VAL-003 | 4"" CAST IRON 11 1/2"" F/F NIA (8 BOLT) | | | GA-R6A-S3 | 1.00 | $1.00 | CKVAL |
| CK-VAL-004 | 6"" CAST IRON 14"" F/F WIA | F-619-N | AMER PIPE | GA-R6A-S3 | 2.00 | $1.00 | CKVAL |
| CK-VAL-005 | 4"" X 6"" CAST IRON 13 5/8"" F/F WIA (8 BOLT) LEWI | | M & H | GA-R6A-S3 | 2.00 | $1.00 | CKVAL |
| CK-VAL-006 | 3"" BRASS Sm brass | | | GA-R6A-S2 | 3.00 | $1.00 | CKVAL |
| CK-VAL-007 | 2"" BRASS | | | GA-R6A-S2 | 4.00 | $1.00 | CKVAL |
| CK-VAL-008 | 1 1/4 "" BRASS | | | GA-R6A-S2 | 12.00 | $1.00 | CKVAL |
| CK-VAL-009 | 1"" BRASS | | | GA-R6A-S2 | 2.00 | $1.00 | CKVAL |
| CK-VAL-010 | 3/4"" BRASS | | | GA-R6A-S2 | 16.00 | $1.00 | CKVAL |
| CK-VAL-011 | 1/2 "" BRASS | | | GA-R6A-S2 | 13.00 | $1.00 | CKVAL |
| CK-VAL-012 | 2"" BRASS IN LINE SPRING TYPE | | | GA-R6A-S2 | 3.00 | $1.00 | CKVAL |
| CK-VAL-013 | 1"" BRASS IN LINE SPRING TYPE | | | GA-R6A-S2 | 8.00 | $1.00 | CKVAL |
| CK-VAL-014 | 4"" CASTIRAN BALL TYPE FOR HYDROMATIC (USED) | | | GA-R6A-S3 | 2.00 | $1.00 | CKVAL |
| CK-VAL-015 | 2"" CASTIRAN BALL TYPE FOR | | | GA-R6A-S3 | 3.00 | $1.00 | CKVAL |
| CK-VAL-016 | 6" Wafer Type Check Valve Morgan / Greenwood | 120703060813519 | KEYSTONE | GA-R6-S1 | 2.00 | $426.00 | CKVAL |
| CK-VAL-017 | | | | MZ-R10-S1 | 4.00 | $249.00 | |
| CK-VAL-018 | 12" Nisco Swing Ck/val.w/lever Scotts | 12"F918BLW-125IBBM | NOLAND | MS-F | 2.00 | $2,385.00 | CKVAL |
| CK-VAL-019 | 8" Nisco Swing Ck. Val with lever For Scotts | 8"F918BLW-125IBBM | NOLAND | MS-F | 0.00 | $970.00 | CKVAL |
| CK-VAL-020 | 6"x10" Check Valve W/Spring A. & Spring For Cunni | 3259-02 | CLOW/M&H | MS-F | 2.00 | $160.00 | VALVE |

# Inventory Standard

## JEFFERSON COUNTY ENVIRONMENTAL SERVICES



| Item No. | Description | Mfg Part No. | Manufacturer | Stock Location | Qty on Hand | Average Unit Cost | Inventory Type |
|---|---|---|---|---|---|---|---|
| CK-VAL-021 | 4" Wafr Check Valve W/Lever & Spring For Gadsden H | 120-813-517 | KEYSTONE | MS-F | 0.00 | $388.00 | VALVE |
| CK-VAL-FLAM-001 | 4"" CHECK VALVE BOLT TYPE & ARM | F 918 4" | | MS-F | 0.00 | $0.00 | CKVAL |
| CK-VAL-FLAM-002 | 4"" CHECK VALVE | | M & H | GA-R6A-S2 | 1.00 | $1.00 | CKVAL |
| CK-VAL-FLAM-003 | 6"" CHECK VALVE FLAPPER & ARM | FLAPPER #406168 ARM #250 | M & H | GA-R6A-S2 | 1.00 | $1.00 | CKVAL |
| CK-VAL-FLAM-004 | 8"" CHECK VALVE FLAPPER & ARM | FLAPPER #408105 ARM# 250 | M & H | GA-R6A-S2 | 1.00 | $1.00 | CKVAL |
| CK-VAL-FLAM-005 | CHECK VALVE SIZE? | | M & H | GA-R6A-S2 | 2.00 | $1.00 | CKVAL |
| CK-VAL-FLAM-006 | CHECK VALVE SIZE? | 55A33/A | S & L | GA-R6A-S2 | 1.00 | $1.00 | CKVAL |
| CK-VAL-FLOAT-S&L001 | Check Valve For S & L Float Check Valve Assembly | 1L333 | S & L | GA-C15 | 5.00 | $25.30 | CKVAL |
| CK-VAL-FLPHOU-HY001 | CK Valve Flapper Housing For Hydromatic 40 MP | 120000002 | HYDROMATIC | MS-R6B-S2 | 1.00 | $712.00 | CKVAL |
| CK-VAL-FLSU-GR003 | 8" Flap Valve For Gor. R Pump 8" Suction Lift Pump | 46411-066 | G-RUPP | MS-R8-S2 | 4.00 | $191.00 | CKVAL |
| CK-VAL-FLSU-ITT001 | Check Valve To Fit ITT Model 40DTH24-EB - Dover | 4661900 | BUNA | MS-R8-S3 | 1.00 | $92.95 | CKVAL |
| CK-VALFL-001 | BRASS 4"" (FOR MORGAN 1 & 2) | | S & L | GA-R6A-S2 | 1.00 | $1.00 | CKVAL |
| CK-VALFL-002 | BRASS 4"" (FOR RICE) S & L BOLT TYPE | | S & L | GA-R6A-S2 | 1.00 | $1.00 | CKVAL |
| CK-VALFL-003 | STEEL 4"" (FOR GARDENDALE 1 & 2) | | GORMAN RUPP | GA-R6A-S2 | 1.00 | $1.00 | CKVAL |
| CK-VALFL-APC001 | Flapper For APCO 12" Check Valve For 5 Mile West | 112-10/76 | JIM HOUSE | MS- | 1.00 | $637.00 | CKVAL |
| CK-VALFL-SL001 | 6" Check Valve Flapper For S&L | 55A16 | S & L | MS-R8-S3 | 1.00 | $218.18 | CKVAL |
| CK-VALFLHY-001 | Flap Check Val-Housing #12000-000-2, Ret #86 | | | MS-R8-S2 | 1.00 | $685.00 | CKVAL |
| CK-VALFLRD-001 | 3/4"" X 11"" (FOR ACTON ROAD S & L) | #55B251E | S & L | GA-R6A-S2 | 4.00 | $1.00 | CKVAL |
| CK-VALFLRD-002 | 1/2"" X 11"" (FAIRMONT, OLD AIRPORT) | | M & H | GA-R6A-S2 | 2.00 | $1.00 | CKVAL |
| CK-VALFLRD-003 | FOR 1/2"" RODES | | M & H | GA-R6A-S2 | 2.00 | $1.00 | CKVAL |
| CK-VALFLST-001 | BRASS FOR 4"" X 6"" LEWISBURGES CHECK VALVE | | M & H | GA-R6A-S2 | 2.00 | $1.00 | CKVAL |
| CK-VALFLST-002 | BRASS FOR 4"" CHECK VALVE S & L 4"" CK | | S & L | GA-R6A-S2 | 3.00 | $1.00 | CKVAL |
| CK-VALFLSU-GR001 | Suct, Ck Val Flapper Gorman T3 Lake sterling | 46411-060 | GORMAN RUPP | MS-R8-S2 | 9.00 | $95.35 | CKVAL |
| CK-VALFLSU-GR002 | Suction Check Valve Flapper - GORMAN T4 | 46411-062 | G-RUPP | GA-C3 | 1.00 | $117.35 | CKVAL |
| CK-VALFLSU-GR003 | Suction Check Valve Flapper G-Rupp T6 | 46411-064 | GORMAN RUPP | MS-R8-S2 | 2.00 | $137.70 | CKVAL |
| CK-VALFLSU-HY001 | FOR 40MP HYDROMATIC SUCTION FLAPPER | 12018-001-1 | HYDROMATIC | GA-R6A-S2 | 0.00 | $1.00 | CKVAL |
| CK-VALGASK-GR001 | Check Valve Gasket To Fit Gorman Rupp 4" Check Val | 25113-095 | GORMAN RUPP | GA-C3 | 4.00 | $2.95 | CKVAL |
| CK-VALRFF-001 | RUBBER SEAT RINGS OVER FLAPPER | 55A31 | S & L | GA-R6A-S2 | 4.00 | $1.00 | CKVAL |
| CK-VALSEAT-GR001 | Check Valve Seat To Fit Gorman Rupp 4" Check Valve | 31265-041 | GORMAN RUPP | GA-C3 | 2.00 | $68.20 | CKVAL |
| CK-VALSEAT-SL001 | Check Valve Flapper Seat For S&L For 6" Check Valv | 55A17 | S & L | MS-R8-S3 | 2.00 | $131.85 | CKVAL |
| CK-VALSNF-001 | SLATED NUTS FOR FLAPPERS | 6L113E | S & L | GA-R6A-S2 | 4.00 | $1.00 | CKVAL |
| CK-VALSPIG-001 | SPRING FOR CHECK VALVE INDICATOR ARMS | #11L88A | S & L | GA-R6A-S2 | 5.00 | $1.00 | CKVAL |
| CLAR-BRNG-RX001 | Bearing for clarifier thrust at Warrior | ZF5215 | REX | MS-R4A-S1 | 0.00 | $0.00 | BRNG |
| CLAR-RET/PLATE-001 | Retainer-Spring Plate-Scotts Clarifier | 403-201410-2 | US FIL/JIM H | MS-R2B-S3 | 1.00 | $70.00 | PLATE |
| CLIP-RET-HY001 | Retaining Clip For Flange Bracket-Hydromatic | 05519-000-3 | HYDROMATIC | MS-R1B-S2 | 12.00 | $14.00 | CLIPS |
| CLIP-RET-HY002 | Retaining Clip/Lug For Hydromatic 6" Sub. | 11282-000-2 | HYDROMATIC | MS-R1B-S2 | 14.00 | $16.50 | CLIPS |
| CLUTCH-LNMR-001 | Clutch Assembly - Elec. PTO For John Deere 345 | AM131779 | JOHN DEERE | GA-LN-C | 3.00 | $135.00 | CLUTCH |
| COMM-GRSL-N006 | Grease Seal for Comminuter at Pinewood | 470530 | NATIONAL | GA-R2-S2 | 2.00 | $0.00 | GRSL |
| COMM-GRSL-N007 | Grease Seal for Comminuter at Pinewood | 473010 | NATIONAL | GA-R2-S2 | 1.00 | $0.00 | GRSL |
| CPLG-D001 | Dodge Coupling | | DODGE | GA-R7-S3 | 2.00 | $0.00 | CPLG |
| CPLG-FK001 | | | FAULK | MS-R2B-S2 | 1.00 | $0.00 | CPLG |
| CPLG-FK003 | Faulk Coupling | 762813 | FAULK | MS-R2B-S2 | 4.00 | $0.00 | CPLG |
| CPLG-FK004 | Faulk Coupling | 704621 | FAULK | MS-R2B-S2 | 2.00 | $0.00 | CPLG |
| CPLG-FLEX-001 | 1 1/4" x 1 1/4" Flex Coupling | 4P003 | GRAINGER | MS-R5-S3 | 4.00 | $3.17 | CPLG |
| CPLG-FLEX-002 | 1 1/2" x 1 1/2" Flex Coupling | 4P005 | GRAINGER | MS-R5-S3 | 4.00 | $3.40 | CPLG |
| CPLG-FLEX-003 | 2" x 2" Flex Coupling | 4P007 | GRAINGER | MS-R5-S3 | 4.00 | $3.67 | CPLG |
| CPLG-FLEX-004 | 3" x 3" Flex Coupling | 4P009 | GRAINGER | MS-R5-S3 | 4.00 | $4.95 | CPLG |
| CPLG-FLEX-005 | 4" x 4" Flex Coupling | 4P011 | GRAINGER | MS-R5-S3 | 4.00 | $6.21 | CPLG |
| CPLG-JWC-001 | Coupling For Zoo Muffin Monster | 30017-0005-001 | JWC | MS-R2A-S3 | -1.00 | $86.76 | CPLG |
| CPLG-JWC-002 | Coupling For Zoo Muffin Montser | 30017-0005-003 | JWC | MS-R2A-S3 | 2.00 | $86.76 | CPLG |
| CPLG-LJ007 | Love Joy Coupling 5JES | 5JES | LOVE JOY | MS-R2B-S2 | 10.00 | $7.53 | CPLG |
| CPLG-LJ008 | Love Joy Coupling | | LOVE JOY | GA-R7-S3 | 3.00 | $0.00 | CPLG |
| CPLG-LJ009 | Love Joy Coupling | 36881 | LOVE JOY | MS-R2B-S2 | 0.00 | $0.00 | CPLG |
| CPLG-LJ010 | Love Joy Coupling 8JES | 8JES (36707) | LOVE JOY | MS-R2B-S2 | 2.00 | $21.02 | CPLG |
| CPLG-LJ011 | Love Joh Coupling for VLR at Scotts | 12E | LOVE JOY | MS-R2B-S2 | 0.00 | $0.00 | CPLG |
| CPLG-LJ012 | Love Joy Coupling | 7JE | LOVE JOY | MS-R2B-S3 | 10.00 | $0.00 | CPLG |
| CPLG-LJ013 | Love Joy Coupling 6JES | 6JES | LOVE JOY | MS-R2B-S2 | 10.00 | $0.00 | CPLG |
| CPLG-LJ014 | Love Joy Coupling | 5JE | LOVE JOY | MS-R2B-S3 | 3.00 | $0.00 | CPLG |
| CPLG-LJ015 | 2 Pc Coupling Sleeve For VLR at Scotts Branch | 12HS | LOVE JOY | MS-R2B-S3 | 8.00 | $200.00 | CPLG |

# Inventory Standard

## JEFFERSON COUNTY ENVIRONMENTAL SERVICES



| Item No. | Description | Mfg Part No. | Manufacturer | Stock Location | Qty on Hand | Average Unit Cost | Inventory Type |
|---|---|---|---|---|---|---|---|
| CPLG-LJ016 | Love Joy Coupling For Odor Control | 3JES | LOVE JOY | MS-R2B-S2 | 2.00 | $2.52 | CPLG |
| CPLG-PCUV-001 | Quick Connect Hose Coupling For UV System at Prude | 07PG0 | INFILCO | - | 4.00 | $12.58 | CPLG |
| CRANKS-EXFAN-001 | CrankShaft For Exhaust Fan To Fit 3 1/2 Hp Briggs | 497832 | ADVANCED | MS-R1A-S2 | 0.00 | $92.98 | CRANKS |
| DIAPH-AR-GR001 | Air Release Diaphragm For Gorman Rupp Air Rel. Val | 38676-404 | GORMAN RUPP | GA-C3 | 0.00 | $53.01 | DIAPH |
| DIAPH-SEAL-HY001 | 6" Sealing Diaphragm For Hyd. Pump Model S6LX2000 | 4850-000-1 | HYDROMATIC | MS-R6-S3 | 14.00 | $54.00 | DIAPH |
| DIAPH-SEAL-HY002 | 4" Sealing Diaphragm For Hyd. Pump Model S4LRC2500 | 3544-000-1 | HYDROMATIC | MS-R6-S3 | 4.00 | $21.00 | DIAPH |
| DIAPH-SEAL-HY003 | 2" Sealing Diaphragm For Hyd. Submersible Pump | 06898001 | HYDROMATIC | MS-R6-S3 | -3.00 | $28.00 | DIAPH |
| DISK-COMP-M/M-001 | Compression Disk For M/M at Airport #CMD 1800 MS | 34034 | JWC-ENV | MS-R1B-S3 | 0.00 | $36.67 | DISK |
| EAR-HY001 | Pump Discharge Ear To Fit 7.5 Hp Hydromatic Pump | | ENG. ENVIR. | GA-C7 | 15.00 | $14.00 | EAR |
| ELEC-3WSOL-001 | 3-Way Solenoid | 1L4068 | S&L | EL-C1-S2 | 5.00 | $0.00 | ELEC |
| ELEC-ACTUATOR-T/S-001 | Linear Actuator For T/Switch at Jeff Metropolitan | 306-3401-06 | ONAN | EL-C3-S2 | 0.00 | $387.70 | ELEC |
| ELEC-ALT-001 | Alternator | 47AB10AF | Furnas | EL-C1-S4 | 5.00 | $162.09 | ELEC |
| ELEC-ALT-002 | Alternator | 311XBXPR | Struthers-Du | EL-C1-S4 | -6.00 | $125.80 | ELEC |
| ELEC-ALT-003 | Alternator | ARA-120-ABA | Diversified | EL-C1-S4 | 9.00 | $54.00 | ELEC |
| ELEC-ALT-004 | Alternator | ARA-120-ADA | Diversified | EL-C1-S4 | 4.00 | $58.00 | ELEC |
| ELEC-ALT-005 | Alternator | 14-40 7113 | ITT Flygt | EL-C1-S4 | 4.00 | $0.00 | ELEC |
| ELEC-ALT-006 | Alternator, Consolidated Electric | CMC09 | CONSOL | EL-C4-S8 | 2.00 | $201.60 | ELEC |
| ELEC-ALT-007 | Alternator, Wetwell Timers (10 Min.) | 4L343A | S & L | EL-C1-S3 | 2.00 | $117.63 | ELEC |
| ELEC-ALT-008 | Alternator For Grants Mill Pump Stations | LJRS2 | SYRELEC | EL-C1-S4 | 4.00 | $73.50 | ELEC |
| ELEC-ARMATU-001 | Armature, For Furnas Starter, Size 4 For 150/459 | D17725001 | | EL-R2-S2 | 1.00 | $154.11 | ELEC |
| ELEC-ARREST-001 | Lightning Arrestors | LA603UL | Delta | EL-C3-S4 | 5.00 | $0.00 | ELEC |
| ELEC-AUTTRANF-001 | Autotransformer, Square D, 50 HP, Fan #2 | MSA-50202-H2 | | COPS-SS | 1.00 | $550.00 | ELEC |
| ELEC-AUXCT-003 | Auxiliary Contacts, Normally Open, Square D, Size | 9999SX6 | | EL-R2-S3 | 6.00 | $30.78 | ELEC |
| ELEC-AUXCTS-001 | Auxiliary Contacts | C320KGS 42 | Cutler Hamme | EL-R2-S3 | 1.00 | $0.00 | ELEC |
| ELEC-AUXCTS-002 | Auxiliary Contacts | 9999SX9 | SQUARE D | EL-R2-S3 | 4.00 | $0.00 | ELEC |
| ELEC-AUXCTS-004 | Auxiliary Contacts, Normally Open, Cutler Hammer | C300KA-1 | Cutler Hamme | EL-R2-S3 | 6.00 | $15.69 | ELEC |
| ELEC-AUXCTS-005 | Auxiliary Contacts, Normally Open, Furnas 49AAFD | 49AAF0 | Furnas | EL-R2-S2 | 2.00 | $37.00 | ELEC |
| ELEC-AUXCTS-006 | Auxiliary Contacts - Five Mile West - Crane | | M&G ELECTRON | EL-R2-S3 | 6.00 | $15.00 | ELEC |
| ELEC-BHTR-001 | Block Heater | 3313272 | FLEETGUARD | EL-C2-S2 | 2.00 | $0.00 | ELEC |
| ELEC-BHTR-002 | Block Heater To Fit Cunnin Generator | SUA10 | KIMHOTSTART | EL- | 4.00 | $9.28 | ELEC |
| ELEC-BHTR-002 | Block Heater To Fit Cunnin Generator | SUA10 | KIMHOTSTART | EL-CI-S2 | 9.00 | $9.28 | ELEC |
| ELEC-BHTR-003 | Block heater For Second Creek Kim Hotstart | SB-122-108-00 | KIMHOTSTART | EL-C2-S2 | 0.00 | $193.81 | ELEC |
| ELEC-BHTR-004 | Block Heater For Bessemer Hosp | DD6V-751-S | KIMHOTSTART | EL-C2-S2 | 0.00 | $1.00 | ELEC |
| ELEC-BHTR-005 | Block Heater For Black Creek | SB122108-000 | KIMHOTSTART | EL-C2-S2 | 1.00 | $194.00 | ELEC |
| ELEC-BHTR-006 | Block Heater For Visionland/Onan Generators | 333-0568-01 | ONAN | EL-C3-S5 | 3.00 | $178.98 | ELEC |
| ELEC-BHTR-007 | 1000 Watt 120 V Block Heater | 3825411C | FLEETGUARD | EL-C2-S1 | 7.00 | $49.60 | ELEC |
| ELEC-BHTR-008 | 1500 Watt 120 Volt Block Heater | 259223 | FLEETGUARD | EL-C2-S1 | 2.00 | $54.38 | ELEC |
| ELEC-BHTR-009 | Block Heater, Catepillar, For Acton Road | 7E6250 | CAT | EL-C6-S1 | 2.00 | $268.02 | ELEC |
| ELEC-BHTR-010 | Block Heater, Catepillar For Pinewood | 7E-6247 | CAT | EL-C6-S1 | 2.00 | $472.74 | ELEC |
| ELEC-BHTR-011 | Block Heate For Rice Creek (See Specs) | 3E3520 | CAT | EL-C2-S2 | 0.00 | $54.64 | ELEC |
| ELEC-BHTR-012 | Block Heater For Onan Generators | 0333-0568-01 | ONAN | EL-C6-S7 | 0.00 | $173.30 | ELEC |
| ELEC-BHTR-013 | Block Heater For Patton 1 & 2 | 200-6504 | CAT | EL-C5-S4 | 1.00 | $530.75 | ELEC |
| ELEC-BHTRC-001 | Block Heater/ T'stat 72" Y Cord | 3825424 | FLEETGUARD | EL-C2-S2 | 5.00 | $64.52 | BHEAT |
| ELEC-BLST-001 | Fluorescent Ballast | R-2S40-TP | ADVANCE | EL-R1-S2 | -15.00 | $0.00 | ELEC |
| ELEC-BLST-002 | 400 Watt H.P.S. Ballast | 71A8443-001 | ADVANCE | EL-R1-S3 | 6.00 | $0.00 | ELEC |
| ELEC-BLST-003 | 250 Watt H.P. S. Ballast | 71A8271-DO1D | ADVANCE | EL-R1-S2 | 2.00 | $90.43 | ELEC |
| ELEC-BLST-004 | 250 Watt M.V. Ballast | 71A3572-001D | ADVANCE | EL-R1-S2 | 14.00 | $41.60 | ELEC |
| ELEC-BLST-005 | 150 Watt H.P.S. Ballast | 71A8172-001D | ADVANCE | EL-R1-S2 | 7.00 | $88.28 | ELEC |
| ELEC-BLST-006 | 100 Watt M.H. Ballast | 71A5390-001D | ADVANCE | EL-R1-S2 | 5.00 | $0.00 | ELEC |
| ELEC-BLST-007 | 70 Watt H.P.S. Ballast | 71A7971-001D | ADVANCE | EL-R1-S2 | 4.00 | $53.77 | ELEC |
| ELEC-BLST-008 | Ballast for Newfound Fluorecent Lights | R-2E75-S-TP | | EL-R1-S3 | -5.00 | $18.00 | ELEC |
| ELEC-BLST-009 | Ballast for UV at Warrior Plant | 3RBLT-302403 | TROJAN | EL-R1-S2 | 2.00 | $103.00 | ELEC |
| ELEC-BLST-010 | 8 Ft. Ballast | R5-2S11-TP | ADVANCE | EL-R1-S2 | 10.00 | $1.00 | ELEC |
| ELEC-BLST-011 | 1000 Watt, For Sodium Vapor Lamps, Scotts Branch | 71A8743001 | ADVANCE | EL-R1-S2 | 10.00 | $178.00 | ELEC |
| ELEC-BLST-012 | Ballast For UV at Prudes Creek Plant - Model Aq | E264UCPI120G02 | INFILCO | EL-R1-S3 | 10.00 | $1.00 | ELEC |
| ELEC-BLST-013 | Electronic Ballast - Sola Basic From Buffalo Elec. | E-758-F432 | TRIAD | EL-R1-S | 9.00 | $18.75 | ELEC |
| ELEC-BLST-014 | Ballast For UV at Purdes C. Plant For Model Aquara | 61795G01 | ONDEO D. | EL-R1-S3 | 15.00 | $92.47 | ELEC |
| ELEC-BLST-015 | Ballast For Scotts, 400 W. | 71A6071001D | | EL-R1-S2 | 14.00 | $46.90 | ELEC |
| ELEC-BLST-016 | 1000 Watt, 480 V. Ballast For Pole Lights at Scott | S1000ML5AC5M-500K | UNIVERSAL | EL-R1-S3 | 7.00 | $145.00 | ELEC |

# Inventory Standard

## JEFFERSON COUNTY ENVIRONMENTAL SERVICES



| Item No. | Description | Mfg Part No. | Manufacturer | Stock Location | Qty on Hand | Average Unit Cost | Inventory Type |
|---|---|---|---|---|---|---|---|
| ELEC-BLST-017 | Ballast 120V for Office Lighting | REL 1P32SC | ADVANCE | EL-R1-S2 | 10.00 | $15.10 | ELEC |
| ELEC-BOARD-T/S-001 | Transfer Switch Board - Onan - Payne Road | 300-4750-01 | ONAN/CUMMINS | EL-C4-S7 | 0.00 | $607.30 | ELEC |
| ELEC-BOARD-T/S-002 | Transfer Switch Timer Board Acton Road Generator | 295462 | ASCO | EL-C4-S7 | 1.00 | $619.20 | ELEC |
| ELEC-BRKR-001 | Breaker 3 Pole | BR 3100 | Cutler Hamme | EL-C2-S3 | 3.00 | $0.00 | ELEC |
| ELEC-BRKR-002 | Breaker 3 Pole | BR 360 | Cutler Hamme | EL-C2-S4 | 7.00 | $0.00 | ELEC |
| ELEC-BRKR-003 | Breaker 3 Pole | EHB 3030 | WESTINGHOUSE | EL-C2-S3 | 2.00 | $0.00 | ELEC |
| ELEC-BRKR-004 | Breaker 3 Pole | FB 3125L | WESTINGHOUSE | EL-C2-S3 | 2.00 | $0.00 | ELEC |
| ELEC-BRKR-005 | Breaker 3 Pole | EHB 3015L | WESTINGHOUSE | EL-C2-S3 | 4.00 | $0.00 | ELEC |
| ELEC-BRKR-006 | Breaker 1 Pole | EHB 1030 | WESTINGHOUSE | EL-C2-S3 | 2.00 | $99.00 | ELEC |
| ELEC-BRKR-007 | 3 Pole 60 Amp Breaker | SQDQU360 | SQUARE D | EL-C1-S6 | 2.00 | $145.52 | ELEC |
| ELEC-BRKR-007 | 3 Pole 60 Amp Breaker | SQDQU360 | SQUARE D | EL-C2-S4 | 4.00 | $145.52 | ELEC |
| ELEC-BRKR-008 | Plug in Breaker | Q0120 | SQUARE D | EL-C2-S4 | 10.00 | $1.00 | ELEC |
| ELEC-BRKR-009 | Breaker-2 Pole-Square D For Airport | EDB24040 | | EL-C2-S4 | 1.00 | $117.03 | ELEC |
| ELEC-BRKR-010 | Breaker - 225 Amp, 600 Volt For Riverchase | SFLA36A10250A | GE/MAYER | EL-C2-S4 | 1.00 | $876.03 | ELEC |
| ELEC-BRKR-011 | 3 Pole, 90 Amp - 250 Volt Breaker For Lewisburg #2 | QOU390 | SQUARE D | EL-C2-S4 | 0.00 | $1.00 | ELEC |
| ELEC-BRKR-012 | 100 Amp, 3 Pole, 480 Volt For Lewisburg #1 | EHD3100L | Cutler Hamme | EL-C2-S4 | 0.00 | $298.00 | ELEC |
| ELEC-BRKR-013 | Breaker, 3 Phase, 480 Volt, 70 Amp For Hoover High | FAL34070 | SQUARE D | EL-C2-S4 | 0.00 | $185.00 | ELEC |
| ELEC-BRKR-014 | Breaker, 3 Pole, 15 Amp, 240 Volt Minor Rd PS-G'da | QOU315 | SQUARE D | EL-C2-S5 | 0.00 | $57.00 | ELEC |
| ELEC-BRKR-015 | Breaker 3 Pole, 100 Amp, 600 Volt, For Wylam | FAL3610018M | SQUARE D | EL-C2-S4 | 0.00 | $430.87 | ELEC |
| ELEC-BRKR-016 | 3 P/ 600V /200A/Hoover HS, Lakecrest, StadiumT, Ma | KAL36200 | SQUARE D | EL-C2-S4 | 2.00 | $452.00 | ELEC |
| ELEC-BRKR-017 | Low V. C/Breaker (Reconditioned) Minor Parkway | AKRT-10D-50H | GE | EL-C2-S4 | 0.00 | $6,500.00 | ELEC |
| ELEC-BULB-EME-001 | Emergency Light Bulb 12 Volts, 12 Watts | 4044-1 | GE | MZ-R1-S2 | 12.00 | $16.35 | ELEC |
| ELEC-BULB-FLO-001 | 150 W Flood Lamps | 150PARA/KL/ | SYLVANIA | MZ-R2-S2 | -1.00 | $1.00 | BULBS |
| ELEC-BULB-FLO-002 | 150 W Flood Lamps | 15PAR/FL120 | GENELEC | MZ-R2-S2 | 8.00 | $1.00 | BULBS |
| ELEC-BULB-FLU-001 | 8 Foot Fluorescent Bulb | F96T12 | Phillips | M2-R1-S3 | -40.00 | $1.00 | BULBS |
| ELEC-BULB-FLU-002 | 4 Foot Fluorescent Bulb | F40CW | SYLVANIA | MZ-R4-S1 | -64.00 | $1.00 | BULBS |
| ELEC-BULB-FLU-003 | Fluorescent Lamps, Outside, Phillips Trussville NE | PLC15MM/28W/27 | Phillips | MZ-R2-S1 | 1.00 | $18.04 | ELEC |
| ELEC-BULB-FLU-004 | Fluor. Bulb For Showers at Scotts & TV Inspects. | CF13DS/841 | SYLVANIA | MZ-R1-S2 | 36.00 | $2.27 | ELEC |
| ELEC-BULB-IN-001 | 1000 W Incandescent Clear Med Base | | GENELEC | MZ-R1-S2 | 2.00 | $1.00 | BULBS |
| ELEC-BULB-IN-002 | 300 W Incandescent Clear Med Base | PS30 | SYLVANIA | MZ-R1-S1 | 48.00 | $1.00 | BULBS |
| ELEC-BULB-IN-003 | 300 W Incandescent Clear Med Base | 300/99 | WESTINGHOUSE | MZ-R1-S1 | 27.00 | $1.00 | BULBS |
| ELEC-BULB-IN-004 | 300 W Incandescent Clear Med Base | 21023 | GENELEC | MZ-R1-S1 | 42.00 | $1.00 | BULBS |
| ELEC-BULB-IN-005 | 200 W Incandescent Frosted Small Base | 36291-3 | Phillips | MZ-R2-S2 | 94.00 | $1.00 | BULBS |
| ELEC-BULB-IN-006 | 100 W Incandescent Frosted Small Base | 22291-9 | Phillips | MZ-R2-S2 | 86.00 | $1.00 | BULBS |
| ELEC-BULB-IN-007 | 300 W Incandescent Clear Small Base | | GENELEC | MZ-R2-S2 | 1.00 | $1.00 | BULBS |
| ELEC-BULB-LU-001 | 250 W Lumalux Lamp | LU250 | SYLVANIA | MZ-R2-S1 | 22.00 | $1.00 | BULBS |
| ELEC-BULB-MA-001 | 100 W Metal Arc MP/U/Med Base | MP100/U/MED | SYLVANIA | MZ-R2-S1 | 5.00 | $1.00 | BULBS |
| ELEC-BULB-MA-002 | 400 W Metal Arc Cleaner Mogul Base | M400/U | SYLVANIA | MZ-R2-S1 | 22.00 | $1.00 | BULBS |
| ELEC-BULB-MOGB-001 | 70 W Lucalox, Mogal Base, Sylvania, Patton 1 & 2 | LU70ECO | SYLVANIA | MZ-R1-S2 | 0.00 | $12.89 | ELEC |
| ELEC-BULB-MOGB-002 | 70 Watt, Mogul Base Phillips | C70S62 | Phillips | MZ-R1-S2 | 5.00 | $11.80 | ELEC |
| ELEC-BULB-MV-001 | 175 W Mercury Vapor DX White Mogul Base | H39KC-175 | | MZ-R2-S1 | 0.00 | $1.00 | BULBS |
| ELEC-BULB-MV-002 | Mercury Vapor Lamps, 250 Watts | H37KC-250DX | Phillips | MZ-R2-S1 | -10.00 | $17.50 | ELEC |
| ELEC-BULB-PANEL-001 | Panel Light at the Bio Filter | 2711 NL1 | ALLEN B. | EL-C4-S5 | 3.00 | $79.76 | ELEC |
| ELEC-BULB-PILOT-001 | Pilot Light, Square D, PSControl Panel | 9001 KP1 | | EL-C3-S1 | 9.00 | $48.80 | BULBS |
| ELEC-BULB-TH-001 | 250 W Tungston Halogen | 250Q/CLDC/ESS | SYLVANIA | MZ-R2-S2 | 9.00 | $1.00 | BULBS |
| ELEC-BULB-UV-001 | UV Bulb, For Infilco System For Prudes Creek Plant | 59619-G09 | INFILCO | MZ-F | 94.00 | $30.00 | BULBS |
| ELEC-BULB-UV-002 | UV Bulbs For Trojan UV 3300K System, Warrior Plant | 302418 | TROJAN | MZ-F | 4.00 | $44.00 | BULBS |
| ELEC-CABLE-001 | 8/4 S.O. Cable In 250' Roll | 8/4 S.O. Cable | BUFFALO | EL-BW | 1.00 | $387.50 | ELEC |
| ELEC-CABLE-002 | Cable 6/5 Conductor Cable 40 Roll For Ashville Rd | SOW 6/5 | MAYER | EL-BW | 1.00 | $120.40 | ELEC |
| ELEC-CABLE-003 | Cable Ass. 30 Hp Ebara at Woods Trace | DADL1-8970 | ESHELMAN | EL-BW | 0.00 | $2,291.00 | ELEC |
| ELEC-CABLE-004 | | 18079480 | KSB | EL-C3-S5 | 0.00 | $1,076.00 | ELEC |
| ELEC-CABLE-ORING-001 | | 00373092 | KSB | EL-C3-S5 | 4.00 | $18.00 | ELEC |
| ELEC-CAP-001 | Capacitor, Amrad Engineering, 20 UF 370 VAC, Oak G | 20UF370VAC | | EL-DR-S2 | 6.00 | $5.20 | CAPACI |
| ELEC-CAPC-001 | Cap Cord, Male, Welding Machines, PN 26415 | 26418 | HUBBELL | EL-C2-S4 | 0.00 | $121.00 | ELEC |
| ELEC-CAPC-002 | Cap Cord, Female, Welding Machines | 26419 | HUBBELL | EL-C2-S4 | 1.00 | $221.31 | ELEC |
| ELEC-CAPC-003 | Cap Cord Assembly For Hydromatic 30 Hp Submersible | 054650435 | EEE | EL-C2-S4 | 1.00 | $780.00 | ELEC |
| ELEC-CB-001 | Circuit Board | 332-3435.A | ONAN | EL-C2-S2 | 1.00 | $0.00 | CIRBRD |
| ELEC-CB-002 | Circuit Board | G292806 | KOHLER | EL-C2-S2 | 0.00 | $0.00 | CIRBRD |
| ELEC-CB-003 | Transfer Switch Circuit Board I-59 | 297375 | KOHLER | EL-C2-S2 | -2.00 | $12.00 | CIRBRD |

# Inventory Standard

7/26/2007

JEFFERSON COUNTY ENVIRONMENTAL SERVICES



| Item No. | Description | Mfg Part No. | Manufacturer | Stock Location | Qty on Hand | Average Unit Cost | Inventory Type |
|---|---|---|---|---|---|---|---|
| ELEC-CB-004 | Circuit Board For Bess. Hosp., Longleaf & Corbet 2 | 297878 | KOHLER | EL-C2-S2 | 1.00 | $1,224.00 | CIRBRD |
| ELEC-CB-005 | Circuit Board - For MMC Panel For Riverchase | 1C693MDL340 | GE/MAYER | EL-C2-S2 | 2.00 | $385.00 | CIRBRD |
| ELEC-CB-006 | Volt Regulator Circuit Board For Prudes #1 PS | C255670 | KOHL | EL-C2-S2 | 1.00 | $284.00 | CIRBRD |
| ELEC-CB-007 | Circuit Board For Brummitt Heights | 300-3160 | ONAN | EL-C2-S2 | 0.00 | $337.70 | CIRBRD |
| ELEC-CB-008 | Output Relay Cir.B. For PipeS., ParkW., Saddlers G | 448 | TIME MARK | EL-C5-S7 | 1.00 | $183.00 | CIRBRD |
| ELEC-CELL-001 | Photo Cell | K4 | Intermatic | EL-R1-S2 | 4.00 | $0.00 | BULBS |
| ELEC-CELL-002 | Photo Cell | 2007 | TORK | EL-C4-S6 | 3.00 | $1.00 | BULBS |
| ELEC-CELL-003 | Photo Cell | 2002 | TORK | EL-C4-S6 | 10.00 | $1.00 | BULBS |
| ELEC-CHARG-BATT-001 | 12 Volt Battery Charger For Stand-By-Generators | ABC-12-8 | NEW MAR | EL- | 1.00 | $1.00 | ELEC |
| ELEC-CHARG-INV-001 | Emergency Lighting Inverter Charger, Bodine Brand | | | EL-R1-S3 | 3.00 | $47.50 | ELEC |
| ELEC-CHTR-001 | Canister Heater For Onan Generator | 333-0568-01 | ONAN | EL-C7-S8 | 2.00 | $176.30 | ELEC |
| ELEC-CIRBOARD-001 | Circuit Board For Minor Parkway | 1336-MCB-SP1J | ALLEN B. | EL- | 1.00 | $1,161.94 | ELEC |
| ELEC-CIRBOARD-002 | C/Board For Transfer Switch - Prudes I, Corbet 1&2 | E-297375 | KOHLER | EL-C2-S2 | 0.00 | $1,331.40 | ELEC |
| ELEC-CIRBOARD-003 | Circuit B. For Main B. For Kohler T/Switch For Pru | 292302 | KOHLER | EL-C2-S2 | 1.00 | $823.20 | ELEC |
| ELEC-CIRBOARD-004 | Circuit Board For Generator at Hidden Trace | 650-093 | OLYMPIAN | EL-C2-S2 | 0.00 | $370.28 | ELEC |
| ELEC-CIRBOARD-005 | Circuit Board, Transfer Switch, Jeff. Metro. | 300-3959-01 | ONAN | EL-C2-S2 | 0.00 | $432.63 | ELEC |
| ELEC-CNDTF-001 | 3/4" Steel Liquid Tight Flex conduit | X075001001 | Ultratite | EL-R1-S1 | 1.00 | $1.00 | ELEC |
| ELEC-COIL-001 | 120 Volt Coil | 9-1891-1 | Cutler Hamme | EL-R2-S3 | 2.00 | $0.00 | ELEC |
| ELEC-COIL-002 | Furnas size 3 starter coil for Hoover High S | 75D73251A | Furnas | EL-R2-S3 | -2.00 | $97.50 | ELEC |
| ELEC-COIL-003 | Contactor coil for Shades Site street lights | 31041-400-42 | SQUARE D | EL-1 | 1.00 | $48.80 | ELEC |
| ELEC-COIL-004 | Compressor coil for Scott's Br A.C. | 31074-400-44 | SQUARE D | EL-1 | -1.00 | $102.00 | ELEC |
| ELEC-COIL-005 | Coil Piece, Laminated For Size 5 Furnas Starter | D18826001 | | EL-R2-S2 | 1.00 | $381.00 | ELEC |
| ELEC-COIL-006 | Coil For Riverchase | 78009204857 | GE | EL-C4-S7 | 1.00 | $125.38 | ELEC |
| ELEC-COIL-007 | Coil, Size 3, 480 Volts For Shades Trunk Fan | 31074-400-57 | SQUARE D | EL-R2-S2 | 2.00 | $100.53 | ELEC |
| ELEC-COIL-008 | | 31074-400-38 | SQUARE D | EL-R2-S2 | 2.00 | $100.53 | ELEC |
| ELEC-COMPKIT-001 | Compressor Repair Kit | 11305 | Air Dimensio | EL-C2-S2 | 1.00 | $0.00 | COMPRE |
| ELEC-CONTPAK-001 | Low Voltage Control Pak For Newfound | 144600 | GEMS S. | EL-C5-S6 | 4.00 | $133.00 | ELEC |
| ELEC-CONTPANEL-001 | Total Control Panel for Riverchase. | CQPM3D200B2PA | GE | EL-R2-S2 | 1.00 | $476.45 | ELEC |
| ELEC-CONTRL-001 | Controller | 27781-023EPS | Gorman Rupp | EL-R2-S1 | 1.00 | $0.00 | ELEC |
| ELEC-CONTRL-002 | Electronic Level Processor For Blueridge | 4L410A | S&L | EL-R2-S1 | -1.00 | $982.00 | ELEC |
| ELEC-CONTRL-003 | Liquid Level Controller, For PipS., ParkW., Saddle | 403 | TIME MARK | EL-C5-S7 | 1.00 | $779.00 | ELEC |
| ELEC-CONTRL-004 | Pump Controller For (New) Morgan/Greenwood #1 & #2 | 1760 | A-B | EL-R2-S1 | 2.00 | $193.60 | ELEC |
| ELEC-CONTRL-005 | Controller for Visionland | INFP-0300-C2/E | NEWPORT | EL-R2-S1 | -1.00 | $720.00 | ELEC |
| ELEC-CONTRL-006 | Level Controller For Newfound #1 | AB 2707L8P2 | ALLEN B. | EL-R2-S1 | 1.00 | $1,140.57 | ELEC |
| ELEC-CONTRL-007 | Pump Director Control B. For Newfound #1 | 7600 | GA INDUSTRIE | EL- | 0.00 | $2,393.00 | ELEC |
| ELEC-CONTRL-008 | Level Controller For Adamsville P.S. | 120 | PULSAR | EL-C4-S6 | 0.00 | $1,090.00 | ELEC |
| ELEC-CONTRL-009 | Duplex Controller Board For Airport | DC101D | CSI | EL-R2-S1 | 1.00 | $310.00 | ELEC |
| ELEC-CONTRL-DEV001 | Lift Station Controller, 3 1/2 Digit, Alternating | SLCS-332-AP-SC | DEVAR | EL-R2-S1 | 1.00 | $435.00 | ELEC |
| ELEC-CONTRL/B-001 | Main Control Board For Allen B. - VFD at Minor Par | 1336F-MCB-SP1L | ALLEN B. | EL-R2-S2 | 0.00 | $1,180.00 | ELEC |
| ELEC-CONTRLMOD-001 | Control Module For Generator Engine at Wylam | 6V6153 | CAT | EL-C2-S2 | 0.00 | $1,233.09 | GEN |
| ELEC-CPU-001 | Control Panel Unit For Riverchase | 1C693UDR001EP1 | GE/MAYER | EL-C2-S2 | 2.00 | $240.00 | ELEC |
| ELEC-CPU-002 | Control Panel Unit For Riverchase | IC693UDR001RP1 | GE/MAYER | EL-C4-S7 | 2.00 | $240.00 | ELEC |
| ELEC-CRARMASS-001 | Cross Arm Assembly For Furnas Starter Size 4 | D51145001 | | EL-R2-S2 | 1.00 | $39.23 | ELEC |
| ELEC-CTKIT-001 | Kit for Size 3 Square D Starter | 9998SL7 | SQUARE D | EL-R2-S2 | 1.00 | $281.72 | ELEC |
| ELEC-CTS-001 | Contactor, Five Mile West - Crane | ABB/A16301084 | M&G ELECTRON | EL-C6-S8 | 2.00 | $71.40 | ELEC |
| ELEC-CTS-002 | Contactor, Five Mile West - Crane | ABB/A12301084 | M&G ELECTRON | EL-C6-S8 | 3.00 | $58.80 | ELEC |
| ELEC-CTS-003 | Contractor For Sm Cranes in Shop Water Heater at P | 8910DPA33V02 | SQUARE D | EL-C6-S8 | 0.00 | $69.75 | ELEC |
| ELEC-DEHUMIF-001 | Dehumidifier, 30 Pt/24 Hr, 115V - Grainger | 3HZ92 | GRAINGER | MZ-F | 0.00 | $295.00 | ELEC |
| ELEC-DEHUMIF-002 | Dehumidifier, 30 Pt/24 Hr, 115V - Grainger - Made | 4YH17 | GRAINGER | MZ-F | 0.00 | $185.27 | ELEC |
| ELEC-DEHUMIF-003 | Dehumidifier, 50 Pt/24 Hr, 115V - Grainger - Made | 5E821 | GRAINGER | MZ-F | 0.00 | $237.02 | ELEC |
| ELEC-DEHUMIF-004 | Dehumidifier, 40 Pt/24 Hr, 115V - Grainger | 4YH13 | GRAINGER | MZ-F | 0.00 | $177.73 | ELEC |
| ELEC-DEHUMIF-005 | Dehumidifier, 50 Pt/24 Hr Grainger | 1KW85 | GRAINGER | MZ-F | 1.00 | $237.25 | ELEC |
| ELEC-DEHUMIF-006 | Dehumidifier, 65 Pt/24 Hr Grainger | 1KW84 | GRAINGER | MZ-F | 0.00 | $260.00 | ELEC |
| ELEC-DEHUMIF-007 | Dehumidifier, 50 PT/24 Hr, 115 Volt - Grainger | 5E822A | GRAINGER | MZ-F | 1.00 | $577.63 | ELEC |
| ELEC-DEHUMIF-008 | Dehumidifier, 40 Pt/24 Hr. 115V | 1KW86 | GRAINGER | MZ-F | 7.00 | $170.00 | ELEC |
| ELEC-DEHUMIF-009 | Dehumidifier, 45 PT/24 Hr., 115V, Grainger | 5BB56 | GRAINGER | MZ-F | 8.00 | $211.50 | ELEC |
| ELEC-DFLT-001 | Daytank Float | N/A | Kohler | EL-C2-S2 | 2.00 | $0.00 | ELEC |
| ELEC-DSCSWITCH-001 | Disconnect Switch | DH361URK | Cutler Hamme | EL-R2-S3 | 1.00 | $0.00 | ELEC |
| ELEC-ELECTRODE-01 | Electrode for USEMCO vacuum prime pump systems | 04126400 | USEMCO | - | 2.00 | $66.15 | ELEC |

# Inventory Standard

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JEFFERSON COUNTY ENVIRONMENTAL SERVICES



| Item No. | Description | Mfg Part No. | Manufacturer | Stock Location | Qty on Hand | Average Unit Cost | Inventory Type |
|---|---|---|---|---|---|---|---|
| ELEC-ELECTRODE-02 | Electrode for Smith and Loveless suction lift sta | 87A229A | S&L | GA-C15 | 8.00 | $1.00 | ELEC |
| ELEC-ELTRO-DOME-001 | Electrode Dome, PN 87B1331B, S & L | 87B1331B | S&L | GA-C15 | 9.00 | $1.00 | ELEC |
| ELEC-ETM-001 | Elapsed Time Meters | 6X137 | GRAINGER | EL-C3-S1 | 12.00 | $39.42 | ELEC |
| ELEC-ETM-002 | Elapsed Time Meters | 1T897 | Simpson | EL-C3-S1 | 7.00 | $0.00 | ELEC |
| ELEC-EXFAN-006 | For #4 Blower Control Panel For Scotts | T-FP41 | Hoffman | EL-C1-S6 | -3.00 | $90.00 | EXFAN |
| ELEC-FILM-001 | Film, Caterpillar PN 7C9129, Wylam | 7C9129 | CAT | EL-C2-S2 | -1.00 | $8.82 | GEN |
| ELEC-FLT-001 | Level Control Floats (40 Feet Length) | S40NONC | Roto-Float | EL-C1-S1 | 0.00 | $0.00 | ELEC |
| ELEC-FLT-002 | Level Control Floats (40 Feet Length) | S40NO | Roto-Float | EL-C1-S1 | 11.00 | $39.00 | ELEC |
| ELEC-FLT-003 | Level Control Floats (60 Feet Length) | S60NO | ROTO-FLOAT | EL-C1-S1 | 6.00 | $68.75 | ELEC |
| ELEC-FLT-004 | Level Control Floats (20 Feet Length) | 1001898 | SJE-RHOMBUS | EL-C5-S1 | 9.00 | $45.62 | ELEC |
| ELEC-FLTSWITCH-001 | Float Switch | 6717 | SQUARE D | EL-C1-S2 | 1.00 | $0.00 | ELEC |
| ELEC-FUSE-001 | Fuse 600V | FRS-R-400 | Fusetron | EL-C3-S3 | 5.00 | $0.00 | ELEC |
| ELEC-FUSE-002 | Fuse 600V | KLPC 800 | Little Fuse | EL-C3-S2 | 2.00 | $75.00 | ELEC |
| ELEC-FUSE-003 | Fuse 600V | LLSRK 200 | Little Fuse | EL-C3-S2 | 10.00 | $49.15 | ELEC |
| ELEC-FUSE-004 | Fuse 600V | LLSRK 150 | Little Fuse | EL-C3-S2 | 14.00 | $49.15 | ELEC |
| ELEC-FUSE-005 | Fuse 600V | LLSRK 100 | Little Fuse | EL-C3-S2 | 14.00 | $0.00 | ELEC |
| ELEC-FUSE-006 | Fuse 250V | LLNRK 100 | Little Fuse | EL-C3-S2 | 13.00 | $0.00 | ELEC |
| ELEC-FUSE-007 | Fuse 600V | LLSRK 60 | Little Fuse | EL-C3-S2 | 20.00 | $10.64 | ELEC |
| ELEC-FUSE-008 | Fuse 250V | LLNRK 60 | Little Fuse | EL-C3-S2 | 12.00 | $0.00 | ELEC |
| ELEC-FUSE-009 | Fuse 600V | LLSRK 30 | Little Fuse | EL-C3-S2 | 10.00 | $0.00 | ELEC |
| ELEC-FUSE-010 | 15 Amp/600 Volt Fuse | FLSR 15 | Little Fuse | EL-C3-S2 | 30.00 | $4.06 | ELEC |
| ELEC-FUSE-011 | Fuse 600V | LPJ-17 1/2 SP | BUSSMAN | EL-C3-S2 | 19.00 | $0.00 | ELEC |
| ELEC-FUSE-012 | Fuse 600V | KLDR 1/2 | Little Fuse | EL-C3-S2 | 10.00 | $0.00 | ELEC |
| ELEC-FUSE-013 | Fuse 250V | FLNR 6/10 | Little Fuse | EL-C3-S2 | 8.00 | $0.00 | ELEC |
| ELEC-FUSE-014 | Fuse 600V | KLKR 1 | Little Fuse | EL-C3-S2 | 20.00 | $0.00 | ELEC |
| ELEC-FUSE-015 | Fuse 250V | FLM-1 4/10 | Little Fuse | EL-C3-S2 | 8.00 | $0.00 | ELEC |
| ELEC-FUSE-016 | Fuse 500V | FLQ 2 | Little Fuse | EL-C3-S2 | 5.00 | $0.00 | ELEC |
| ELEC-FUSE-017 | Fuse 600V | KLDR 3 | Little Fuse | EL-C3-S2 | 4.00 | $0.00 | ELEC |
| ELEC-FUSE-018 | Fuse 500V | FLQ 3 | Little Fuse | EL-C3-S2 | 8.00 | $0.00 | ELEC |
| ELEC-FUSE-019 | Fuse 250V | NLN 3 | Little Fuse | EL-C3-S2 | 8.00 | $0.00 | ELEC |
| ELEC-FUSE-020 | Fuse 250V | FLNR 3 2/10 | Little Fuse | EL-C3-S2 | 8.00 | $0.00 | ELEC |
| ELEC-FUSE-021 | Fuse 250V | KLNR 1 6/10 | Little Fuse | EL-C3-S2 | 5.00 | $0.00 | ELEC |
| ELEC-FUSE-022 | Fuse 600V | KLDR 4 | Little Fuse | EL-C3-S2 | 8.00 | $0.00 | ELEC |
| ELEC-FUSE-023 | Fuse 250V | FLM 5 6/10 | Little Fuse | EL-C3-S2 | 8.00 | $0.00 | ELEC |
| ELEC-FUSE-024 | Fuse 250V | FLNR 5 | Little Fuse | EL-C3-S2 | 8.00 | $0.00 | ELEC |
| ELEC-FUSE-025 | Fuse 600V | KLKR 10 | Little Fuse | EL-C3-S2 | 8.00 | $0.00 | ELEC |
| ELEC-FUSE-026 | Fuse 500V | FLQ 15 | Little Fuse | EL-C3-S2 | 8.00 | $0.00 | ELEC |
| ELEC-FUSE-027 | Fuse 600V | KLKR 10 | Little Fuse | EL-C3-S2 | 8.00 | $0.00 | ELEC |
| ELEC-FUSE-028 | Fuse 250V | LLNRK 30 | Little Fuse | EL-C3-S2 | 10.00 | $0.00 | ELEC |
| ELEC-FUSE-029 | Slo-Blo Glass Fuses 250V | 3AG 5A 313 | Little Fuse | EL-C3-S2 | 9.00 | $0.00 | ELEC |
| ELEC-FUSE-030 | 400 Amp 600V Fuse | 6AAIS400 | | EL-C3-S3 | 6.00 | $57.00 | ELEC |
| ELEC-FUSE-031 | 400 Amp 250V Fuse | 0T400 | Gould Shawmu | EL-C3-S3 | 6.00 | $18.90 | ELEC |
| ELEC-FUSE-032 | 60 Amp 250 Volt Fuse | TR60R | Gould Shawmu | EL-C3-S2 | 18.00 | $4.48 | ELEC |
| ELEC-FUSE-033 | 40 Amp 250 Volt Fuse | TR40R | Gould Shawmu | EL-C3-S2 | 20.00 | $4.48 | ELEC |
| ELEC-FUSE-034 | 30 Amp 250 Volt Fuse | TR30R | Gould Shawmu | EL-C3-S2 | 20.00 | $2.46 | ELEC |
| ELEC-FUSE-035 | Pole Light Fuse-Littlefuse | PNKLK-R-3 | Little Fuse | EL-C3-S2 | 20.00 | $4.99 | FUSE |
| ELEC-FUSE-036 | Fuse - 300 Amp, 600 Volt For Coosa PS | FLSR300 | Little Fuse | EL-C3-S2 | 3.00 | $50.65 | ELEC |
| ELEC-FUSE-037 | 10 Amp/600 Volt Fuse | FLSR10 | Little Fuse | EL-C3-S2 | 19.00 | $8.67 | ELEC |
| ELEC-FUSE-038 | 20 Amp/600 Volt Fuse | FLSR20 | Little Fuse | EL-C3-S2 | 19.00 | $8.67 | ELEC |
| ELEC-FUSE-039 | 30 Amp/600 Volt Fuse | FLSR30 | Little Fuse | EL-C3-S2 | 20.00 | $8.67 | ELEC |
| ELEC-FUSE-040 | 10 Amp/250 Volt Fuse | FLNR10 | Little Fuse | EL-C3-S2 | 16.00 | $2.68 | ELEC |
| ELEC-FUSE-041 | 15 Amp/250 Volt Fuse | FLNR15 | Little Fuse | EL-C3-S2 | 19.00 | $2.68 | ELEC |
| ELEC-FUSE-042 | 20 Amp/600 Volt Fuse | FLNR20 | Little Fuse | EL-C3-S2 | 20.00 | $2.68 | ELEC |
| ELEC-FUSE-043 | 30 Amp/600 Volt Fuse | FLNR30 | Little Fuse | EL-C3-S2 | 20.00 | $2.68 | ELEC |
| ELEC-FUSE-044 | Fuse 600V | KLKR2 | Little Fuse | EL-C3-S2 | 38.00 | $4.10 | ELEC |
| ELEC-FUSE-045 | 4 Amp 250 Volt Fuse | FLM 4 | Little Fuse | EL-C3-S2 | 6.00 | $1.66 | ELEC |
| ELEC-FUSE-046 | Transducer-Lower Ass. 0 To 20 Feet | KLKR 4 | Little Fuse | EL-C3-S2 | 7.00 | $4.40 | ELEC |
| ELEC-FUSE-047 | Fuse 2 Amp 250 Volt | FLM 2 | Little Fuse | EL-C3-S2 | 10.00 | $1.60 | ELEC |
| ELEC-FUSE-048 | 25A/600 V For Muffin Monster at Warrior Plant | AJT 25 | SHAWMUTT | EL-C3-S2 | 4.00 | $1.00 | ELEC |

# Inventory Standard

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JEFFERSON COUNTY ENVIRONMENTAL SERVICES



| Item No. | Description | Mfg Part No. | Manufacturer | Stock Location | Qty on Hand | Average Unit Cost | Inventory Type |
|---|---|---|---|---|---|---|---|
| ELEC-FUSE-049 | Fuse 660V - 80 Amp For Bio-filter | 170M 1366 | BUSSMAN | EL-C3-S2 | 9.00 | $24.80 | ELEC |
| ELEC-FUSE-050 | 10 Amp/600 Volt Midget Control Fuse | ATMR10 | FS | EL-C3-S2 | 14.00 | $3.85 | ELEC |
| ELEC-FUSE-051 | 2 Amp/600 Volt Midget Control Fuse | ATMR4 | SHAWMUTT | EL-C3-S2 | 18.00 | $4.10 | ELEC |
| ELEC-FUSE-052 | 5 Amp/60 Volt Midge Control Fuse | ATMR5 | SHAWMUTT | EL-C3-S2 | 30.00 | $3.85 | ELEC |
| ELEC-FUSE-HLD-001 | Inline Fuse Holder, Bussman Brand, For Scotts | HEB-AA | BUSSMAN | EL-C3-S1 | 20.00 | $4.39 | ELEC |
| ELEC-FUSELINK-001 | 400 Amp 600V Link fuse | RLS400 | Gould Shawmu | EL-C3-S3 | 10.00 | $1.00 | ELEC |
| ELEC-FUSELINK-002 | 400 Amp 250V Link fuse | RL400 | Gould Shawmu | EL-C3-S3 | 10.00 | $8.55 | ELEC |
| ELEC-GAUGE-LEVEL-001 | Magnetic Liquid- Level Gauge- Day Tank, Visionland | 215920 | ROCHESTER | EL-C4-S3 | 0.00 | $135.00 | ELEC |
| ELEC-GEN-VOL-REG-001 | Gen. Voltage Reg. For Cummins - At Black Creek | 332-1956 | ONAN | EL-C2-S2 | 0.00 | $307.90 | ELEC |
| ELEC-GENBRKR-001 | Generator Breaker | 302-0431 | Onan | EL-C2-S2 | 5.00 | $0.00 | ELEC |
| ELEC-GENSOL-001 | Generator Solenoid | 3916301 | Cummins | EL-C2-S2 | 2.00 | $0.00 | ELEC |
| ELEC-HEAT-PORT-001 | Heaters, Milk House, 1300/1500 Watt, 3 Wire Ground | 3UG67 | GRAINGER | MZ-R9-S3 | 0.00 | $36.60 | ELEC |
| ELEC-HEAT-PORT-002 | Heater, Port., Holmes, 1500W, 3 Wire | HFH 680 | HOLMES/LONG | MZ-R9-S3 | 4.00 | $0.00 | ELEC |
| ELEC-HEAT-PORT-003 | Portable Heaters For Pump Stations | 3VU32 | DAYTON/GRAIN | MZ-R9-S3 | 8.00 | $36.00 | ELEC |
| ELEC-JBOX-001 | Junction Box | A-18R188 | Hoffman | EL-R2-S1 | 3.00 | $0.00 | ELEC |
| ELEC-JBOX-002 | Hoffman 12" x 10" | HOFA1210CHNF | Hoffman | EL-R1-S1 | 1.00 | $60.25 | ELEC |
| ELEC-JBOX-003 | Junction Box-Hinged - 4" x 4" x 4" | | | EL-C5-S8 | 10.00 | $16.98 | ELEC |
| ELEC-JBOX-004 | 4" Weather Proof Back Box For Patton 1 & 2 | WB | FEDERAL S. | EL-R2-S1 | 3.00 | $23.16 | ELEC |
| ELEC-LIFIX-001 | 100 Watt, Ceiling Mount, Roughlyte, Vapor Tight | VCXL11GC | STONCO | EL-R1-S3 | 4.00 | $35.00 | ELEC |
| ELEC-LIFIX-002 | Explosion Proof Light Fixture With Glass Globe | VPWB50 | MAYER | EL-C4-S1 | 4.00 | $118.70 | ELEC |
| ELEC-LIFIX-003 | Explosion Proof Light Fixture (Fixture Only) | EL-C4-S1 | MAYER | EL-C4-S1 | 2.00 | $34.50 | ELEC |
| ELEC-LOUVOP-001 | Louver Operators, Scotts Branch | M9216-AGA-2 | JOHNCONT | EL-C5-S1 | 0.00 | $155.62 | ELEC |
| ELEC-MECH-INTL-001 | Mechanical Interlock - Five Mile West - Crane | ABB/VM51 | M&G ELECTRON | EL-R2-S3 | 2.00 | $14.70 | ELEC |
| ELEC-MODULE-001 | Electric Module For Riverchase | 78009204877 | GE | EL-C4-S7 | 1.00 | $205.62 | ELEC |
| ELEC-MODULE-002 | Engine Interface Module For Hidden Trace | 630-083 | THOMPSON | EL-C4-S7 | 0.00 | $161.91 | ELEC |
| ELEC-MOTOR-001 | Dehumidifier Motor For White/W.H. Model MDD 30 WW | 5303279144 | Frigidaire | EL-C2-S1 | -2.50 | $72.50 | ELEC |
| ELEC-MOTOR-002 | Dehumidifier Motor | 5303208878 | Frigidaire | EL-C2-S1 | 0.00 | $0.00 | ELEC |
| ELEC-MOTOR-003 | 5 HP Motor Baldor, M3615T-5-1800-TEFE-30, Warrior | | | COPS-SS | | | ELEC |
| ELEC-MOTOR-004 | 1/4 Hp, 460V, 3 PH - Motor To Fit EIM Gate Control | 9C4603FC-C | ECO-TECH | EL-C4-S1 | 0.00 | $435.00 | ELEC |
| ELEC-MOTOR-005 | Elec. Motor 5 Hp For Plant Water Pump at P. Creek | V3116 | GE | EL-C4-S1 | 1.00 | $560.00 | ELEC |
| ELEC-MOTOR-006 | Motor - Fan For Dehumidifiers | 5303279144 | ELECTROLUX | EL-C7-S7 | 6.00 | $91.01 | ELEC |
| ELEC-MOTOR-007 | For 5 Hp Ebara at Birmingham Zoo & Chesswood | CDL 04-6650 | EBARA | MS-R4A-S1 | 0.00 | $1,412.00 | ELEC |
| ELEC-MOTOR-008 | Elec Motor 10 HP For Pump at Harriman | TV-9 | US BRAND | EL-C4-S1 | 1.00 | $2,056.66 | ELEC |
| ELEC-MOTOR-009 | Electric Motor 5 Hp Ebara For Birmingham Zoo | CDL06-6102 | EBARA | MS-R4A-S1 | 1.00 | $1,487.00 | ELEC |
| ELEC-MOTOR-010 | Elec. Motor For Water Seal Pump at Riverchase PS | CM 3545 | BALDOR | EL-C4-S8 | 1.00 | $225.55 | ELEC |
| ELEC-MSWITCH-001 | Micro-Switch | LSA1A | HONEYWELL | EL-C1-S2 | 3.00 | $0.00 | ELEC |
| ELEC-MSWITCH-002 | Micro-Switch | Z-15G-B7-K | DMRON | EL-C1-S2 | 14.00 | $0.00 | ELEC |
| ELEC-MSWITCH-003 | Micro-Switch | BZ-2RS-A2 | MICRO SWITCH | EL-C1-S2 | 8.00 | $0.00 | ELEC |
| ELEC-OILMON-001 | Oil Level Monitor For Vaughn P. #V4K-089 - Airport | V800-488 | DANIEL W. CO | EL- | 0.00 | $254.00 | ELEC |
| ELEC-OLOADHT-001 | Overload Heaters Size #1 Woodbrook Apt. | 328 | SQUARE D | EL-R2-S2 | 6.00 | $7.78 | ELEC |
| ELEC-OLOADHT-002 | Overload Heaters Size #3 | CC94 | SQUARE D | EL-R2-S2 | 12.00 | $7.96 | ELEC |
| ELEC-OLOADHT-004 | Overload Heaters, Square S, To Fit Size 1 Motor St | B-45 | | EL-R2-S2 | 6.00 | $7.70 | ELEC |
| ELEC-OLOADHT-005 | Overload Heaters, Furnas | K-86 | Furnas | EL-R2-S3 | 6.00 | $1.00 | ELEC |
| ELEC-OLOADHT-006 | Overload Heaters For Scotts - Blower | H-2006B-3 | Cutler Hamme | EL-R2-S3 | 1.00 | $24.40 | ELEC |
| ELEC-OVERLOAD H-003 | | CC167 | | EL-R2--S3 | 5.00 | $7.77 | ELEC |
| ELEC-PHMNTR-001 | Phase Monitor | SLA-230-ALE | Diversified | EL-C1-S3 | -1.00 | $0.00 | ELEC |
| ELEC-PHMNTR-002 | Phase Monitor | SLA-440-ALE | Diversified | EL-C1-S3 | -1.00 | $0.00 | ELEC |
| ELEC-PHMNTR-003 | Phase Monitor | SLA-230-ASA | Diversified | EL-C1-S3 | 14.00 | $72.00 | ELEC |
| ELEC-PHMNTR-004 | Phase Monitor Relay 440V | SLA-440-ASA | Diversified | EL-C1-S4 | 0.00 | $77.00 | ELEC |
| ELEC-POWER-SUP001 | Power Supply to Control Panel at Riverchase - 24 V | S82K-05024 | OMRON | EL-C4-S5 | 1.00 | $135.00 | ELEC |
| ELEC-PROBEFIT-001 | Probe Fitting For Fox H., Parkway, Dunnavant | 6012 EP1 | USEMCO | EL-C7-S5 | 5.00 | $31.08 | ELEC |
| ELEC-PSWITCH-001 | Pressure Switch | 1823-80 | DWYER | EL-C1-S2 | -1.00 | $0.00 | ELEC |
| ELEC-PSWITCH-002 | Pressure Switch | 836-NX50 | Allen-Bradle | EL-C1-S2 | 3.00 | $0.00 | ELEC |
| ELEC-PSWITCH-003 | Pressure Switch | L404B1304 | HONEYWELL | EL-C3-S4 | 3.00 | $110.00 | ELEC |
| ELEC-PSWITCH-004 | Pressure Switch For Air Compressor Tanks | 9013 FHG9S2J27P | SQUARE D | EL-C1-S2 | 7.00 | $11.70 | ELEC |
| ELEC-PSWITCPH-004 | Pressure Switch - Riverchase PS | 9012GNG5 | SQUARE D | EL-C1-S5 | 0.00 | $106.60 | ELEC |
| ELEC-PVLV-001 | Pressure Valve | 111B-111BA | MAC | EL-C1-S2 | -1.00 | $0.00 | ELEC |
| ELEC-R/FIT-KIT-001 | Retro Fit Kit / Transducer Patton 1$2, Race C. | 601264-10 | CONSOL | EL-C4-S3 | 2.00 | $27.05 | ELEC |
| ELEC-REC-TF-001 | Rectifier For Transfer Switch, Prudes & Corbet 2 | 294544 | KOHL | EL-C2-S2 | 2.00 | $154.00 | ELEC |

# Inventory Standard

## JEFFERSON COUNTY ENVIRONMENTAL SERVICES



| Item No. | Description | Mfg Part No. | Manufacturer | Stock Location | Qty on Hand | Average Unit Cost | Inventory Type |
|---|---|---|---|---|---|---|---|
| ELEC-RECEP-001 | GFI Ground Fault Receptacle | GF5352A | HUBBELL | EL-C2-S4 | 4.00 | $1.00 | ELEC |
| ELEC-RESIN-001 | Electrical Resin | Scotchcast 4 Size C | 3M | EL-C7-S7 | 8.00 | $26.20 | ELEC |
| ELEC-RESIN-002 | Electrical Resin | Scotchcast 4 Size A | 3M | EL-C2-S2 | 1.00 | $0.00 | ELEC |
| ELEC-REST-001 | Transfer Switch Resistor, Kohler | 328011 | KOHL | EL-C2-S2 | 1.00 | $182.00 | ELEC |
| ELEC-REST-002 | Resistor For 2 Ton Crane in Garage | 822J1-100 | YALE | EL-C2-S2 | 0.00 | $70.02 | ELEC |
| ELEC-RLY-001 | Relay | RH4B-U | IDEC Corpora | EL-C1-S4 | 1.00 | $0.00 | ELEC |
| ELEC-RLY-002 | Relay For: 150/459 Lakecrest Magnolia T Stadium T | RR3B-UL | IDEC Corpora | EL-C1-S4 | 35.50 | $10.50 | ELEC |
| ELEC-RLY-003 | 24V Relay | 20547-82 | Deltrol Cont | EL-C1-S3 | 8.00 | $0.00 | ELEC |
| ELEC-RLY-004 | Time Delay Relay | 80E3A607 | EAGLE SIGNAL | EL-C1-S3 | 9.00 | $0.00 | ELEC |
| ELEC-RLY-005 | Relay | PRD-3AGD-120 | Potter and B | EL-C1-S4 | 2.00 | $0.00 | ELEC |
| ELEC-RLY-006 | Relay | KP13P14V20 | SQUARE D | EL-C1-S4 | 9.00 | $14.00 | ELEC |
| ELEC-RLY-007 | Relay | KP12P14V20 | SQUARE D | EL-C1-S4 | 7.00 | $13.00 | ELEC |
| ELEC-RLY-008 | Relay | KUP-14A35-120 | Potter & Bru | EL-C1-S4 | -3.00 | $0.00 | ELEC |
| ELEC-RLY-009 | Relay | RH2B-U | IDEC Corpora | EL-C1-S4 | -2.00 | $0.00 | ELEC |
| ELEC-RLY-010 | Relay | RY2V-U | IDEC Corpora | EL-C1-S4 | 2.00 | $0.00 | ELEC |
| ELEC-RLY-011 | Relay | RY4V-U | IDEC Corpora | EL-C1-S4 | 2.00 | $0.00 | ELEC |
| ELEC-RLY-012 | Overload Relay | 48GC38AA4 | Furnas | EL-C1-S4 | 1.00 | $0.00 | ELEC |
| ELEC-RLY-013 | Relay | MK3P5-s | OMRON | EL-C1-S4 | 1.00 | $0.00 | ELEC |
| ELEC-RLY-014 | Double Pole Double Throw Relay | 8501C07V20 | SQUARE D | EL-C1-S4 | 7.00 | $33.10 | ELEC |
| ELEC-RLY-015 | Double Pole Single Throw Relay | 8501C016420 | SQUARE D | EL-C1-S4 | 4.00 | $44.95 | ELEC |
| ELEC-RLY-016 | Time Delay Relay 8 Pin | 1073-1P-1B-1-1 | ISSC | EL-C1-S4 | 9.00 | $67.00 | ELEC |
| ELEC-RLY-017 | Time Delay Relay | 70F3A601 | EAGLE SIGNAL | EL-C1-S3 | 1.00 | $64.00 | ELEC |
| ELEC-RLY-018 | Single Phase Start Relay SEE SPECIFICATIONS | 19167 | MARS | EL-C1-S4 | 14.00 | $13.46 | ELEC |
| ELEC-RLY-019 | 30 Amp 250 Vac Relay | PRD3AY0 | Potter and B | EL-C1-S4 | 5.00 | $1.00 | ELEC |
| ELEC-RLY-020 | Relay, Phase Failure, 480 Volt, 3 Phase | SLA-440-ASA | Diversified | EL-C1-S3 | 7.00 | $91.67 | ELEC |
| ELEC-RLY-021 | A.C. Control Relay For New Found & Visionland | 8501X040V02 | SQUARE D | EL-C1-S4 | 5.00 | $52.67 | ELEC |
| ELEC-RLY-022 | Time Delay Relay For Visionland | 8501XTE2 | SQUARE D | C1-S3 | 0.00 | $92.00 | ELEC |
| ELEC-RLY-023 | Relay, Phase Failure, 230 Volt, 3 Phase | SLA-230-ASA | Diversified | EL-C1-S | 1.00 | $74.66 | ELEC |
| ELEC-RLY-024 | Relay, 120V, Mode-Direct, For Fox Hollies | 16MC1A0 | WARRICK | EL-C1-S4 | 1.00 | $98.10 | ELEC |
| ELEC-RLY-025 | Relay/Presence, Sarasota For Gate at Shades V. Sit | 625X | GORRIE-REGAN | EL-C1-S4 | -1.00 | $195.00 | ELEC |
| ELEC-RLY-026 | Relay - 8 Pin - Single Tier | 8501 NRB | SQUARE D | EL-C1-S | 18.00 | $3.32 | ELEC |
| ELEC-RLY-027 | Relay 4 pole for Minor Parkway | 700-CF220D | ALLEN B. | EL-C1-S2 | 4.00 | $33.55 | ELEC |
| ELEC-RLY-028 | Time Delay Relay For Minor Parkway | 100-FPTA180 | ALLEN B. | EL-C1-S3 | 1.00 | $71.53 | ELEC |
| ELEC-RLY-029 | Relay For Newfound 1 & 2 | TSD 1423 | SSAC | EL-C5-S5 | 5.00 | $28.50 | ELEC |
| ELEC-RLY-030 | Relay For Newfound 1 & 2 | TSD 2421 | SSAC | EL-C5-S5 | 4.00 | $28.50 | ELEC |
| ELEC-RLY-031 | Relay For Gorman Rupp Pump Stations | 700-P200 A1 | ALLEN B. | EL-C1-S5 | 3.00 | $74.62 | ELEC |
| ELEC-RLY-032 | Relay 8 Pin | CR420KPM022J | GE/MAYER | EL-C5-S5 | 63.00 | $5.75 | ELEC |
| ELEC-RLY-033 | Relay, Overload - Brighton | 48BSL3M20 | | EL-C1-S5 | 1.00 | $219.88 | ELEC |
| ELEC-RLY-034 | Relay For Alabama Boulevard | ISO 120 AFA | Diversified | EL-C1-S3 | 1.00 | $103.51 | ELEC |
| ELEC-RLY-BASE-001 | Relay base 3 pole NO/NC | 8501NR61 | SQUARE D | EL-C1-S4 | 18.00 | $5.00 | ELEC |
| ELEC-RLY-BASE-002 | Relay base 2 pole NO/NC | 8501HR51 | SQUARE D | EL-C1-S4 | 20.00 | $5.00 | ELEC |
| ELEC-RLY-BASE-003 | Relay Base | CR420KA2 | GE/MAYER | EL-C1-S4 | 20.00 | $2.90 | ELEC |
| ELEC-RLY-OLOAD-001 | Overload Relay Scott's Br. Blower | C300CN3 | Cutler Hamme | EL-R2-S3 | 1.00 | $69.78 | ELEC |
| ELEC-RLY-OLOAD-002 | Overload Relay - Scotts Blower | C306DN3B | Cutler Hamme | EL-R2-S3 | 1.00 | $56.40 | ELEC |
| ELEC-RLY-SENS-001 | Sensitivity Relay For Gate at Shades Complex | 625X | SARASOTA | EL-C1-S | 4.00 | $210.00 | ELEC |
| ELEC-RUNCAP-001 | Run Capacitor | 440/40 | AMRAD | EL-DESK | 4.00 | $0.00 | ELEC |
| ELEC-RUNCAP-002 | Run Capacitor | 370/50R | AMRAD | EL-DESK | 1.00 | $0.00 | ELEC |
| ELEC-RUNCAP-003 | Run Capacitor 20 MFD 370V Oak Grove PS | 370/20 | AMRAD | EL-DESK | 3.00 | $9.20 | ELEC |
| ELEC-RUNCAP-004 | Run Capacitor 45 MFD 370V Oak Grove PS | 370/45 | AMRAD | EL-DESK | 5.00 | $12.33 | ELEC |
| ELEC-RUNCAP-005 | 20 MFD 440 Volts Capacitor | RC20X440 | Phillips | EL-DESK-2 | -1.00 | $6.30 | ELEC |
| ELEC-RUNCAP-006 | 60 MFD 440 Volts Capacitor | RC60X440 | Phillips | EL-DESK-2 | -3.00 | $21.62 | ELEC |
| ELEC-RUNCAP-007 | 72 MFD 330 Volts (Sherman Oaks) Capacitor | 1440952 | AEROVOX | EL-DESK-2 | 8.00 | $13.85 | ELEC |
| ELEC-SENB-001 | Circuit Sensor Board For Generator Fuel Tanks | 900310-1 | PNEUMER | EL-C2-S2 | 0.00 | $177.00 | CIRBRD |
| ELEC-SEND-UNIT-001 | Advanced Matrix Film Twinsite Send. Unit Day T. Vi | 215950 | ROCHESTER | EL-C4-S3 | 0.00 | $60.00 | ELEC |
| ELEC-SENS-001 | Liquid Level Sensor For PipeS., ParkW., Saddlers G | 408 | TIME MARK | EL-C5-S7 | 1.00 | $822.00 | ELEC |
| ELEC-SFNB-001 | Generator Fuel Tanks | 900310-1 | PNEUMER | EL-C2-S2 | 2.00 | $177.00 | ELEC |
| ELEC-SIGPKP-001 | Signal Pickup | A257099 | Kohler | EL-C2-S2 | 3.00 | $0.00 | ELEC |
| ELEC-SIREN-001 | Electronic Siren For Patton 1 & 2 | SST-MV | FEDERAL S. | EL-C6-S9 | 2.00 | $338.98 | ELEC |
| ELEC-SOFT/ST-001 | Pump Soft Start For Pleasant Grove | ATS48D624 | GEN MACH | EL-C2-S5 | 1.00 | $803.92 | ELEC |

# Inventory Standard

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JEFFERSON COUNTY ENVIRONMENTAL SERVICES



| Item No. | Description | Mfg Part No. | Manufacturer | Stock Location | Qty on Hand | Average Unit Cost | Inventory Type |
|---|---|---|---|---|---|---|---|
| ELEC-SOFT/ST-002 | Soft Start For Belmont Road #1 | ATS48D38Y | SQUARE D | EL-C2-S5 | 2.00 | $651.00 | ELEC |
| ELEC-SOFT/ST-003 | Soft Start For Rice Creek | ATS48D88YU | SQUARE D | EL-C2-S5 | 0.00 | $1,080.00 | ELEC |
| ELEC-SOL-001 | Solenoid Fuel Shut Off Cat. Gen. 5 Mile West | 9X-1413 | CAT | EL-C1-S2 | 1.00 | $126.43 | ELEC |
| ELEC-SOL-002 | 4-Way Solenoid Valve For Newfound 1 & 2 | 8344G074 | ASCO | EL-C1-S2 | 1.00 | $426.50 | ELEC |
| ELEC-SPLICKIT-001 | Splice Kit From Mayer | 82-A2 | 3M | EL-C7-S7 | 4.00 | $25.79 | ELEC |
| ELEC-ST/ENCLS-001 | Starter Enclosure For Patton 1 & 2 | GV2 MC02 | TELECANIQUE | EL-R2-S2 | 2.00 | $47.44 | ELEC |
| ELEC-START-001 | Motor Starter Size 1 Woodbrook | 8536SC03V025 | SQUARE D | EL-R2-S2 | 0.00 | $202.00 | ELEC |
| ELEC-START-002 | Motor Starter Size 3 | 8536SE01V025 | SQUARE D | EL-R2-S2 | -2.00 | $596.00 | ELEC |
| ELEC-START-003 | Motor Starter Size 3 Fieldstown | 14HSK32AA | SQUARE D | EL-R2-S2 | 2.00 | $650.00 | ELEC |
| ELEC-START-004 | Starter for Magnolia Trace | 8606SG01NV81Y | SQUARE D | EL-R2-S2 | 0.00 | $195.00 | ELEC |
| ELEC-START-005 | Motor Starter, Size 2, Vail Pump Station | 8536SD01V02S | SQUARE D | EL-R2-S2 | -2.00 | $226.18 | ELEC |
| ELEC-START-006 | Starter Kit For 2 Hp Ebara Pump-230V, Single Phase | 871-2HPS-G | EBARA | EL-C7-S8 | 1.00 | $65.00 | ELEC |
| ELEC-START-007 | Starter For Ellis Rd., Goodrich, Well. P. | LC1D 3210G6 | TELEMECH | EL-R2-S2 | 1.00 | $86.72 | ELEC |
| ELEC-START-008 | Starter For Mt. Olive Ave. P.S. | LC1D 1810G6 | TELEMECH | EL-R2-S2 | 0.00 | $68.43 | ELEC |
| ELEC-START-009 | Starter For Oak Grove P.S. | 8536SC03V02H2OS | SQUARE D | EL-R2-S2 | 2.00 | $226.00 | ELEC |
| ELEC-START-010 | Starter For Exhaust Fan For Patton 1 & 2 | GV2ME06 | TELEMECH | EL-R2-S2 | 2.00 | $96.58 | ELEC |
| ELEC-STCAP-001 | Start Capacitor | S330/161 | Phillips | EL-DESK | 1.00 | $0.00 | ELEC |
| ELEC-STCAP-002 | Start Capacitor | S250/124 | Phillips | EL-DESK | 2.00 | $0.00 | ELEC |
| ELEC-STCAP-003 | Start Capacitor | S250/216 | Phillips | EL-DESK | 3.00 | $0.00 | ELEC |
| ELEC-STCAP-004 | Start Capacitor | 72/86X330 | AEROVOX | EL-DESK | 4.00 | $0.00 | ELEC |
| ELEC-STCAP-005 | Start Capacitorfor Wood Trace | 500-600/250 | Mallory | EL-DESK | 6.00 | $0.00 | ELEC |
| ELEC-STCAP-006 | 270-324 MFD 250 Capacitor | SC0270X250 | Phillips | EL-DESK-2 | 8.00 | $7.36 | ELEC |
| ELEC-STCAP-007 | Start Capacitor 500-600MFD, 250 V. SEE SPECS | CAPA3015 | AEROVOX | EL-DESK-2 | 13.00 | $29.40 | ELEC |
| ELEC-STCAP-008 | Start Capacitor For Chesswood & B'ham Zoo | 216-259 | AEROVOX | EL-DESK | 12.00 | $11.33 | ELEC |
| ELEC-STCAP-009 | Start Capacitor ( Add A Phase) SEE SPECS | 270-324 | GLOBAL | EL-DESK | 24.00 | $8.38 | ELEC |
| ELEC-STCAP-010 | Start Capacitor | 161-193 | GLOBAL | EL-DESK | 4.00 | $6.14 | ELEC |
| ELEC-STCOIL-001 | Starter Coil For Hoover H/S & Brighton | 75D73251A | Furnas | EL-R2-S2 | 2.00 | $133.80 | ELEC |
| ELEC-STCTS-001 | Starter Contact | 75JB14 | Furnas | EL-R2-S2 | 11.00 | $320.72 | ELEC |
| ELEC-STCTS-002 | Starter Contact | 75EA14 | Furnas | EL-R2-S2 | 4.00 | $0.00 | ELEC |
| ELEC-STCTS-003 | Starter Contact | 75KB14 | Furnas | EL-R2-S2 | 3.00 | $0.00 | ELEC |
| ELEC-STCTS-004 | Starter Contact Square D To Fit Size 1 For Dunnava | 9998SL3 | SQUARE D | EL-R2-S3 | 0.00 | $77.40 | ELEC |
| ELEC-STCTS-005 | Starter Contact For Size 2 3 Pole, Adamsville& Bes | 6-34-2 | Cutler Hamme | EL-R2-S2 | 1.00 | $153.12 | ELEC |
| ELEC-STCTS-006 | Starter Contacts, Square D, Size 1 3 Phase | 9998SL3 | DAYTON | EL-R2-S3 | 6.00 | $73.68 | ELEC |
| ELEC-STCTS-007 | Starter Contacts To Fit C/Hammer Size 4 Starter | 6-26-2 | Cutler Hamme | FL-R2-S2 | 6.00 | $497.00 | ELEC |
| ELEC-STCTS-008 | Starter Contact Kit - Size 3 For Rosebud, Corbet 1 | 626B187G13 | Cutler Hamme | EL-R2-S2 | 4.00 | $122.32 | ELEC |
| ELEC-STCTS-009 | St/ Cont,- Size 2 Lewisburge 2 & Wenonah | 75GF14 | Furnas | EL-R2-S2 | 3.00 | $110.98 | ELEC |
| ELEC-STCTS-010 | Starter Contacts - Size 1 3/4, 3 Poles Per Set | 75EF14 | Furnas | EL-R2-S2 | 4.00 | $140.37 | ELEC |
| ELEC-STCTS-011 | Starter Contacts - 3 Poles/3 Poles Per Set For Lau | 75HF14 | Furnas | EL-R2-S2 | 1.00 | $292.95 | ELEC |
| ELEC-STCTS-012 | Starter C. For Size 2, 1 Pole Starter, See Specs. | 40420-322-51 | ALLEN B. | EL-R2-S2 | 3.00 | $48.35 | ELEC |
| ELEC-STCTS-013 | Starter C. For Size 3 Starter For Cottages&Waterma | 40430-300-51 | ALLEN B. | EL-R2-S2 | 3.00 | $80.55 | ELEC |
| ELEC-STCTS-014 | Starter Contacts For Belmar, Dean, Don B. Minor Rd | 42CF35AF | Furnas | EL-R2-S2 | 3.00 | $27.43 | ELEC |
| ELEC-STCTS-015 | For Size 1 Starter For Oaks, J. Met., SEE SPECS | 75DF14 | Furnas | EL-R2-S2 | 10.00 | $41.49 | ELEC |
| ELEC-STCTS-016 | Starter Contact For 3rd Pl, 2nd Ave, 3rd St & 7th | 8910DPA 43 V02 | SQUARE D | EL-R2-S2 | 2.00 | $72.96 | ELEC |
| ELEC-STCTS-017 | Starter Contact For Brighton P.S. | 75IF14 | Furnas | EL-R2-S2 | 4.00 | $152.00 | ELEC |
| ELEC-STCTS-018 | Starter Conts. Size 3 - Sq. D For Collegeville PS | 9998SL7 | SQUARE D | EL-R2-S2 | 1.00 | $201.00 | ELEC |
| ELEC-STCTS-019 | Starter Contacts For Size 2 Virginiana & Harriman | 9998SL4 | SQUARE D | EL-R2-S2 | 4.00 | $186.65 | ELEC |
| ELEC-STCTS-020 | Starter Contacts For Five Mile West | 9998SL11 | SQUARE D | EL-R2-S2 | -2.00 | $1.00 | ELEC |
| ELEC-STVCONTRL-001 | Controller To Fit EMI Gate Controller For Scotts P | 2343 | ECO-TECH | EL-C4-S7 | 1.00 | $1,435.00 | ELEC |
| ELEC-SVLV-001 | Solenoid Valve | 8210G2 | ASCO | EL-C1-S2 | 3.00 | $0.00 | ELEC |
| ELEC-SVLV-002 | MAC Brand, PN 111B-111BA | 111B-111BA | MAC | - | 10.00 | $20.00 | VALVE |
| ELEC-SWITCH-001 | Single Pole Light | CS-115 | PASS/SEYMOUR | EL-C4-S2 | 20.00 | $1.00 | ELEC |
| ELEC-SWITCH-002 | Mercury Switch For Minor Pkwy - Check Valve | TS-470 | KELE | EL-C4-S2 | 2.00 | $40.44 | ELEC |
| ELEC-SWITCH-003 | Mercury Switch For Bess. Hosp. & Five Mile West | 9-5107SA-8T | DWYER | EL- | 8.00 | $23.25 | ELEC |
| ELEC-SWITCH-004 | Damper End Switch For Minor Pkwy & Morgan GW 1 & 2 | TS470 | KELE | EL-C4-S2 | 6.00 | $50.52 | ELEC |
| ELEC-SWTHRSET-001 | Set Reset Switch, To fit Kohler Generator, Gard #2 | 250512 | KOHLER | EL-C2-S2 | 1.00 | $76.00 | ELEC |
| ELEC-T/SWITCH-001 | Transfer Switch For Acton Road | D00300030104C10F | ASCO | EL-R2-S1 | 0.00 | $1,585.00 | ELEC |
| ELEC-TDCB-001 | Time Delay Circuit Board | 300-3094 | Onan | EL-C2-S2 | 2.00 | $0.00 | CIRBRD |
| ELEC-TERMINAL/B-001 | Terminal Board Assembly For Summit For F/Morse Pum | CP 9003 AP | F.M. | EL-C2-S2 | 0.00 | $164.00 | ELEC |
| ELEC-TERMINAL/P-001 | Terminal Post To Fit ABS=AST Model #0010EX Pump | 12940026 | HYDRA SERV | EL-C4-S4 | 3.00 | $108.64 | ELEC |

# Inventory Standard

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JEFFERSON COUNTY ENVIRONMENTAL SERVICES



| Item No. | Description | Mfg Part No. | Manufacturer | Stock Location | Qty on Hand | Average Unit Cost | Inventory Type |
|---|---|---|---|---|---|---|---|
| ELEC-THMST-001 | Thermostat | M526 | Marley Elect | EL-C1-S2 | 2.00 | $0.00 | ELEC |
| ELEC-THMST-002 | Thermostat, Fleetguard, Y Cord With Thermostat | 3825424 | FLEETGUARD | EL-C2-S1 | 1.00 | $104.52 | ELEC |
| ELEC-THMST-003 | Thermostat For Generator Block Heater To Fit Cat. | 127-6260 | CAT | EL-C2-S1 | 2.00 | $113.46 | ELEC |
| ELEC-TIMER-002 | Pneumatic Timer, Furnas, Lakecrest and Stadium Tra | 55AB1AF | Furnas | EL-C1-S2 | 2.00 | $174.15 | ELEC |
| ELEC-TIMER-003 | Time Clock with Battery Backup - Indoor Type - Out | E103 | TORK | EL-C5-S8 | 5.00 | $98.00 | ELEC |
| ELEC-TMR-001 | Timer | DA2020A3 | EAGLE SIGNAL | EL-C1-S3 | 1.00 | $0.00 | ELEC |
| ELEC-TMR-002 | Delay Timer | 32391 | MARS | EL-C1-S3 | 12.00 | $15.00 | ELEC |
| ELEC-TMR-003 | 16HR Timer | 4L365A | Precision Ti | EL-C1-S3 | 5.00 | $0.00 | ELEC |
| ELEC-TMR-004 | 10 Min. Timer | 4L343A | Precision Ti | EL-C1-S3 | 1.00 | $0.00 | ELEC |
| ELEC-TMR-005 | Delay Timer | U9842C | AUTOMATIC TI | EL-C1-S3 | 5.00 | $0.00 | ELEC |
| ELEC-TMR-006 | Electronic Timer | RTE-P11 | IDEC Corpora | EL-C1-S3 | 2.00 | $0.00 | ELEC |
| ELEC-TMR-007 | Pneumatic Timer , Lake C, 150/459, SEE SPECS | 55BA1AF | Furnas | EL-C1-S3 | 4.00 | $174.00 | ELEC |
| ELEC-TMR-008 | On Delay Relay Timer | 70E3A601 | M&G ELECTRON | EL-C1-S3 | 2.00 | $52.80 | ELEC |
| ELEC-TMR-009 | Pneumatic Timer Siemans Brand For *See Specs. | 3RP1505-1BQ30 | SIEMANS/BRAN | EL-C1-S3 | 0.00 | $95.00 | ELEC |
| ELEC-TMR-010 | Pneumatic Timer For Gorman Rupp Pump Stations | 700 PT | ALLEN B. | EL-C1-S3 | 3.00 | $173.47 | ELEC |
| ELEC-TMR-011 | Timer - Multi Range Repeat Cycle For Riverchase | 422A500FX10 | | EL-C1-S3 | 2.00 | $71.00 | ELEC |
| ELEC-TMR-012 | Timer For Use On 100-C and 700-CF Relays | 100-FPTA 180 | ALLEN B. | EL-C1-S3 | 4.00 | $88.96 | ELEC |
| ELEC-TRANS-PRESS-001 | Pressure Transmitter For Primary Bubbler Sys. at R | 3051CD2A02A1AH2 | ROSEMOUNT | EL-C2-S5 | 1.00 | $1,394.05 | ELEC |
| ELEC-TRANSF-001 | Transformer, Square D, 10KVA 480 Volts Primary | MPZ10S40 | | COPS-SS | 1.00 | $1,059.00 | ELEC |
| ELEC-TRANSF-002 | Transformer For Scotts P. Sluice Gate Controller | 2157 | RODNEY HUNT | EL-C6-S9 | 0.00 | $575.00 | ELEC |
| ELEC-TRANSFAU | Auto Transformer, Square D For Pump #1 Magnolia Tr | MSA125 | | COPS-SS | 1.00 | $975.00 | ELEC |
| ELEC-TRDCR-001 | Electro/Pneumatic Transducer T-8000 | TT8001-001000 | FAIRCHILD | EL-C1-S2 | 1.00 | $485.00 | ELEC |
| ELEC-TRDCR-002 | Pressure Transducer, PX25 - 005G - 11D - B | 4L410B | | EL-C3-S4 | | | ELEC |
| ELEC-TRDCR-003 | Transducer 0-10PSI, 4-20MA, 9-30 VDC | 01002 AU | BLUE RIBBON | EL-C3-S4 | 1.00 | $785.00 | ELEC |
| ELEC-TRDCR-004 | Transducer- 0 To 20 FT. B'ham Race & Patton 1 & 2 | 6012950003 | CONSOL | EL-C3-S4 | 2.00 | $579.60 | ELEC |
| ELEC-TRDCR-005 | Transd/-L/Ass 0-10 Ft. Scotts & H/ Met/jArbors | 601295-0002 | CONSOL | EL-C3-S4 | 1.00 | $579.60 | ELEC |
| ELEC-TRDCR-006 | Ultra Sonic Transducer For Adamsville | dB10 | PULSAR | EL-C4-S6 | 0.00 | $440.00 | ELEC |
| ELEC-TRDCR-007 | Transducer & 50' Wire Letson F. Hidden T Al. Blvd | 700-140-0005 | ESTERLINE | El-C3-S4 | 1.00 | $477.50 | ELEC |
| ELEC-TRDCR-008 | | | | EL-C4-S3 | 0.00 | $0.00 | ELEC |
| ELEC-TRDCR-C/A-001 | Cable Assembly For Transducer For B'ham Race Cours | 6012640006 | CONSOL | EL-C3-S4 | 0.00 | $633.70 | ELEC |
| ELEC-TRDCR-DEV001 | Submersible Pressure Transducer With 25 Feet Of | #700 | DEVAR | EL-C3-S4 | 2.00 | $487.50 | ELEC |
| ELEC-TRDCR-PLATE-001 | Adapter Plate For 601295-0003 Transducer For Race | 601264-10 | CONSOL | EL-C3-S4 | 0.00 | $27.05 | ELEC |
| ELEC-UV-PROBE | U.V. Intensity Probe For Warrior WWTP | UV3000PTP | TROJAN | EL-C3-S1 | 1.00 | $0.00 | ELEC |
| ELEC-V.F. DRIVE-001 | Variable F. Drive For Scotts, 15 Hp Pump, *See Spe | CSD415-N | WESCO | EL-C3-S5 | 0.00 | $1,180.00 | ELEC |
| ELEC-VALSOL-001 | Solenoid Valve For Ellis Road PS | 8210G2 | ASCO | EL- | 0.00 | $80.75 | ELEC |
| ELEC-VARDRIVE-001 | Variable Frequency Drive, Motortronics, K Plus | CSD415 | | EL-C1-S1 | 2.00 | $1,150.00 | ELEC |
| ELEC-VARDRIVE-002 | Variable Drive, Benshaw, For Moss Lane, 30 Hp, 230 | RS1030 S2 | BENSHAW | EL-C1-S1 | 0.00 | $2,319.00 | ELEC |
| ELEC-VREG-001 | Voltage Regulator Onan Gen. at Rowan Springs | 305-0823 | ONAN | EL-C2-S2 | 0.00 | $780.88 | ELEC |
| ELEC-VSEN-001 | Voltage Sensor | 300-3121 | Onan | EL-C2-S2 | 1.00 | $0.00 | ELEC |
| ELECOSWITCH-002 | Mercury Switch For Minor Pkway - Check Valve | TS-470 | KELE | EL-C4-S2 | 4.00 | $40.44 | ELEC |
| EXFAN-BELT-001 | | | | GA | | | BELT |
| EXFAN-BELT-002 | Belt for Fan 1 at | 5VBX100 | | GA | 5.00 | $0.00 | BELT |
| EXFAN-BELT-003 | Belt for Fan 2 at | 5VBX120 | | GA | 5.00 | $0.00 | BELT |
| EXFAN-BELT-004 | | | | GA | | | BELT |
| EXFAN-BELT-006 | Belt For Exhaust Fan at Minor Parkway | 2870 | GATES | GA-W93 | 4.00 | $8.08 | BELT |
| EXFAN-BELT-007 | Belt For Exhaust Fan - Pump House/Scotts | 2340 | GATES | GA-W69 | 9.00 | $3.87 | BELT |
| EXFAN-BRNG-SM001 | Bearing For Exhaust Fan at Scotts Branch (Pt W) | L-12 | SEALMASTER | MS-R4A-S2 | 4.00 | $0.00 | BRNG |
| EXFAN-BRNG-SM002 | Bearing For Exhaust Fan at Scotts Branch | L-16 | SEALMASTER | MS-R4A-S2 | 4.00 | $0.00 | BRNG |
| EXFAN-BRNG-SM003 | Bearing For Exhaust Fan in Blower Building | 217700015 | SEALMASTER | GA-R3-S2-3 | 0.00 | $0.00 | BRNG |
| EXFAN-PSCAN-001 | Ventilating Blower For | 4C667 | DAYTON | EL-C1-S6 | 0.00 | $96.99 | ELEC |
| EXFAN-PSCAN-002 | Ventilating Blower For Cades,Nursing and Don Berri | 4C442 | DAYTON | EL-C1-S5 | 2.00 | $59.05 | ELEC |
| EXFAN-PSCAN-003 | Ventilating Blower For Acton Road/I 59 | 4C444 | DAYTON | EL-C1-S5 | 2.00 | $111.06 | ELEC |
| EXFAN-PSCAN-004 | Ventilating Blower For Morgan #1 and #2 | 2C791 | DAYTON | EL-C1-S1 | 2.00 | $67.94 | ELEC |
| EXFAN-PSCAN-005 | ExFan-Harriman, Wenonah, Fieldstown Pipeshop | 4C447 | DAYTON | EL-C5-S9 | 4.00 | $71.55 | ELEC |
| EXFAN-PSCAN-006 | Vent Fan | 2C067A | DAYTON | EL-C1-S3 | 2.00 | $0.00 | ELEC |
| EXFAN-PSCAN-007 | Vent Fan | 2C646A | DAYTON | EL-C1-S3 | 1.00 | $0.00 | ELEC |
| EXFAN-PSCAN-008 | Vent Fan For: Dean Dr., Don Berri, McAdory | 4C446 | DAYTON | EL-C5-S9 | 4.00 | $54.29 | ELEC |
| EXFAN-PSCAN-009 | Dayton, Vent. Blwr. For Lance Way SEE SPECS | 4C445 | DAYTON | EL-C1-S6 | 1.00 | $123.10 | ELEC |
| EXFAN-PSCAN-010 | Blower Shaded Pole 158 RPM 2.9 Amps | 4C444A | DAYTON | EL-C1-S6 | 0.00 | $101.17 | ELEC |

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| Item No. | Description | Mfg Part No. | Manufacturer | Stock Location | Qty on Hand | Average Unit Cost | Inventory Type |
|---|---|---|---|---|---|---|---|
| EXFAN-PSCAN-011 | Dayton, Venting Blower, For Cunningham #2Garden G. | 2C-946 | DAYTON | EL-C6-S9 | 1.00 | $146.03 | ELEC |
| EXFAN-PSCAN-012 | Dayton Vent Fan For Coleman Lakes& Cunningham 2 | 4C831 | DAYTON | EL-C1-S6 | 1.00 | $191.73 | ELEC |
| EXFAN-PSCAN-013 | Vent Fan For Johns Transfer | 4C658 | DAYTON | EL-C5-S9 | 0.00 | $90.40 | ELEC |
| EXFAN-PSCAN-014 | Exhaust Fan For Lakesterling | D1066 | FASCO/BRANNO | EL-C5-S8 | 1.00 | $72.69 | ELEC |
| EXFAN-PSCAN-015 | Exhaust Fan For Dover & Brummitt Heights | 1HLA1 | DAYTON | EL-C5-S9 | 0.00 | $107.73 | ELEC |
| EYEWEAR-PROT-001 | Protective Eyewear For MShop | 01961705 | MSC | HC1-R2-S5 | 4.00 | $10.59 | SFTY |
| FAC-WDTR-13 | Echo Weed Trimmer | SRM-3100 | ECHO | - | 1.00 | $310.00 | BLADE |
| FAC-WDTR-14 | Echo Weed Trimmer | SRM-3100 | ECHO | - | 1.00 | $310.00 | BLADE |
| FAN-BRNG-FF001 | Bearing For Vent Fan - Trunk Line | RSAO 2-15/16 | FAFNIR | GA-R3-S2-3 | 2.00 | $0.00 | BRNG |
| FAN-COMP-001 | Fan For Compressor at Biofilter | 5.0682.7 | KAESER | MS-R1B-S3 | 0.00 | $134.52 | FAN |
| FIL-AIR-001 | Air Filter for Pinewood Gen. | 1067 | NAPA | GA-R2-S2 | 0.00 | $12.46 | FILAIR |
| FIL-AIR-002 | Air Filter for Pinewood Gen. | PURAF2087 | PEROLATOR | GA-R1-S1 | 1.00 | $12.46 | FILAIR |
| FIL-AIR-003 | Unknown | AF-178 | HASTINGS | GA-R2-S1 | 0.00 | $2.91 | FILAIR |
| FIL-AIR-004 | Air Filter For Black Creek Gen | 2124 | NAPA | GA-R2-S1 | 1.00 | $18.91 | FILAIR |
| FIL-AIR-005 | Air Filter For Cunningham 1 Gen | P101246 | BALDWIN | GA-R2-S1 | 0.00 | $9.76 | FILAIR |
| FIL-AIR-006 | Air Filter For Cunningham 1 Gen | 2126 | NAPA | GA-R1-S3 | 1.00 | $9.76 | FILAIR |
| FIL-AIR-007 | Unknown | A137C | Unknown | GA-R1-S2 | 5.00 | $3.77 | FILAIR |
| FIL-AIR-008 | Unknown | LAF-121 | Unknown | GA-R1-S2 | 9.00 | $3.77 | FILAIR |
| FIL-AIR-009 | Air Filter For Acton rd Gen | 7N1225 | Nelson | GA-R2-S2 | 0.00 | $13.26 | FILAIR |
| FIL-AIR-010 | Air Filter For Acton rd Gen | 2255 | NAPA | GA-R2-S3 | 4.00 | $13.26 | FILAIR |
| FIL-AIR-011 | Air Filter For Lake Sterling Gen | FW-A052527 | Donaldson | GA-R2-S2 | | $0.00 | FILAIR |
| FIL-AIR-012 | Air Filter For Patton Gen | 6L4714 | CAT | GA-R2-S2 | | $38.68 | FILAIR |
| FIL-AIR-013 | Air Filter For Patton Gen | 2595 | NAPA | GA-R2-S3 | 1.00 | $38.68 | FILAIR |
| FIL-AIR-014 | Unknown | PO1-7665 | BALDWIN | GA-R2-S2 | 0.00 | $11.76 | FILAIR |
| FIL-AIR-015 | Unknown | WIX-42759 | WIX | GA-R1-S1 | 0.00 | $20.21 | FILAIR |
| FIL-AIR-016 | Unknown | PA-1613S | BALDWIN | GA-R2-S2 | 0.00 | $17.11 | FILAIR |
| FIL-AIR-017 | Air Filter For Patton 2 Gen | 4L9852 | CAT | GA-R1-S3 | 0.00 | $15.94 | FILAIR |
| FIL-AIR-018 | Air Filter For Patton 2 Gen | 2852 | NAPA | GA-R2-S3 | 5.00 | $15.94 | FILAIR |
| FIL-AIR-019 | Air Filter For Trussville No. East | AF-110 | HASTINGS | GA-R2-S1 | 0.00 | $3.28 | FILAIR |
| FIL-AIR-020 | Air Filter For Trussville NE Gen | 2095 | NAPA | GA-R2-S2 | 0.00 | $3.28 | FILAIR |
| FIL-AIR-021 | Air Filter For Dover Gen | AF-125 | HASTINGS | GA-R2-S1 | 0.00 | $3.38 | FILAIR |
| FIL-AIR-022 | Air Filter For Dover Gen | 2050 | NAPA | GA-R2-S2 | 1.00 | $3.38 | FILAIR |
| FIL-AIR-023 | Air Filter For Visionland Gen | AF-947 | Unknown | GA-R2-S1 | 0.00 | $0.00 | FILAIR |
| FIL-AIR-024 | Air Filter For Visionland Gen | 2676 | NAPA | GA-R2-S1 | 3.00 | $0.00 | FILAIR |
| FIL-AIR-025 | Air Filter For Riverchase Gen | 8N6309 | Nelson | GA-R2-S1 | -1.00 | $49.16 | FILAIR |
| FIL-AIR-026 | Air Filter For Riverchase Gen | 6352 | NAPA | GA-R2-S1 | 0.00 | $49.16 | FILAIR |
| FIL-AIR-027 | Air Filter For Five Mile West Gen | 4N0015 | CAT | GA-R2-S1 | 0.00 | $38.52 | FILAIR |
| FIL-AIR-028 | Air Filter For Five Mile West Gen | 6580 | NAPA | GA-R1-S3 | 1.00 | $38.52 | FILAIR |
| FIL-AIR-029 | Air Filter For Rice Creek Gen | 9Y1404 | CAT | GA-R2-S3 | 1.00 | $29.45 | FILAIR |
| FIL-AIR-030 | Air Filter For I-59 Gen | 11N84 | CAT | GA-R2-S3 | 0.00 | $0.00 | FILAIR |
| FIL-AIR-031 | Air Filter For Blue Ridge Gen | Unknown | Unknown | GA-R2-S3 | 0.00 | $0.00 | FILAIR |
| FIL-AIR-032 | Air Filter For Lake Crest Gen | 1P-8482 | CAT | GA-R2-S3 | 0.00 | $0.00 | FILAIR |
| FIL-AIR-033 | Air Filter For Denver Gardner Blower | 5A146 | Unknown | GA-R1-S2 | 0.00 | $0.00 | FILAIR |
| FIL-AIR-034 | Unknown | 5A9 | Unknown | GA-R1-S2 | 0.00 | $0.00 | FILAIR |
| FIL-AIR-035 | Air Filter For Corbet 2 Gen | 5N88 | CAT | GA-R1-S2 | 0.00 | $0.00 | FILAIR |
| FIL-AIR-036 | Air Filter For Magnolia Ridge Gen | 7524893-GM | Unknown | GA-R1-S2 | 0.00 | $0.00 | FILAIR |
| FIL-AIR-037 | Air Filter For Scotts Blower | 81-1163 | UNIVSIL | GA-R1-S1 | 4.00 | $0.00 | FILAIR |
| FIL-AIR-038 | Air Filter For Brummit Hghts Gen | F1-9 | Unknown | GA-R1-S2 | 0.00 | $0.00 | FILAIR |
| FIL-AIR-039 | Air Filter For Garden Grove Gen | Impco F1-7 | Unknown | GA-R1-S2 | 0.00 | $0.00 | FILAIR |
| FIL-AIR-040 | Air Filter For Corbet 2 Gen | N70316 | Nelson | GA-R1-S2 | 0.00 | $0.00 | FILAIR |
| FIL-AIR-041 | Air Filter For Corbet 1 Gen | N70456 | Nelson | GA-R1-S2 | 0.00 | $0.00 | FILAIR |
| FIL-AIR-042 | Air Filter- Cross Number Is WIX 42088 | AF-178 | LUBERFINER | GA-R1-S2 | 16.00 | $1.00 | FILAIR |
| FIL-AIR-043 | Air Filter | LAF-1246 | LUBERFINER | GA-R1-S3 | 4.00 | $1.00 | FILAIR |
| FIL-AIR-044 | Air Filter - Kaeser Comp. For Bio-Filter | 6.2003.0 | KAESER | GA-R1-S2 | 1.00 | $26.02 | FILAIR |
| FIL-AIR-045 | Air Filter For Powder Plant Road/459 Generator | 0140-3272 | ONAN | GA-R1-S3 | 2.00 | $0.00 | FILAIR |
| FIL-AIR-046 | Wire Mess Air Filter For G.Denver Blower at Scotts | 81-1Z00/CE | COMP/ENG SUP | GA-R2-S2 | 0.00 | $241.58 | FILAIR |
| FIL-AIR/COMP-001 | Compressed Air Filter For The Biofilter | 4ZL55 | GRAINGER | MS-R1B-S3 | 1.00 | $87.62 | FILAIR |
| FIL-CUN-001 | Cuno Filter | U30F8 | SOUTHERN F. | GA-C23 | 49.25 | $3.45 | FILCUN |
| FIL-CUN-002 | Cuno Filter | UR 375-25 | SOUTHERN F. | GA-C23 | 1,200.00 | $2.03 | FILCUN |

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| Item No. | Description | Mfg Part No. | Manufacturer | Stock Location | Qty on Hand | Average Unit Cost | Inventory Type |
|---|---|---|---|---|---|---|---|
| FIL-CUN-HOUS-001 | Cunno Filter Housing | 4410901 | CUNNO | GA-C23 | 11.00 | $58.59 | FILCUN |
| FIL-FU-001 | Fuel Filter For Acton- Adamsville- Gardendale#1- P | LFP440F | LUBERFINER | GA-FC | 1.00 | $3.32 | FILFUE |
| FIL-FU-002 | Fuel Filter For Acton- Adamsville- Gardendale#1- P | PER53 | PEROLATOR | GA-FC | 1.00 | $1.00 | FILFUE |
| FIL-FU-003 | Fuel Filter forBlack Creek- Cunningham I and II | PER62 | PEROLATOR | GA-FC | 4.00 | $4.44 | FILFUE |
| FIL-FU-004 | Fuel Filter Black Creek- Cunningham I and II | LFF1131 | LUBERFINER | GA-FC | 0.00 | $1.00 | FILFUE |
| FIL-FU-005 | Fuel Filter Black Creek- Cunningham I and II | 33334 | WIX | GA-FC | 1.00 | $0.00 | FILFUE |
| FIL-FU-006 | Fuel Filter Bess Hosp | 261F | LUBERFINER | GA-FC | 1.00 | $2.36 | FILFUE |
| FIL-FU-007 | Fuel Filter Corbet I and II-Gardendale#2-I-59-Morg | FP-586F | LUBERFINER | GA-FC | -1.00 | $3.96 | FILFUE |
| FIL-FU-008 | Fuel Filter Corbet I and II-Gardendale#2-I-59-Morg | FF5052 | FLEETGUARD | GA-FC | 0.00 | $1.00 | FILFUE |
| FIL-FU-009 | Fuel Filter Corbet I and II-Gardendale #2-I-59-Mor | BF788 | BALWIN | GA-FC | -3.00 | $1.00 | FILFUE |
| FIL-FU-010 | Fuel Filter Patton #1-Five Mile West | LFF5823 | LUBERFINER | GA-FC | 4.00 | $6.48 | FILFUE |
| FIL-FU-011 | Day Tank | 3522 | NAPA | GA-FC | 1.00 | $1.00 | FILFUE |
| FIL-FU-012 | Day Tank | 2A-17A | NAPA | GA-FC | 1.00 | $1.00 | FILFUE |
| FIL-FU-013 | Fuel Filter, Morgan Greenwood 1 & 2 | 3358 | NAPA | GA-FC | -3.00 | $4.04 | FILFUE |
| FIL-FU-014 | Fuel Filter | 3374 | NAPA | GA-FC | 0.00 | $6.37 | FILFUE |
| FIL-FU-015 | Fuel Filter For Fuel Tank at Pinewood | 33115 | WIX | GA-FC | 0.00 | $1.00 | FILFUE |
| FIL-FU-016 | Fuel Filter For Black Creek & Cunninghams | 3371 | NAPA | GA-FC | 2.00 | $1.00 | FILFUE |
| FIL-FU-017 | Fuel Filter - Cunningham #1 | 3369 | NAPA | GA-FC | 3.00 | $9.30 | FILFUE |
| FIL-FU-018 | Fuel Filter | 3356 | NAPA | GA-FC | 5.00 | $3.90 | FILFUE |
| FIL-FU-019 | Fuel Filter | 3121 | NAPA | GA-FC | 1.00 | $1.00 | FILFUE |
| FIL-FU-020 | Fuel Filter For Acton, Adams. Pinewood, Rice C., | 3352 | NAPA | GA-FC | 3.50 | $3.24 | FILFUE |
| FIL-FU-021 | Fuel Filter Patton #1, Five Mile Creek West | 3384 | NAPA | GA-FC | 0.00 | $6.19 | FILFUE |
| FIL-FU-022 | Fuel Filter For Cunningham 1 & 2 | 3334 | NAPA | GA-FC | 6.00 | $4.33 | FILFUE |
| FIL-FU-023 | Fuel Filter For Bessemer Hospital | 3311 | NAPA | GA-FC | 2.00 | $6.24 | FILFUE |
| FIL-FU-024 | Fuel Filter For New Cummings Morg/Gn 1 & 2, Overto | 3012 | NAPA | GA-FC | 8.00 | $1.66 | FILFUE |
| FIL-FU-025 | Fuel Filter For Scotts Generator | 3514 | NAPA | GA-FC | 8.00 | $5.39 | FILFUE |
| FIL-FU-GR001 | Fuel Filter For Wisconson Engine | 04006 | JIM HOUSE | MS-R1B-S2 | 1.00 | $0.00 | FILFUE |
| FIL-FUSP-001 | Fuel Separator For Black Creek- Cunningham I and I | PER41 | PEROLATOR | GA-FC | 0.00 | $2.76 | FILFUS |
| FIL-FUSP-002 | Fuel Separator For Black Creek- Cunningham I and I | FP230F | LUBERFINER | GA-FC | 1.00 | $2.76 | FILFUS |
| FIL-FUSP-003 | Fuel Separator For Black Creek- Cunningham I and I | 33351 | WIX | GA-FC | 1.00 | $2.76 | FILFUS |
| FIL-FUSP-004 | Fuel Separator For Black Creek- Cunningham I and I | LFF1129 | LUBERFINER | GA-FC | 1.00 | $9.95 | FILFUS |
| FIL-FUSP-005 | Fuel Separator For Corbet I and II, Gardendale#2, | FF5038 | FLEETGUARD | GA-FC | 0.00 | $4.00 | FILFUS |
| FIL-FUSP-006 | Fuel Separator For Corbet I and II-Gardendale#2, I | BF787 | BALWIN | GA-FC | 1.00 | $4.46 | FILFUS |
| FIL-FUSP-007 | Fuel Separator For Corbet I & II-Gardendale I & II | 3357 | NAPA | GA-FC | 2.00 | $4.34 | FILFUS |
| FIL-FUSP-008 | Fuel Seperator, WIX # Is 33351, Black Creek, Cunni | 3351 | NAPA | GA-FC | 9.00 | $3.00 | FILFUS |
| FIL-FUSP-009 | Fuel Separator For Acton Road & Gardendale #1 | 8N-9803 | CAT | GA-FC | 1.00 | $1.00 | FILFUS |
| FIL-FUSP-010 | Fuel Separator For Morgan/Greenwood | 4071 | WIX | GA-FC | 2.00 | $5.74 | FILFUS |
| FIL-HYD-001 | Hydraulic Filters | 1551 | NAPA | GA-FC | 4.00 | $5.00 | FILHYD |
| FIL-HYD-002 | Hydraulic Filters | 921999-10C | PARKER | GA-FC | 0.00 | $1.00 | FILHYD |
| FIL-HYD-003 | Hydraulic Filter For Kubota B7300 | KB 15853-32439 | KUBOTA | LN-C | 0.00 | $8.25 | FILHYD |
| FIL-MAT-001 | Filter Mat - Kaeser Comp. For Bio-Filter | 6.1943.0 | KAESER | GA-R1-S2 | 16.00 | $6.39 | FILMAT |
| FIL-OIL-001 | Oil Filter For Greenwood I and II | FP251F | LUBERFINER | GA-FC | 2.00 | $9.84 | FILOIL |
| FIL-OIL-002 | Oil Filter Corbet I and II-Gardendale#2-I-59-Prude | BT427 | BALWIN | GA-FC | | $3.00 | FILOIL |
| FIL-OIL-003 | Oil Filter Corbet I and II,Gardendale #2,I-59,Prud | 51602 | WIX | GA-FC | 0.00 | $2.51 | FILOIL |
| FIL-OIL-004 | Oil Filter Corbet I and II,Gardendale #2,I-59,Prud | LF3345 | FLEETGUARD | GA-FC | 1.00 | $1.00 | FILOIL |
| FIL-OIL-005 | Oil Filter Blue Ridge, Brummit Hght, Dover Ellis r | 1515 | NAPA | GA-FC | -1.00 | $2.55 | FILOIL |
| FIL-OIL-006 | Oil Filter Black Creek- Cunningham I and II | LP132 | LUBERFINER | GA-FC | 0.00 | $1.00 | FILOIL |
| FIL-OIL-007 | Oil Filter For Black Creek & Cunningham II | EP-78 | PEROLATOR | GA-FC | 7.00 | $1.00 | FILOIL |
| FIL-OIL-008 | Oil Filter Adamsville,Patton #2,Pinewood,Rice Cree | PER-67 | PEROLATOR | GA-FC | 1.00 | $4.46 | FILOIL |
| FIL-OIL-009 | Oil Filter Adamsville,Patton #2,Pinewood,Rice Cree | 1791 | NAPA | GA-FC | 6.00 | $4.46 | FILOIL |
| FIL-OIL-010 | Oil Filter Bess Hosp,Brighton | 51138 | WIX | GA-FC | 0.00 | $2.99 | FILOIL |
| FIL-OIL-011 | Oil Filter Acton, Gardendale #1 | LFP5570 | LUBERFINER | GA-FC | 8.00 | $2.62 | FILOIL |
| FIL-OIL-012 | Oil Filter Pleasant Grove, Summit, Visionland | 1748 | NAPA | GA-FC | 2.00 | $18.61 | FILOIL |
| FIL-OIL-013 | Oil Filter Five Mile West,Lake Crest,New Found I a | 1792 | NAPA | GA-R1-S2 | 7.00 | $9.23 | FILOIL |
| FIL-OIL-014 | Oil Filter For Black Creek | 1133 | NAPA | GA-FC | 2.00 | $3.12 | FILOIL |
| FIL-OIL-015 | Oil Filter Warrior Plant | 1602 | NAPA | GA-FC | -1.00 | $2.92 | FILOIL |
| FIL-OIL-016 | Oil Filter For Generator at Scotts Branch | 1591 | NAPA | GA-FC | 0.00 | $15.70 | FILOIL |
| FIL-OIL-017 | Oil Filter For Generator at Scotts Branch | 4P-2839 | CAT | GA-R2-S3 | -5.00 | $1.00 | FILOIL |
| FIL-OIL-018 | Oil Filter For Magnolia Ridge | 1061 | NAPA | GA-FC | 1.00 | $2.65 | FILOIL |

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| Item No. | Description | Mfg Part No. | Manufacturer | Stock Location | Qty on Hand | Average Unit Cost | Inventory Type |
|---|---|---|---|---|---|---|---|
| FIL-OIL-019 | Oil Filter for Academy D., Ventage T, Vineyards | 1051 | NAPA | GA-FC | -2.00 | $2.73 | FILOIL |
| FIL-OIL-020 | Oil Filter For Prudes Plant | 1607 | NAPA | GA-FC | 10.00 | $3.36 | FILOIL |
| FIL-OIL-021 | Oil Filter | 1067 | NAPA | GA-FC | 2.00 | $1.00 | FILOIL |
| FIL-OIL-022 | Oil Filter For Morgan/Greenwood | 1649 | NAPA | GA-FC | 4.00 | $1.00 | FILOIL |
| FIL-OIL-023 | Oil Filter For Kubota B7300 | KB 66021-36060 | KUBOTA | LN-C | -2.00 | $4.86 | FILOIL |
| FIL-OIL-024 | Oil Filter For Generator at Cunningham I | 1796 | NAPA | GA-FC | 2.00 | $8.99 | FILOIL |
| FIL-OIL-025 | Oil Filter For Generator at Wylam | 1798 | NAPA | GA-FC | 0.00 | $11.99 | FILOIL |
| FIL-OIL-026 | Oil Filter For Brighton | 1458 | NAPA | GA-FC | 8.00 | $5.62 | FILOIL |
| FIL-OIL-027 | Oil Filter For Trussville NE | 1060 | NAPA | GA-FC | 4.00 | $2.65 | FILOIL |
| FIL-OIL-028 | Oil Filter For Rosebud | 1714 | NAPA | GA-FC | 4.00 | $4.99 | FILOIL |
| FIL-OIL-029 | Oil Filrer - Kaeser Comp. For Bio-Filter | 6.1985.1 | KAESER | GA-R1-S2 | 1.00 | $13.63 | FILOIL |
| FIL-OIL-030 | Oil Filter For Bess. Hosp. & Brighton | 1138 | NAPA | GA-FC | 0.00 | $2.96 | FILOIL |
| FIL-OIL-031 | Oil Filter For Jeff. Metropolitan, Payne Rd. | 1516 | NAPA | GA-FC | -5.00 | $2.65 | FILOIL |
| FIL-OIL-032 | Oil Filter For The Arbors | 1452 | NAPA | GA-FC | 1.00 | $3.46 | FILOIL |
| FIL-OIL-033 | Oil Filter For Coleman L. Saddler G., Parkwood | 1372 | NAPA | GA-FC | -1.00 | $2.81 | FILOIL |
| FIL-OIL-034 | Oil Filter For Powder Plant Road/459 | LF 581 | FLEETGUARD | GA-FC | 2.00 | $0.00 | FILOIL |
| FIL-OILSP-001 | Oil Separator - Kaeser Comp. For Bio-Filter | 6.2008.1 | KAESER | GA-R1-S2 | 0.00 | $149.46 | FILMAT |
| FITTING-COMP-EL001 | Hydraulic Compression Fitting, 1/2" 90 Degree Elbo | C2500-08-08-SS | BRENNAN | MS-R1B-S3 | 8.00 | $19.43 | FITTIN |
| FLANGE-RING-FM001 | Ring Flange For F.M. Pump K4G1-078281X at Summitt | P4A664A9649 | FAIRBANKS | MS-R1B-S3 | 1.00 | $57.00 | FLANGE |
| FLANGE-SEAL-FM001 | Flange Seal For FM Pump K4G1-078281X at Summitt | HYD2T2 9906 | FAIRBANKS | MS-R1B-S3 | 1.00 | $11.00 | FLANGE |
| FLNG-FK001 | Faulk Flange | 1050T10-07785810 | FAULK | MS-R2A-S3 | 1.00 | $0.00 | FLANGE |
| FLNG-G001 | 1 1/4 Steel Discharge Flange | 4RC79 | GRAINGER | GA-R5B-S1 | 6.00 | $1.00 | FLANGE |
| FLNG-LJ001 | Love Joy Flange for VLR at Scotts | 12S 3 7/16 | LOVE JOY | MS-R2A-S3 | 8.00 | $114.89 | FLANGE |
| FLNG-LJ002 | Love Joy Flange | 36131 | LOVE JOY | MS-R2A-S3 | 8.00 | $0.00 | FLANGE |
| FLNG-LJ003 | Love Joy Flange | 6S - 3/4 | LOVE JOY | MS-R2A-S3 | 1.00 | $0.00 | FLANGE |
| FLNG-LJ004 | Love Joy Flange | 6S - 1 1/8 | LOVE JOY | MS-R2A-S3 | -1.00 | $0.00 | FLANGE |
| FLNG-LJ005 | Love Joy Flange | 36135 | LOVE JOY | MS-R2A-S3 | 4.00 | $0.00 | FLANGE |
| FLNG-LJ006 | Love Joy Flange | 36143 | LOVE JOY | MS-R2A-S3 | 0.00 | $0.00 | FLANGE |
| FLNG-LJ007 | Love Joy Flange | 36146 | LOVE JOY | MS-R2A-S3 | 1.00 | $0.00 | FLANGE |
| FLNG-W001 | Woods Flange For Riverchase | 6S - 3/4 | WOODS | MS-R2A-S3 | 1.00 | $0.00 | FLANGE |
| FLNG-W002 | Woods Flange | 6S - 1 1/8 | WOODS | MS-R2A-S3 | 1.00 | $0.00 | FLANGE |
| FLNG-W003 | Woods Flange | 6S - 1 3/8 | WOODS | MS-R2A-S3 | 2.00 | $0.00 | FLANGE |
| FLNG-W004 | Woods Flange | 8S - 1 | WOODS | MS-R2A-S3 | 1.00 | $1.00 | FLANGE |
| FLNG-W005 | Woods Flange | 9S - 1 1/8 | WOODS | MS-R2A-S3 | 1.00 | $1.00 | FLANGE |
| FLNG-W006 | Woods Flange For Motor at Vulcan P.S. | 7S-1 1/8 | WOODS | MS-R2A-S3 | 1.00 | $14.29 | FLANGE |
| FLNG-W007 | Woods Flange For Pump at Vulcan P.S. | 7S-1 5/8 | WOODS | MS-R2A-S3 | 1.00 | $14.29 | FLANGE |
| GASKET-BLWR-001 | Blower Cover Gasket Scott Branch Blowers | 8502800 | GAR/DEN | MS-R9-S2 | 9.00 | $24.47 | GASKET |
| GASKET-CKVAL-APC001 | Gasket For APCO 12" Check Valve For 5 Mile West | 112-3/A1 | JIM HOUSE | MS- | 1.00 | $49.00 | GASKET |
| GASKET-M/M-001 | Bottom Gasket For M/M at Airport #CMD 1800 MS | CMC 0014-078 | JWC-ENV | MS-R1B-S3 | 1.00 | $21.36 | GASKET |
| GASKET-M/M-002 | Top Gasket For M/M at Airport #CMD 1800 MS | CMC 0014-077 | JWC-ENV | MS-R1B-S3 | 1.00 | $21.36 | GASKET |
| GASKET-MCSL- PUMP-KSB001 | Mechanical seal gasket For KSB pump (Oak Grove PS) | 19524732 | KSB | GA-C9 | 1.00 | $42.00 | MCSL |
| GASKET-O/RING-EB001 | O-Ring Kit For Ebara Pump #100DLM6222 30 HP - Moss | ORDLDV11 | EBARA | GA-C3 | 1.00 | $117.00 | GASKET |
| GASKET-PUMP-ABS001 | Gasket 6" For ABS Pump at Hoover High School | A920 | ABS | MS-R2A-S3 | 1.00 | $1.00 | GASKET |
| GASKET-PUMP-HY001 | 6" Discharge Pump Gasket For Hydromatic Sub Pumps | 048980001 | HYDROMATIC | GA-C7 | 9.00 | $26.00 | GASKET |
| GASKET-PUMP-HY002 | Flange Gasket 2" for 7.5 HP Hudromatic Pump | 068980001 | HYDROMATIC | GA-C7 | 8.00 | $28.00 | GASKET |
| GASKET-PUMP-HY003 | 4" Discharge Pump Gasket For Hydromatic Sub Pumps | 3544-000-1 | HYDROMATIC | GA-C7 | 7.00 | $25.00 | GASKET |
| GASKET-SET-EXFAN-001 | Gasket Set For Exhaust Fan To Fit 3 1/2 Hp Briggs | 495605 | ADVANCED | MS-R1A-S2 | 0.00 | $19.48 | GASKET |
| GASKET-VICTAULIC-001 | 10" Victaulic Gask. For 31 Coupling DI, Med/C/EAST | 78368 | | GA-C6 | 4.00 | $61.00 | GASKET |
| GASKET-VOL-FM001 | Volute Gasket For D.M. Pump K4G1-078281X at Summit | CP2928-8380 | FAIRBANKS | MS-R1B-S3 | 2.00 | $4.00 | GASKET |
| GASKET-WPO-GR002 | O-Ring for T4 Wearplate Housing | S1674 | GORMAN RUPP | GA-C3 | 8.00 | $2.90 | GASKET |
| GAUGE-PRESS-001 | Pressure Gauges Lq. Filled 2.5" 1/4 Connection | P55220 | GRAINGER | VC | 9.00 | $15.00 | GAUGE |
| GAUGE-PRESS-002 | Pressue Gauge For Prudes Creek | 3T321 | GRAINGER | EL-C3-S4 | 3.00 | $51.35 | GAUGE |
| GAUGE-PRESS-003 | Pressure Gauge, 100 PSI | 9767061 | WIKA | MS-R1A-S2 | 10.00 | $13.49 | GAUGE |
| GAUGE-PRESS-004 | Press. Gauge 2 1/2" 5000 PSI | 36156479702 | ASHCROFT | - | | $14.80 | GAUGE |
| GAUGE-PRESS-004 | Press. Gauge 2 1/2" 5000 PSI | 36156479702 | ASHCROFT | MS-R1A-S2 | 4.00 | $14.80 | GAUGE |
| GAUGE-PRESS-005 | Pressure Gauge - 4" - 0 - 200 PSI | G40200 IPS | PETRO | MS-R1A-S2 | 5.00 | $23.67 | GAUGE |
| GAUGE-VAC-001 | Vacuum Gauge - Vac/30 | 9767002 | WIKA | MS-R1A-S2 | 9.00 | $17.39 | GAUGE |
| GEAR-PIN/DR-001 | Gear Pin Drive For M/M at Airport #CMD 1800 MS | 34019 | JWC-ENV | MS-R1B-S3 | 0.00 | $189.00 | GEAR |
| GEAR-ROTOR-001 | Gear For Rotor at Scotts | 1200059 | FALK | MS-R1B-S3 | 1.00 | $1.00 | GEAR |

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| Item No. | Description | Mfg Part No. | Manufacturer | Stock Location | Qty on Hand | Average Unit Cost | Inventory Type |
|---|---|---|---|---|---|---|---|
| GRSL-N005 | Grease Seal - National | 472394 | NATIONAL | GA-R2-S2 | 5.00 | $0.00 | GRSL |
| GRSL-N006 | Grease Seal - National | 49270 | NATIONAL | M2-R3B-S1 | 9.00 | $0.00 | GRSL |
| GRSL-N008 | Grease Seal - National | 472354 | NATIONAL | MS-R4B-S3 | 1.00 | $0.00 | GRSL |
| GRSL-N009 | Grease Seal - National | 470898 | NATIONAL | MS-R3B-S3 | 1.00 | $0.00 | GRSL |
| GT-VAL-001 | 4"" CASTIRAN 9"" F/F (8 BOLT FLAGES) | | | GA-R6A-S3 | 2.00 | $1.00 | VALVE |
| GT-VAL-002 | 6"" CASTIRAN 10 1/2"" F/F (8 BOLT FLAGES) | F-818-BL&S | AMER PIPE | GA-R6A-S2 | 0.00 | $479.00 | VALVE |
| GT-VAL-003 | 4"" CASTIRAN PLUGE TYPE (USED) | | | GA-R6A-S2 | 1.00 | $1.00 | VALVE |
| HOUSING-SEAL-001 | Seal Housing For Ebara P. #50 DGFU 63.72 (5 HP) | CDGI-1412 | EBARA | MS-R6-S3 | 1.00 | $360.00 | HOUSIN |
| HY-HOSERPFITG-001 | 3/8" Male NPT Thread For Hyd Hose - 3/8" BARB | 00625582 | MSC | MS-R1A-S2 | 6.00 | $4.87 | FITTIN |
| HY-HOSERPFITG-002 | 1/2" Male NPT Thread For Hyd Hose - 1/2" BARB | 00625608 | MSC | MS-R1A-S2 | 6.00 | $6.49 | FITTIN |
| HY-HOSERPFITG-003 | 3/4" Male NPT Thread For Hyd Hose - 3/4" BARB | 00625616 | MSC | MS-R1A-S2 | 6.00 | $11.04 | FITTIN |
| HY-HOSERPFITG-004 | 3/8" Female NPSM SWVL For Hyd Hose - 3/8" BARB | 00625673 | MSC | MS-R1A-S2 | 6.00 | $10.74 | FITTIN |
| HY-HOSERPFITG-005 | 1/2" Female NPSM SWVL For Hyd Hose 1/2" BARB | 00625699 | MSC | MS-R1A-S2 | 6.00 | $14.02 | FITTIN |
| HY-HOSERPFITG-006 | 3/4" Female NPSM SWVL For Hyd Hose - 3/4" BARB | 00625707 | MSC | MS-R1A-S2 | 6.00 | $22.53 | FITTIN |
| IMPL- WSTPUMP-001 | Waste Pump Impeller at Scotts Branch | | WEMCO | GA-R4-S1 | 2.00 | $0.00 | IMPL |
| IMPL-001 | Large Impeller | 60C78-101 | S&L | GA-R8-S1 | 1.00 | $500.00 | IMPL |
| IMPL-002 | Large Impeller | | | GA-R8-S1 | 1.00 | $0.00 | IMPL |
| IMPL-003 | Small Impeller | | | GA-R9-S1 | 1.00 | $0.00 | IMPL |
| IMPL-004 | Impeller for Amerex | | | MS-R6-S1 | 1.00 | $0.00 | IMPL |
| IMPL-005 | Impeller at Visionland, One rotation | | | MS-R7-S1 | 2.00 | $0.00 | IMPL |
| IMPL-006 | Impeller With Wear Ring For Newfound - W/Ring #2VR | Z01964G0001053A | F.M. | MS-R6-S2 | 0.00 | $4,400.00 | IMPL |
| IMPL-007 | Impeller 3rd St./2nd Ave. (Upgrade) | 11303755 | KSB | MS-R6-S2 | 2.00 | $1.00 | IMPL |
| IMPL-008 | Impeller 3rd Place/1st Ave. (Upgrade) | 11185986 | KSB | MS-R6-S2 | 2.00 | $1.00 | IMPL |
| IMPL-ABS-001 | Impeller For Southwood | 35070032 | ABS | MS-R6-S2 | 1.00 | $410.00 | IMPL |
| IMPL-BKPLATE-HY001 | Back Plate For Hydromatic Pumps at Cades MP40 | 02005-0002 | HYDROMATIC | MS-R6-S2 | 2.00 | $174.00 | IMPL |
| IMPL-BLT-GR001 | Bolt For Impeller on Gorman T3 | 03000DM1004S | GORMAN RUPP | GA-C3 | 5.00 | $1.80 | IMPL |
| IMPL-BP-HY001 | Backing Plate for Impeller For Cades,Dean,DB,Gasde | | | GA-R8-S2 | 1.00 | $0.00 | IMPL |
| IMPL-CL001 | Clow Impeller at Lewisburge 1&2, LH | | CLOW | GA-R8-S1 | 1.00 | $0.00 | IMPL |
| IMPL-CL002 | Clow Impeller at Lewisburge 1&2, RH | | CLOW | MS-R7-S2 | 1.00 | $1.00 | IMPL |
| IMPL-CL003 | Clow Impeller Clockwise, For Lance W. Model 4312 P | M-97737-001 | CLOW | MS-R6-S1 | 1.00 | $1,850.00 | IMPL |
| IMPL-CL004 | Clow Impeller, C/Clockwise, For Lance W. Model 431 | M-97736T-001 | CLOW | MS-R6-S1 | 1.00 | $1,850.00 | IMPL |
| IMPL-EB001 | Ebara Impeller at Woods Trace, One rotation | | EBARA | MS-R7-S3 | 0.00 | $0.00 | IMPL |
| IMPL-EB002 | Impeller For Ebara P. M6222 Woodstrace | CDL11-2402 | EBARA | MS-R7-S1 | 0.00 | $2,098.13 | IMPL |
| IMPL-FLY-001 | Impeller For Fly. P. Model 3300.180-88 HP Hi Head | 481-72-10 | FLYGT | MS-R7-S2 | 0.00 | $3,929.00 | IMPL |
| IMPL-FM001 | F. M. Impeller at Pleasant Grove, RH | | F.M. | MS-R7-S2 | 2.00 | $0.00 | IMPL |
| IMPL-FM002 | F. M. Impeller at Pleasant Grove, LH | | F.M. | MS-R7-S2 | 2.00 | $0.00 | IMPL |
| IMPL-FM003 | Impeller - LH For Parkwood PS | T4B1BN | F.M. | MS-R7-S3 | 1.00 | $1.00 | IMPL |
| IMPL-FM004 | Impeller - RH For Parkwood PS | T4B1B0 | F.M. | MS-R7-S3 | 1.00 | $1.00 | IMPL |
| IMPL-FM005 | Impeller For Pipe Shop P.S. | PIPE SHOP | | MS-R7-S2 | 2.00 | $1.00 | IMPL |
| IMPL-FM006 | Impeller /LH For Rice C. (USEMCO) F/M Pumps | | F.M. | MS-R7-S2 | 0.00 | $0.00 | IMPL |
| IMPL-FM007 | Impeller/RH For Rice C. (USEMCO) F/M Pumps | T6CIEP-0220F | F.M. | MS-R7-S2 | 1.00 | $2,347.92 | IMPL |
| IMPL-FM008 | Impeller For FM Pump - 12" Diameter To Pump 325 G | K4G1-078281 | F.M. | MS-R6-S1 | 0.00 | $1,936.00 | IMPL |
| IMPL-FM009 | Impeller For FM Pump, 1100 GPM, RH Pump #1 at Pade | | F.M. | MS-R6-S1 | 1.00 | $1.00 | IMPL |
| IMPL-FM010 | Impeller For FM Pump, 1100 GPM, LH Pump #2 at Pade | | F.M. | MS-R6-S1 | 1.00 | $1.00 | IMPL |
| IMPL-GR001 | Impeller For Gorman Rupp T3 A3 Suction Lift Pump | 11406 | GORMAN-RUPP | MS-R6-S1 | 6.00 | $275.00 | IMPL |
| IMPL-GR002 | Impeller for Gorman Rupp T-4 | 10528 | GORMAN RUPP | MS-R6-S1 | 6.00 | $291.05 | IMPL |
| IMPL-HUB-FLY-001 | Impller Hub For Fly. P. Model 3300.180-88 HP Hi He | 434-49-03 | FLYGT | MS-R7-S2 | 0.00 | $1,531.00 | IMPL |
| IMPL-HY001 | Hydromatic Impeller for Cades,Dean,Don Berry,Gadsd | 8880002 | HYDROMATIC | MS-R6-S1 | 4.00 | $568.00 | IMPL |
| IMPL-HY002 | Hydromatic Impeller at K-Mart 12 3/4" | 023040132 | HYDROMATIC | MS-R7-S2 | 1.00 | $1,479.00 | IMPL |
| IMPL-HY003 | Hydromatic Impeller at Prudes Creek #1 Pump Statio | 025940062 | HYDROMATIC | MS-R7-S2 | 2.00 | $1.00 | IMPL |
| IMPL-HY004 | Impeller Dia. 10.31 - Hydromatic Sub Jeff Mem | S4LRC | HYDROMATIC | MS-R7-S2 | 1.00 | $1,300.00 | IMPL |
| IMPL-HY005 | Impl. For K-mart, 12 3/4" For Hyd. Pump - Suction | 02304-013-2 | | MS-R7-S2 | 1.00 | $1,304.00 | IMPL |
| IMPL-INBOLT-FLY001 | Impeller Bolt, To Fit Flygt Pump Model 3152-181 | 820080 | FLYGT | MS-R1B-S3 | 1.00 | $15.00 | IMPL |
| IMPL-KSB-001 | Impl. For 5 Mile West 130 Hp KSB Pump | 113307 | KSB | MS-R6-S1 | 1.00 | $0.00 | IMPL |
| IMPL-PUMP-SLO12 | LH Impeller for Garden Grove PS | 60c77-101 | S&L | GA-R8A-S1 | 1.00 | $500.00 | |
| IMPL-RTNPUMP001 | Return Pump Impeller at Scotts Branch | | | GA-R4-S1 | 2.00 | $0.00 | IMPL |
| IMPL-SETS-HY001 | Set Screws For Hydromatic Impeller at Prudes Cree | 13-004-1 | HYDROMATIC | MS-R7-S2 | 2.00 | $1.00 | IMPL |
| IMPL-SL001 | S & L Impeller at I-59, LH | | S&L | GA-R8-S1 | 2.00 | $0.00 | IMPL |
| IMPL-SL002 | . | | S&L | GA-R8-S1 | 1.00 | $0.00 | IMPL |

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| Item No. | Description | Mfg Part No. | Manufacturer | Stock Location | Qty on Hand | Average Unit Cost | Inventory Type |
|---|---|---|---|---|---|---|---|
| IMPL-SL003 | S & L Impeller at Morgan/Greenwood, RH Full | | S&L | MS-R7-S1 | 2.00 | $0.00 | IMPL |
| IMPL-SL004 | S & L Impeller at Morgan/Greenwood, LH 3/4 Off | | S&L | MS-R7-S1 | 1.00 | $0.00 | IMPL |
| IMPL-SL005 | S & L Impeller at Morgan/Greenwood, RH 1 3/8 Off | | S&L | MS-R7-S1 | 1.00 | $0.00 | IMPL |
| IMPL-SL006 | S & L Impeller at Morgan/Greenwood, LH 1 3/8 Off | | S&L | MS-R7-S1 | 0.00 | $0.00 | IMPL |
| IMPL-SL007 | S&L Impeller at Rice Creek, LH | | S&L | MS-R7-S1 | 3.00 | $0.00 | IMPL |
| IMPL-SL008 | S&L Impeller at Rice Creek, RH | | S&L | MS-R7-S1 | 2.00 | $0.00 | IMPL |
| IMPL-SL010 | RH S&L Impeller atGarden Grove PS | 60C78-101 | S&L | MS-R7-S1 | 1.00 | $500.00 | IMPL |
| IMPL-SL011 | LH S&L Impeller at Garden Grove Pump Station | 60c77-101 | S&L | MS-R7-S1 | 1.00 | $500.00 | IMPL |
| IMPL-SL012 | Impeller For S & L Pump at Walker Avenue | | S & L | MS-R6-S1 | 1.00 | $1.00 | IMPL |
| IMPL-SL013 | Impeller For S & L Pump 3" Bore - RH | S & L | | MS-R7-S1 | 1.00 | $1.00 | IMPL |
| IMPL-SL014 | Impeller For S & L Pump 3" Bore - LH | | S & L | MS-R7-S1 | 1.00 | $1.00 | IMPL |
| IMPL-SL015 | Full Size, LH, Old Black Creek | | S&L | MS-R-S | 1.00 | $1.00 | IMPL |
| IMPL-SL016 | Full Size, RH, Old Black Creek | | S&L | MS-R-S | 1.00 | $1.00 | IMPL |
| IMPL-WP-003 | Wear Plate For Impeller For Hydromatic Pump at Pru | 42890023 | HYDROMATIC | MS-R7-S2 | 1.00 | $1.00 | IMPL |
| IMPL-WP-EB001 | Wear Plate for Impeller at Trace | | | MS-R6-S2 | 0.00 | $0.00 | IMPL |
| IMPL-WP-GR001 | Wear Plate for Impeller For Gardendale 1&2,McAdory | 03000011407A | GORMAN RUPP | MS-R6-S2 | 7.00 | $104.30 | IMPL |
| IMPL-WP-GR002 | Wear Plate, For Gorman Rupp Pump, Model T4A-3B | 10532A | G-RUPP | MS-R6-S2 | 3.00 | $102.70 | IMPL |
| IMPL-WP-HY001 | Wear Plate For Impeller at Cades, Dean, Gadsden | 00891-000-2 | HYDROMATIC | MS-R6-S2 | 3.00 | $278.00 | IMPL |
| IMPL-WP-HY002 | Wear Plate For Impeller at K-Mart | 019340012 | HYDROMATIC | MS-R6-S2 | 2.00 | $465.00 | IMPL |
| IMPL-WP-WEM-001 | Wear Plate To Fit WEMCO Pump Model RPD-5 | 74277-1 | | MS-R6-S2 | 0.00 | $486.00 | IMPL |
| IMPL-WSH-GR001 | Washer for Impeller on Gorman T3 | 030000019278 | GORMAN RUPP | GA-C3 | 5.00 | $4.55 | IMPL |
| INSERT-CART-001 | Cartridge Insert For Muffin/M at Birmingham Zoo | 31036-TM-B | JWC | GA-C9 | 2.00 | $122.48 | INSERT |
| JACKET-QU-001 | Quartz Jacket, For Infilco U.V. System at Prudes C | 59545-H04 | INFILCO | MZ-F | 113.00 | $35.00 | JACKET |
| JACKET-QU-002 | Quartz Jacket, For Trojan UV 3300 System, Warrior | 302208 | TROJAN | MZ-F | 2.00 | $27.00 | JACKET |
| KEY-MUFFINM-001 | For Muffin Monster Model 3005-18 at Visionland. | 30307 | JWC-ENV | MS-R1B-S3 | 0.00 | $6.33 | KEY |
| KIT SEAL-MM-001 | Seal Kit For M/Monster at Trussville NE | SK 000092 | NAT. HYD. | MS-R1B-S3 | 0.00 | $34.20 | KITS |
| KIT-SOL.V.-001 | Repair Kit For Asco 4-Way Sol. Val. For New F. 1&2 | 302711 | ASCO | EL-C1-S2 | 1.00 | $111.60 | KITS |
| LAB-CARBOY-001 | Carboy, W/SPIGOT, 50 LTR | 02-963-2C | FISCHER-PORT | SC-LAB | 1.00 | $137.01 | LABEQ |
| LAB-CHEM-001 | Glucose Glutamic Acid | LC148451 | FISHER | CHMS-R1-S6 | 2.00 | $20.14 | LABCHM |
| LAB-DISPFILT-001 | Disposable Filter | 09-034-162 | FISHER | SC-LAB | 2.00 | $16.10 | LABSUP |
| LAB-FILT-001 | Glass Filter, 90MM, PN 1827-090, For Scotts Lab | 1827-090 | FISHER | SC-LAB | 10.00 | $41.40 | LABSUP |
| LAB-FILT-002 | Glass Filter, 24MM, PN 1822-024, For Scotts Lab | 1822-024 | FISHER | SC-LAB | 10.00 | $31.12 | LABSUP |
| LAB-FILTHLD-001 | Filter Holder | 09-034-155 | FISHER | SC-LAB | 2.00 | $59.80 | LABEQ |
| LAB-LABEL/DISP-001 | Label Dispenser, PN 11-865-35, For Scotts Lab | 11-865-35 | FISHER | SC-LAB | 1.00 | $41.33 | LABEQ |
| LAB-STBATH/HT-001 | Electrically Heated Concentric Ring For Steam Bath | PSI 66501/66501K | FISHER | EL-C4-S7 | 2.00 | $222.35 | LABEQ |
| LAB-STBATH/SWT-001 | 3 Position Switch For Steam Bath, Scotts Lab | PSI 240178 | FISHER | EL-DL-S1 | 1.00 | $64.63 | LABEQ |
| LAB-STILL/HT-001 | Heating Element For Glass Still at Scotts Lab | NC9433359 | FISHER | EL-C5-S1 | 3.00 | $485.90 | LABEQ |
| LAB-TAPE-001 | Yellow Tape, 3/4" x 500", PN 11-880-58, For Scotts | 11-880-58 | FISHER | SC-LAB | 1.00 | $53.24 | LABSUP |
| LNMR-TRANS-001 | Transmission For 1600 Kubota | 66091-82200 | KUBOTA | SHOP | 1.00 | $1,301.95 | TRANSM |
| LOCK-RING-001 | Locking Ring For Mixer at Prudes Creek | 9360031 | LANDIA | MS-R1B-S2 | 1.00 | $1.50 | LOCK R |
| LOCK-RING-002 | For Mixer at Prudes Creek | 9360022 | LANDIA | MS-R1B-S2 | 0.00 | $1.10 | LOCK R |
| LOCK-RING-003 | For Muffin Monster Model 3005-18 at Visionland | 30287 | JWC-ENV | MS- | 1.00 | $4.15 | LOCK R |
| LOCK-RING-004 | Lock Ring For M/M at Airport #CMD 1800 MS | 30287 | JWC-ENV | MS-R1B-S3 | 8.00 | $4.15 | LOCK R |
| LOCK-RING-005 | Lock Ring For M/M at Airport #CMD 1800 MS | CMC 5165 | JWC-ENV | MS-R1B-S3 | 8.00 | $0.00 | LOCK R |
| MCLS-PUMP-GOR004 | Mechanical Seal For T-8 G/R Pump at Morgan/GW 1&2 | 12590 | GORMAN RUPP | GA-C3 | 2.00 | $1.00 | MCSL |
| MCSL-KIT-ABS001 | Mechanical Seal Kit For ABS Pump at Southwood | 61196032 | ABS | GA-C9 | 2.00 | $500.00 | MCSL |
| MCSL-KIT-ABS002 | Mechanical Seal Kit For ABS-RAS Pump at Prudes Cr | 61196034 | ABS | GA-C9 | 2.00 | $101.62 | MCSL |
| MCSL-KIT-FLY001 | Mech. Seal Kit For Fly Model 3085 For Sherman Oaks | 6018904 | FLYGT | GA-C9 | 0.00 | $342.00 | MCSL |
| MCSL-KIT-FLY002 | Mechanical Seal Kit For 10 Hp Flygt P. Model 3127 | 6018909 | FLYGT | GA-C9 | 2.00 | $7.84 | MCSL |
| MCSL-KIT-FLY003 | Mechanical Seal Kit For | | | GA-C9 | 0.00 | $0.00 | MCSL |
| MCSL-KIT-FLY004 | Mech. Seal Kit For Flygt 3085 For Sherman Oaks | 6018947 | FLYGT | GA-C9 | 2.00 | $451.00 | MCSL |
| MCSL-KIT-HYD001 | Mech. Seal Kit , HYD. P. 40MP/40MMP Gadsden H. | 51700-025-7 | HYDROMATIC | GA-C9 | 1.00 | $341.00 | MCSL |
| MCSL-KIT-HYD002 | Mech. Seal Kit for Hyd. Prudes P. | 51700-052-7 | HYDROMATIC | GA-C9 | 3.00 | $317.00 | MCSL |
| MCSL-KIT-HYD003 | Mech Seal Kit For Hyd. Pump 60 MMPH For K-mart | 51700-047-7 | HYDROMATIC | GA-C9 | 1.00 | $1,813.00 | MCSL |
| MCSL-M/M-001 | Mechanical Seal For Muffin M. Model 1800MS Airport | A34320-3401-TB | JWC | GA-C9 | 0.00 | $543.18 | MCSL |
| MCSL-M/M-002 | Mech. Seal For Muffin Monster at B'ham Zoo(Bottom) | 30053-TB3/D | JWC | GA-C9 | 0.00 | $504.00 | MCSL |
| MCSL-M/M-003 | Mech. Seal For Muffin Monster at B'ham Zoo (Top) | 30053-TB1/D | JWC | GA-C9 | 2.00 | $504.00 | MCSL |
| MCSL-MIXER-BUR001 | Mech Seal Shaft For Mixer at Prudes Creek | 9280150 | LANDIA | MS-R1B-S2 | 0.00 | $400.00 | MCSL |
| MCSL-PUMP-001 | Mech Seal For Pump at Belmar | | | GA-C9 | | | MCSL |

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| Item No. | Description | Mfg Part No. | Manufacturer | Stock Location | Qty on Hand | Average Unit Cost | Inventory Type |
|---|---|---|---|---|---|---|---|
| MCSL-PUMP-002 | Mechanical Seal For Pump at Dennison | | | GA-C9 | | | MCSL |
| MCSL-PUMP-003 | Mech Seal for Edgewater, Gadsden H. SEE SPECS: | 46513-150 | | GA-C2 | 0.00 | $1.00 | MCSL |
| MCSL-PUMP-004 | Mech Seal For Pump at Graysville 7th Ave. | | | GA-C9 | | | MCSL |
| MCSL-PUMP-005 | Mech Seal For Pump at Valewood Station | AD1DV5004 | | GA-C2 | 1.00 | $0.00 | MCSL |
| MCSL-PUMP-006 | Mech Seal For Pump at Riverchase (Rebuilt) Double | TYPE 21 - 3 5/8" | SEAL/RES. | GA-C3 | 1.00 | $539.75 | MCSL |
| MCSL-PUMP-007 | Mechanical Seal For Pump at Summitt | 532 | PAC SEAL | GA-C3 | 0.00 | $145.34 | MCSL |
| MCSL-PUMP-008 | Mechanical Seal For Pump at Summitt | 12213 | PAC SEAL | GA-C3 | 0.00 | $188.58 | MCSL |
| MCSL-PUMP-009 | Mechanical Seal For Pump at Trussville NE | 22998 | JOHN CRANE | GA-C4 | 2.00 | $500.00 | MCSL |
| MCSL-PUMP-010 | Mechanical Seal Pump 3rd | 3340A0001 | KSB | GA-C4 | 2.00 | $1.00 | MCSL |
| MCSL-PUMP-011 | Mechanical Seal Pump 3rd Place/1st Ave. (Upgrade) | 215027623 | KSB | GA-C4 | 2.00 | $1.00 | MCSL |
| MCSL-PUMP-ABS001 | Mech. Seal For ABS RAS Pump at Prudes C. | M3/40-E1-R | ABS | GA-C2 | 1.00 | $0.00 | MCSL |
| MCSL-PUMP-ABS002 | Mech. Seal For ABS Pump Model 2501 125 Hp at River | 11110052 | ABS | GA-C2 | 0.00 | $1,370.00 | MCSL |
| MCSL-PUMP-AUR001 | Mechanical Seal - For Hidden Trace | SR 4518 | BRAG | GA-C2 | 0.00 | $136.00 | MCSL |
| MCSL-PUMP-CHI001 | M/Seal For Adamsville & Lewisburge Hydl. Sub. | 04700050 | CHICAGO | GA-C1 | 0.00 | $170.00 | MCSL |
| MCSL-PUMP-CHI002 | Mechanical Seal For Pump at Bess Hospital | 55150UCRJ | CHICAGO | GA-C2 | 1.00 | $0.00 | MCSL |
| MCSL-PUMP-CHI003 | Mechanical Seal For Pump at Pinewood | 10295-A Seal | CHICAGO | GA-C2 | 2.00 | $0.00 | MCSL |
| MCSL-PUMP-CLO001 | Mechanical Seal For Pump at Amerex No.1 | B019-85 | CLOW | GA-C2 | 2.00 | $0.00 | MCSL |
| MCSL-PUMP-CLO002 | Mechanical Seal For Pump at Brighton/Clow Pump | PAC SEAL-889N | CLOW | GA-C2 | 0.00 | $443.40 | MCSL |
| MCSL-PUMP-EBA001 | Model 50DGUII63.72 And 50DGEII 63.723 3 ST, TR.R | ADGS005 | EBARA | GA-C1 | 1.00 | $413.00 | MCSL |
| MCSL-PUMP-EBA002 | For Ebara P. At Chesswood Model 100DLU 63.75 | ADLDVS003 | EBARA | GA-C1 | -2.00 | $446.00 | MCSL |
| MCSL-PUMP-EBA003 | Mechanical Seal For Ebara P. Model 8DLMC6112 | ADLDVS004 | EBARA | GA-C9 | 1.00 | $669.00 | MCSL |
| MCSL-PUMP-EBA004 | Mech. Seal For Woods T./Moss Ln. | ADLDVS005 | EBARA | GA-C9 | 2.00 | $1,075.50 | MCSL |
| MCSL-PUMP-FAI001 | Mechanical Seal For Pump at Pleasant Grove | | FAIRBANKS | GA-C2 | 4.00 | $0.00 | MCSL |
| MCSL-PUMP-FAI002 | Mechanical Seal For Pump at Second Creek | HYD1AD11 | FAIRBANKS | GA-C2 | 1.00 | $0.00 | MCSL |
| MCSL-PUMP-FAI003 | Mchanical Seal at Belmont 1 and Parkwood & Rice C | HYD1AD8 | FAIRBANKS | GA-C2 | 5.00 | $0.00 | MCSL |
| MCSL-PUMP-FAI004 | Mechanical Seal For Pinewood | SE12143 | PAC SEAL | GA-C1 | -1.00 | $312.15 | MCSL |
| MCSL-PUMP-FAI005 | M.Seal - Fbanks P. For Bkview Ch,Ov'ton 1 | HYD1AD9 | FAIRBANKS | GA-C3 | 5.00 | $1.00 | MCSL |
| MCSL-PUMP-FAI006 | Mechanical Seal For Pump at Paden Park | HYD1AD10 | FAIRBANKS | GA-C1 | 2.00 | $1.00 | MCSL |
| MCSL-PUMP-FLY001 | Mechanical Seal for Pump at Five West | | FLYGT | GA-C1 | | | MCSL |
| MCSL-PUMP-GOR001 | Mechanical Seal for Pump at Amerex Plant | 1264-A | GORMAN RUPP | GA-C2 | 2.00 | $0.00 | MCSL |
| MCSL-PUMP-GOR002 | Mechanical Seal for Pump at Amerex No.1 | B019-85 | GORMAN RUPP | GA-C2 | 2.00 | $0.00 | MCSL |
| MCSL-PUMP-GOR003 | Mechanical Seal For T4'sat Lk. Sterling, Vineyard | 46513-150 | GORMAN RUPP | GA-C2 | 5.00 | $0.00 | MCSL |
| MCSL-PUMP-GOR004 | Mechanical Seal - T10A3B Pump Med. Center East | 12590A | GORMAN RUPP | GA-C2 | 2.00 | $495.92 | MCSL |
| MCSL-PUMP-HYD001 | Mechanical Seal for Gadsden Hwy.& Don Berri | 51700-25-7 | HYDROMATIC | GA-C9 | 0.00 | $302.00 | MCSL |
| MCSL-PUMP-HYD002 | Mechanical Seal For Hyd. 7 1/2 Hp Pumps - 3rd St. | 361-21 | PAC SEAL | GA-C1 | 1.00 | $30.79 | MCSL |
| MCSL-PUMP-HYD003 | | | | GA-C2 | | | MCSL |
| MCSL-PUMP-HYD004 | Mechanical Seal - Two Faces - For Prudes Creek #1 | SR 4517 | BRAG | GA-C2 | 0.00 | $241.00 | MCSL |
| MCSL-PUMP-HYD005 | Mechanical Seal For Hyd. Pump Model S6LX2000, 20 H | 08073-000-1 | HYDROMATIC | GA-C1 | 3.00 | $160.00 | MCSL |
| MCSL-PUMP-HYD006 | Mechanical Seal For Hyd. Pump at Northbrook | SE441 | BRAG | GA-C2 | 3.00 | $16.32 | MCSL |
| MCSL-PUMP-HYD007 | Mechanical Seal For Hyd. Pump at Northbrook | 16SGP21CBN10 | BRAG | GA-C2 | 2.00 | $66.70 | MCSL |
| MCSL-PUMP-HYD008 | Mechanical Seal For Hyd. Pump at Northbrook | 44D | BRAG | GA-C2 | 2.00 | $13.17 | MCSL |
| MCSL-PUMP-ITT001 | Mechanical Seal For Pump at Trussville NE | 52-237-862-801 | ITT-MARLOW | GA-C2 | -1.00 | $0.00 | MCSL |
| MCSL-PUMP-ITT002 | For ITT Marlow Pump at Brummitt Heights | 28SGP21CBS10 | ITT-MARLOW | GA-C2 | 1.00 | $190.00 | MCSL |
| MCSL-PUMP-JC001 | Mechanical Seal For Pump at Riverchase | HYDC1CW4-9906 | JOHN CRANE | GA-14C | 0.00 | $1,280.00 | MCSL |
| MCSL-PUMP-JC002 | Mechanical Seal For Pump at Newfound | 5610 3" | JOHN CRANE | GA-C9 | 1.00 | $1,550.00 | MCSL |
| MCSL-PUMP-KSB001 | Mechanical Seal For KSB Pump Oak Grove PS | 0511208 | KSB | GA-C9 | 1.00 | $286.00 | MCSL |
| MCSL-PUMP-KSB002 | Mechanical Seal For KSB Pump Oak Grove PS | 0514264 | KSB | GA-C9 | 1.00 | $249.00 | MCSL |
| MCSL-PUMP-KSB003 | Mechanical Seal For KSB Pump Oak Grove PS | 01027183 | KSB | GA-C9 | 1.00 | $249.00 | MCSL |
| MCSL-PUMP-KSB004 | Mechanical Seal For KSB pump Oak Grove PS | 00200623 | KSB | GA-C9 | 1.00 | $9.00 | MCSL |
| MCSL-PUMP-KSB005 | Mechanical Seal For KSB Pump at Summit | HYD1CB1 | KSB | GA-C2 | 3.00 | $272.00 | MCSL |
| MCSL-PUMP-KSB006 | Mechanical Seal For KSB Pump at Summit | HYD1CE1 | KSB | GA-C2 | 3.00 | $306.00 | MCSL |
| MCSL-PUMP-MYE001 | Mechanical Seal For Pump at Chapel 1 | SE-309 | MYERS | MS-R3A-S2 | 3.00 | $24.28 | MCSL |
| MCSL-PUMP-PEL001 | Mech Seal For Peerless Plant Water Pump/Warrior | 256 | PAC SEAL | GA-C3 | 2.00 | $64.70 | MCSL |
| MCSL-PUMP-S&L001 | Mechanical Seal For Pump at Acton Rd, Laurel, | H60A119 | S&L | GA-C1 | 0.00 | $217.29 | MCSL |
| MCSL-PUMP-S&L002 | MCSL For Pump at Corbet 1,2 & Blue/R Cunningham 2 | H60A121 | S&L | GA-C1 | 1.00 | $444.08 | MCSL |
| MCSL-PUMP-S&L003 | Mech Seal For Pump at Morgan/Greenwd 1,2 (P-004) | H60A120 | S&L | GA-C1 | 2.00 | $317.21 | MCSL |
| MCSL-PUMP-SEP001 | Mech Seal For Pump at Sears Drive | | SEPCO | GA-C1 | 1.00 | $217.00 | MCSL |
| MCSL-PUMP-SEP003 | Mechanical Seal Hillshire (Lower)SEE SPECS (NEW) | 18SGP21CBK10 | SEPCO | GA-C1 | 2.00 | $87.50 | MCSL |
| MCSL-PUMP-SEP005 | Mech Seal For Pump at Graysville 3rd St | SE361 | SEPCO | GA-C1 | 0.00 | $0.00 | MCSL |

# Inventory Standard

## JEFFERSON COUNTY ENVIRONMENTAL SERVICES



| Item No. | Description | Mfg Part No. | Manufacturer | Stock Location | Qty on Hand | Average Unit Cost | Inventory Type |
|---|---|---|---|---|---|---|---|
| MCSL-PUMP-SEP006 | Mechanical Seal For Pump at Graysville 3rd St | SE185 | SEPCO | GA-C1 | 2.00 | $1.00 | MCSL |
| MCSL-PUMP-SEP007 | Mechanical S. Pump Jeff. Mem. Adamsville SEE SPEC | SE-12092-2 | SEPCO | GA-C2 | 3.00 | $299.00 | MCSL |
| MCSL-PUMP-SEP008 | Mechanical Seal For Pump at Jefferson Memorial | 32-SGP-21-CVK-10 | SEPCO | GA-C2 | 2.00 | $180.00 | MCSL |
| MCSL-PUMP-SEP009 | Mechanical Seal For P. /Larkway (Repaired) | UAA004BSS-AIAA-00 | SEPCO | GA-C1 | 1.00 | $745.90 | MCSL |
| MCSL-PUMP-SEP010 | Mechanical S.Parkway, Rice, Lewisburg SEE SPEC | SE 12090 | SEPCO | GA-C2 | 3.00 | $255.00 | MCSL |
| MCSL-PUMP-SEP011 | Mechanical Seal Harriman SEE SPECS | SE-674-21 | SEPCO | GA-C2 | 3.00 | $231.30 | MCSL |
| MCSL-PUMP-SEP012 | Mechanical Seal For Pump at Cunningham 2 | A-48-436-3 | SEPCO | GA-C1 | 1.00 | $0.00 | MCSL |
| MCSL-PUMP-SEP013 | Mechanical Seal For Pump at Cunningham 1 | PS1107 | SEPCO | GA-C1 | 3.00 | $0.00 | MCSL |
| MCSL-PUMP-SEP014 | Mechanical Seal Pump at Tin Mill & Vail | 1105 | SEPCO | GA-C1 | 4.00 | $256.20 | MCSL |
| MCSL-PUMP-SEP015 | Mechanical Seal For Pump at 2 1/8 S&L Pumps | 1107 | SEPCO | GA-C1 | 1.00 | $0.00 | MCSL |
| MCSL-PUMP-SEP016 | Mechanical Seal for Pump at Roberts Field | 1104 | FAIRBANKS | GA-C1 | 4.00 | $0.00 | MCSL |
| MCSL-PUMP-SEP017 | Mechanical - Shaft Sl. 2.65" - OD 1.375" For Airpo | 28SGP21SVS10 | SEPCO | GA-C1 | 3.00 | $372.00 | MCSL |
| MCSL-PUMP-SEP018 | Mechanical Seal For Pump at Prudes Creek #1 | SE12245 | SEPCO | GA-C3 | 6.00 | $180.00 | MCSL |
| MCSL-PUMP-SEP019 | Mechanical Seal For Hillshire (Upper)SEE SPECS | 20SGP21CBK10 | SEPCO | GA-C1 | 1.00 | $63.40 | MCSL |
| MCSL-PUMP-SEP020 | Mech. Seal Upper & Lower For B'ham Zoo | 18SGP21CBT10 | SEPCO | GA-C1 | -1.00 | $156.50 | MCSL |
| MCSL-PUMP-SEP021 | Mechanical Seal For Hillshire (Lower) | 21BC1125/AXK-18 | SEPCO | GA-C2 | 0.00 | $87.85 | MCSL |
| MCSL-PUMP-SEP022 | Mechanical Seal For Hillshire (Upper) | 21BC1250/AXK-20 | SEPCO | GA-C2 | 0.00 | $50.75 | MCSL |
| MCSL-PUMP-SEP023 | Mechanical Seal For Larkway P.S.(NEW) | UAA0040BSS-AIAA-00 | SEPCO | -GA-C1 | 0.00 | $1,144.23 | MCSL |
| MCSL-PUMP-USS- 001 | Mechanical Seal For Harriman | PS 674 | U.S. SEAL | GA-C2 | 0.00 | $202.40 | MCSL |
| MCSL-PUMP-VAU001 | Mech. Seal For Airport, Vau. Pump Model V4K-089 | V801-300 | VAUGHAN | GA-C1 | 1.00 | $1,375.00 | MCSL |
| MCSL-PUMP-WEM-REL001 | Relap - Mechanical Seal Scotts RAS Pump | 157458 REL | JOHN CRANE | GA-C2 | 0.00 | $290.00 | MCSL |
| MCSL-PUMP-WEM001 | Mechanical Seal For Pump at Scotts Branch | 157444 | JOHN CRANE | GA-C2 | 4.00 | $0.00 | MCSL |
| MCSL-PUMP-WEM002 | Mechanical Seal For Waste Pump at Scotts | 157445 | JOHN CRANE | GA-C3 | 8.00 | $1,400.00 | MCSL |
| MCSL-PUMP-WEM003 | Mechanical Seal For Pump at Scotts Branch | 157458 | JOHN CRANE | GA-C2 | 2.00 | $106.00 | MCSL |
| MCSL-PUMP-WEM004 | Mechanical Seal For Pump at Scotts Branch | 157484 | JOHN CRANE | GA-C4 | 4.00 | $1,339.00 | MCSL |
| MCSL-PUMP-WEM005 | Mechanical Seal Pump at Prudes Creek Motor Side | 157250 | JOHN CRANE | GA-C1 | 1.00 | $722.00 | MCSL |
| MCSL-PUMP-WEM006 | M.Seal, Pump at P.Creek Wemco Pump Model #E5K-LM-E | 157262 | JOHN CRANE | GA-C1 | 1.00 | $96.00 | MCSL |
| MCSL-RAS-HYD002 | Mechanical Seal For RAS at Prudes Creek - Top | 24-SGP-21-CUK-10 | HYDROMATIC | GA-C2 | -1.00 | $0.00 | MCSL |
| MCSL-RAS-HYD003 | Mechanical Seal For RAS at Prudes Creek - Bottom | 24-CSGP-1-SVS-10 | HYDROMATIC | GA-C2 | 0.00 | $0.00 | MCSL |
| MCSL-RAS-WEM001 | Mechanical Seal For Scotts/RAS | 08-400-01 | WEMCO | GA-C2 | 2.00 | $54.00 | MCSL |
| MCSL-RKIT-FLY001 | Repair Seal Kit For Flygt 3300-642 Pump SEE SPECS | 6018924 | FLYGT | MS-R1B-S3 | 2.00 | $4,052.00 | MCSL |
| MCSL-SPRING-001 | Spring For MCSL - 532 or 12213 For Long Shaft at | SPRING | PAC SEAL | GA-C3 | 1.00 | $0.00 | MCSL |
| METAL-ALU-001 | | 340810 | SISKIN STEEL | COPS | 3.00 | $21.00 | |
| METAL-ALU-A001 | 2" X 2" X 1/4" Angle Bar | 300220 | SISKIN STEEL | COPS | 3.00 | $1.00 | |
| METAL-CHANNEL-001 | Steel Channel, 2" x 1" x 1/8" x 20 Feet | 299900 #00ROIL17P50 | CHATHAM | MSHOP | 100.00 | $0.56 | METAL |
| METAL-CHANNEL-002 | Steel Channel, 3" x 4.1 x 20 Feet | 21080 #00E02B11E20 | CHATHAM | MSHOP | 100.00 | $0.87 | METAL |
| METAL-CHANNEL-003 | Steel Channel, 4" x 5.4 x 20 Feet | 21311 #00R02D68Y90 | CHATHAM | MSHOP | 80.00 | $1.70 | METAL |
| METAL-EXPM-001 | 9 Gauge, 48" x 8 Feet, Expanded Metal | 56441 #00F2S93C60 | CHATHAM | MSHOP | 24.00 | $3.97 | METAL |
| METAL-FBAR-001 | Flat Bar, Cold Roll, 1/8" x 1 1/2" x 12 Feet | 44321 #00R00P85M40 | CHATHAM | MSHOP | 60.00 | $1.04 | METAL |
| METAL-STEELA-001 | Steel Angle, 1" x 1" x 1/4" x 20 Feet | 38 #00R00499B10 | CHATHAM | MSHOP | 200.00 | $0.40 | METAL |
| METAL-STEELA-002 | Steel Angle, 1" x 1" x 1/8" x 20 Feet | 34 #00R00D48M40 | CHATHAM | MSHOP | 200.00 | $0.21 | METAL |
| METAL-STEELA-003 | Steel Angle, 2" x 2" x 1/4" x 20 Feet | 399 #00R01YB10 | CHATHAM | MSHOP | 200.00 | $0.65 | METAL |
| METAL-STEELA-004 | Steel Angle 3" x 3" x 1/4" x 20 Feet | 4979 #00R2223R00 | CHATHAM | MSHOP | 100.00 | $0.98 | METAL |
| METAL-STEELA-005 | Steel Angle, 4" x 4" x 1/4" x 20 Feet | 3719 #00R3016B10 | CHATHAM | MSHOP | 80.00 | $1.47 | METAL |
| METAL-STEELP-001 | 16 Gauge, 48" x 10 Feet, Steel Plate | 28804 #00R03M34R00 | CHATHAM | MSHOP | 40.00 | $3.88 | METAL |
| METAL-STEELP-002 | Steel Plate, 11 Gauge, 48" x 10 Feet | 28458 #00R05Y39R00 | CHATHAM | M-SHOP | 50.00 | $6.77 | METAL |
| METAL-TUBING-001 | Steel Tubing, 1" x 1" x 1/8" x 20 Feet | 45410 #00R00P05P50 | CHATHAM | MSHOP | 200.00 | $0.43 | METAL |
| METAL-TUBING-002 | Steel Tubing, 2" x 2" x 1/4" x 20 Feet | 45676 #00R00L17P50 | CHATHAM | MSHOP | 80.00 | $2.11 | METAL |
| METAL-TUBING-003 | Steel Tubing, 2 1/2" x 2 1/2" x 1/4 x 20 Feet | | CHATHAM | MSHOP | 100.00 | $2.71 | METAL |
| METER-FLOW-001 | Flow Meters, Key Instruments Brand, Grainger, Bubb | 5P364 | GRAINGER | EL-C3-S4 | 2.00 | $69.00 | METER |
| METER-FLOW-002 | Flow Meter, Dwyer Brand | VFA-3-SSV | DWYER | EL-C3-S4 | 2.00 | $40.00 | METER |
| METER-FLOW-SHADE-001 | Ultrasonic Sensor Sunshade with Adaptor To Fit Mod | 60-3004-142 | CC LYNCH | EL-C6-S9 | 2.00 | $50.00 | METER |
| METER-MANO-001 | Manometers, Well Type, For Carbon Towers | 123016D | DWYER | MZ-R3-S3 | -7.00 | $140.00 | METER |
| MODULE-LNMR-001 | Ignitor Module For John Deere 345 | AM105574 | JOHN DEERE | GA-LN-C | 1.00 | $250.00 | LAWNEQ |
| NUT-ROTOR-LOCK001 | Lock Nut For Rotor at Scotts | 0905274 | FALK | MS-R1B-S3 | 1.00 | $4.40 | NUT |
| OIL-CAP-001 | Capella Oil | WF 68 | TEXACO | STORRM-R1-S1 | 9.75 | $10.98 | OIL |
| OIL-CHESYN-001 | Synthetic Oil | 266172 | CHEVRON | OIL-H | 41.00 | $1.00 | OIL |
| OIL-DURO-220-001 | Duro 220 AW | 10552 | ARCO | OIL-H | 40.00 | $1.00 | OIL |
| OIL-ISO-220-001 | ISO 220 | 232948 | CHEVRON | OIL-H | 58.25 | $1.00 | OIL |

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| Item No. | Description | Mfg Part No. | Manufacturer | Stock Location | Qty on Hand | Average Unit Cost | Inventory Type |
|---|---|---|---|---|---|---|---|
| OIL-ISO-68-001 | ISO 68 AW | 255673 | MOBIL | OIL-H | 62.50 | $1.00 | OIL |
| OIL-MOBSYN-001 | Synthetic Oil | SMC-630 | MOBIL | OIL-H | 55.00 | $1.00 | OIL |
| OIL-MOTOR-001 | Motor Oil 15W40 | 225044 | CHEVRON | OIL-H | 210.00 | $1.00 | OIL |
| OIL-MOTOR-002 | Motor Oil 15W40 | 225046 | CHEVRON | OIL-H | 165.00 | $1.00 | OIL |
| OIL-SRING-001 | Oil Sealing Ring For Mixer at Prudes Creek | 9280074 | LANDIA | MS-R1B-S2 | 0.00 | $19.00 | OILRIN |
| ORING-001I | ORing For Gorman Rupp Pump, Model T4A-3B | 46411-062 | G-RUPP | MS-R9-S1 | 4.00 | $117.35 | ORING |
| ORING-002 | ORing, Pump at P.Creek Wemco Pump - Model #E5K-LM- | 142237 | WEMCO | GA-C1 | 1.00 | $31.00 | ORING |
| ORING-003 | Oring, Pump at P.Creek Wemco Pump - Model #E5K-LM- | 142202 | WEMCO | GA-C1 | 1.00 | $18.00 | ORING |
| ORING-SET-001 | Oring Set For Mixer at Prudes Creek | 8117038 | LANDIA | MS-R1B-S2 | 0.00 | $35.00 | ORING |
| ORING-UV-001 | Oring For Trojan UV #3000 at Warrior Plant | 302300 | TROJAN | GA-C1 | 13.00 | $0.50 | ORING |
| ORING-UV-002 | Oring For Trojan UV #3000 at Warrior Plant | 302314 | TROJAN | GA-C1 | 14.00 | $0.50 | ORING |
| PACK-SCORE-001 | Solid Core 1/8" Pump Packing | ML 4002 1/8 | BRAG | GA-C11 | 6.50 | $55.45 | PACKIN |
| PACK-SCORE-002 | Solid Core 1/4" Pump Packing | ML 4002 1/4 | BRAG | GA-C11 | 6.00 | $51.30 | PACKIN |
| PACK-SCORE-003 | Solid Core 3/8" Pump Packing | ML 4002 3/8 | BRAG | GA-C11 | 11.60 | $51.30 | PACKIN |
| PACK-SCORE-004 | Solid Core 1/2" Pump Packing | ML 4002 1/2 | BRAG | GA-C11 | 4.00 | $51.30 | PACKIN |
| PAINT-COALTAR-OOI | Coal Tar | | SHERIWINWILL | PS-SR | 0.38 | $28.00 | PAINT |
| PAINT-DURUST-001 | Duro Rust Extend, Rust Arrestor | 1543958 | SHERIWINWILL | PS-SR | -50.50 | $35.00 | PAINT |
| PAINT-EPOXY-001 | Two Part Epoxy Paint | | | PS-SR | -513.75 | $1.00 | PAINT |
| PAINT-LATEX-001 | All Latex Paints | | SHERIWINWILL | PS-SR | -287.00 | $18.00 | PAINT |
| PAINT-OIL-001 | All Oil and Enamel Paints | | INDURON | PS-SR | -123.75 | $23.00 | PAINT |
| PAINT-POLY-001 | Polyurethane Paint | | | PS-SR | -805.88 | $22.00 | PAINT |
| PAINT-PRIMER-001 | Metal Primer | | SHERIWINWILL | PS-SR | -321.38 | $15.00 | PAINT |
| PAINT-SPRAY-CAN-002 | Rust Inhibiter, Spray Cans, 12-15 Ounce Qt 12 Cans | | | PTS | 10.75 | $2.95 | PAINT |
| PAINT-THORSEAL-001 | Thoroseal Concrete Cover | | SHERIWINWILL | PS-SR | -75.50 | $75.00 | PAINT |
| PIPE-SS-001 | 3/4" SS Pipe - Sch. 40 | 3/4" | PETRO | MSHOP | 80.00 | $2.05 | PIPE |
| PIPE-SS-002 | 1" SS Pipe - Sch. 40 | 1" | PETRO | MSHOP | 40.00 | $2.63 | PIPE |
| PIPE-SS-003 | 1/2" SS Pipe - Sch. 40 | 1/2" | PETRO | MSHOP | 40.00 | $1.71 | PIPE |
| PIPE-SS-004 | 1 1/2" SS Pipe - Sch. 40 | 1 1/2" | PETRO | MSHOP | 40.00 | $3.85 | PIPE |
| PIPE-SS-005 | 2" SS Pipe - Sch. 40 | 2" | PETRO | MSHOP | 40.00 | $5.03 | PIPE |
| PLUG-001 | Plug To Wemco Pump Model #E5K-LM-EE3R7-RAS at P.Cr | 242281 | WEMCO | GA-C1 | 1.00 | $22.00 | PLUG |
| PULY-001 | Pulley | 211174-5 C-10 | | GA-R7-S1 | 1.00 | $0.00 | PULY |
| PULY-002 | Pulley | A106 B10 | | GA-R7-S1 | 1.00 | $0.00 | PULY |
| PULY-003 | Pulley | 110 PD 3B | | GA-R7-S1 | 1.00 | $0.00 | PULY |
| PULY-004 | Pulley | | | GA-R7-S1 | | | PULY |
| PULY-005 | Pulley | | | GA-R7-S1 | 1.00 | $0.00 | PULY |
| PULY-006 | Pulley | 3 3V 6.0 2517 | | GA-R7-S1 | 2.00 | $0.00 | PULY |
| PULY-007 | Pulley | 16043 | | GA-R7-S1 | 5.00 | $0.00 | PULY |
| PULY-008 | Pulley | D4 700-20 | | GA-R7-S1 | 1.00 | $0.00 | PULY |
| PULY-009 | Pulley | 405BSD C2J | | GA-R7-S1 | 3.00 | $0.00 | PULY |
| PULY-010 | Pulley | | | GA-R7-S1 | 1.00 | $0.00 | PULY |
| PULY-011 | Pulley | | | GA-R7-S1 | 1.00 | $0.00 | PULY |
| PULY-012 | Pulley | A56B60 | | GA-R7-S1 | 1.00 | $0.00 | PULY |
| PULY-013 | Pulley | 5X60H | | GA-R7-S1 | 1.00 | $0.00 | PULY |
| PULY-014 | Pulley | BK65H | | GA-R7-S1 | 1.00 | $0.00 | PULY |
| PULY-015 | Pulley | 3X919 | CONGRESS | GA-R7-S1 | 0.00 | $5.00 | PULY |
| PULY-016 | Pulley For Sprayer | 3X790 | GRAINGER | MS-R2A-S1 | 0.00 | $11.05 | PULY |
| PULY-017 | Pulley For Morgan/Gwood 1 & 2 9 1/4" Dia. - 5V Sty | 5V9.753 | | MS-R2A-S1 | 0.00 | $95.81 | PULY |
| PULY-INST-001 | Pulley Insert | 2517 | | GA-R7-S1 | 2.00 | $0.00 | PULY |
| PULY-INST-002 | Pulley Insert | 2517 | | GA-R7-S1 | 5.00 | $0.00 | PULY |
| PULY-INST-003 | Pulley Insert | 2517 | | GA-R7-S1 | 1.00 | $0.00 | PULY |
| PULY-INST-004 | Pulley Insert | | | GA-R7-S1 | 1.00 | $0.00 | PULY |
| PULY-INST-005 | Pulley Insert | 1315 | | GA-R7-S1 | 2.00 | $0.00 | PULY |
| PULY-INST-006 | Pulley Insert | 1610 | | GA-R7-S1 | 1.00 | $0.00 | PULY |
| PULY-INST-007 | Pulley Insert | 29-01 | | GA-R7-S1 | 1.00 | $0.00 | PULY |
| PULY-INST-008 | Pulley Insert | | | GA-R7-S1 | 1.00 | $0.00 | PULY |
| PULY-INST-009 | Pulley Insert 1 3/4 Morgan/Greenwood #1 & 2, T8 Pu | 3020 | DODGE | MS-R1B-S2 | 1.00 | $32.12 | PULY |
| PUMP-AIR-001 | Air Pump, WISA, 120 Volt, To Fit Gorman Rupp Pump | 48221-022 | GORMAN RUPP | EL-C3-S3 | 2.00 | $322.65 | PUMP |
| PUMP-CASING-001 | Lower Seal Casing For 30 Hp Ebara at Moss Lane | CDL11-1035 | EBARA | MS-R6-S2 | 0.00 | $711.00 | PUMP |
| PUMP-CGASKET-FLY001 | Cooling Gasket To Fit Flygt Pump CP3300X-454-88 HP | 6465900 | FLYGT | MS-R1B-S3 | 1.00 | $15.00 | PUMP |

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| Item No. | Description | Mfg Part No. | Manufacturer | Stock Location | Qty on Hand | Average Unit Cost | Inventory Type |
|---|---|---|---|---|---|---|---|
| PUMP-DEWAT-001 | DeWater Pump #JC 10W/11W ABS SEE SPECS | CD10W/11W | ABS | MS-R1A-S1 | 1.00 | $562.50 | PUMP |
| PUMP-DIAPKIT-001 | Diaphram Kit, WISA, To Fit WISA Air Pump For Gorma | 26813-903 | GORMAN RUPP | D3-S3 | 3.00 | $19.75 | |
| PUMP-EB-GRIN-001 | Ebara, 2 HP, Grinder Pump & Control Panel, Oak Gro | | | - | 2.00 | $1,485.00 | PUMP |
| PUMP-EBARA-001 | Ebara 2 Hp Pumps For Oak Gr, Chapel 1, & Day Stre | 32DGUII61.582 | EBARA | MS-F | 1.00 | $1,385.00 | PUMP |
| PUMP-EBARA-002 | 5 Hp PUmp For Trace Ridge & 2nd & 3rd Street | 50DGFU6372 | EBARA | MS-F | 1.00 | $3,827.00 | PUMP |
| PUMP-FLNG-HY001 | | 055190003 | HYDROMATIC | GA-C7 | 15.00 | $13.00 | FLANGE |
| PUMP-FLPCUP-HY001 | Rubber flapper Cup For Hydromatic 40 MP Flapper | 120180012 | HYDROMATIC | GA-R6B-S2 | 1.00 | $33.00 | PUMP |
| PUMP-FUELT-001 | Fuel Transfer Pump 1/4 Hp - 15 GPM - 115 VAC | 4RP93 | GRAINGER | MZ | 1.00 | $315.43 | PUMP |
| PUMP-FUELT-002 | Fuel Transfer Pump 1/4 Hp - 20 GPM - 12 VDC | 4RP94 | GRAINGER | MZ | 1.00 | $271.96 | PUMP |
| PUMP-GRSL-002 | Grease Seal For Pump at Pinewood | 4730109 | | GA-R2-S2 | 1.00 | $0.00 | GRSL |
| PUMP-GRSL-003 | Grease Seal For Pump at Pinewood | 470530 | | GA-R2-S2 | 2.00 | $0.00 | GRSL |
| PUMP-GRSL-CR001 | Grease Seal For Pump at Halls | 35201 | CR | GA-R2-S2 | -1.00 | $0.00 | GRSL |
| PUMP-GRSL-CR002 | Grease Seal For Pump at Halls | 32501 | CR | MS-R3B-S2 | 2.00 | $0.00 | GRSL |
| PUMP-GRSL-CR003 | Grease Seal For Pump at Hooper | 20109 | CR | MS-R3B-S2 | 4.00 | $7.94 | GRSL |
| PUMP-GRSL-CR004 | Grease Seal For Pump at Hooper, Larkway | 16245 | CR | MS-R3B-S3 | 8.00 | $0.00 | GRSL |
| PUMP-GRSL-CR005 | Grease Seal For Pump at K-Mart | 29866 | CR | MS-R3B-S2 | 5.00 | $0.00 | GRSL |
| PUMP-GRSL-CR006 | Grease Seal For Pump at K-Mart, Larkway | 19831 | CR | MS-R3B-S2 | 3.00 | $0.00 | GRSL |
| PUMP-GRSL-CR007 | Grease Seal For Pump #3 at South Park | 18581 | CR | MS-R3B-S2 | 13.00 | $0.00 | GRSL |
| PUMP-GRSL-CR008 | Grease Seal For Pump #3 at South Park | 24898 | CR | MS-R3B-S2 | 15.00 | $2.67 | GRSL |
| PUMP-GRSL-CR009 | Grease Seal For Pump at Lance Way | 17716 | CR | MS-R3B-S2 | 4.00 | $10.62 | GRSL |
| PUMP-GRSL-CR010 | Grease Seal For Pump at Lance Way | 16337 | CR | GA-R2-S2 | 1.00 | $0.00 | GRSL |
| PUMP-GRSL-CR011 | Grease Seal For Pump at Newfound | 27368 | CR | MS-R3B-S2 | 2.00 | $8.38 | GRSL |
| PUMP-GRSL-CR012 | Grease Seal For Pump at Southwood. | 11665 | CR | MS-R3B-S3 | 2.00 | $1.00 | GRSL |
| PUMP-GRSL-ISP001 | Grease Seal For Pump at Southwood | R00166 | ISP | MS-R3B-S3 | 2.00 | $2.18 | GRSL |
| PUMP-GRSL-JC001 | Grease Seal For Pump at Newfound | 0275-9732 | JIM CLIPPER | MS-R4B-S2 | 6.00 | $0.00 | GRSL |
| PUMP-GRSL-N001 | Grease Seal For Pump at Newfound | 472636 | NATIONAL | MS-R4B-S3 | 1.00 | $5.84 | GRSL |
| PUMP-INSPSCREW-FLY001 | Inspection Screw, To Fit Flygt Pump Model 3152-181 | 827034 | FLYGT | MS-R1B-S3 | 1.00 | $19.00 | PUMP |
| PUMP-LOBE-WE-001 | 8" Rotor For 8" Lobe Wemco Pump/Lamination | RL800 | WEMCO/APC | MS-F | -4.00 | $2,584.00 | LOBE |
| PUMP-LOBE-WE-002 | 5" Rotor For 5" Lobe Wemco Pump/Lamination | RL500 | WEMCO/APC | MSHOP-F | -1.00 | $1,236.00 | LOBE |
| PUMP-LOBE-WE-REC001 | 8" Rotor For 8" Lobe Wem. Pump Recovered | RPD-8 | WE/EQUIPUMP | MS- | 4.00 | $1,280.00 | LOBE |
| PUMP-LOBE-WE003 | 5" Rotor For 5" WEMCO Pump - Scotts RAS/P. | RPD-5 | WEMCO | MS-R6-S2 | 4.00 | $850.00 | LOBE |
| PUMP-LUG-001 | Mounting Lug, 4", Hydromatic Pump | 10941-000-2 | HYDROMATIC | MS-R1B-S2 | 4.00 | $109.33 | PUMP |
| PUMP-MCSL-SE008 | Mech Seal For Jeff. Mem. - Prudes C. #1 Hydro Pump | 32SGP21CVK10 | SEPCO | GA-C2 | 2.00 | $180.00 | MCSL |
| PUMP-MTR-PTS-001 | Points & Repair Kit For Yellow Portable Pump | UQ21-WF | GUTHRIES ENG | VC | 1.00 | $20.00 | PUMP |
| PUMP-PAIL-STICK-001 | Pail Stick Pump For Odor Control | MZ-R5-S3 | UNITED | MZ-R5-S3 | 3.00 | $166.80 | PUMP |
| PUMP-PISTCUP-001 | Piston Cup, For Hyd. Pump S/Lift 40MP | 12018-001-01 | | MS-R8-S2 | 9.00 | $49.50 | PUMP |
| PUMP-PISTCUP-002 | Piston Cup For Hydromatic Pump 60 MP | 12018-003-1 | | MS-R8-S2 | 4.00 | $113.00 | PUMP |
| PUMP-PRIHOU-001 | Globe for S & L Vacuum Prime Pump | 87813316 | S&L | GA-C15 | 10.00 | $1.00 | PUMP |
| PUMP-SEALPLATE-001 | Seal Plate For 40MP Hydromatic Pump at Gadsden Hwy | 009010002 | HYDROMATIC | MS-R6-S2 | 2.00 | $227.00 | PUMP |
| PUMP-SLVS-001 | Wear Sleeve For Pump at Adamsville | 1002 | | GA-C4 | 1.00 | $0.00 | SLVS |
| PUMP-SLVS-002 | Wear Sleeve For Pump at Amerex | 1004 | | GA-C4 | 1.00 | $0.00 | SLVS |
| PUMP-SLVS-003 | Wear Sleeve For Pump at Amerex No1 | 11876A | | GA-C4 | 2.00 | $0.00 | SLVS |
| PUMP-SLVS-004 | Wear Sleeve For Pump at Halls Branch | 1005 | | GA-C4 | 3.00 | $0.00 | SLVS |
| PUMP-SLVS-005 | Wear Sleeve For Pump at Larkway | 1003 | | GA-C4 | 2.00 | $0.00 | SLVS |
| PUMP-SLVS-006 | Wear Sleeve For Pump at Lewisburge | 1009 | | GA-C4 | 0.00 | $0.00 | SLVS |
| PUMP-SLVS-007 | Wear Sleeve For Pump at Mulga Loop | 540A14A 9630 F | | GA-C4 | 1.00 | $0.00 | SLVS |
| PUMP-SLVS-008 | Wear Sleeve For Pump at Parkway | 1001 | | GA-C4 | 2.00 | $0.00 | SLVS |
| PUMP-SLVS-009 | Wear Sleeve For Pump at Riverchase | PO 17273-2-000 | | GA-C4 | 2.00 | $0.00 | SLVS |
| PUMP-SLVS-010 | Wear Sleeve For Pump at New Found | | | GA-C4 | 5.00 | $0.00 | SLVS |
| PUMP-SUCT/COV-EB001 | Suction Cover For Ebara Pump Model 6222 Woods T. | CDL12-1024 | EBARA | MS-R1B-S2 | 0.00 | $528.75 | PUMP |
| PUMP-SUCTION-COV-001 | Suction Cover To Fit Ebara Model 100 DLM | CDL 12-1024 | | MS-R9-S2 | 1.00 | $387.00 | PUMP |
| PUMP-SUMP-BAR001 | Barnes 1/2 HP Sump Pump ( Float Attached | 100949A | BARNES | MS-R1A-S1 | 2.00 | $180.00 | PUMP |
| PUMP-SUMP-GODW001 | Godwin 1 Hp Sump Pump 58 Ft. Max Head | GSP-10-1 | GODWIN | MS-R1A-S1 | 4.00 | $830.00 | PUMP |
| PUMP-SUMP-PON001 | Ponstare Sump Pump | PS-65011 | PONSTAR | GA-5A-SI | 0.00 | $180.00 | PUMP |
| PUMP-SUMP-ZOL001 | Zoeller Sump Pump | 2P550 | ZOELLER | MS-R1A-S1 | 5.00 | $200.93 | PUMP |
| PUMP-TWINPIS-TEL001 | Twin Piston Sprayer Pump | Grainger 2P336C | | GR-R5A-S1 | 2.00 | $157.68 | PUMP |
| PUMP-TWPIST-001 | Twin Pist. Pump 3.0 GPM, 800 PSI -Odor/C. SEE SPEC | 2P336C | GRAINGER | MS-R2A-S2 | 0.00 | $100.35 | PUMP |
| PUMP-TWPIST-002 | Twin Pist. Pump 2.2GPM 1000 PSI -Odor Control | 2P339C | GRAINGER | MS-R2A-S2 | 0.00 | $191.75 | PUMP |
| PUMP-TWPIST-003 | Twin Pist. Pump 2.2 GPM 1000 PSI Odor C. Mag. | 2P 341C | GRAINGER | MS-R2A-S2 | 2.00 | $103.10 | PUMP |

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| Item No. | Description | Mfg Part No. | Manufacturer | Stock Location | Qty on Hand | Average Unit Cost | Inventory Type |
|---|---|---|---|---|---|---|---|
| PUMP-TWPIST-004 | Twin Pist. Pump 3 GPM Max - 800 PSI Max Odor Contr | 3YB49 | GRAINGER | MS-R2A-S2 | 1.00 | $258.75 | PUMP |
| PUMP-UPCK-001 | Style 10 Packing Stick | STYLE 10 | JOHN CRANE | GA-C11 | 16.00 | $30.50 | PUMP |
| PUMP-UPCK-FIT-003 | Fitting, Palmetto, PN-1202 | 1202 | PALMETTO | - | 8.00 | $1.00 | PUMP |
| PUMP-UPCK-FIT001 | Button Head Fitting for Pump Up Packing | 03245016 | | GA-C11 | 20.00 | $3.61 | PUMP |
| PUMP-UPCK-FIT002 | Button Head Fitting for Pump Up Packing | 03245025 | | GA-C11 | 18.00 | $5.49 | PUMP |
| PUMP-WATER-MY001 | Myers Water Pump for Airport Flush System | HJ100S | MYERS | COPS-F | 1.00 | $442.00 | PUMP |
| PUMP-WRING-FLY001 | Wear Ring Rubber For Fly. 3300 Imp Code 464 | 3193800 | FLYGT | MS-R1B-S3 | 0.00 | $179.00 | PUMP |
| PUMP-WRING-FLY002 | Wear Ring STEEL For Fly. 3300 Imp Code 464 | 3452502 | FLYGT | MS-R1B-S3 | 1.00 | $158.00 | PUMP |
| PUMP-WRING-FLY003 | Wear Ring - Stationary For Flygt Pump CP3300 at Fi | 3797100 | FLYGT | MS-R1B-S3 | 1.00 | $240.00 | PUMP |
| PUMP-WSEAL-001 | No Name | | | GAR-5A-S1 | 3.00 | $300.00 | PUMP |
| PUMP-WSEAL-002 | Water Seal Pump For Riverchase | CR3-6 | GRUNDFOS | MS-R4A-S1 | 1.00 | $836.00 | PUMP |
| RAM-HYDRAUL-001 | Hydraulic Ram, 4 Ton, Grainger, PN 3ZC68 | 3ZC68 | GRAINGER | - | 2.00 | $213.75 | |
| RAS-GRSL-N001 | Grease Seal For RAS at Scotts Branch | | NATIONAL | GA-R2-S2 | 2.00 | $0.00 | GRSL |
| RECPUMP-GRSL-N001 | Grease Seal For Recipricating Pump at Scotts | 472258 | NATIONAL | GA-R2-S2 | 1.00 | $0.00 | GRSL |
| REG-GASPRESS-001 | Gas Pressure Regulator - Lever Acting Pipe 1" x 1" | 4E225 | GRAINGER | MS-M1B-S3 | 1.00 | $57.03 | REGULA |
| ROTOR-GRSL-CR001 | Grease Seal For Rotor at Scotts Branch | 26237 | CR | GA-R2-S2 | 7.00 | $0.00 | GRSL |
| ROTOR-GRSL-CR002 | Grease Seal For Rotor at Warrior | 33590 | CR | MS-R3B-S1 | 2.00 | $0.00 | GRSL |
| ROTOR-GRSL-CR003 | Grease Seal For Rotor at Warrior | 20426 | CR | GA-R2-S2 | | | GRSL |
| ROTOR-GRSL-CR004 | Grease Seal For Rotor at Scotts Branch | 17284 | CR | MS-R3B-S3 | 4.00 | $9.47 | GRSL |
| ROTOR-GRSL-GA001 | Grease Seal For Rotor at Warrior | 244211 | GARLOCK | MS-R3B-S1 | 8.00 | $0.00 | GRSL |
| SAMP-EQ-001 | Flow Meter - Isco Brand | 4210 | ISCO | MZ-R9-S2 | 2.00 | $3,095.00 | SAMPLE |
| SAW-BLBAN-001 | Band Saw Blade 12'6" x 1" x .035" 8 Teeth Per Inch | 4L169 | GRAINGER | MSHOP | 2.00 | $48.27 | SMATLS |
| SAW-BLBAN-002 | Band Saw Blade 12' 6" x 1" x .035" 10 Teeth Per In | 4L175 | GRAINGER | MSHOP | 2.00 | $48.27 | SMATLS |
| SEAL-ASS-001 | Seal Assembly To Fit Ing.-Dres. Model CA205AFW5B2 | M040127G | CLAY-GREENE | GA-C3 | 0.00 | $792.00 | SEAL-A |
| SEAL-ASS-002 | Seal Assembly For M/M at Airport #CMD 1800 MS | A-34120-TB | JWC-ENV | MS-R1B-S3 | 0.00 | $543.00 | SEAL-A |
| SHAFT-JACK-001 | Jack Shaft Housing & Bearing For #345 John Deere | AM121342 | LAWN&TRACTO | GA-LN-C | 3.00 | $69.00 | SHAFT |
| SHAFT-LNMOW-001 | Drive Shaft To Fit G1800 Kubota Lawn Tractor | 66101-81810 | | GA- | 1.00 | $287.78 | SHAFT |
| SHIM-GASKET-KIT001 | Shim,Rotor Gear Box at Scotts For Faulk 1050F22A | 757562 | FALK | MS-R6-S3 | 3.00 | $27.15 | GASKET |
| SIGHT-PLUG-001 | Sight Plugs, Liquid Level, Low Pressure, Grainger | 1U916 | GRAINGER | - | 10.00 | $8.20 | |
| SIGHT-PLUG-002 | Sights Plugs, Liqued Level, Low Pressure, Grainger | 1U917 | GRAINGER | - | 10.00 | $7.84 | |
| SLVE-PUMP-001 | Sleeve For Pump at Second Creek | Size2.75-OD,2.50-ID | SHADE SHOP | GA-R3-S2-3 | | | BRNG |
| SLVS-001 | Wear Sleeve | 52237-895-881 | NO NAME | GA-C4 | 2.00 | $0.00 | SLVS |
| SLVS-002 | Wear Sleeve | 1006 | | GA-C4 | 1.00 | $0.00 | SLVS |
| SLVS-003 | Wear Sleeve | 1007 | | GA-C4 | 1.00 | $0.00 | SLVS |
| SLVS-004 | Wear Sleeve, T8 Gor. Rupp For Morgan/Greenwood 1&2 | 12359-16000 | GORMAN RUPP | GA-C4 | 2.00 | $0.00 | SLVS |
| SLVS-PUMP-HY001 | Shaft Sleeve To Fit Hyd. Sub. Pump Model S6LX2000, | 2310-007-3 | HYDROMATIC | MS-R1B-S2 | -1.00 | $360.00 | SLVS |
| SMT-1/2 BUCKLES-001 | Clamp Band - 1/2" Buckles | CL0008-C254 | BRAG | MSHOP | 100.00 | $0.31 | SMATLS |
| SMT-3/4 BUCKLES-002 | Clamp Bank - 3/4" Buckles | CL0012-C256 | BRAG | MSHOP | 100.00 | $0.55 | SMATLS |
| SMT-BANDINGT-001 | Clamp Band It Tool | CL0001-C001 | BRAG | MSHOP | 1.00 | $81.64 | SMATLS |
| SMT-BANDROLL-001 | Clamp Band S/S 1/2" x 100" | CL0008-C204 | BRAG | MSHOP | 100.00 | $0.45 | SMATLS |
| SMT-BANDROLL-002 | Clamp Band S/S 3/4" x 100" | CL0012-C206 | BRAG | MSHOP | 100.00 | $0.68 | SMATLS |
| SMT-BORHSET-001 | 12 Pc. Boring Head Set, Series 203, 3" Boring Head | 06768758 | MSC | MSHOP | 1.00 | $231.75 | SMATLS |
| SMT-BORTLH-001 | 3 Bar Boring Tool Holder, 3 Plain Boring Bar, 6 To | | MSC | MSHOP | 1.00 | $731.12 | SMATLS |
| SMT-CARBCUT-001 | 2"-R-8 Shank Carbide Face Cutter | 03026028 | MSC | MSHOP | 1.00 | $135.86 | SMATLS |
| SMT-CENTER FIND-001 | Center Finder Complete with Case & Four Attachment | 6425279 | MSC | MSHOP | 1.00 | $30.90 | SMATLS |
| SMT-DRILL/SINK-001 | Combined Drills & Count Sink Set | 3769996 | MSC | MSHOP | 1.00 | $30.27 | SMATLS |
| SMT-EMILLMF-001 | 6 Pc., Multi-Flute, End Mill Set, 3/4", Shank Bri | 01720028 | MSC | MSHOP | 1.00 | $115.00 | SMATLS |
| SMT-EMILLSET-001 | 20 Pc., Tin Mill Coated, End Mill Set | 92000439 | MSC | MSHOP | 1.00 | $99.99 | SMATLS |
| SMT-EMSETR8-001 | R8 End Mill Holder Set, 8 Pc. Set | 08453201 | MSC | MSHOP | 1.00 | $312.00 | SMATLS |
| SMT-HOSEREP-001 | Hose Repair Kit, Low Pressure #3000 | 00651182 | MSC | MSHOP | 1.00 | $149.95 | SMATLS |
| SMT-HOSEREP-002 | Hydraulic Hose Repair Kit | 00625558 | MSC | MSHOP | 1.00 | $199.95 | SMATLS |
| SMT-KLDRILLCK-001 | Keyless Drill Chuck with Integral Shank | | MSC | MSHOP | 1.00 | $255.00 | SMATLS |
| SMT-LIGHTSTAND-001 | Magnetic Light Stand For MShop | 06580310 | MSC | HC1-R2-S5 | 2.00 | $24.99 | SMATLS |
| SMT-MULFMETER-001 | Multi Function Meter | 787 | FLUKE | VC | 1.00 | $495.00 | SMATLS |
| SMT-PARSET-001 | Parallel Set, 9 Pr. 1/4" | 09972340 | MSC | MSHOP | 1.00 | $131.31 | SMATLS |
| SMT-PARSETTS-001 | Parallel Set, 10 Pr., Thin Style | 06820898 | MSC | MSHOP | 1.00 | $100.00 | SMATLS |
| SMT-PNTOOLSET-001 | 22 Pc Pneumatic Tool Set Nuline Air Tools & Kits | 82996217 | MSC | MSHOP | 2.00 | $165.74 | SMTOOL |
| SMT-PORTLIGHT-001 | High Intensity Portable Spot Lights | 6VR50 | GRAINGER | STORRM-R1-S3 | 4.00 | $44.85 | SMATLS |
| SMT-QUARTZLIGHT-001 | Hand Carry Quartz Light | 4-VM72 | GRAINGER | STORRM-R1-S3 | 4.00 | $16.25 | SMATLS |

# Inventory Standard

## JEFFERSON COUNTY ENVIRONMENTAL SERVICES



| Item No. | Description | Mfg Part No. | Manufacturer | Stock Location | Qty on Hand | Average Unit Cost | Inventory Type |
|---|---|---|---|---|---|---|---|
| SMT-S BORING BAR-001 | Small Tools | 9870691 | MSC | MSHOP | 1.00 | $414.00 | SMATLS |
| SMT-TAPEM-001 | 100' Tape Measure | 6A502 | GRAINGER | HC1-R2-S5 | 3.00 | $29.95 | SMATLS |
| SMT-TOOLBOX-001 | 8 Drawer, Roll Away Tool Box | 9-65913 | SEARS | MSHOP | 2.00 | $296.96 | SMTOOL |
| SMT-VBLOCK-CLAMP-001 | V-Block 1 Pair & Clamp V-Block & Clamp | 0540336 | MSC | MSHOP | 2.00 | $51.25 | SMATLS |
| SNUB-SL001 | Snubbers For S&L Bubbler System | 1L186A | S & L | GA-C15 | 25.00 | $24.18 | COMPRE |
| SOLE-NGAS-001 | Solenoid Val. Lock -Off, 12 VD, 2 Way - 1" For Gor | 8215B50 | JIM HOUSE | MS-R1B-S2 | 1.00 | $239.85 | SNOID |
| SPRAYERHAND-REPKIT-001 | Poly Wand Kit, PN R15C, For Comp. Air Sprayer Mode | R15C | SPRAY DOC | GA-LN-C | 15.00 | $5.49 | |
| SPRAYGUN-001 | Spray Gun - High Pres., Rear Entry, 10 GPM, 4000 P | 4VL20 | GRAINGER | STORRM-C2 | 3.00 | $28.59 | SMATLS |
| SPRING-AIRR-GR001 | Air Release Valve Spring | 38571-717 | GORMAN RUPP | GA-C3 | 6.00 | $7.50 | SPRING |
| SPRING-UV-001 | Spring For Trojan UV #3000 at Warrior Plant | 700105 | TROJAN | GA-C1 | 12.00 | $0.50 | SPRING |
| TIRE-LNMOW-003 | Tires | 6-12 | | MZ-F | 3.00 | $32.40 | TIRE |
| TIRE-LNMOW-004 | Tires | 20X10-10NHS | | MZ-F | 2.00 | $40.13 | TIRE |
| TIRE-LNMOW-006 | Tires | 16X6.5-8NHS | | MZ-F | 8.00 | $17.30 | TIRE |
| TIRE-LNMOW-007 | Tires | 23X10.5-12NHS | | MZ-F | 3.00 | $39.15 | TIRE |
| TRIM-HEADS-001 | Weedeater trimmer heads for Echo weed trimmers | 462810 | ECHO | LN-C | 7.00 | $23.00 | LAWNEQ |
| TUBING-SAMP-001 | Clear Vinyl Tubing, 1/4" IO x 7/16" OD | TX0004-RNT7 | BRAG | CHMS-R1-S1 | 0.00 | $10.40 | TUBING |
| TUBING-SAMP-002 | Med. Grade Tub. 3/8 IDX5/8OOD 1/8 Wall | 686700047 | CC LYNCH | CHMS-R1-S1 | 2.00 | $245.00 | TUBING |
| TUBING-SAMP-003 | Clear Vinyl Tubing 3/8" x 9/16" For Warrior Sample | | BRAG | CHMS-F | 0.00 | $25.50 | TUBING |
| TWRFAN-BELT-001 | Belt For the Carbon Tower Fan 1 at Scotts Branch | B133 | | GA-W74 | 2.00 | $20.00 | BELT |
| TWRFAN-BELT-002 | Belt For the Carbon Tower Fan 2 at Scotts Branch | B133 | GATES | GA-W74 | 0.00 | $17.45 | BELT |
| U-JNT-LNMOW-001 | U Joint To Fit G1800 Kubota Lawn Tractor | 37410-13722 | | GA | 2.00 | $24.32 | UJNT |
| UJNT-G001 | Genuine U-Joint | 5-155X | GENUINE | MS-R1B-S1 | 3.00 | $0.00 | UJNT |
| UJNT-S001 | Spicer U-Joint | 5-153X | SPICER | MS-R1B-S1 | -2.00 | $0.00 | UJNT |
| UJNT-S002 | Spicer U-Joint | 5-160X | SPICER | MS-R1B-S1 | 4.00 | $0.00 | UJNT |
| UJNT-S003 | Spicer U-Joint | 5-178X | SPICER | MS-R1B-S1 | 4.00 | $11.60 | UJNT |
| UN-DES BAGS-001 | Dessicant Bags - 8 oz. | 2140K56 | INFILCO | MZ-F | 100.00 | $1.16 | |
| UN-VAL-001 | Unloader Valve For Lg. Pressure washer | 2P591 | GENPUMP | O-VC | 0.00 | $43.44 | VALVE |
| VAL-AR-GR001 | Air Release Valve For Gorman Rupp Pump | GRP33-07B | Gorman Rupp | MS-R1B-S2 | 1.00 | $1.00 | VALVE |
| VAL-ARS-GR001 | Compression Spring For Gorman Air Release Valve | 0308571-715 | GORMAN RUPP | GA-C3 | 4.00 | $6.25 | SPRING |
| VAL-ARS-GR002 | Compression Spring For G/RAir Release Valve BLACK | 0308571-717 | GORMAN RUPP | GA-C3 | 10.00 | $7.35 | SPRING |
| VAL-ARS-GR003 | Compression Spring For Gorman Air Release Valve | 0308571-610 | GORMAN RUPP | GA-C3 | 4.00 | $3.25 | SPRING |
| VAL-BALL-001 | 1/4" Ball Valve | | WATTS | MS-R5-S2 | 4.00 | $4.15 | VALVE |
| VAL-BALL-002 | 1/2" Ball Valve | | | MS-R5-S2 | 0.00 | $1.00 | VALVE |
| VAL-BALL-003 | 3/4" Ball Valve | | | MS-R5-S2 | 0.00 | $1.00 | VALVE |
| VAL-BALL-004 | 1" Ball Valve | | | MS-R5-S2 | -1.00 | $1.00 | VALVE |
| VAL-BALL-005 | 1 1/2" Ball Valve | | | MS-R5-S2 | 10.00 | $18.37 | VALVE |
| VAL-BALL-006 | 2" Ball Valve | | | MS-R5-S2 | 11.00 | $23.62 | VALVE |
| VAL-CK-001 | 1/2" Brass Check Valve | | | MS-R5-S3 | 10.00 | $1.00 | VALVE |
| VAL-CK-002 | 3/4" Brass Check Valve | | | MS-R5-S3 | 16.00 | $1.00 | VALVE |
| VAL-CK-003 | 1" Brass Check Valves | | | MS-R5-S3 | 19.00 | $9.96 | VALVE |
| VAL-CK-004 | 1 1/4" Brass Check Valves | | | MS-R5-S3 | 29.00 | $13.65 | VALVE |
| VAL-CK-005 | 2" Brass Check Valve | | | MS-R5-S3 | 6.00 | $33.15 | VALVE |
| VAL-CK-006 | 1 1/2" Brass Check Valve | | | MS-R5-S3 | 10.00 | $20.48 | VALVE |
| VAL-CKGATE-001 | 4" Gate Val., 4" Plug Aroo For Sears, P. Grove Sho | 500-272 | AL. PIPE | MS-R8-S1 | 0.00 | $593.36 | VALVE |
| VAL-FLOAT-001 | Float Valve For Ellis Road | 9190812 | JACUZZI | EL-C7-S5 | 2.00 | $127.80 | VALVE |
| VAL-FUEL-L/OFF001 | N/Gas Fuel L/ Off Valve L/Sterling SEE SPEDS | 26665-002 | JIM HOUSE | MS-R2A-S2 | 2.00 | $379.30 | VALVE |
| VAL-GATE-001 | 1/4" Gate Valve | | | MS-R5-S1 | 6.00 | $2.69 | VALVE |
| VAL-GATE-002 | 1/2" Gate Valve | | | MS-R5-S1 | 3.00 | $1.84 | VALVE |
| VAL-GATE-003 | 3/4" Gate Valve | | | MS-R5-S1 | 1.00 | $2.39 | VALVE |
| VAL-GATE-004 | 1" Gate Valve | | | MS-R5-S1 | 0.00 | $2.91 | VALVE |
| VAL-GATE-005 | 1 1/4" Gate Valve | | | MS-R5-S1 | 7.00 | $4.51 | VALVE |
| VAL-GATE-006 | 1 1/2" Gate Valve | | | MS-R5-S1 | 15.00 | $5.88 | VALVE |
| VAL-GATE-007 | 2" Gate Valve | | | MS-R5-S1 | 4.00 | $9.60 | VALVE |
| VAL-GATE-008 | Gate Valve 4" Non Rising Stem | F619-4" | NIBCO | MS-F | 2.00 | $296.06 | VALVE |
| VAL-GATE-009 | Gate Valve 6" Non Rising Stem | F619-6" | NIBCO | MS-F | 2.00 | $538.00 | VALVE |
| VAL-GATE-010 | 4" Gate Valve For Sears Drive Plug Aroo | FG 175 | WHEATLEY | MS-R8-S1 | 0.00 | $664.00 | VALVE |
| VAL-GATE-011 | 10" Gate Valve With Hand Wheel For Cunningham | 7561-02 | M & H | MS-F | 2.00 | $945.00 | VALVE |
| VAL-SOL-001 | Solenoid Valve, 3 Way, To Fit Smith & Loveless | 744140115 | SMITH&LOV | EL-C1-S2 | 1.00 | $64.57 | VALVE |
| VAL-UNLOAD-001 | Valve - Underloader - Odor Control Magnolia T. | 2P-591 | GRAINGER | MS-RZA-S2 | 1.00 | $24.48 | VALVE |

# Inventory Standard

7/26/2007

JEFFERSON COUNTY ENVIRONMENTAL SERVICES



| Item No. | Description | Mfg Part No. | Manufacturer | Stock Location | Qty on Hand | Average Unit Cost | Inventory Type |
|---|---|---|---|---|---|---|---|
| WAS-BELT-001 | Belt For the WAS Pump in Blower Bldg | B68 | | GA-W36-37 | 4.00 | $0.00 | BELT |
| WASHER-001 | Washer To Use with Plug #242281 For Wemco Pump Mod | 181773 | WEMCO | GA-C1 | 1.00 | $1.00 | WASHER |
| WASHER-MM-001 | Thrust Washer For M/Monster, Mod#CMO 1800 | 400136 | NAT. HYD. | MS-R1B-S3 | 0.00 | $4.90 | WASHER |
| WSTPUMP-GRSL-CR001 | Grease Seal For Waste Pump at Scotts Branch | 17285 | CR | MS-R3B-S3 | 6.00 | $0.00 | GRSL |
| WSTPUMP-GRSL-CR002 | Grease Seal For Waste Pump at Scotts Branch | 532866 | CR | MS-R4B-S3 | 2.00 | $0.00 | GRSL |
| WSTPUMP-GRSL-CR003 | Grease Seal For Waste Pump at Scotts Branch | 13569 | CR | GA-R2-S2 | | | GRSL |
| WSTPUMP-GRSL-CR005 | Grease Seal For Waste Pump at Scotts Branch | 21320 | CR | MS-R3B-S2 | 3.00 | $0.00 | GRSL |
| WSTPUMP-GRSL-CR006 | Grease Seal For Waste Pump at Scotts Branch | 35410 | CR | MS-R3B-S1 | 3.00 | $0.00 | GRSL |
| WSTPUMP-GRSL-CR007 | Grease Seal For Waste Pump at Scotts Branch | 49270 | CR | GA-R2-S2 | 8.00 | $0.00 | GRSL |
| WTRPUMP-SLVS-001 | Wear Sleeve For Water Pump at Scotts Branch | 2623324-186 | | GA-C4 | 4.00 | $0.00 | SLVS |
| WTRPUMP-SLVS-002 | Wear Sleeve For Water Pump at Scotts Branch | 1923 24 | | GA-C4 | 1.00 | $0.00 | SLVS |
| WTRPUMP-SLVS-003 | Wear Sleeve For Water Pump at Scotts Branch | 2623272 | | GA-C4 | 4.00 | $0.00 | SLVS |
| WTRPUMP-SLVS-004 | Wear Sleeve For Water Pump at Scotts Branch | 1000 | | GA-C4 | 1.00 | $0.00 | SLVS |
| WTRPUMP-SLVS-005 | Wear Sleeve For Water Pump at Scotts Branch | 2601754386 | | GA-C4 | 1.00 | $0.00 | SLVS |
| Grand Total | | | | | 7,625.64 | | |

# Customer Service Program

## Final

December 2016

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# Acronyms

| | |
|---|---|
| BMP | Best management practice |
| CMMS | Computerized maintenance management system |
| CMOM | Capacity, Management, Operations, and Maintenance |
| DBE | Disadvantaged business enterprise |
| FAQs | Frequently asked questions |
| FOG | Fats, oils, and grease |
| FSF | Food service facility |
| IMS | Information management system |
| JCESD | Jefferson County Environmental Services Department |
| KPI | Key performance indicator |
| MBE | Minority business enterprise |
| NPDES | National Pollutant Discharge Elimination System |
| SOP | Standard operating procedure |
| SSO | Sanitary sewer overflow |
| SSORRP | Sanitary Sewer Overflow Response and Reporting Program |
| TVI | Television inspection |
| WEF | Water Environment Federation |
| WWTP | Wastewater treatment plant |

# Customer Service Program

## Program Overview

### Purpose and Goals

The purpose of the Customer Service Program is to:

- Receive, record, and coordinate the response to customer feedback, complaints, and service requests processed by Jefferson County Environmental Services Department (JCESD) Dispatchers
- Notify residents in the service area when a sewer overflow occurred
- Notify the public on current construction work and possible impacts to traffic or access to properties
- Inform and educate JCESD staff, external customers, and community groups about the services offered and user rates charged
- Provide programmatic and educational information on Fats, Oils, and Grease (FOG) to target audiences
- The goals of the Customer Service Program are to:
- Efficiently resolve customer complaints and emergency request calls in a professional manner
- Comply with Sanitary Sewer Overflow Response and Reporting Program (SSORRP) notification requirements

### Program Components and Approach

Customer Service-related initiatives are components of the following programs:

- Service Request Management
- Public Information and Education

The **Customer Service Program** includes a comprehensive system of administrative, management, and documentation activities. The following program elements are described in this program plan:

- Service Request Management process and protocols, staffing, and data management system.
- Notification requirements for sewer overflows.
- Programmatic support for Food Service Facility (FSF) and residential FOG management.
- Methods used to inform and educate the public on the work performed by JCESD personnel.
- Educational materials and methods used to inform the public about water quality issues.
- Key Performance Indicators (KPIs) for tracking and documenting the performance and effectiveness of the Customer Service Program initiatives.

Educating JCESD staff, customers, and external groups about the wastewater industry helps to develop an engaged and informed community and garners support for initiatives focused on mitigating and preventing sanitary sewer overflows (SSOs). A strong, responsive Customer Service Program also encourages changes in behavior by promoting viable actions that can be taken by the public to prevent SSOs in the community, including proper FOG disposal methods and what not to flush down toilets.

# Service Request Management

JCESD has procedures in place to receive, process, and respond to customer complaints and requests for service. Complaints related to the performance of the collection system are routed by a Dispatcher or on-call Supervisor to sewer maintenance personnel for immediate response. Requests for service, such as locating a sewer connection or other non-emergency issue, are processed and addressed by the appropriate work group in a timely manner.

## Program Resources

### Related CMOM Program Documents and Other References

JCESD developed Standard Operating Procedures (SOPs) for various Capacity, Management, Operations, and Maintenance (CMOM)-related job duties. Copies of the SOPs for collection systems mainline cleaning and inspection are provided in the JCESD's **Standard Operation Procedures and Work Process Documentation for Field Operations.** Pump station, bypass pump, and generator SOPs are provided in the JCESD's **Pump Station Operations and Maintenance Program** plan. Procedures used when responding to and reporting sanitary sewer overflows (SSOs) are detailed in JCESD's **SSORRP**.

Other CMOM Program Plans that are referenced in the **Customer Service Program** plan are as follows:

- CMOM Information Management Systems
- CMOM Program Organization
- FOG Management

### Staffing

Communication Operators (referred to as "Dispatchers"), who report to the Line Maintenance Administration Division, are responsible for manning the Dispatch Office, located at the Shades Valley Complex. The shifts filled by the Communication Operators are from 7:00 am to 3:00 pm and 3:00 pm to 11:00 pm. The on-call Supervisor is responsible for responding to calls received at other times.

For more information on program staffing, see the organization charts in the **CMOM Program Organization** plan.

The Dispatchers are responsible for receiving and logging complaint/service request data into the Cityworks IMS and for notifying the appropriate sewer maintenance staff of the information received. The Dispatchers are also responsible for receiving completed work orders from field crews, reviewing, and closing out work orders.

Dispatchers and on-call Supervisors receive calls on a variety of collection system issues, including:

- Basement backups
- Blockages
- Broken sewers
- Local flooding
- Homeowner service lines
- Mainline and service line locations
- Missing or broken manhole covers
- Overflowing manholes
- Odors
- Pump station problems
- Sinkholes

## Data Management

All pertinent information is recorded and maintained in JCESD's Cityworks™ computerized maintenance management system (CMMS), including when the call was received, where the complaint originated, and the actions taken to resolve the issue. Complaints and service requests are tracked, printed, and filed at the Shades Valley Complex, Dispatch Office.

Service request records are used to:

- Generate reports for JCESD supervisors and managers
- Assist in documentation and reporting of SSOs
- Assess which sewer segments should be maintained more frequently
- Identify system trends and problem areas
- Determine which areas within the collection system should be evaluated for upgrades or repair

For more information on Cityworks service requests and work orders, see the **CMOM Information Management Systems Program** plan.

The following figures were generated by data extracted from the CityWorks database. **Figure 1** presents the number of service requests received within each municipality served by JCESD. The type of sewer problems and complaints received during the month of October 2015 is presented in **Figure 2**.

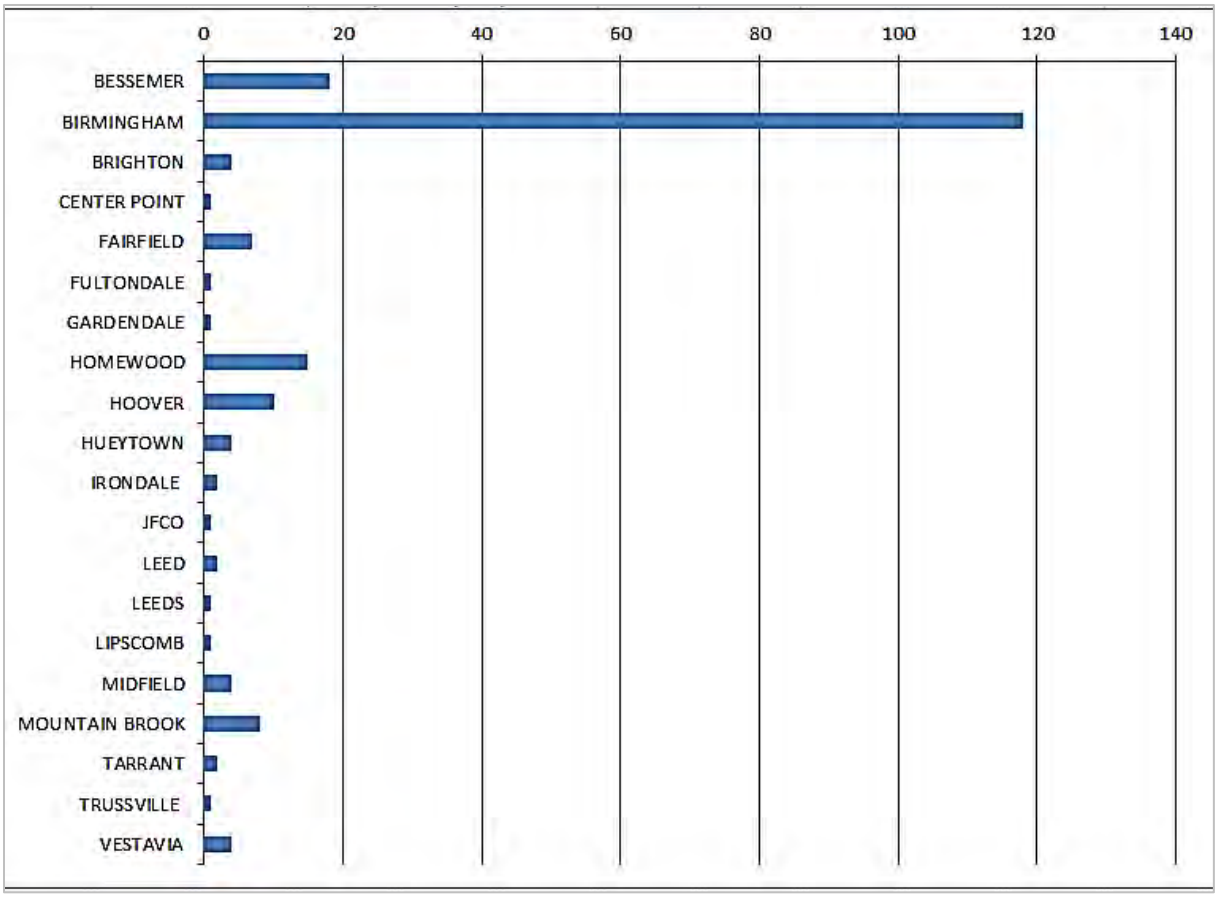



**Figure 1.Number of Service Requests by Municipality, October 2015**

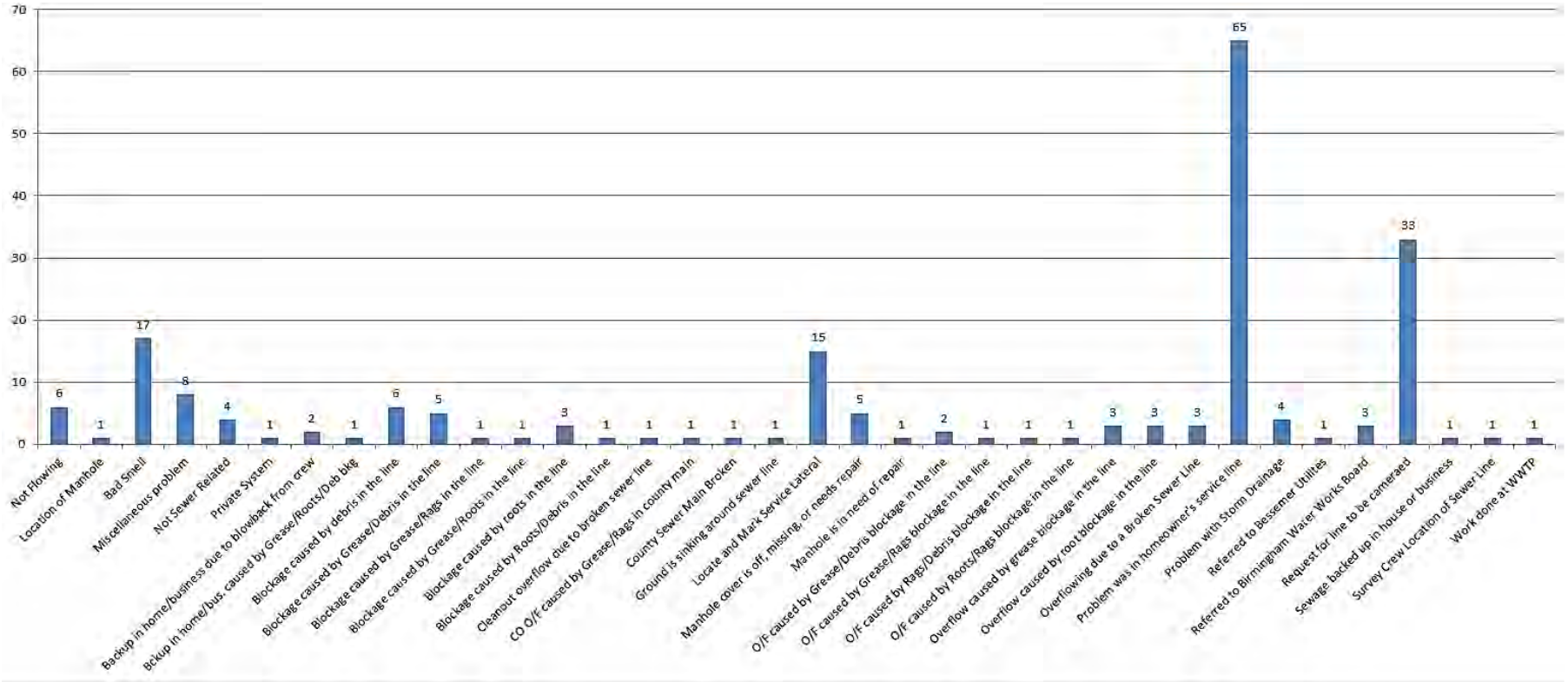



**Figure 2. Number of Service Request by Type of Complaint, October, 2015**

In addition to evaluating the location and type of complaints received, JCESD evaluates the call volume on an hour-by-hour, day-by-day basis. The following figures were generated from Cityworks data (October 2015). A summary of the total service request calls per month (13-month period) received at the Dispatch Office is provided in **Figure 3**. The charts in **Figures 4** and **5** present a summary of the number of service request calls received by day of week and by hour of the day, respectively. This information is helpful to JCESD for staffing purposes and for preparing the maintenance crews for daily activities.

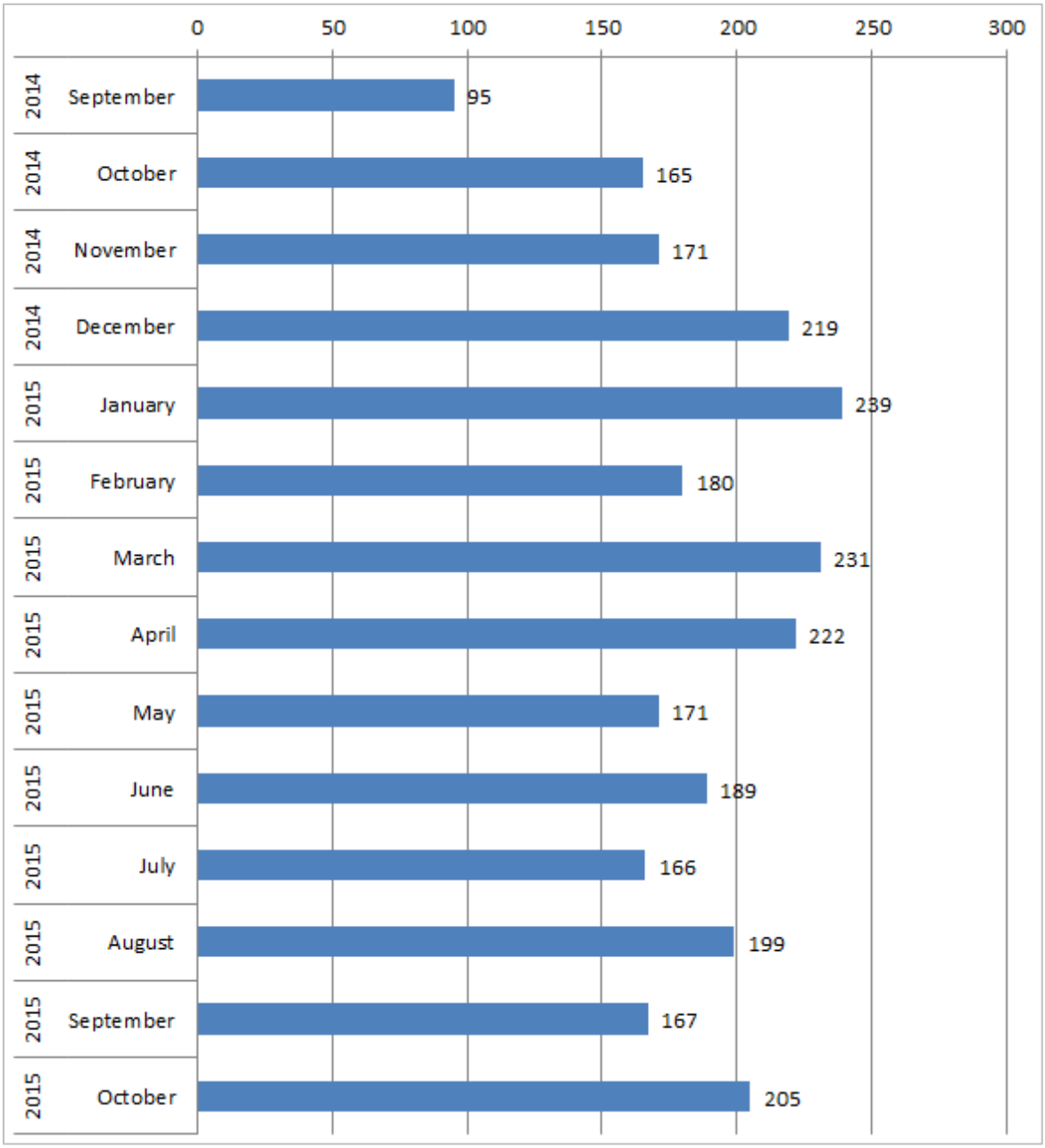



**Figure 3.Total Service Request Calls per Month, September 2014 through October 2015**

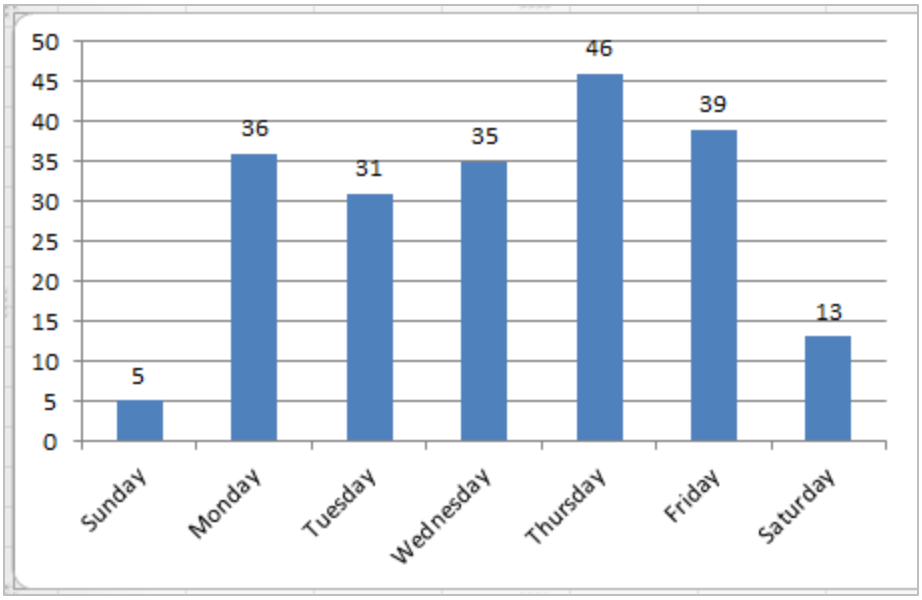



**Figure 4.Number of Service Request Calls per Day of the Week Received in October 2015**

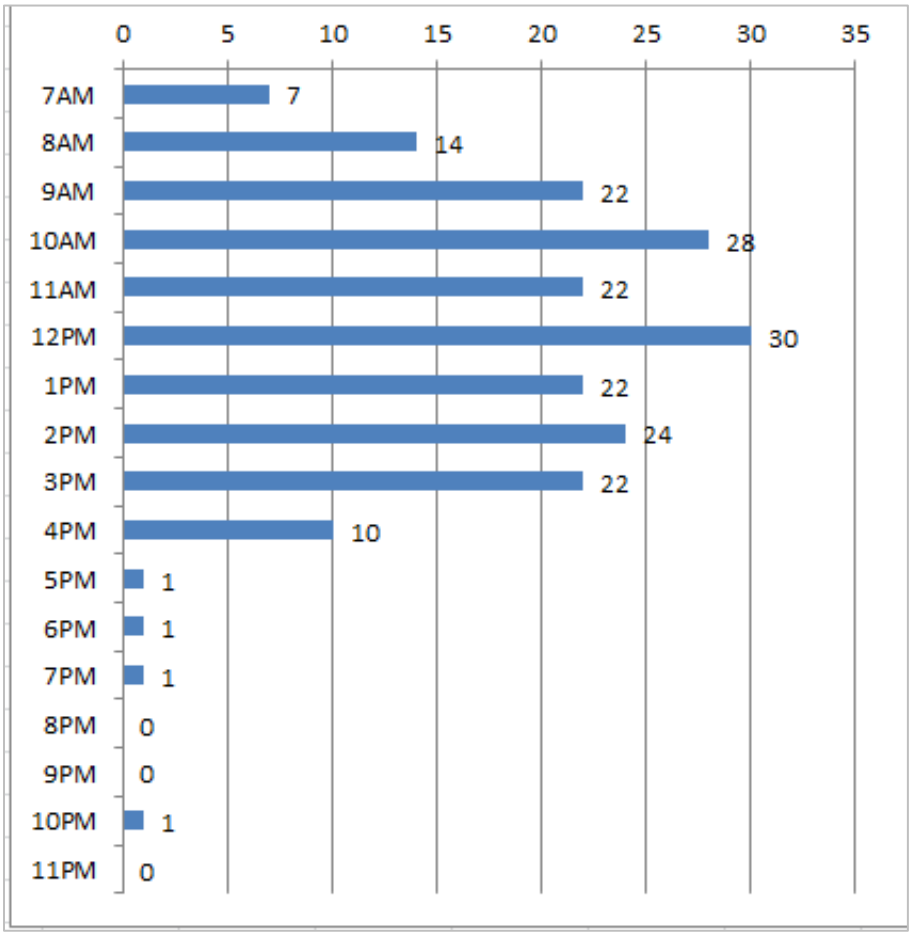



**Figure 5.Number of Calls per Hour of the Day Received in October 2015**

## Service Request Program Implementation

### Receiving and Processing Service Requests

The public can report a sanitary sewer emergency, such as a backup into a home or business, or an overflowing manhole by calling the 24-hour Emergency Contact number: (205) 942-0681. Occasionally, calls are routed to the Dispatch Office by other JCESD groups that receive the initial call.

Callers reach a Dispatcher when a call is placed between 7:00 am and 11:00 pm, Sunday through Saturday, including holidays. An on-call Supervisor is contacted via an automated voice mail system if a call is placed between 11:00 pm and 7:00 am.

When a call is received, the Dispatcher determines if the complaint or service request is related to the County's sanitary sewer system. If the call is related to another system (e.g., storm sewer or water line), the caller is referred to the proper authority.

If the call is determined to possibly concern JCESD sewers, detailed information is collected from the caller and entered into the Cityworks IMS.

The Dispatcher follows the trouble identification script shown in **Figure 6** to gather relevant information on possible SSO or building backup events. For more information on Sewer Overflow advisories, notifications, and reporting requirements, see JCESD's **SSORRP**, Section 2.

BACK UP IN HOME/BUSINESS

| Sequence | Question |
|---|---|
| 1 | DID YOU NOTICE THE BACKUP AFTER FLUSHING A TOILET OR RUNNING THE WASHING MACHINE? |
| 2 | HAS A PLUMBER BEEN OUT TO YOUR HOUSE? |
| 3 | DID THE PLUMBER ASK YOU TO CALL THE COUNTY? |
| 4 | HAVE YOU HAD TO CALL THE PLUMBER OUT FOR THIS PROBLEM MORE THAN ONCE? |
| 5 | HOW MANY TIMES? |

MANHOLE OVERFLOW

| Sequence | Question |
|---|---|
| 1 | DID YOU NOTICE THE OVERFLOW WHEN IT WAS RAINING? |

**Figure 6.Dispatch Trouble Identification Script**

As shown the Service Request Input Screen capture provided in **Figure 7**, information entered into service requests include the following:

- Date/time of request
- Dispatching personnel receiving the service request
- Customer contact information
- Nature of the request
- Location of the problem
- To whom the request was assigned

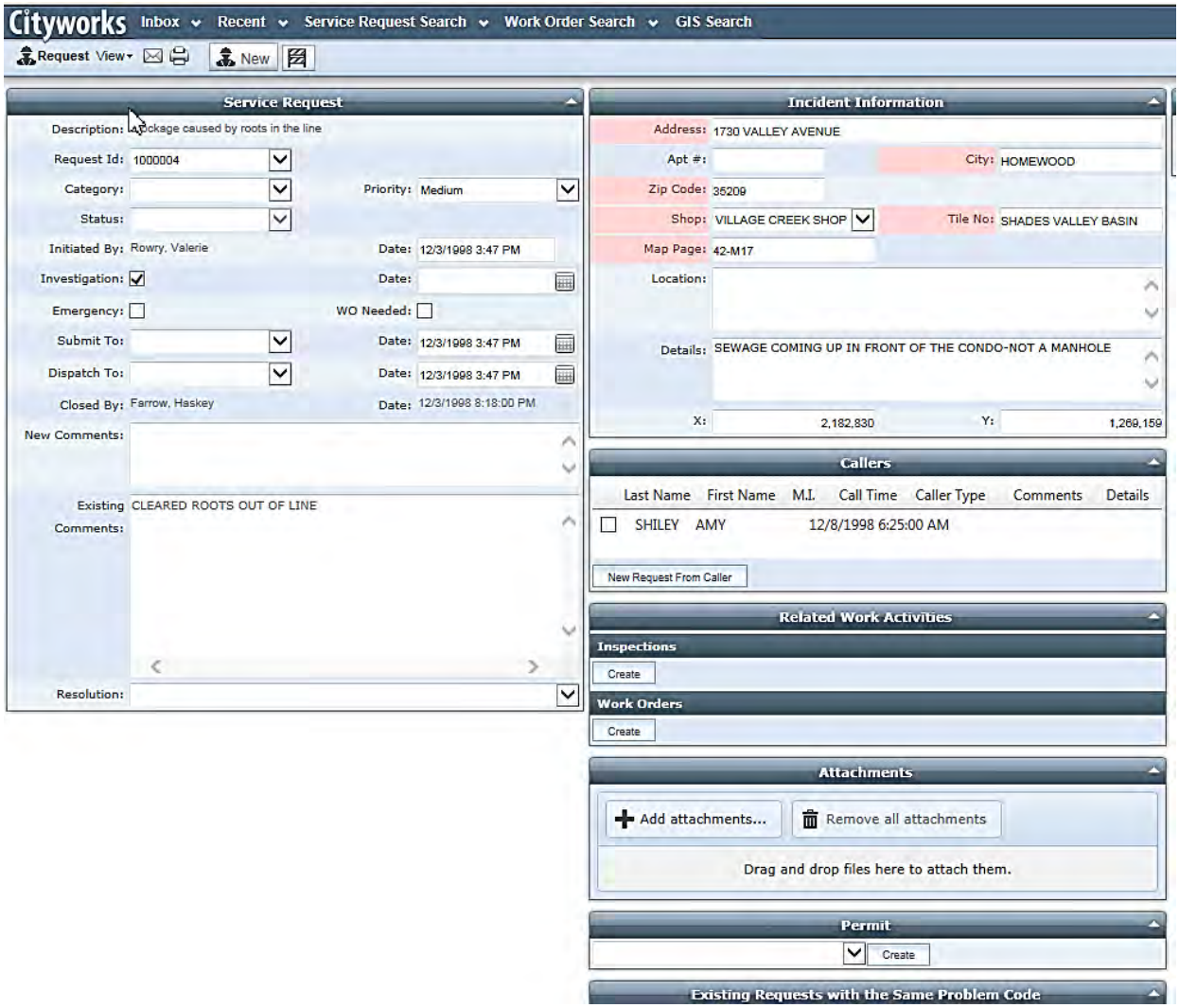
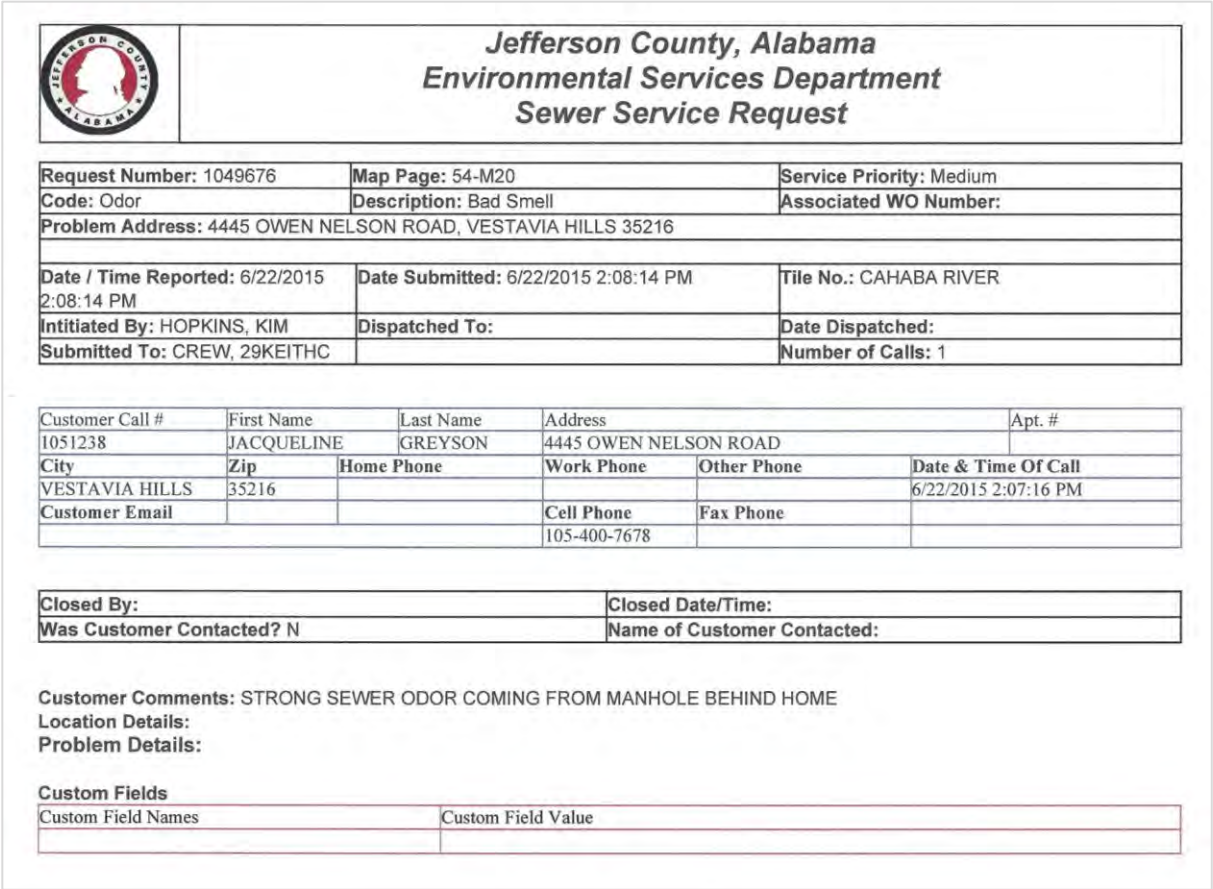



**Figure 7.Cityworks Service Request Input Screen**

An example Sewer Service Request form generated by Cityworks is shown in **Figure 8** on the following page.



**Jefferson County, Alabama**
**Environmental Services Department**
**Sewer Service Request**

| | | |
|---|---|---|
| **Request Number:** 1049676 | **Map Page:** 54-M20 | **Service Priority:** Medium |
| **Code:** Odor | **Description:** Bad Smell | **Associated WO Number:** |
| **Problem Address:** 4445 OWEN NELSON ROAD, VESTAVIA HILLS 35216 | | |
| | | |
| **Date / Time Reported:** 6/22/2015 2:08:14 PM | **Date Submitted:** 6/22/2015 2:08:14 PM | **Tile No.:** CAHABA RIVER |
| **Intitiated By:** HOPKINS, KIM | **Dispatched To:** | **Date Dispatched:** |
| **Submitted To:** CREW, 29KEITHC | | **Number of Calls:** 1 |

| Customer Call # | First Name | Last Name | Address | | Apt. # |
|---|---|---|---|---|---|
| 1051238 | JACQUELINE | GREYSON | 4445 OWEN NELSON ROAD | | |
| **City** | **Zip** | **Home Phone** | **Work Phone** | **Other Phone** | **Date & Time Of Call** |
| VESTAVIA HILLS | 35216 | | | | 6/22/2015 2:07:16 PM |
| **Customer Email** | | | **Cell Phone** | **Fax Phone** | |
| | | | 105-400-7678 | | |

| | |
|---|---|
| **Closed By:** | **Closed Date/Time:** |
| **Was Customer Contacted?** N | **Name of Customer Contacted:** |

**Customer Comments:** STRONG SEWER ODOR COMING FROM MANHOLE BEHIND HOME
**Location Details:**
**Problem Details:**

**Custom Fields**

| Custom Field Names | Custom Field Value |
|---|---|
| | |

**Figure 8.Example Sewer Service Request Work Order**

The Dispatch Office contacts a Line Maintenance Supervisor by cell phone and a crew via radio or cell phone, and provides the reported address and service request information. Crews may be dispatched from the Shades Valley Complex or the maintenance yard located at the Village Creek Wastewater Treatment Plant (WWTP).

## SSO Notifications

For more information on Sewer Overflow advisories, notifications, and reporting requirements, see JCESD's **SSORRP, Section 2**.

## Responding to Complaints/Service Requests

Sewer Line Maintenance crew trucks are fully equipped to respond to ordinary sewer problems such as root blockages, debris buildup, and grease blockages. Television Inspection (TVI) crew trucks are fully equipped to respond to requests for locating sewer connections and performing sewer line condition assessments.

Responding crews are knowledgeable about the public image they display, and are trained in visibility issues and how to deal with the public. In addition:

- All responding personnel wear JCESD uniforms and/or display JCESD employee identification badges.
- Vehicles and equipment are identifiable as utility property and are kept in good working order.
- Vehicles are equipped with adequate emergency lighting, flashers, and traffic control devices.
- Responding crews verbally provide information to customers on cleanup and safe procedures following backups and overflows, and explain that they can clean up the backup, or JCESD will engage a cleaning contractor. Customers are then provided contact information for the Risk Management Division, if requested.

The responding sewer maintenance crew, or other party assigned to resolve the service request, provides the remaining information captured on the Service Request entry form.

- Cause of the problem
- Feedback to customer
- Date follow up action assigned/scheduled
- Date the request was resolved

Field crews create Work Orders for any work performed in the collection system resulting from the issues reported on Service Requests. Once the outstanding fields on the Service Request form have been completed by responding personnel, the Service Request form is attached to a Work Order and forwarded electronically to the Dispatchers, where both forms are reviewed and entered into Cityworks. For more information on closing out work orders, see the **Standard Operation Procedures and Work Process Documentation for Field Operations** manual.

## Complaint/Service Request Management Performance Metrics

Performance measures are important management tools that allow for continuous measurement and evaluation of program activities. Performance measures are designed to collect information that enable JCESD to determine if established goals and level of service are being met and, if not, what activities need to be adjusted to meet program goals.

Data currently tracked includes the following:

- Number of Service Requests per Month
- Peak Daily Call Volume
- Average Daily Calls

The success and effectiveness of these efforts can be evaluated by reviewing the following:

- How quickly customer complaints and emergency calls are resolved
- Percentage of calls that are resolved "as soon as possible"

The Complaint/Service Request Management performance measures established at JCESD are shown in **Table 1**.

**Table 1. Complaint/Service Request Management Performance Metrics**

| Performance Measure | Formula | Definition | Desired Result | Data Interval |
|---|---|---|---|---|
| Number of Service Request Calls | Value | Number of Service Request Calls Recorded | Maintenance of call volume and type of call to document service calls and differentiate between calls indicating significant maintenance issues needed | Monthly |
| Peak Daily Call Volume | Value | Volume and time of calls to track peak call time | Track call times and volumes to ensure proper number and skilled customer service personnel are available to respond | Monthly |
| Call Resolution Time for Customer Complaints and Emergencies | Value | Time to resolve customer service calls | Maintenance of records to demonstrate time to respond and resolve customer complaints and emergencies | Monthly |

# Public Information and Education

JCESD's public information and outreach efforts reach a diverse group of stakeholders, including:

- Customers
- Regulators
- Elected officials
- Community leaders and groups
- Members of the business community
- Media outlets
- Environmental organizations
- Students and teachers

Required public notification, including the issuance of prompt Sewer Overflow Advisories and other warnings, and information on JCESD's wastewater and collection system services and user rates are disseminated through many types of communication channels, including (but not limited to):

- News releases
- Bill inserts, brochures, door hangers, and other printed materials
- Website content
- Newspaper articles
- Direct correspondence with residential, commercial, and industrial customers

## Program Resources

### Staffing

The Public Relations Coordinator, assigned to the Barton Lab, is responsible for:

- Coordinating with the FOG Management Program to develop educational materials for residents, FSFs, and best management practice (BMP) training
- Researching and developing press releases, fact sheets, and information packets for various events
- Developing public relations campaigns designed to educate and highlight positive aspects of JCESD work
- Arranging or attending meetings with groups to address concerns about various activities/programs
- Producing educational video materials for distribution within the County
- Organizing WWTP tours for schools and civic groups
- Participating in community creek clean up and scouting "badge days"
- Attending various environmental events to represent the County, distributing materials, and answering questions from the public
- Coordinating other community outreach programs at the direction of the Commission

In addition, FOG Management Program staff are responsible for assisting with the development of program-related information materials, participate in community presentations to civic groups, and provide training on Kitchen BMPs to FSFs.

### Data Management, Tools

The Public Relations Officer utilizes Microsoft Office suite programs, including Word and Publisher.

## Public Information and Education Program Implementation

### Website

As shown in **Figure 9** on the following page, JCESD maintains a website (www.jeffcoes.org) that provides user rate information, technical information for contractors, and other outreach information. A summary of the website pages and content is presented below:

- **Home** – basic information about JCESD and the County. Fast links to how to pay bills, report problems, and other common issues and news to customers
- **Customer Care** – residential and commercial billing rates and rate increase information, Grease Control Program (food service facilities), Industrial Pretreatment Program, list of water providers in Jefferson County, private meter information, links to Sewer Use Charge Ordinance and Sewer Use Administrative Ordinance, residential bill calculator, waste hauling requirements, locations of household cooking oil and grease recycling centers, and Frequently Asked Questions (FAQs)




**Figure 9.Jefferson County Environmental Services Website Homepage**

- **Construction/Development** – Sewer Impacts & Connections information and links to the **Commercial and Residential Sanitary Sewer System Design and Construction Manual** (current version), procedures to request the location of a sewer line, documents associated with sewer line construction, and a link to Jefferson County surveying monument data
- **Water Quality** – a description of JCESD's water quality-related mission statement and regulatory compliance requirements, links to regulatory reports, SSO database, National Pollutant Discharge Elimination System (NPDES) permits, Consent Order, Collection System Capacity, Management Operation and Maintenance (CMOM) Program, Capacity Assurance Program, SSORRP, Non-Compliance Violation forms, and links to other water quality online resources
- **Contracts** - prequalification application, qualification based selection information, notices to bidders, Minority/Disadvantaged Business Enterprise (MBE/DBE) utilization information, bid archives
- **News** – current and archived news releases and public notices, information on events and contests sponsored by JCESD
- **Contact**– administrative and customer care contact information and a 24-hour emergency contact telephone number
- **About Us** – brief explanation of the utility, size, and organization

## FOG Management Program Materials

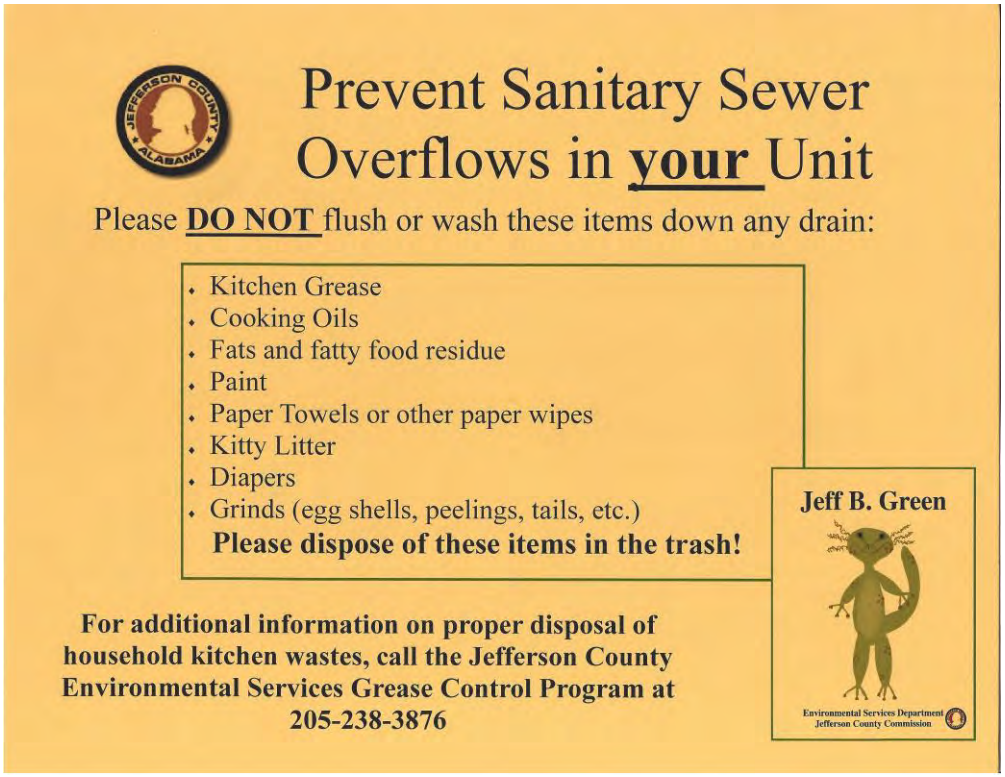
Materials that have been made available in support of JCESD's FOG Management Program include the following:

- Door hangers provided to residences near FOG-related SSO and basement back up locations (see **Figure 10**)
- Bilingual informational posters provided to apartment managers (see **Figure 11**)
- Water Environment Federation (WEF) Fat-Free Sewers brochure
- List of residential FOG and waste oil collection centers

For more information on the printed material on FOG BMPs developed in support of JCESD's FOG Program, see the Public Education section of the **Fats, Oils & Grease (FOG) Management Program** plan.




**Figure 10. Door Hanger with FOG Information**



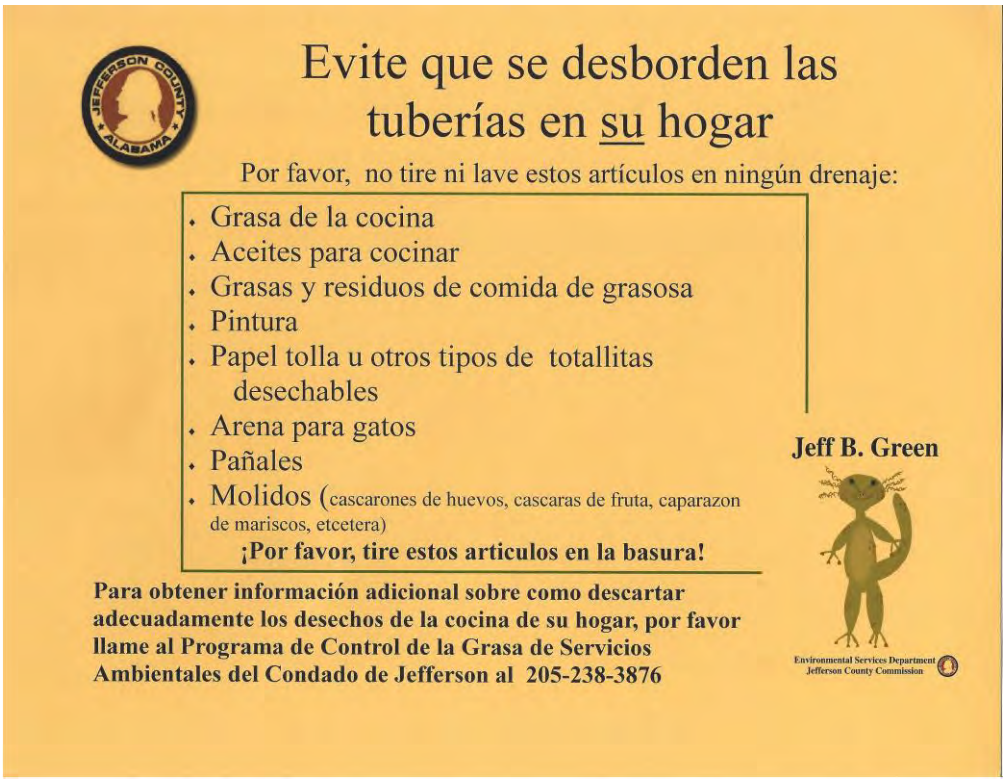




**Figure 11. Example Bilingual FOG Poster Provided to Apartment Managers**

## Construction and Maintenance Work Notification

**Contracted Construction, Maintenance, and Inspection Work**

Construction and Maintenance contractors are required by their contracts to not enter private property, except right-of-way easements, for any reason without first obtaining written permission from the property owner and/or occupant. Contractors are also required to notify the appropriate representatives of any public service corporation, company or individual not less than 24-hours in advance of performance any work which might damage or interfere with the operation of their property, along or adjacent to the work site.

**In-House Construction, Maintenance, and Inspection Work**

Before major construction or maintenance work is scheduled by in-house crews, affected property owners are notified. When work will be performed in public right-of-way that may limit access to driveways, crews will attempt to contact property owners and occupants directly by knocking on doors.

Door hangers are used when crews will need to travel through private property to access sewer easements. Property owners and occupants are encouraged to call the Construction Supervisor; an explanation of the work to be performed is provided and permission to enter private property is requested. Once permission is granted, the Maintenance/Construction Supervisors schedules the work.

In emergency situations, in-house crews will seek permission to access private property if needed. However, if the property owner or occupant is not present, protection of public health and property allows work to be done.

## Site Visits, Presentations, and Talks

When requested, and as staff availability allows, JCESD arranges WWTP tours and provides educational programming to students, scout groups, civic groups, and other interested parties. Examples of the informational materials provided during these events are shown in **Figure 12** on the following page.

## Community Events

JCESD is an active participant in many community events, including:

- Green Tie Affair (hosted by AL Environmental Council),
- ArtScape and Land Aid fund raising events (hosted by Freshwater Land Trust)
- Salamander Festival in Homewood
- Clover Crawl (hosted by Alabama Power)
- Moss Rock Festival (hosted by Moss Rock Preserve)
- Earth Day (hosted by Birmingham Zoo)

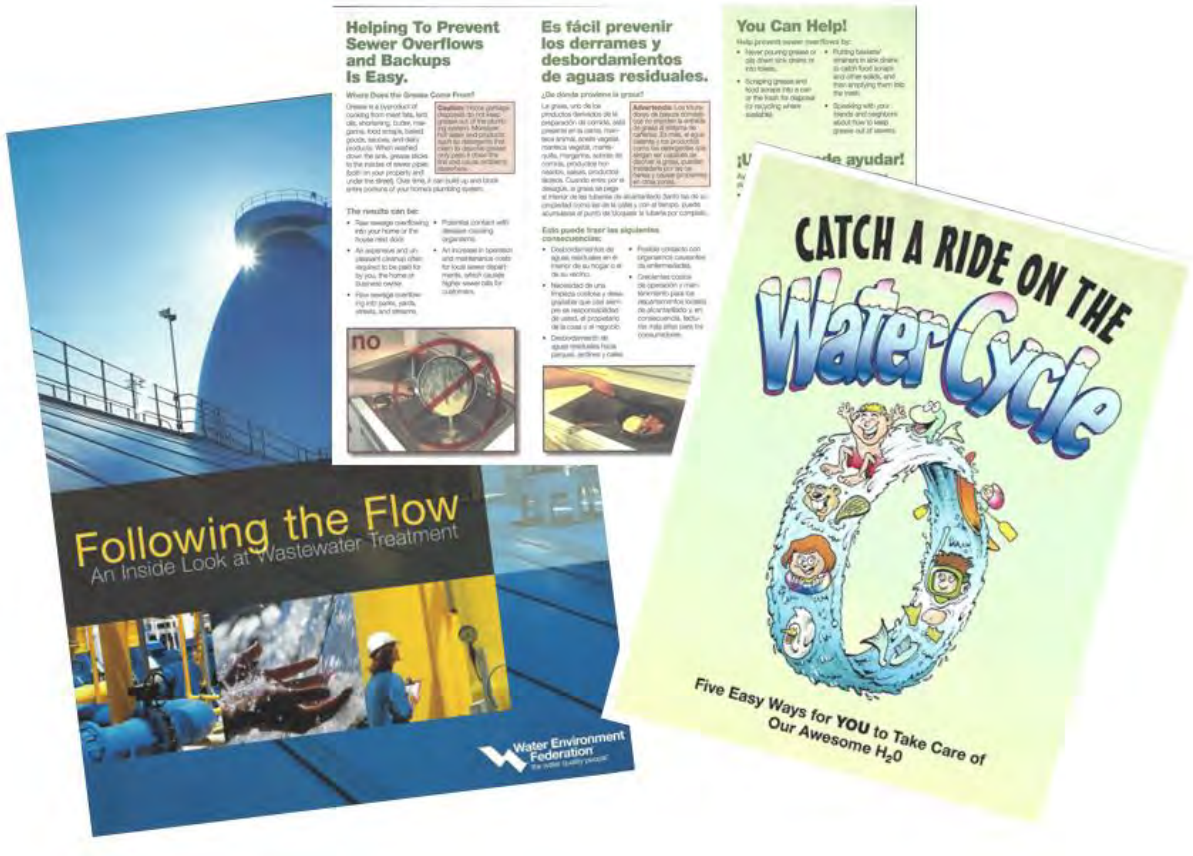



**Figure 12. Examples of Materials Provided to the Public**

## Public Information and Education Performance Metrics

Performance measures are important management tools that allow for continuous measurement and evaluation of program activities. Performance measures are designed to collect information that enable JCESD to determine if established goals and level of service are being met and, if not, what activities need to be adjusted to meet program goals.

The Public Information and Education performance measures established at JCESD are shown in **Table 2**.

**Table 2. Public Information and Education Performance Metrics**

| Performance Measure | Formula | Definition | Desired Result | Data Interval |
|---|---|---|---|---|
| Community events attended | Value | Number of community events that JCESD provided representatives to support | 3 events per year | Annual |
| Public education materials distributed | Value | Number of public education materials distributed (flyers, pamphlets, bill stuffers) | Ongoing as needed | Annual |

# Legal Support Program

## Final

December 2016

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# Acronyms

| | |
|---|---|
| ADEM | Alabama Department of Environmental Management |
| CFR | Code of Federal Regulations |
| CPP | Continuing planning process |
| CWA | Clean Water Act |
| CMOM | Capacity, Management, Operations, and Maintenance |
| FOG | Fats, oils, and grease |
| JCESD | Jefferson County Environmental Services Department |
| JCDH | Jefferson County Department of Health |
| I/I | Infiltration and inflow |
| MS4 | Municipal separate storm sewer system |
| NPDES | National Pollutant Discharge Elimination System |
| POTW | Publicly owned treatment works |
| SSO | Sanitary sewer overflow |
| SSORRP | Sanitary Sewer Overflow Response and Reporting Program |
| TMDL | Total maximum daily load |
| USEPA | United States Environmental Protection Agency |
| WWTP | Wastewater treatment plant |

# Legal Support Program

## Program Overview

Legal authority for sewer use and control in Jefferson County, Alabama is implemented through sewer use ordinances, resolutions, contracts, service agreements, and other legally binding documents. The **Legal Support Program** includes a description of each program element.

The following items are included in this program document, where appropriate:

- Sewer Use Ordinance Program: This component of the **Legal Support Program** develops, revises, and amends sewer ordinances as needed to support the proper management, operation, and maintenance of the utility. The program provides adequate legal authority for the utility regarding sewer use, grease management, pretreatment, private service laterals, sump pumps and roof drains, private haulers, recovering costs of damage to utility infrastructure, and other legal authorities, as required. Legal support is provided for case work and guidance for utility staff.
- Adequate legal authority for the utility to acquire sewer system additions.
- Adequate legal authority to oversee sewer use, grease management, pretreatment, private service laterals, sump pumps and roof drains, private haulers, recovering costs of damage to utility infrastructure, and other authority, as required.
- Unification Agreements: In 1998, municipalities that connected to Jefferson County Environmental Services Department (JCESD) trunk sewer and interceptors, and were thus provided sanitary sewer service by JCESD, signed agreements that transferred the responsibility for ownership, maintenance, and operation of the conveyance system assets from the represented municipal government to JCESD.
- Legal support provided for case work and guidance for utility staff. In addition, assistance from the Jefferson County Attorney's Office is in place to assist with enforcement actions and code amendments.
- Consent Decree compliance and termination.
- National Pollutant Discharge Elimination System (NPDES) permits establish legal authority to discharge.

### Purpose and Goals

The purpose of legal authority is to establish, enforce, and protect wastewater system assets and personnel and to satisfy all regulatory requirements to protect public health and the environment in the Jefferson County service area. Local ordinances and regulations also address wastewater system compliance with applicable State and Federal regulations. The goal of legal authority is to minimize legal costs, reduce legal liabilities, provide risk management, and provide quality service to customers.

# Program Resources

## Related CMOM Program Documents and Other References

The following Administrative Ordinances (current versions) are referenced in this Plan:

- Jefferson County Sewer Use Administrative Ordinance
- Jefferson County Sewer Use Charge Ordinance
- Jefferson County Public Records Policy (Administrative Order 03-01 (effective 4-22-03) and Amendment No. 1)

The use and charge ordinances are provided on Jefferson County's website at http://www.jeffcoes.org/Default.asp?ID=36&pg=Ordinances. The **On-Site Sewage Disposal Regulations** (current version) can be accessed at http://www.jcdh.org/misc/ViewBLOB.aspx?BLOBId=62. A copy of the County's Public Records Policy is provided in **Appendix A**.

Other CMOM Program plans that reference or are referenced in the JCESD **Legal Support Program** include:

- CMOM Program Organization
- CMOM Information Management Systems Program
- Engineering Program
- Fats, Oils, and Grease (FOG) Management Program
- Financial Analysis Program
- Gravity Line Preventive Maintenance Program
- Line Location Program
- Pretreatment Program
- Service Connection and Disconnection Program

## Staffing

The **Legal Support Program** is supported primarily by the CMOM Coordinator, housed in the JCESD Administration Office. For more information, see the organization charts for 7100 Administration presented in the **CMOM Program Organization** plan.

JCESD receives support on legal issues from the Jefferson County Attorney's Office, as well as multiple other County Departments. If code changes are required, the JCESD Director will send code amendments to the County Attorney's Office that would be assigned the work or task.

# Program Implementation

## Legal Authority and Responsibility

JCESD is responsible for compliance and participating in joint program administration duties with Federal, State and local regulatory authorities, including the United States Environmental Protection Agency (USEPA), the Alabama Department of Environmental Management (ADEM), and the Jefferson County Department of Health (JCDH).

## ADEM Regulatory Requirements

As part of the 1996 Consent Decree with USEPA, JCESD is required to report sanitary sewer overflows (SSOs) to USEPA, ADEM and JCDH, and other requirements as defined in the Consent Decree. The JCESD **Sanitary Sewer Overflow Response and Reporting Program (SSORRP)** plan provides policies and procedures for the response to and reporting of SSOs, to protect public health and the environment and meet applicable regulatory requirements. ADEM is also responsible for administration of numerous programs related to the State's surface water quality. These programs, which include aspects of sanitary sewer-related pollution, include the following:

- **NPDES Program** - USEPA delegated the authority to manage the NPDES program for municipal (point source and municipal stormwater) and non-industrial sources, such as semi-public and private facilities, to ADEM.

  More information on Jefferson County's NPDES Permits for each of its nine wastewater treatment plants (WWTPs), which include collection system-related provisions, can be found at http://www.jeffcoes.org/Default.asp?ID=45&pg=NPDES+PERMITS. Additionally, a description of JCESD's WWTPs and associated NPDES permits is provided in the **CMOM Program Organization** plan.

- **Water Quality Standards** - include both the designated uses of surface waters and the criteria intended to protect those uses. Designated uses are listed in ADEM regulations at 335-6-11 and the criteria are found in 335-6-10.

- **List of Impaired Waters (303(d) List)** - list of waterbodies in Alabama that do not fully support their designated uses based on a review of water quality data and information. The list is submitted to the USEPA for approval after an opportunity for public comment. The list includes the causes and sources of water quality impairment for each waterbody listed, and a schedule for development of total maximum daily loads (TMDLs) for each pollutant causing impairment.

- **Total Maximum Daily Load (TMDL) Development** - for waterbodies included on the 303(d) list the State must determine the amount of each pollutant causing water quality impairment that can be allowed such that the water quality standards for the waterbody are maintained. The TMDLs are developed per a specified schedule and must be approved by the United States Environmental Protection Agency after an opportunity for public comment.

- **Waste Load Allocation Development** - waste load allocations are developed for proposed and existing dischargers to surface waters in support of NPDES permits that are protective of water quality standards.

- **Water Quality Planning** - Section 303(e) of the Federal Clean Water Act (CWA) requires that each State establish and maintain a continuing planning process (CPP) consistent with the CWA and pertaining to all navigable waters of the State. The State is responsible for managing its water quality program to implement the processes specified in the CPP. The USEPA is responsible for periodically reviewing the adequacy of the State's CPP. Alabama's CPP is an umbrella document that provides the framework to coordinate and unify the activities and procedures necessary for maintaining waters of an acceptable quality throughout the State, in a manner consistent with the Alabama Water Pollution Control Act and the Federal CWA.

- **Biosolids monitoring and reporting requirements for USEPA** - ADEM approves Land Application sites, but EPA is the responsible authority over biosolids.

## USEPA Consent Decree Requirements

USEPA is responsible for ensuring JCESD complies with the requirements of the 1996 Consent Decree between USEPA and JCESD.

The portions of Jefferson County's sewer system tributary to the following WWTPs have been removed from the County's Consent Decree:

- Leeds
- Prudes Creek
- Trussville
- Turkey Creek
- Warrior

The sewer basins tributary to the following WWTPs remaining under the consent decree:

- Five Mile
- Valley Creek
- Village Creek
- Cahaba

## USEPA CMOM Program Guidance

JCESD maintains an active program to incorporate CMOM guidelines as part of their **Legal Support Program** activities, as applicable. USEPA CMOM guidelines[1] (referred to as the "Guidance") state that the collection system owner should select and enforce the legal authority to regulate the following:

General prohibitions: The Guidance states that the system owner should control materials entering the system that present fire and explosion hazards, corrosive and obstructive materials, material that may cause interference at the wastewater treatment plant, heat that may inhibit biological activity at the treatment plant, oils or petroleum products that may cause interference or pass through the wastewater treatment plant.

These prohibitions are detailed in the **Jefferson County Sewer Use Administrative Ordinance**. For more information on the program that controls the discharges of pollutants to the County's sewer system from industries, see the **Pretreatment Program** plan. See the **Fats, Oils, and Grease Management Program** plan for more information on JCESD's efforts to control discharges of FOG into the collection system.

[1] United States Environmental Protection Agency, Office of Enforcement and Compliance Assurance (2224A), January 2005, *Guide for Evaluating Capacity, Management, Operation, and Maintenance (CMOM) Programs at Sanitary Sewer Collection Systems*, EPA 305-B-05-002.

Volume of flow entering the collection system: The Guidance states that the collection system owner or operator should select and enforce the legal authority necessary to regulate the volume of flow entering the collection system, including residential and commercial customers, satellite communities and industrial users. The legal authority may take the form of sewer use ordinances, contracts, service agreements, and other legally binding documents.

Provisions to regulate the volume of flow entering the collection system are detailed in the **Jefferson County Sewer Use Administrative Ordinance**. For more information on design standards that limit the amount of infiltration and inflow (I/I) entering the system for newly constructed and rehabilitated sewers, see the **Engineering Program** plan.

Pretreatment Standards: The pretreatment program seeks to prevent the discharge of materials into the sewer system (by non-domestic users) that interfere with proper operation of the wastewater treatment plant or may pass through the plant untreated. At the time the operator of a wastewater treatment plant submits its pretreatment program to the regulatory authority for approval, the plant operator must include a statement from JCESD or other legal authority that the plant has the authority to carry out the program [40 CFR 403.9(a)(1)]. The reviewer should verify the existence of this statement and inquire as to whether any significant changes have occurred in the program such that the legal authority may need further review. Additionally, some owners or operators may have a pretreatment program approved by the state, through which discharge permits are issued to industrial users and enforcement is conducted. Further information on legal authority under the pretreatment program may be found in *Procedures Manual for Reviewing a POTW Pretreatment Program Submission* (USEPA 1983).

For more information on the program that controls the discharges of pollutants to the County's sewer system from industries, see the **Pretreatment Program** plan.

New construction standards: The owner or operator should have the authority to ensure that new and rehabilitated sewers and connections have been properly designed, constructed, and tested before being put into service. This authority could take the form of design and performance specifications in a sewer use ordinance or other legal document, such as a statute or series of contracts or joint powers agreements. The ordinance or legal document should contain, at a minimum, general prohibitions, adequate grease control requirements and measures, prohibitions on stormwater inflow, infiltration from laterals, and new construction standards.

For more information on design standards that limit the amount of I/I entering the system for newly constructed and rehabilitated sewers, see the **Engineering Program** plan.

Adequate grease control requirements and measures: The grease control portion of the code should contain the requirement to install grease traps at appropriate facilities (e.g., restaurants). Additionally, these facilities should be required to properly maintain the grease traps and pump them out on a regular basis. The document should also address periodic inspections of grease traps by collection system personnel and the ability to enforce (i.e., levy fines on persistent offenders).

See the **Fats, Oils, and Grease Management Program** plan for more information on JCESD's efforts to control discharges of FOG into the collection system.

Prohibitions on stormwater inflow: The owner or operator should also have the legal authority to prohibit stormwater connections to the sanitary sewer. Stormwater connections may include building downspouts; catch basins; roof, cellar and yard drains; sump pumps; direct connections between the storm and sanitary sewers; leaking manhole covers; uncapped cleanouts; and the direct entrance of streams into the collection system. This practice is now discouraged. Direct stormwater connections to a separate sanitary sewer system are known as inflow. Inflow can severely impact the ability of the collection system to transport flows to the treatment plant during wet weather, leading to overflows and noncompliance with the wastewater treatment plant's NPDES permit.

Prohibitions on stormwater inflow are detailed in the **Jefferson County Sewer Use Administrative Ordinance**.

Control over connection of private sewer laterals to sewer mains: The owner or operator should maintain strict control over the connection of private sewer laterals to sewer mains. These connections have significant potential as sources of infiltration. Standards for new connections should be clearly specified. The sewer use ordinance should contain provisions for inspection, approval of new connections, and a program to implement the requirements.

For more information on private sewer connections to JCESD sewers, see the JCESD **Sewer Connection and Disconnection Program** plan.

## Department of Health

The Jefferson County Department of Health is a division of the State Health Department. The mission of the JCDH is to prevent disease and assure access to quality health care, promote a healthy lifestyle and environment and protect against public health threats. These goals relate to the CMOM program in several areas: on-site sewage disposal, septic hauler permitting, food preparation facility permitting and issuance of health advisories related to water pollution. This requires coordination between JCDH and JCESD to maintain the success of both organizations. JCDH and JCESD coordinate closely during the reporting and response related to SSOs as described in the **SSORRP** plan.

In addition to the coordination efforts between JCDH and JCESD during SSOs as described in the **SSORRP** plan, JCDH has the authority to regulate the planning, construction and maintenance of on-site sewage disposal. JCDH has a three-fold strategy to ensure properly operating onsite sewage disposal systems. This three-fold strategy includes proper: 1) site evaluation, 2) system construction, and 3) system maintenance. The regulations are enforced in accordance with the **On-Site Sewage Disposal Regulations** (current version).

Any person or company engaged in the hauling of wastewater (either septic or grease) to the Jefferson County sanitary sewer system, must have a current valid Certificate of Competency from the JCDH and a license from the Alabama Onsite Wastewater Board. The discharge of hauled wastewater to the sanitary sewer system will not be permitted without such documentation of credentials. More information on this program can be found in the **FOG Management Program** plan.

## Unification Agreements

The industrial boom at the beginning of the 20th century resulted in the creation of several towns and villages who constructed sewers to remove wastes, usually discharging untreated sewage to nearby streams and creeks. In 1901, the Alabama legislature mandated Jefferson County to construct trunk sewers and wastewater treatment facilities, combining the numerous individual systems and unincorporated county systems into one countywide system. However, the towns and villages retained control over their own systems, including the construction of lateral lines connecting homes and businesses to the trunk lines constructed by Jefferson County. The separation of these two responsibilities resulted in a system that did not provide the County with authority to hold the cities accountable for maintenance of their systems.

The process of unifying the sewer system under the direction of Jefferson County began in 1996, with the signing of a consent agreement between the County and the USEPA. The terms of this agreement required the County to assume responsibility for the sewer assets that formerly had been maintained by the cities, and to develop the capacity within the unified system to process the volume of waste generated within Jefferson County, while meeting Federal and State environmental standards.

Intergovernmental Agreements (also referred to as "Unification Agreements") were established in 1998 with the 21 municipalities listed below whose wastewater collection and conveyance system ownership and operations were transferred to JCESD after the consent agreement was executed.

**Table 1. Unification Agreements**

| City | Conveyance Date | City | Conveyance Date | City | Conveyance Date |
|---|---|---|---|---|---|
| Adamsville | 8/1/1998 | Bessemer | 8/1/1998 | Birmingham | 5/1/1998 |
| Brighton | 3/1/1998 | Fairfield | 8/1/1998 | Fultondale | 3/1/1998 |
| Gardendale | 3/1/1998 | Graysville | 3/1/1998 | Homewood | 3/1/1998 |
| Hoover | 3/1/1998 | Hueytown | 3/1/1998 | Irondale | 8/1/1998 |
| Leeds | 8/1/1998 | Lipscomb | 3/1/1998 | Midfield | 8/1/1998 |
| Mountain Brook | 3/1/1998 | Pleasant Grove | 3/1/1998 | Vestavia Hills | 3/1/1998 |
| Tarrant | 3/1/1998 | Trussville | 3/1/1998 | Warrior | 8/1/1998 |

The agreements transfer the responsibility for ownership, maintenance, and operation of the conveyance system assets from the represented municipal government to JCESD. This includes transfer of all data related to past and future projects, as well as approval authority for proposed projects requiring sewer service or impacting the sewer system. And in doing so, the agreements gave JCESD the right to develop legal ordinances and standard criteria for the construction of new assets to be acquired by JCESD. A sample Unification Agreement (all agreements are identical except for the City name) is provided in **Appendix B**.

## Sewer Ordinances

Sewer ordinances under management of JCESD include the following:

1. **Jefferson County Sewer Use Administrative Ordinance** (current version) addresses wastewater sewer use in Jefferson County and includes the program to reduce discharge of FOG into the sewer system

2. **Jefferson County Sewer Use Charge Ordinance** (current version) establishes sewer charges for those using Jefferson County's wastewater collection and treatment system for disposal of sewerage

Proposed code revisions/amendments are coordinated with the Jefferson County Attorney's Office and submitted to the County for consideration and approval. Code Amendments are submitted to the Jefferson County Attorney's Office, and an attorney on staff is assigned to work with JCESD staff regarding the proposed amendment.

The **Jefferson County Sewer Use Administrative Ordinance** also provides adequate authority for the utility regarding sewer use, grease management, pretreatment, private service laterals, sump pumps and roof drains, private haulers, recovering costs of damage to utility infrastructure, and other legal authorities as required.

The **Jefferson County Sewer Use Administrative Ordinance** specifically addresses, but is not limited to, the following elements:

- General prohibitions (fire and explosion hazards, oils or petroleum, corrosive and obstructive materials, material that may cause interference at the wastewater treatment plant, heat that may inhibit biological activity at the treatment plant, oils or petroleum products that may cause interference or pass through the wastewater treatment plant);
- Volume of flow entering the collection system, including commercial customers and industrial users;
- New construction standards, inspections, and approval;
- The authority to ensure that new and rehabilitated sewers and connection have been properly designed, constructed, and tested before being put into service;
- Adequate grease control requirements and measures;
- Prohibitions on stormwater inflow;
- Control over connection of private sewer laterals to sewer mains;
- Pretreatment requirements, wastewater discharge permits, inspections, and enforcement; and
- Procedures and enforcement actions for FOG, I/I, building structures over sewer lines, storm water connections to sanitary lines, and defects in service laterals located on private property.

The **Jefferson County Sewer Use Charge Ordinance** establishes sewer charges for those whose sewage is disposed of or treated by Jefferson County's wastewater collection and treatment system. The ordinance contains the County's reasonable and nondiscriminatory rules and regulations, fixing rates and charges for sewer service, providing for the payment, collection, and enforcement thereof, and the protection of its property. These rules and regulations accomplish the equitable distribution of costs of the System.

The County's Public Records Policy establishes access to public records to:

(i) Comply with Code of Alabama, Section 36-12-40,

(ii) Facilitate reasonable public access to the County's public records,

(iii) Prevent the inadvertent release of sensitive or confidential information,

(iv) Minimize the disruption of County business as a result of citizen inspection of records,

(v) Establish a uniform procedure and fee schedule, and

(vi) Provide for the security of records relating to public buildings and works vital to the health, safety, and welfare of the citizens of Jefferson County.

## Program Performance Metrics

JCESD has no specific performance metrics to track components of the legal activity, which reside within the individual CMOM programs.

# APPENDIX

## Appendix A Jefferson County Public Records Policy

# ADMINISTRATIVE ORDER
# OF THE
# JEFFERSON COUNTY COMMISSION
## 03- 01

PURSUANT to the authority vested in the Jefferson County Commission by law, the following Administrative Order is hereby issued:

## PURPOSE

To establish the following access to public records policy in order to (i) comply with Code of Alabama, § 36-12-40, (ii) facilitate reasonable public access to public records of the County, (iii) prevent the inadvertent release of sensitive or confidential information, (iv) minimize the disruption of County business as a result of citizen inspection of records, (v) establish a uniform procedure and fee schedule, and (vi) provide for the security of records relating to public buildings and works vital to the health, safety and welfare of the citizens of Jefferson County, Alabama.

## I. POLICY

It shall be the policy of the Jefferson County Commission that Alabama citizens may request to inspect documents and records maintained by County officials, department heads and employees which are required to be kept by state law or which are maintained for the efficient and convenient operation of County government, in accordance with Code of Alabama (1975), § 36-12-40. Records already governed by separate Federal or State statute or local act are not subject to this Order and shall continue to be treated in accordance with the appropriate controlling legislation. In order to further the goals of the Alabama Public Records Act (hereinafter "the Act"), it is the desire of the Commission to establish a uniform procedure and fee schedule for the handling of document requests pursuant to the Act.

## II. PROCEDURE

Every Alabama citizen seeking to inspect and make copies of documents pursuant to the Act shall first complete and submit the appropriate Citizen Request for Information form setting out the person's name, address, list of documents requested for inspection and purpose of each request. [Copy attached hereto as Exhibit "A"] The form shall be signed by the applicant and delivered to the appropriate official or employee in charge of keeping and maintaining the record or document sought to be examined. Each department head shall keep a log showing the date of each request, the name of the individual requesting to inspect documents and the action taken on each such request. [Copy attached hereto as Exhibit "B"] Each department head shall designate an employee to be present during the citizen inspection to preserve the integrity of original County documents. At no time shall any department head or employee permit a citizen to take an original document from County premises for copying. Inspection of County records shall only be allowed during regular business hours. No more than two (2) persons may review the records in any department or area at any given time. The head of a department or section may, in his or her discretion, limit that number because of space limitations. Further, the Department Head may schedule the examination at a later date or time if the examination would disrupt or hamper the operation of the department subject to the request.

A request for immediate copies may be denied for any reason and should normally be denied if the number of copies is significant or if the staff is busy at the time of the request. If a small number of copies (25 pages or less) is requested, the photocopies may be provided at the time the initial request and payment is made. However, if more than 25 photocopies are requested, copies may be made within three (3) business days and mailed

to the requester. The requester must leave a self-addressed envelope with sufficient size and capacity to mail the requested copies.

This policy should not be construed to require the County to disclose or allow inspection of any document that is not a "public document" or that is sensitive, confidential or otherwise not required to be disclosed, or that is not allowed to be disclosed by law, rule or regulation. The County reserves the right to make a determination that a record or document is not a "public document" subject to public inspection.

A Department Head may also deny any request to examine public documents or records if the documents or records sought to be inspected are of public buildings, public works or other similar facilities the damage or destruction of which could significantly affect the public health, safety and welfare of the citizens of Jefferson County.

## III. FEE SCHEDULE

The following fee schedule is hereby adopted which shall be uniformly applied by each department upon receipt of a citizen request for inspection and copying of public documents as defined in Code of Alabama (1975), § 36-12-40:

| | COST PER COPY | |
|---|---|---|
| Legal and Letter Size Copies Per Page | .50 | |
| Computer or Laser Copies Per Page | 1.00 | |
| If Copies are to be Mailed | 1.00 | Plus Postage |
| Fax Copies | 1.00 | |
| Roads and Transportation Maps | 15.00 | |
| Tax Assessment PRC-Record | 1.00 | |
| Tax Assessment Printout of Assessment | 1.00 | |
| Assessment/Appraisal Info (Disk or Tape) - Portion of County | 1,000.00 | |
| Individual Assessment Maps | 5.00 | |
| Microfiche | 1.00 | |
| Microfilm | 2.00 | |
| Aerial Photo | 10.00 | |

| | | |
|---|---|---|
| Partial Voter's List (One Beat or District) | 5.50 | Per 1,000 Names |
| Complete Voter's List | 5.50 | Per 1,000 Names |
| CD-ROM of Voter's List | 45.00 | Per Set Up and |
| | 5.50 | Per 1,000 Names |
| Cassette Tape of Voter's List | 35.00 | Per Set Up and |
| | 5.50 | Per 1,000 Names |
| Certification of Any Requested Document | 1.00 | |

DIGITAL INFORMATION SERVICES FEES (DISF)

Information Technology (IT) costs fluctuate according to current costs and are maintained separately by the IT Department. The current DISF schedule is attached hereto as Exhibit "C".

Payment for copies made must be in cash or cashier's check, certified check or money order payable to the Jefferson County Treasurer. No personal checks will be accepted. Payment must be received at the time the copies are presented to the citizen applicant.

## IV. DISPUTES

If any dispute arises concerning the right of any Alabama citizen to inspect and copy a County document or record, the matter shall be referred to the County Attorney's Office. If the County Attorney determines that the request is due to be denied, he shall so advise the official, department head or employee. The department head shall notify the applicant of the denial. Any Alabama citizen aggrieved at the denial of his request for inspection and copying of County documents or records may appeal to the Jefferson County Commission within thirty (30) days of the date of the denial of the request for a review of the negative determination. The Jefferson County Commission shall have the final authority to grant or deny the request.

## V. PRIVACY/SECURITY

While the Commission recognizes the requirements of state law to make public

documents and records available for inspection and copying by Alabama citizens, at the same time the Commission understands that public information may be used for potentially unlawful purposes. Therefore, if the purpose of a document request appears to threaten the security of persons or property, the Commission may ask the applicant for further information to support the request or deny the request. Further, if a public official receives a specific threat to his or her person or property, such official may request that he or she be given notice of requests made for information by the named individual concerning a county record or document pertaining to their real or personal property.

VI. **WAIVER OF FEES**.

The fees established herein may be waived by the County Attorney as follows:

1. Where the request is from a law enforcement authority relatable to a law enforcement activity;

2. The request is from a government or a governmental agency and the estimated fee would not exceed $100 and the County Attorney determines the waiver is in the best interest of the County or the citizens of the County.

ORDERED at the Jefferson County Courthouse this 22nd day of April, 2003.

LARRY P. LANGFORD, President
Jefferson County Commission

APPROVED BY THE
JEFFERSON COUNTY COMMISSION
DATE: 4-22-03
MINUTE BOOK: 141
PAGE(S): 262-264

15. Approval of Amendment No. 1 to Administrative Order 03-1 regarding fee schedule for copying of public documents.

| | COST PER COPY | | |
|---|---|---|---|
| | **OLD** | | **NEW** |
| Legal and Letter Size Copies Per Page | .50 | | 1.00 |
| Computer or Laser Copies Per Page | 1.00 | | 2.00 |
| If Copies are to be Mailed | 1.00 | Plus Postage | 2.00 |
| Fax Copies | 1.00 | | 2.00 |
| Roads and Transportation Maps | 15.00 | | 30.00 |
| Tax Assessment PRC-Record | 1.00 | | 2.00 |
| Tax Assessment Printout of Assessment | 1.00 | | 2.00 |
| Assessment/Appraisal Info (Disk or Tape) | | | |
| Portion of County | 1,000.00 | | 1,000.00 |
| Individual Assessment Maps | 5.00 | | 10.00 |
| Microfiche | 1.00 | | 2.00 |
| Microfilm | 2.00 | | 4.00 |
| Aerial Photo | 10.00 | | 20.00 |
| Partial Voter's List (One Beat or District) | 5.50 | Per 1,000 Names | 11.00 |
| Complete Voter's List | 5.50 | Per 1,000 Names | 11.00 |
| CDROM of Voter's List | 45.00 | Per Set Up and | 90.00 |
| | 5.50 | Per 1,000 Names | 11.00 |
| Cassette Tape of Voter's List | 35.00 | Per Set Up and | 70.00 |
| | 5.50 | Per 1,000 Names | 11.00 |
| Certification of Any Requested Document | 1.00 | | 2.00 |

## Appendix B Example Unification Agreement

STATE OF ALABAMA )

JEFFERSON COUNTY )

# UNIFICATION AGREEMENT

THIS AGREEMENT is between Jefferson County, Alabama (hereinafter the "County") and the City located within the County, identified below (hereinafter the "City").

## RECITAL

The County is a defendant in a lawsuit styled Kipp, et al. v. Jefferson County, Alabama, Federal District Court Case No. CV 93-G-2492-S, and United States of America v. Jefferson County, Federal District Court Case No. CV 94-G-2497-S, in which the County has been found to be in violation of the federal Clean Water Act (hereinafter the "Act"). The violations of the Act concern unauthorized discharges of sewage into the receiving streams in violation of the County's National Pollutant Discharge Elimination System permits. These discharges occur at bypass facilities, sewer manholes and from broken and deteriorated sewer pipe connections and other unintended points in the collection system. The discharges result primarily during periods of high rainfall which produce water infiltration and inflow (hereinafter "I&I") into the sewer collection system at the broken and deteriorated points. This results in excess water in the system which greatly exceeds the capacities of the County's wastewater treatment plants (hereinafter "WWTP's"). In order to protect the plants from flooding and washout of their treatment capacity, the system bypass facilities divert some excess water around the affected WWTP's. Following the finding of violation of the Act the District Court ordered the parties to develop a remedy that would eliminate or greatly reduce the unpermitted discharges from the collection system. The parties developed a remedy for incorporation into a Consent Decree. The remedy requires a renovation and restoration of the sewage collection system to reduce the I&I. The sewage collection system is mainly located within the cities in the County and is owned, operated and maintained by the respective cities. The Clean Water Act and the Court would require the County to in turn require each city to investigate and discover the location and extent of the broken and deteriorated collection system and perform the necessary restoration and renovation, all within court-established deadlines. The undertaking of this massive public works simultaneously by the individual cities and the County would result in chaos and disruption of public services and enormous extra costs and could not reasonably be expected to be completed within legally mandated time limits. The cities and the County have concurred and agreed that a unification of the sanitary sewer collection and treatment system under the County will benefit all parties by allowing for orderly, efficient and timely fulfillment of the mandated public works thereby greatly diminishing the disruption of public services and inconveniences as well as enhancing public cost savings.

WHEREFORE, IN CONSIDERATION OF THE PREMISES and in further consideration of the mutual benefits to the parties and the citizens of Jefferson County, the receipt and sufficiency of which as consideration is hereby acknowledged, and upon the determination by the City and the County that it is in the best interest of the City and the County and the citizens thereof, the City hereby agrees to convey to the County and the County hereby agrees to accept from the City, the City's sanitary sewer collection system and facilities in accordance with the following terms and conditions.

1. The City hereby agrees:

(a) To convey to the County without charge the ownership of the City's sanitary sewer system. (The date of conveyance is set out at the end of this Agreement.) The conveyance shall include the sanitary sewers, manholes, sewage pump stations, force mains and all other facilities whatsoever which form the City's sewer system and which collects and convey sewage to the County trunk facilities and treatment plants (hereinafter "sewer facilities"). The form of conveyance shall operate to transfer to the County all right, title and interest of the City in the sewer facilities conveyed. Provided, the conveyance shall not operate to extinguish or diminish any obligation, financial or otherwise, owed to the City by reason of any promissory note or mortgage or contract in payment of sewer construction for individuals or neighborhoods, whether by assessment or by contract. The conveyance of sewer facilities shall be free and clear of any liens or encumbrances whatsoever. If not free and clear, upon request by the County, the City shall, at its cost and expense, immediately take all steps as may be necessary to remove any such liens or encumbrances. This obligation shall survive closing, be continuous, and run with the land as to any such liens or encumbrances existing at the time of conveyance or attaching at any time thereafter by reason of the City's former ownership of the sewer facilities. To the extent allowed by law, the City hereby agrees to indemnify, hold harmless and defend the County against any claim, suit or judgment made or asserted or holding that any individual or entity whatsoever has any lien or encumbrance or legal interest whatsoever in any of such sewer facilities.

(b) To convey to the County, without charge, ownership of all existing sanitary sewer easements, rights of way, licenses or any other legal interest in land (hereinafter "sewer easements") upon or in which any of the sewer facilities are located. (The date of conveyance is set out at the end of the Agreement.) The form of conveyance shall be the highest level of property conveyance owned or held by the City. Provided, sewage pump stations and any other sewer facilities located on the surface shall be conveyed to the County by fee simple title and shall include right of access sufficient for operation, maintenance and construction work thereon. The conveyance of sewer easements shall be free and clear of any liens or

encumbrances and affirmative promises of obligations whatsoever, unless expressly agreed to by the County. If the City is unable to fulfill this conveyance requirement at closing, the obligation shall survive closing and be continuous until fulfilled. Upon request by the County, the City shall at its cost and expense immediately take all steps as may be necessary to fulfill the conveyance requirement. This shall include the acquisition by purchase or condemnation, if required, of the required sewer easements including fee simple title where required. If it is determined that the City has no standing or power of condemnation, the County may condemn the required easement at the expense of the City. And further, the City shall take legal action including suits as may be necessary to remove liens or encumbrances existing at the time of conveyance or attaching at anytime thereafter by reason of the City's former ownership of the sewer system. To the extent allowed by law, the City hereby agrees to indemnify, hold harmless and defend the County against any claim, suit, or judgment made or asserted, or holding that the sewer system or sewer easement or sewer facility is encroaching or otherwise existing in trespass or other violation of another's property rights; and against any claim, suit, or judgment holding that any individual or entity whatsoever has any lien or encumbrance or legal interest whatsoever in any of such sewer facilities.

(c) To convey to the County, without charge, any such sewer facilities and sewer easements for sewer projects which are under construction or as may be constructed in the future. Such sewer easements include those easements, rights of way, licenses, as are reflected on subdivision plans, development plans and any form of plan, contract or commitment whatsoever approved or filed or otherwise received by the City under its ordinances, rules and regulations relating to construction and development of improvements within the City. The form of conveyance shall operate to transfer to the County all right, title and interest of the City in the sewer facilities and easements conveyed. With respect to those sewer easements reflected on plans as "utilities" or other terminology indicating multiple uses for the easement, the conveyance to the County may be in joint ownership with the City in order to accommodate other "utilities" in addition to sewer facilities, provided, the sewer use shall be predominant and have priority over all other "utilities" that are installed after the sewer installation.

(d) To deliver to the County, without charge, the original or legible copies of all documents, maps, drawings (including electronic format) plans, specifications and any other document whatsoever which shows the location and configuration of the sewer facilities and sewer easements conveyed to the County. The foregoing also shall include as-built drawings, O & M manuals, shop drawings, operational logs, maintenance records and other documents requested by the County. If requested by the County, the City will provide, within reason, personnel to assist the County to locate sewer facilities where not shown, or incorrectly shown on maps provided to the County.

(e) In the event the City elects to dispose of sewer equipment or supplies, give the County a first right of refusal to obtain without charge from the City all parts, supplies, inventory, special tools, machines, equipment and items whatsoever owned by the City whether in actual use or storage, used or intended to be used in the construction, operation and maintenance of sewer facilities.

(f) To waive all permitting and inspection fees for all future construction carried out by or on behalf of the County on all sewer facilities within the City, whether such facilities were previously owned by the City or the County. This waiver includes all construction by the County or its authorized contractors carried out on treatment plants, pump stations or any other sewer or sewer appurtenance. (The foregoing does not change any legal requirement of the County or its contractors to obtain the applicable permits.)

2. The City hereby acknowledges and agrees that any sewer facilities, sewer lines or form of sewage conveyances whatsoever which do not connect directly to County owned sewer trunk lines are not conveyed by this agreement and are expressly excluded from this agreement and will not be the responsibility of the County. The foregoing includes any "package plant," discharge of sewage to any storm water pipe or facility, drain, ditch or form of conveyance whatsoever that is not lawfully connected to a County trunk line. Further, the City hereby agrees to immediately disconnect and remove from the sewer system without charge to the County, any storm water pipe or facility, downspout, drain, ditch or form of conveyance whatsoever that is not designed or intended to receive sewage as a part of the sanitary sewer system. This obligation shall be continuous and effective whenever any such connection may be discovered and notice is given to the City to disconnect and remove it. Provided, this obligation is limited to work within the public right of way.

3. The City hereby acknowledges and agrees that any contract, conveyance, agreement or commitment whatsoever by the City to construct, operate or maintain in any way whatsoever any private sewer systems located within apartment complexes, homeowners associations, condominiums, townhouses, gated communities, shopping centers, industrial developments or any other form of organization or entity whatsoever, which provides for any form of City responsibility or duty to be performed on private property or any property not owned by the City, is hereby expressly excluded from this agreement and will not be the responsibility of the County. Provided, the City may submit to the County for consideration any specific situation which is or may be asserted to be included in the foregoing exclusion. Any agreement by the County with respect to any such situation must be separately approved in writing by the parties.

4. Effective upon the date of execution of this agreement the City hereby agrees that all sewer construction projects of the City that will connect to the County sewer system

which have not been put out for bid shall be constructed in accordance with minimum standards included in the County ordinances, rules and regulations. The City shall submit its new sewer construction drawings, plans and specifications to the County for review and approval prior to the City putting them out for bid. Following award, the sewer construction will be inspected by the County for compliance with County requirements. The City will include in all sewer construction contracts the requirement on the contractor to construct all sewer facilities in accordance with minimum standards included in the County ordinances, rules and regulations and that the construction shall be inspected and approved by the County before such sewer construction projects are connected to the sewer system. The City will forward to the County, prior to allowing any connection to the sewer system (unless otherwise authorized by the County), one full set of surveyed record drawings ("As-builts"). Record drawings shall be signed and dated by a representative of the City. The County shall have no legal responsibility or liability whatsoever for any injury including death, or property damage whatsoever, in any way arising out of the City's sewer construction projects. To the extent allowed by law, the City hereby agrees to defend, hold harmless and indemnify the County against any claims, suits or judgments arising out of such City sewer construction projects.

5. Effective upon the date of execution of this agreement, the City hereby agrees to require all private developers, builders and others to submit all their sewer construction plans to the County for review and approval prior to the City's approval of such development plans. The foregoing requirement includes any form of construction or work that may impact, conflict with or interfere with any sewer facility. The County will require the private developer or builder to provide one full set of surveyed record drawings ("As-built") prior to County approval of the connection to the County sewer system. Such record drawings must be signed and dated by a representative of the developer or builder.

6. Effective upon the date of execution of this agreement, the City agrees to require all plumbers, contractors, property owners and others intending to connect any building sewer lines, house sewer lines and any other sewer lines and laterals to the County sewer system to first obtain County approval and inspection for all such taps and connections. Further, the City shall require such applicants to obtain impact connection permits from the County and to perform all work in accordance with County standards and specifications.

7. Effective upon the date of execution, to the extent allowed by law, the city hereby agrees to:

(a) Join the County in requiring sewer customers in the City to repair damaged or defective sewer service connection lines ("service laterals"), or portions thereof, where deemed necessary by the County, which are located on private property. Such repairs must be made in accordance with County specifications. Enforcement of such requirements for repairs may cause the County and the City, to suspend sewer and water service to sewer customers in accordance with Alabama law, until such repairs are made to the satisfaction of the County.

(b) Join and assist the County in establishing and enforcing in the City design and construction standards (including materials of con-struction) for future service laterals or portions thereof installed on private property.

8. Effective upon the date of execution of this agreement, the City hereby agrees that it will not issue or otherwise approve the issuance of any form of certificate of occupancy or use of any new building, development or improvement whatsoever until the County has inspected and approved the sewer construction all in accordance with County ordinances, rules and regulations and this agreement. Provided, the City shall immediately provide the County with a list of all projects already permitted and under construction, and provide the County with reasonable opportunity to perform inspection for satisfactory workmanship before the City approves the sewer installation. Provided, such inspection shall be for compliance with standards in effect at the time the project was permitted.

9. Effective upon the date of execution of this agreement, the City hereby agrees to assist and join the County as a co-party in any legal action that may be required or result from the County's enforcement of its ordinances, rules and regulations and this agreement with respect to property located within the City's boundaries but outside of Jefferson County.

10. Effective upon the date of execution of this agreement, and to the extent allowed by law, the City hereby agrees to hold harmless and indemnify the County, its elected officials and employees from and against any claims, suits and judgments arising out of any injury to any person, including death, and damage to property which arises out of any event or occurrence occurring before the execution of this agreement and occurring between the execution of this agreement and the date upon which the County accepts the portion of the sewer system or facility which is involved in the occurrence.

11. The City hereby agrees to remain responsible for and to pay all costs of operating and maintaining the sewer system and sewer facilities through the date of conveyance as set out below. This responsibility includes (a) payment of all utility charges for electric power, gas and water; (b) the City shall remain responsible for removal of blockages, repair of breaks and leaks and resulting cleanup and shall resolve any claims for any injury or death resulting from such blockages, breaks or leaks; (c) the City shall remain responsible for the assessment of any fines or penalties by any legal authority including the Environmental Protection Agency and the Alabama Department of Environmental Management.

12. The County hereby agrees:

(a) To accept from the City the conveyance of the City's sanitary sewer system including the sewer facilities and sewer easements in accordance with the provisions of this Agreement.

(b) To use its best efforts to carry out the County's inspection, review and approval functions as provided for in this Agreement.

(c) To operate the sanitary sewer system in accordance with applicable federal and state laws and regulations and the Consent Decree and orders of the Court identified in the RECITAL, above.

(d) To review all new sewer construction plans submitted for such review by the City, private developers, builders and others as expeditiously as possible.

(e) To perform all necessary inspections as expeditiously as possible.

13. The date of conveyance to the County of the City's sanitary sewer system as set out in Paragraph 1, above, is August 1, 1998.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by their duly authorized representatives, this 15 day of April, ~~1997~~ 1998

JEFFERSON COUNTY, ALABAMA

By Mary M Buckelew
Mary M. Buckelew, President
Jefferson County Commission

CITY OF BESSEMER

By Tuitman Mitchell
Its: Mayor

M:\JOANUNIFIC.AGR




# Water Quality Monitoring Program

## Final

December 2016

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# Acronyms

| | |
|---|---|
| ADEM | Alabama Department of Environmental Management |
| CMMS | Computerized maintenance management system |
| CMOM | Capacity, Management, Operations, and Maintenance |
| DO | Dissolved Oxygen |
| FOG | Fats, oils, and grease |
| JCESD | Jefferson County Environmental Services Department |
| LIMS | Laboratory information management system |
| NPDES | National Pollutant Discharge Elimination System |
| SOP | Standard operating procedure |
| SSO | Sanitary sewer overflow |
| SSORRP | Sanitary Sewer Overflow Response and Reporting Plan |
| WWTP | Wastewater treatment plant |

# Water Quality Monitoring Program

## Program Overview

Water quality monitoring of streams and rivers within Jefferson County is performed to protect public health and the environment. Water quality monitoring data is used for the following purposes:

- **Routine Monitoring** – Through continued coordination with the local stormwater management authority, the Jefferson County Environmental Services Department (JCESD) is notified of any sampling results that may indicate a water quality impact caused by a sanitary sewer overflow (SSO) or failing sewer system infrastructure.
- **Investigative Monitoring** – Water quality samples are taken by JCESD staff to verify compliance with Pretreatment Program and Fats, Oils, and Grease (FOG) Management Program requirements, identify possible cross connections between storm water and sanitary sewers, and other purposes
- **Impact Monitoring** – JCESD measures the impacts of significant discharge violations at the wastewater treatment plants (WWTPs) that may potentially have a detrimental impact on public health or the environment.

**Figure 1** on the following page shows the major watersheds and streams within Jefferson County.

This plan describes water quality monitoring performed within Jefferson County and how it applies to addressing the impacts and mitigation of SSOs and potential failing sewage infrastructure that may result in water quality impairments.

For more information on the Pretreatment Program, see the **Pretreatment Program** plan. For more information on the FOG Management Program, see the **FOG Management Program** plan. For recordkeeping related to SSOs, see the JCESD **Overflow Tracking Program** plan.

### Program Goals

The goal of JCESD's **Water Quality Monitoring Program**, as it applies to SSOs, is to monitor the impact of SSOs on the on waters of the State and to determine if additional action or notification is warranted.

Implementation of this program assists the County in achieving compliance with National Pollutant Discharge Elimination System (NPDES) requirements related to the sanitary sewer collection system, as established by Federal and State regulators.

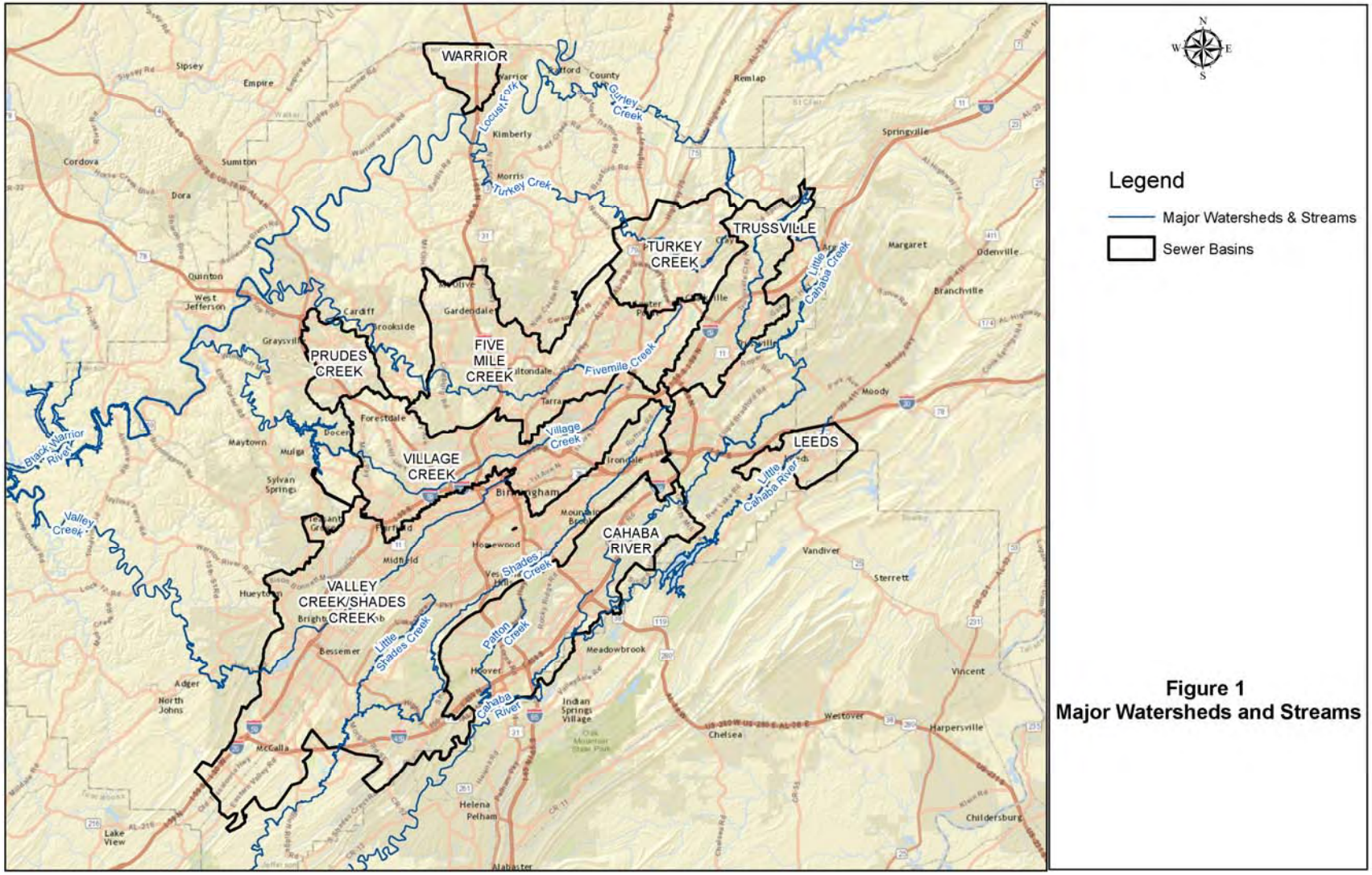


**Figure 1. Major Watershed and Streams in Jefferson County**

# Program Resources

## Related CMOM Program Documents and Other References

JCESD developed standard operating procedures (SOPs) for various CMOM-related job duties. Copies of the SOPs are provided in the JCESD's **Standard Operation Procedures and Work Process Documentation for Field Operations.**

Procedures used when responding to and reporting SSOs are detailed in JCESD's **Sanitary Sewer Overflow Response and Reporting Program (SSORRP)** plan, which can be obtained at: http://www.jeffcoes.org/Sites/Jefferson_County_Environmental_Services/Documents/SSORRP%20FINAL%20JULY%202012-1%20TOTAL2.pdf.

Other CMOM Program plans that are referenced in the **Water Quality Monitoring Program** plan include:

- CMOM Program Organization
- Customer Service Program
- Equipment and Supplies Management Program
- FOG Management Program
- Information Management Systems
- Pretreatment Program

## Staffing

Barton Laboratory staff are responsible for water quality monitoring related to the CMOM program. Line Maintenance staff coordinate with Barton Laboratory related to any known SSOs reaching waters of the state, or observations made in the field that might indicate localized or in-stream water quality issues.

For more information on the Barton Laboratory (Division 7102) organization charts, see the **CMOM Program Organization** plan.

## Data Management

For all applicable SSOs occurrences, water quality monitoring forms and reports are retained for JCESD records and are forwarded to the CMOM Coordinator for inclusion in the official record.

For more information on SSO reporting requirements, see the JCESD **SSORRP** plan. For more information on LIMS and Cityworks, see the **CMOM Information Management Systems Program** plan.

# Program Implementation

## Routine Monitoring

JCESD maintains communication with the watershed monitoring staff of Jefferson County's Department of Storm Water Management in addition to permitted MS4 Municipalities within the Jefferson County sewer service area. The purpose of this communication is to ensure awareness of any sampling results that may indicate an SSO has occurred or is occurring. If routine monitoring indicates potential sewage contamination, personnel from Line Maintenance will go to the site to determine if there are any conditions allowing sewage to contaminate the state waters that have not been previously identified.

In addition, if Line Maintenance staff observes conditions in a stream in the field that may indicate water quality issues, Barton Laboratory is notified and staff will perform sampling at the site to determine the potential cause of the issue. If these samples indicate a possible source other than sewage, Barton Laboratory staff review industrial discharge permits in the vicinity to identify other potential pollutant sources from these dischargers. If no source can be identified, ADEM will be notified.

## Impact Monitoring

Line Maintenance and Barton Laboratory coordinate to perform all the required monitoring and associated recordkeeping. Reports are maintained at Barton Laboratory and are stored in Cityworks with the work order associated with the SSO.

### Sample Procedures

Stream monitoring of the affected area is performed upstream to collect a background sample and downstream to get a representative sample of the blended water (SSO + natural stream flow). The upstream and downstream monitoring shall occur at a safe access point approximately 100 feet upstream where, based on observations, there is no influence of the SSO and the receiving water.

Likewise, the downstream sample should be taken approximately 500 to 1,000 feet downstream of the point of confluence of the SSO, at a safe access point in the receiving stream and at a point, based on observations, where there appears to be sufficient mixing to adequately assess the impact of the SSO on the receiving stream. However, if a point source (e.g., stream, stormwater outfall) exists between the point of confluence of the SSO and desired downstream sample location, the sample should be taken at a safe location upstream of the point source, but not less than 100 feet downstream of the confluence point.

### Sample Parameters

The following parameters are monitored in the receiving stream for the upstream and downstream samples: dissolved oxygen (DO) and *E. coli* bacteria. On-site testing is done for DO. One grab sample is collected from each location for laboratory analysis of *E. coli* bacteria. Samples are assigned chain of custody forms that are completed throughout the sampling, analysis, and reporting process. If necessary, a visual assessment of detrimental impacts such as fish kill, odor, and presence of visual spill material will be conducted.

A summary of the dry weather SSO sampling protocol is provided in **Table 1**.

**Table 1. Dry Weather SSO Impact Monitoring Sampling Protocol**

| Dry Weather SSO Volume | Sample Frequency | Sample Locations | Sample Parameters |
|---|---|---|---|
| >10,000 gallons | One-Time | • >100 feet upstream<br>• 500-1,000 feet downstream | DO and *E. coli* bacteria |
| >50,000 gallons | Daily | • >100 feet upstream<br>• 500-1,000 feet downstream | DO and *E. coli* bacteria |

# Program Performance Metrics

Performance measures are important management tools that allow for continuous measurement and evaluation of program activities. Performance measures are designed to collect information that enable JCESD to determine if established goals and level of service are being met and if not, what activities need to be adjusted to meet program goals.

**Table 2** lists the performance measures that have been established at JCESD for the **Water Quality Monitoring Program**.

**Table 2. Water Quality Monitoring Program Performance Metrics**

| Performance Measure | Formula | Definition | Desired Result | Data Interval | JCESD Group |
|---|---|---|---|---|---|
| Dry Weather SSO Samples | Value | Number of dry weather SSO events greater than 10,000 gallons and Number of samples collected and analyzed | Value | Monthly | Barton Laboratory |




# Contingency Planning Program

## Final

December 2016

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# Acronyms

| | |
|---|---|
| AEMA | Alabama Emergency Management Agency |
| AERC | Alabama Emergency Response Commission |
| ARV | Air release valve |
| CFR | Code of Federal Regulations |
| CMMS | Computerized maintenance management system |
| CMOM | Capacity, Management, Operations, and Maintenance |
| EPCRA | Emergency Planning and Community Right-To-Know Act |
| FEMA | Federal Emergency Management Agency |
| FOG | Fats, oils, and grease |
| IMS | Information management system |
| JCESD | Jefferson County Environmental Services Department |
| MSDS | Material safety data sheet |
| O&M | Operations and maintenance |
| OSHA | Occupational Safety and Health Administration |
| RMP | Risk Management Plan |
| SCADA | Supervisory Control and Data Acquisition |
| SOP | Standard operating procedure |
| SPCC | Spill Prevention Control and Countermeasures |
| SSO | Sanitary sewer overflow |
| SSORRP | Sanitary Sewer Overflow Response and Reporting Program |
| USEPA | United States Environmental Protection Agency |
| WWTP | Wastewater treatment plant |

# Contingency Planning Program

## Program Overview

The Jefferson County Environmental Services Department (JCESD) is preparing and implementing contingency plans for its wastewater collection and conveyance system and its wastewater treatment plants (WWTPs) during emergency situations. Emergency situations may be defined as severe natural events; third-party actions that may result in the impairment or failure of the systems, or an unpermitted discharge; a surcharge that results in a backup into a building; or sanitary sewer overflow (SSO) from manholes, pipes, or pump stations that may endanger public health or the environment.

Examples of severe natural events may include hurricanes, low atmospheric pressure storms, tornadoes, freezing conditions, excessive rainfall and flooding.

### Regulatory Requirements

The United States Environmental Protection Agency (USEPA) Region IV requires sewer utilities within its region to implement Contingency Planning Programs that include the following elements:

- Conduct Vulnerability Assessments to identify the utility's weaknesses to system failures, natural causes, or failures caused by others.
- Develop contingency plans for sanitary sewer system and treatment facilities for emergency response and operations.
- Using a root cause failure analysis, develop strategies to enable timely repairs or overcome predicted component failures that address:
    - Public Notification.
    - Agency Notification.
    - Emergency Flow Control.
    - Emergency Operation and Maintenance.
    - Preparedness Training.
    - Water Quality Monitoring.
- Develop a Response Flow Diagram for each strategy that clearly identifies roles and responsibilities.

### Approach to JCESD Contingency Planning

The JCESD **Sanitary Sewer Overflow Response and Reporting Program (SSORRP)** serves as the baseline to meet the contingency planning requirements for responding to unpermitted discharges and SSOs from manholes, pipes, and pump stations.

JCESD has developed controls and identified actions to reduce the risks and associated vulnerabilities to its pump stations, pressure sewer system, gravity sewer system, and wastewater treatment plants. These controls and actions are described in this plan.

### Purpose and Goals

The purpose of JCESD's **Contingency Planning Program** is to ensure collection system personnel are properly trained, equipped, and supported to implement emergency response procedures.

The goals of the **Contingency Planning Program** are to:

- Create awareness of potential vulnerabilities to the County's sewer and WWTP infrastructure.
- Identify potential risks and possible causes.
- Develop appropriate response plans and protocols.
- Provide a framework for ensuring safe operations during emergencies, including identifying contacts, expected personnel response times and conditions, and, when possible, actions and strategies to address certain scenarios.

For more information on emergency response training, see the **Training Program** plan. For more information on resources, equipment, tools, and critical spare parts inventories that may be used during emergency situations, see the **SSORRP** plan and the **Equipment and Supplies Management Program** plan.

# Program Resources

## Related CMOM Program Documents and Other References

### CMOM Program Documents

JCESD developed Standard Operating Procedures (SOPs) for various Capacity, Management, Operations, and Maintenance (CMOM)-related job duties. Copies of the SOPs are provided in the JCESD's **Standard Operation Procedures and Work Process Documentation for Field Operations** manual. Procedures used when responding to and reporting SSOs are detailed in the **SSORRP** plan.

Other CMOM Programs that are referenced in or refer to the **Contingency Planning Program** are as follows:

- CMOM Program Organization
- CMOM Information Management Systems (IMS) Program
- Customer Service Program
- Equipment and Supplies Management Program
- Gravity Line Preventive Maintenance Program
- Pump Station Operation and Maintenance Program
- Safety Program
- Training Program
- Water Quality Monitoring Program

## Jefferson County Multi-Hazard Mitigation Plan

The 2009 Jefferson County Multi-Hazard Mitigation Plan, as amended in 2011, is a multi-jurisdictional guide that fulfills the requirements of the Federal Disaster Mitigation Act of 2000, as administered by the Alabama Emergency Management Agency (AEMA) and the Federal Emergency Management Agency (FEMA) Region IV. While the mitigation plan was written specifically to address the need for continued eligibility for FEMA Hazard Mitigation Assistance grants, the information contained is useful to JCESD as it continues to refine its **Contingency Planning Program**.

Each natural hazard (e.g., floods, tornadoes, severe storms, etc.) that is viewed as a possible risk to Jefferson County is described in detail, and the vulnerability of the County and each jurisdiction to the hazards are addressed. The plan includes goals, objectives, and mitigation strategies and actions for the identified hazards, as well as directions for the implementation and monitoring.

A copy of the Jefferson County Multi-Hazard Mitigation Plan can be downloaded from the http://ema.alabama.gov/filelibrary/CountyPlans/JeffersonCountyCompleteFile.pdf.

## Risk Management Plan

JCESD has developed and is implementing a **Risk Management Plan (RMP)** in accordance with Section 112(r) of USEPA's Clean Air Act Amendments. The **RMP** is updated every five years and addresses the following areas:

- Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases;
- Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and
- Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g., the fire department) should an accident occur.

The Jefferson County Commission has identified substances used in JCESD's wastewater collection and treatment systems that are listed as a regulated substance under the Risk Management Program Rule contained in the Code of Federal Regulations (CFR), Title 40, Part 68 (40 CFR 68) Chemical Accident Prevention Provisions. The County has developed Hazard Assessment reports that contain the results of the offsite consequence analyses and the associated required documentation specified in 40 CFR 68.39.

A copy of the Jefferson County **Risk Management Plan**, which includes Hazard Assessment reports, is available upon request from the Jefferson County Emergency Management. Specific risk management elements contained within the plan are described below.

## Emergency Planning and Community Right-To-Know Act (SARA III) Reporting

The Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 requires JCESD to plan for emergencies involving hazardous substances. By March 1 each year, JCESD submits Tier II Chemical Inventory Reports for Hazardous Chemical Storage on substances it stores for which a material safety data sheet (MSDS) is required by the Occupational Safety and Health Administration (OSHA) and in

quantities exceeding the Threshold Planning Quantity (specified for Extremely Hazardous Substances, 10,000 pounds for everything else). These reports are submitted to the Alabama Emergency Response Commission (AERC), the local emergency planning committee, and local fire departments.

Copies of the **Tier II Chemical Inventory Reports** are available upon request from JCESD senior management.

### Oil Spills Prevention and Preparedness

The federal regulations for oil pollution prevention are described in 40 CFR 112. JCESD has developed **Spill Prevention Control and Countermeasure (SPCC) Plans** for each of its Tier I Qualified Facilities. The primary objective of these plans is to prevent any oil products or hazardous substances from reaching navigable waters. Oil and hazardous material-handling personnel at JCESD facilities have been familiarized with the areas of potential spills, procedures used to respond to a spill, and the methods and procedures used to inspect equipment so that the risk of an accidental spill is reduced.

Copies of JCESD's **SPCC Plans** are available upon request from JCESD senior management.

### Staffing

The overall lead for the Contingency Planning Program is the JCESD Director. However, all JCESD staff members may be available for response to emergency situations based on their unique responsibilities. JCESD assigns and communicates to the staff members who are responsible for implementing various contingency plan components, and assignments are made and adjusted based on the workloads of the available staff. See the **CMOM Program Organization** plan for JCESD staffing resources.

Depending on the situation, JCESD may contract out certain work (e.g., emergency bypass pumping) to an outside contractor that specializes in the needed service.

### Data Management

The current version of JCESD's contingency plans are maintained on the JCESD's intranet and made accessible to all staff members responsible for implementing the plans.

## Program Implementation

### Sanitary Sewer Overflow Response and Reporting Program

As indicated previously, JCESD's **SSORRP** addresses the contingency planning requirements for responding to unpermitted discharges and SSOs from manholes, pipes, and pump stations. Training on the **SSORRP** is provided semi-annually, at a minimum, to personnel that are responsible for implementing the **SSORRP**.

For more information on the clearly defined response procedures, and roles and responsibilities assigned to personnel responding to and reporting SSO occurrences, see the JCESD **SSORRP** plan**.**

## Vulnerability Assessment

As shown in **Table 1** on the following pages, many potential risks to JCESD's gravity and pressure sewers, pump stations, and wastewater treatment plants have been evaluated.

## Existing Controls

Controls that are in place to reduce risks are described in various CMOM Program documents, including:

- Legal Support
- Acquisition Considerations
- Air Release Valve Preventive Maintenance Engineering
- Continuous Sewer System Assessment
- Corrosion Control
- Equipment and Supplies Management
- Fats, Oils, and Grease (FOG) Management
- Gravity Line Preventive and Reactive Maintenance
- Infrastructure Rehabilitation
- Line Location
- Maintenance of Way
- New Construction and Rehabilitation Inspection Sewer System Design
- Pretreatment Program
- Pump Station Operation and Maintenance
- Service Connection and Disconnection
- System Capacity Assurance
- Water Quality Monitoring Program

## Collection and Conveyance System Initiatives

### Pump Stations

A listing of all JCESD pump stations that includes the information listed below is provided in the **Pump Station Operations and Maintenance Program**:

- Pump station name
- Address
- Sewer basin
- Number of pumps
- Horsepower, voltage, and phases for each pump
- Total dynamic head
- Type and brand of pump
- Discharge
- Standby power rating, brand, and fuel source

**Table 1. Sewer Infrastructure Potential Risks**

| Asset at risk | Possible cause | Existing controls | What can happen? | When can it occur? | Likelihood | Potential Consequences |
|---|---|---|---|---|---|---|
| **Gravity Collection System** | Aging, collapsed or broken pipe | Regular inspection and repair; capital improvement repair and rehabilitation program | Surcharge or overflow | Anytime | Likely | Violation, water quality impact, public safety, public exposure, property damage |
| | Accumulated debris, roots, grease | Regular inspection and maintenance | | | | |
| | Poor construction and rehabilitation practices | Design Guidelines, Standards and Construction Specifications | Structural defects | Anytime | Likely | Violation, water quality impact, public safety, public exposure |
| | Caused by third party | Service Connection / Disconnection Program; installation of fencing and gates where appropriate | | | | Violation, water quality impact, public safety, public exposure, property damage |
| **Pump Stations** | Alarm failure | Regular inspection and maintenance | Surcharge or overflow | Anytime | Likely | Violation, property damage, water quality impact |
| | Failure in electrical system or sensors | Regular inspection and maintenance; monitoring and alarm system | | | | |
| | Mechanical failure | Regular inspection and maintenance; monitoring and alarm system | | | | |
| | Loss of power supply from energy authority, storm damage, mechanical failure or external cause | Backup power supply and quick-connect fittings/portable generators | | | | |
| | Excessive inflow/infiltration; change in upstream sewer usage | Infiltration/Inflow Program; Capacity Assurance Planning Program | Surcharge or overflow due to inadequate capacity | Anytime | Likely | Violation, water quality impact, public safety, public exposure, property damage |

| Asset at risk | Possible cause | Existing controls | What can happen? | When can it occur? | Likelihood | Potential Consequences |
|---|---|---|---|---|---|---|
| **Pressure Sewer System** | Aging pipes | Regular inspection of force main routes and tracking pump run times for changes in trends | Surcharge or overflow | Anytime | Likely | Violation, water quality impact, public safety, public exposure, property damage |
| | Broken air release valve | Air Release Valve Program | | | | |
| | Caused by third party; cleanout component damage | Same as documented above plus securing areas vulnerable to public threats | | | | |
| **WWTP** | Loss of power supply from energy authority, storm damage, mechanical failure or external cause | High level alarms, response to callout system, onsite storage capacity | Discharge to the environment | Anytime | Unlikely | Violation, water quality impact, public exposure |
| | Inadequate WWTP capacity due to change in population, sewer users, or conveyance system configuration | Capacity Assurance Planning Program; sewer system design; Infiltration/Inflow Program | | | | |
| | Failure in electrical system or sensors | Routine inspection and maintenance; Performance Improvement Plans | | | Likely | |
| | Process upset | Pretreatment Program; process monitoring; routine inspection and maintenance | | | | |
| | Mechanical system failure | Routine inspection and maintenance; Performance Improvement Plans | | | | |
| | Pumping system failure | | | | | |

## Pump Station Monitoring and Alarm System

As described in the **Pump Station Operations and Maintenance Program** plan, JCESD does not currently utilize traditional Supervisory Control and Data Acquisition (SCADA) for remote control of pump stations; however, each pump station is equipped with a wireless monitoring and alarm system manufactured by MISSION Communications. These systems, which use cellular technology to communicate, monitor such functions as available power supply, wet well level, pump starts, pump run times, pump failure, and generator failure and will notify JCESD personnel in the event of a failure or alarm. While the monitoring systems do not facilitate remote control of the pump stations, they do provide real-time information that allows JCESD staff to respond to any issues in a timely manner.

All but three pump stations located in the collection system have redundant pumping capabilities built into the station. The three pump stations that do not have redundant pumping capabilities, Optometry (Gardendale), Leeds City Hall, and Ashville Road (Leeds), serve single buildings and were acquired through the unification process. Backup power sources are available at approximately sixty percent of the pump stations. For more information on the backup power sources available at each pump station, see the **Pump Station Operations and Maintenance Program** plan.

## Pump Station Emergency Response and Operations

In the event a pump station becomes inoperable due to a power or mechanical failure, JCESD is prepared to respond to restore service as quickly and efficiently as possible. While Pump Station Operation and Maintenance (O&M) crews are on staff five days a week, backup crews are available and can be called in to assist in an emergency. JCESD electrician and instrumentation personnel are on-call for support when needed. Additional support crews are also available from Sewer Line Construction and Sewer Line Maintenance.

Pump station personnel are dispatched to pump stations when an alarm is activated to assess and respond to the situation. Responding personnel can request combination cleaning machines for containment and control measures from Sewer Line Maintenance, or bypass pumping support from the Sewer Construction Division. Work orders are generated by the responding Crew Supervisor to address the cause of the pump station failure, and are closed out and entered into the Cityworks computerized maintenance management system (CMMS) once all problems have been addressed. For more information on work orders associated with emergency response efforts, see the **CMOM IMS Program** plan.

Bypass pumps are maintained by the Pump Station O&M group and are also available from Sewer Line Construction, Sewer Line Cleaning and several WWTPs, if needed. For more information and details on the available portable pumps and pumping capacities, see the **Equipment and Supplies Management Program** plan. An emergency declaration can be made to call in local contractors with additional pumps, if needed.

In the event of a power failure, Alabama Power Company maintains and repairs electrical lines that provide power to the County pump stations. JCESD also has five mobile generators on hand that can be used to provide station power at pump stations that are not equipped with standby generators.

Backup generators are installed in approximately sixty percent of all the pump stations operated and maintained by JCESD (see the **Pump Station Operations and Maintenance Program** plan for details). Pump stations that are not equipped with generators are compatible with mobile generator units. The targeted response time to a power failure is to have emergency power or a generator connected within 2 to 2.5 hours of notification.

For more information and details on JCESD's backup generators, including the pump station generator inspection and maintenance standard operation procedures, see the **Pump Station Operations and Maintenance Program** plan.

### Manholes

JCESD has implemented a remote manhole monitoring plan for manholes that have a history of surcharging or overflowing at specific design storms.

## Wastewater Treatment Plants

JCESD maintains nine WWTPs throughout its service area as described in **Table 2**.

**Table 2. JCESD Wastewater Treatment Plants**

| WWTP | Type | Design Flow (million gallons per day) | Available Onsite Storage |
|---|---|---|---|
| Cahaba River | Major | 12 | Equalization Basin |
| Five Mile Creek | Major | 30 | Equalization Basin |
| Leeds | Minor | 2 | Equalization Basin |
| Prudes Creek | Minor | 0.9 | Empty Basin |
| Trussville | Minor | 4 | Empty Basin |
| Turkey Creek | Minor | 5 | Equalization Basin |
| Valley Creek | Major | 85 | Equalization Basin |
| Village Creek | Major | 60 | Equalization Basin |
| Warrior | Minor | 0.1 | Empty Basin |

### Minor WWTP Monitoring and Alarm System

The Leeds, Prudes Creek, Trussville, Turkey Creek and Warrior WWTPs, which are not staffed at all times, are equipped with a monitoring and alarm system. In the event an alarm is sounded due to a high-water condition or power supply, electrical, or mechanical failure, JCESD WWTP personnel, including on-call instrumentation and electrical personnel, are prepared to respond to restore service as quickly and efficiently as possible.

### Backup Power

Backup power generators that can run the full plant critical loads are installed at each of the WWTPs.

JCESD has one fuel truck that can be used to maintain the fuel supply for the generators; however, other County Departments can supply fuel trucks as needed.

### Redundant Power Supplies

The Dispatch offices located at the Shades Valley Complex and the Scotts Branch Pretreatment Facility are furnished with redundant power supplies.

### Emergency Flow Storage

All WWTPs have capacity to effectively treat the highest expected flows. Dedicated storage capacity is available at most of the WWTPs to handle excessive peak flows. JCESD has the ability with its resources and contracted support to provide fuel to backup generators in the event of an extended emergency.

### Other Facilities

If an emergency is identified at other facilities within the JCESD collection system limits, such as private properties, highways, County buildings, schools, or other sites where there is the potential for damage from or to its sewer infrastructure, JCESD is prepared to respond to assist as needed and/or restore service as quickly and efficiently as possible.

For more information on JCESD's service request management and response procedures, and details concerning the 24-hour on-call Dispatch Office, see the **Customer Service Program** plan.

## Program Performance Metrics

Performance measures are important management tools that allow for continuous measurement and evaluation of program activities. Performance measures are designed to collect information that enable JCESD to determine if established goals and level of service are being met and, if not, what activities need to be adjusted to meet program goals.

Performance measures related to the **Contingency Planning Program** are currently monitored in other related programs that track emergency response. As part of regular CMOM Program reviews, JCESD staff will consider amendments to the **Contingency Planning Program** to improve overall response and maintenance of the JCESD wastewater system.

**Jefferson County**

**Environmental Services Department**

# Sanitary Sewer Overflow Response and Reporting Program

**Effective: December 2016**

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| **Appendix D** | Tables for Estimated SSO Flow Out of Manholes |
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# FORMS

**ESD Form RF1-1** Wastewater Discharge Reporting Form

**ESD Form RF2-1** 24 Hour Report

**ESD Form RF3-1** 5 Day Follow-up Report

**ESD Form RF4-1** Sewer Overflow Advisory

**ESD Form WS1-1** SSO Volume Estimating Worksheet for Manholes

**ESD Form WS2-1** SSO Volume Estimating Worksheet for Service Cleanouts

**ESD Form WS3-1** SSO Volume Estimating Worksheet for Pipes or Cleanouts

# CHECK LISTS

- **Service Request Check List**

- **SSO Check List for Line Maintenance –**

  **Public Works Supervisor and/or Sewer Video Operations Supervisor**

- **5 Day Check List for Line Maintenance –**

  **Sewer Construction Maintenance Supervisor and/or Principal Engineering Inspector**

- **SSO Check List for Administration -**

  **Communications Operator II**

# Jefferson County Environmental Services Department

## Sanitary Sewer Overflow Response and Reporting Program (SSORRP)

## Section 1 - Introduction

### 1.1 Purpose

On October 21, 1996, Jefferson County (County) entered into a Consent Decree with the United States Environmental Protection Agency (USEPA). As part of the Consent Decree, the Jefferson County Environmental Services Department (ESD) is required to report to the USEPA all Sanitary Sewer Overflows (SSOs) as defined in the Decree.[1] The ESD also reports all SSOs to the Alabama Department of Environmental Management (ADEM) and the Jefferson County Department of Health (JCDH).

The purpose of the Sanitary Sewer Overflow Response and Reporting Program (SSORRP) is to provide policies and procedures for the response to and reporting of SSOs in an effort to protect public health and the environment and meet applicable regulatory requirements.

### 1.2 Distribution of SSORRP

This SSORRP will be made available to all individuals involved in responding to and reporting SSOs within the ESD.

Copies of this program will be distributed to the following ESD personnel:

- Director
- Deputy Director
- Engineering Staff
- Inspection Staff
- Line Maintenance Personnel
- Pump Station Operations Personnel
- Construction Personnel

### 1.3 Training of Personnel

The ESD will provide training sessions upon the adoption of this program to all personnel involved in responding to and reporting of SSOs. New personnel will be trained as soon as practicable after hire. All ESD operations and maintenance personnel listed in Section 1.2 will be provided

[1] As defined in ESD's Consent Decree, Civil Action No. 93-G-2492-S, "*"Sanitary Sewer Overflow," "SSO," and "Overflow" shall mean any discharge of wastewater from the County Collection System prior to treatment at a permitted treatment facility. SSO's include, but are not limited to, discharges from manholes, pipes, or pump stations*."

training sessions as needed to refresh them of the adopted procedures. The training sessions and personnel trained will be documented for tracking purposes.

As this SSORRP is updated, additional training sessions will be conducted to retrain personnel on new and/or changed procedures.

## Section 2 – SSO Notification

### 2.1 SSO Call Center

The ESD operates a Call Center that is continually monitored twenty-four hours a day to receive calls regarding SSOs and backups. These calls may be received from other utilities, municipalities, ESD staff, the public or any individual that believes an SSO is occurring. Any ESD employee that discovers an SSO or evidence of an SSO will call the Call Center to report the details of the event. The phone number to report an SSO is 205-942-0681.

The Communication Operator IIs (referred to as “dispatchers”) on duty log information including, but not limited to: the complaint/service request address, caller’s name, and service request details into Cityworks IMS, the ESD’s information management system.

The Call Center is physically manned by dispatchers 16 hours per day from 7:00 AM to 11:00 PM. Between the hours of 11:00 PM to 7:00 AM, an automated voice mail system plays a recorded message which instructs the caller to leave a detailed message of the problem. The automated system then notifies the Sewer Construction/Maintenance Supervisor and the on-call supervisor.

### 2.2 Notification of ESD Personnel

Crews are manned seven days per week from 7:00 AM to 7:30 PM, except for holidays that occur during the week (7:00 am to 3:30 pm). Following the receipt of a possible overflow call during business hours, the dispatcher notifies a crew from the Shades Valley Line Maintenance facility or the Village Creek Line Maintenance facility and the crew responds to the call as appropriate.

During business hours, the managing supervisor of the responding crew or an inspector is also notified via two-way radio or cell phone. The Sewer Construction/ Maintenance Supervisor and Principal Engineering Inspectors are also notified of any possible SSO occurrence via email to their cell phone.

After hours, the on-call supervisor notifies the on-call maintenance crew for response.

**Table 2-1** on the following page lists the ESD personnel that are notified.

| Position | Name | Phone Number | Email Address |
|---|---|---|---|
| **Sewer Construction/ Maintenance Supervisor** | **Brian Champion** | **205-601-5054** | championb@jccal.org |
| **Principal Engineering Inspector** | **Position Vacant** | **205-xxx-xxxx** | name@jccal.org |
| **Principal Engineering Inspector** | **Lavon Evans** | **205-601-5056** | evansl@jccal.org |
| **Sewer Video Supervisor** | **Don Goodwin** | **205-296-2012** | goodwind@jccal.org |
| **Public Works Supervisor** | **Todd Childers** | **205-369-3821** | childerst@jccal.org |
| **Public Works Supervisor** | **Ronnie Collier** | **205-601-5055** | ronniecollier@jccal.org |
| **Public Works Supervisor** | **Wayne Smith** | **205-213-7266** | smithwa@jccal.org |
| **Sewer Service Inspector** | **Jason Ashley** | **205-601-5052** | ashleyj@jccal.org |
| **Sewer Service Inspector** | **Chris Cummings** | **205-368-3287** | cummingsc@jccal.org |

***Table 2-1:*** *ESD personnel notified of potential SSO-related service requests*

### 2.3 Notification of Regulatory Agencies and the Public

If an SSO is determined to reach surface waters in accordance with Section 3.3, a *Sewer Overflow Advisory* (ESD Form RF4-1) is sent to the ADEM, the JCDH, local officials, ESD employees and media groups (**Table 2-2**).

As shown in **Figure 2-1**, *Sewer Overflow Advisories* are also listed on the ESD website at http://www.jeffcoes.org/Default.asp?ID=44&pg=SSO+DATABASEI

If it is determined that a significant danger to public health exists due to contact with affected surface waters, the portable sign shown in **Figure 2-2** will be placed in the immediate vicinity of the SSO. The portable sign shown in **Figure 2-3** will be placed at likely points of public access to the affected downstream surface waters. The signage will remain in the area until the SSO has ceased and sufficient time has elapsed to mitigate its effects.

The rationale for determining whether an SSO poses a significant danger to the public include, but are not limited to: the volume of the overflow, the size of the receiving stream, weather conditions, upstream and downstream fecal coliform testing results (if available), accessibility of the area near and downstream of the SSO, population density and the presence of sensitive or public facilities such as schools, parks, etc. If it is determined that there is a threat for exposure by a specific individual or group, ESD will notify them directly.

| Agency | Contact | Number | Email |
|---|---|---|---|
| **ADEM – 24-HR Notification** | **ADEM SSO Hotline** | **334-274-4200(O)** | **N/A** |
| **ADEM – 24-HR Report** | **Nick Caraway** | **334-279-3051(F)** | H2omail@adem.state.al.us |
| **ADEM – 5-Day Report** | **Nick Caraway** | **334-279-3051(F)** | H2omail@adem.state.al.us |
| **ADEM – Birmingham Office** | **N/A** | **(205) 942-6168** | N/A |
| **Alabama Department of Conservation and Natural Resources** | **Nick Nichols** | (334) 242-3471 | nick.nichols@dcnr.alabama.gov |
| **JCDH – 24-HR Report** | **Jonathan Stanton** | **205-939-9019(F)** | **N/A** |
| **JCDH – 5-Day Report** | **Jonathan Stanton** | **205-939-9019(F)** | **N/A** |
| **ESD Director** | **David Denard** | **205-325-5979(O)** | denardd@jccal.org |
| **ESD Deputy Director** | **Daniel White** | **205-214-8610(O)** | whited@jccal.org |
| **ESD Chief Civil Engineer** | **Brian Rohling** | **205-521-7512(O)** | rohlingb@jccal.org |
| **ESD Sewer Construction/ Maintenance Supervisor** | **Brian Champion** | **205-601-5054(C)** | championb@jccal.org |
| **Principal Engineering Inspector** | **Lavon Evans** | **205-601-5056** | evansl@jccal.org |
| **Principal Engineering Inspector** | **Position Vacant** | **xxx-xxxx** | name@jccal.org |
| **County Manager** | **Tony Petelos** | **205-731-2880(O)** | petelost@jccal.org |
| **Deputy County Manager** | **Dan Biles** | **205-583-8327(O)** | bilesd@jccal.org |
| **WABM** | **N/A** | **205-290-2115(F)** | **N/A** |
| **ABC 33/40** | **N/A** | **205-982-3942(F)** | **N/A** |
| **CBS 42** | **N/A** | **205-320-2722(F)** | **N/A** |
| **FOX 6** | **N/A** | **205-583-4356(F)** | **N/A** |
| **NBC 13** | **N/A** | **205-323-3314(F)** | **N/A** |

***Table 2-2:*** *Listing of regulatory agencies, officials and media outlets (as of September 2016).*
*O – Office*
*F – Fax*




***Figure 2-1:*** *Sanitary Sewer Overflow Advisory Webpage*




***Figure 2-2:*** *Portable sign* ***(WARNING SIGN)*** *for public awareness of SSO to be placed near discharge source in an area that may endanger human health.*




***Figure 2-3:*** *Portable sign* ***(SURFACE WATER SIGN)*** *for public awareness of SSO to be placed near surface waters.*

Within 24 hours of any SSO, ADEM will be notified via their phone number, and the *24-Hour Report* (ESD Form RF2-1) will be submitted to ADEM and the JCDH. A *5-Day Follow-up Report* (ESD Form RF3-1) is prepared and sent to ADEM and JCDH within 5 days of the SSO occurrence. Each month, the ESD submits a report and database of the SSOs from within the collection system to the USEPA in accordance with the requirements of the Consent Decree. In addition, copies of these reports are provided to the local ADEM office in Homewood, AL and the Government Documents Department at the Birmingham Public Library.

If a SSO is attributed to grease–related causes and not attributable to a food service facility, the personnel of the Grease Control Program will alert the nearby public of the overflow in an effort to limit the introduction of grease to the system and prevent future overflows. The Grease Control Program Inspectors will place door hangers (see **Figure 2-4**) on the doors of the residences in the area neighboring the overflow following the event. This notification may occur significantly after the SSO has occurred and is not intended to serve as an immediate public health warning.




***Figure 2-4:*** *Door hanger placed by Grease Control for a grease related SSO.*

## Section 3 – SSO Determination

### 3.1 Cause of SSO

The Line Maintenance crew supervisor that responds to the call initially determines the primary cause of the SSO. In cases where the Line Maintenance crew supervisor is not able to make that determination, a Supervisor or Inspector will assist. Determination of the cause will include the following:

1.) In those instances where assistance is needed to investigate the SSO to determine the cause, a Supervisor or inspector will be contacted. This includes but is not limited to: Sewer Construction and Maintenance Supervisor, Principal Engineering Inspector, Public Works Supervisor, Sewer Video Operations Supervisor, or Sewer Service Inspector.

2.) The name of the Line Maintenance crew supervisor, Supervisor or Inspector reviewing the call is to be put on the Service Request for that call.

- Example of Wet Weather Event: “Name (Public Works Supervisor) verified that all proper procedures for investigating an overflow due to surcharge were met. The lines were traced all the way to the trunk line. Name and Crew #number believe that the probable cause of this overflow is due to a surcharge.”

- Example of Dry Weather Event: “Name (Public Works Supervisor) verified that all proper procedures for investigating an overflow due to a blockage were met. Name and Crew #number believe that the probable cause of this overflow is due to a grease blockage.”

3.) During a rain event, the investigation will include opening manholes and tracing the surcharged sewer flow to the trunk line and washing or rodding in an attempt to remove any potential blockage. Following the rain event, follow up inspections will be performed to determine whether the SSO was due to general surcharge from infiltration and inflow-induced flows or a blockage.

4.) During a non-rain event, every attempt should be made to determine the cause of the SSO based on visual inspection. If the SSO is caused by a blockage, the type of blockage should be determined based on the material removed during the cleaning process. If the SSO is caused by Construction Damage, Vandalism, a Line Break or other external cause, a picture should be made of the cause for documentation.

5.) If a manhole or cleanout is overflowing due to general surcharge, the code should be “Manhole Overflow – Surcharge” or “Cleanout Overflow – Surcharge” on the Service Request.

6.) If a manhole or cleanout is overflowing but not due to a surcharge, the code should be “Manhole Overflow – *cause*” or “Cleanout Overflow – *cause*” on the Service Request.

7.) Following an SSO, sewer lines in the area will be television inspected along with a Supervisor or Inspector to proof the cleaning of the pipe, find any sources of infiltration/inflow and to determine if any other cause might have contributed to an SSO during a rain event or non-rain event.

8.) In cases where further investigation shows that the original attributed cause is not the actual cause of the SSO, the Service Request, any associated reports and database should be corrected in accordance with Section 7.

- Example Correction Statement: “TV Crew #number inspected the overflow location along with Name (Public Works Supervisor) on January 1, 2012, and found that the overflow was not due to surcharging from rain but was due to a collapsed pipe”.

### 3.2 Source of SSO

The Line Maintenance crew that responds to the call along with a Supervisor or Inspector determines the discharge source of the SSO and whether or not the contributing asset (service lateral, pipe, manhole, pump station, etc.) is privately or County maintained. All service laterals are privately maintained and are defined as any connection outside the tee at the County-maintained line. Privately-maintained collector lines shall be determined from existing SIMS and other records. Upon the report of a discharge from a cleanout, purported service lateral or backup within a structure, the County-maintained line shall be inspected and, if the County main is not determined to be obstructed or surcharged, the contributing factor shall be determined to be private.

If the discharge source is maintained by the County and the factors contributing to the SSO are due to the County, the SSO is reported in accordance with Section 2 of the SSORRP. If the discharge source is not maintained by the County, but the contributing factors are due to the County, the SSO is reported in accordance with Section 2 of the SSORRP. If the discharge source is privately maintained and the factors contributing to the SSO are not due to the County, the SSO is not reported in accordance with Section 2 of the SSORRP, but it is documented on the Service Request within SIMS, Form RF1-1 is completed, and the JCDH is notified. Backups that are contained within a structure are also recorded on a service request within SIMS and Form RF1-1 is completed. If a backup exits the structure, it is classified as a SSO and is reported in accordance with Section 2 of the SSORRP.

The criteria listed in **Table 3-1** is used in the decision-making process regarding the reporting of an SSO.

| Source | Maintained | Contributing Factors | Reportable by ESD in Accordance with Section 2 of SSORRP |
|---|---|---|---|
| manhole, service lateral, cleanout, pipe, pump station | County | County | Yes |
| manhole, service lateral, cleanout, pipe, pump station | Privately | County | Yes |
| manhole, service lateral, cleanout, pipe, pump station | Privately | Private | No. Documented on Service Request and Form RF1-1 completed. JCDH notified. |

***Table 3-1:*** *SSO reporting requirements based on source of SSO*

### 3.3 Destination of SSO

The Line Maintenance crew that responds to the call along with a Supervisor or Inspector determines the destination of the SSO and whether a *Sewer Overflow Advisory* (ESD Form RF4-1) is to be sent and the Portable SSO Signs (Figure 2-1 and 2-2) placed. As previously discussed, the *Sewer Overflow Advisory* is sent when a SSO reaches "surface waters." "Surface waters" for the purposes of this document are generally defined herein as flowing or standing waters of any river, stream, watercourse, pond or lake, natural or artificial. This does not include waters which are entirely confined and retained completely upon a single property and are not readily accessible to the public.

The following definitions and the criteria listed in **Table 3-2** are used to aid in this decision-making process.

Creek or river

- During wet or dry weather has continuous flowing water

Drainage ditch or storm drain

- During wet weather has continuous flowing water
- During dry weather does not have continuous flowing water

Ground absorbed

- Contained within an area that does not reach a creek, river, drainage ditch or storm drain as described above

| Event | Destination | Action |
|---|---|---|
| Any SSO that enters a creek or river | Surface waters | ESD Form RF4-1 sent to ADEM, JCDH, local officials and media. *Surface Water Sign* placed near receiving water. |
| Wet Weather SSO that enters a drainage ditch or storm drain | Surface waters | ESD Form RF4-1 sent to ADEM, JCDH, local officials and media. *Surface Water Sign* placed near receiving water if receiving water can be determined and/or *Warning Sign* placed in an area that may endanger human health. |
| Dry weather SSO that is greater than 10,000[1] gallons and enters a drainage ditch or storm drain | Field determination[2] | ESD Form RF4-1 sent to ADEM, JCDH, local officials and media. *Surface Water Sign* placed near receiving water if receiving water can be determined and/or *Warning Sign* placed in an area that may endanger human health. |
| Dry weather SSO that is less than 10,000[1] gallons and enters a drainage ditch or storm drain | Field determination[2] | If in an area that may endanger human health, *Warning Sign* placed. |
| Wet weather or Dry weather SSO that is ground absorbed | Non-surface waters | If in an area that may endanger human health, *Warning Sign* placed. |

***Table 3-2:*** *SSO destination criteria and notification actions*

*[1]Based on an equivalent flow rate of 166 gallons per minute (gpm) for 60 minutes. 166 gpm equals an average flow height of 5" from a manhole with the cover in place or an average flow height of ½" from a manhole with the cover removed as seen in Appendix D.*

*[2]In cases of a field determination, the responding Supervisor or Inspector along with the line maintenance crew will visually inspect the surrounding area and trace downstream to determine whether the SSO reaches flowing water. In cases where the destination is indeterminate, it shall be assumed to have reached surface waters.*

***NOTE: ESD Form RF2-1 and ESD Form RF3-1 are sent to ADEM and JCDH for all Dry Weather and Wet Weather Events.***

## Section 4 – SSO Volume Estimation

### 4.1 SSO Worksheets

The ESD has adopted procedures for estimating SSO volumes based on the type of overflow that has occurred. The Line Maintenance personnel utilize the *SSO Volume Estimating Worksheet for Manholes* (ESD Form WS1-1), the *SSO Volume Estimating Worksheet for Service Cleanouts* (ESD Form WS2-1), or the *SSO Volume Estimating Worksheet for Pipes or Cleanouts* (ESD Form WS3-1).

All worksheets require the personnel to record the time the SSO was reported, the time they arrived and the time that the SSO stopped. Following the SSO event, the estimated volume is calculated and inserted into the *Wastewater Discharge Reporting Form* (ESD Form RF1-1) that is completed by the ESD Line Maintenance personnel responding to the SSO. The *Wastewater Discharge Reporting Form* is then submitted to the dispatcher or On-call Supervisor.

### 4.2 SSO Field Data

When the ESD Line Maintenance personnel first arrive on-site to the SSO, digital photographs of the overflow and the surrounding area will be taken in accordance with the *SSO Picture Procedure* (Appendix C) and inserted on the *SSO Picture Form* (Appendix C). If there is not an active SSO when the crew arrives, pictures will be taken of any evidence that will document the occurrence. The digital photographs aid in identifying the address where the SSO occurred, the correct manhole or cleanout, and provide evidence of the event. All Line Maintenance crews are supplied with the equipment needed to take digital images of the overflow occurrence. A plastic measuring stick that is carried in the crews' vehicles.

The estimated height of the overflow shall be measured with the provided plastic measuring stick as accurately as possible; however, given the dynamic and transient nature of collection system hydraulics, steady-state height estimates may be difficult. Field personnel should, therefore, record the average, estimated height of the observed flow. In circumstances where the Line Maintenance personnel cannot safely access the SSO point to utilize the plastic measuring stick, a visual field estimate will be made.

All relevant field data shall be gathered on-site and recorded on the provided forms. Whenever possible, data should be recorded in the field as soon as possible after the event. Other field information should be provided as necessary as comments on or attached to the provided forms. Field crews are encouraged to gather and record any additional information.

### 4.3 SSO Volume Estimating Worksheet for Manholes

The *SSO Volume Estimating Worksheet for Manholes* (ESD Form WS1-1 and Appendix B) and the *Tables for Estimated SSO Flow Out of Manholes* (Appendix D) enable the Line Maintenance personnel to estimate the overflow volume. If the manhole is not overflowing when the personnel arrive, a ponding calculation is utilized to estimate the overflow volume.

### 4.4 SSO Volume Estimating Worksheet for Service Cleanouts

The *SSO Volume Estimating Worksheet for Service Cleanouts* (ESD Form WS2-1) enables the Line Maintenance personnel to estimate the overflow volume from cleanouts. If the cleanout is not overflowing when the personnel arrive, a ponding calculation is utilized to estimate the overflow volume and recorded on the *SSO Volume Estimating Worksheet for Pipes or Cleanouts* (ESD Form WS3-1).

### 4.5 SSO Volume Estimating Worksheet for Pipes or Cleanouts

The *SSO Volume Estimating Worksheet for Pipes or Cleanouts* (ESD Form WS3-1) allows the ESD personnel to estimate the overflow volume using the number of residential connections upstream of the overflow or the ponding calculation if the pipe is not overflowing upon arrival.

### 4.6 SSO Volume Estimating by Other Methods

While the methods provided in Sections 4.3 to 4.5 are to be the primary methods for estimation, there are occasions where other methods may be employed due to: insufficient field data to use standard methods, those standard methods produce results which are not reasonable or consistent with field observations, the nature of the overflow may be non-standard, or a more accurate estimation method may be available. These alternate estimation sources and methods may be used by ESD engineering staff and include: Manning or other hydraulic flow equations, actual run times of a pump station and calculated pumping capacity, data collected by SCADA or other remote collection devices, and long term flow monitor network data. Rationale for using non-standard estimation methods shall be based on the professional engineer's judgment and shall be sufficiently reviewed and documented.

## Section 5 – Mitigation

Once the first Line Maintenance personnel arrives on-site and determines that there is an SSO, the process begins to identify and eliminate the root cause of the SSO. The Line Maintenance division of the ESD can employ the use of hand and/or power rod turning machines, jet-washer trucks, and combination jet-washer/ vacuum trucks to eliminate blockages in the sanitary sewer.

If there is a pipe break, the Construction division of the ESD maintains a supply of pipe of varying sizes and materials, as well as manhole bases, risers, covers, and frames. Portable bypass pumps are available to bypass sanitary sewer flow from an upstream manhole to a downstream manhole when a blockage cannot be immediately eliminated or a pipe repaired. If practical, the SSO will be contained with sand bags and/or a berm with the aid of the Construction division.

Utilizing the tools available to them, the personnel of the ESD will make every effort to stop the SSO as expeditiously as possible. In circumstances where, in their judgment, the safety of ESD personnel currently assigned to the SSO is threatened or a higher priority incident arises, as determined by an ESD supervisor, ESD personnel may suspend mitigation efforts until conditions allow a return to work. In the event an active SSO is left unattended, the site shall be secured by barricades or other means and a warning sign shall be placed at the site.

After the SSO has stopped and the cause remedied, clean-up of the impacted area begins. Hand tools including shovels, rakes, and brooms are carried on the Line Maintenance trucks and are used to collect any solids that remain for proper disposal. Combination trucks are utilized to vacuum up any liquids and/or solids that might remain following an event. Lime is also carried on the Line Maintenance trucks and applied to the area surrounding the SSO for disinfection. Follow-up visits to the impacted area may be required to return the location to pre-event conditions.

If staff observe or it is reported that a SSO that reaches the Water of the State may have resulted in a fish kill, in addition to notifying ADEM for the SSO, ESD will notify ADEM's Birmingham Field Office as well as the Alabama Department of Conservation and Natural Resources (DCNR). DCNR will investigate the cause of the fish kill and provide responsible cleanup.

In the event that ESD identifies an overflow or discharge that that reaches the Waters of the State but was not caused by ESD's sanitary sewer system, ESD shall immediately notify ADEM's Birmingham Field Office as well as the DCNR if there appears to be any adverse impacts on the fish and wildlife in the vicinity or downstream of the event.

## Section 6 – Safety

ESD personnel are made aware of the potential hazards of contact with untreated wastewater and other, associated safety hazards in responding to a SSO. Among the equipment issued to the personnel are safety glasses, reflective vests, rubber gloves and boots, and rain suits. Hepatitis inoculations are also offered to the ESD personnel that may come in contact with untreated wastewater.

Supervisors should use sound judgment in deciding when responding to an SSO places ESD personnel in unreasonable danger or harm. For example, there may be times where a SSO is surrounded by swift flowing or deep water and the personnel are advised not to enter due to the risk of being swept away or drowning. Supervisors should document the unsafe conditions and report to their Manager if working conditions prevent the ESD from responding and remain on-site until further instructions are received.

## Section 7 – QA/QC

### 7.1 Line Maintenance

The ESD has developed Check Lists (Appendix E) to be utilized by the ESD personnel involved in the SSO reporting process to ensure accuracy of the data. When corrections are made to the data by ESD personnel, the original data is struck through and the corrected data is noted, dated, and initialed on the reporting forms by the person making the revisions. An explanation for any data corrections and/or changes should be noted on the corrected form and/or an attachment if needed

Following the submission of the *Wastewater Discharge Reporting Form* (ESD Form RF1-1), the Dispatcher will use the *Service Request Check List* to verify that the form and Service Request are correct and complete. Any corrections are dated and initialed by the Dispatcher

The Public Works Supervisor or Sewer Video Operations Supervisor then completes their respective *SSO Check List for Line Maintenance* after receiving the *Wastewater Discharge Reporting Form* (ESD Form RF1-1) and SSO pictures from the Line Maintenance personnel. The Supervisors date and initial any corrections made on ESD Form RF1-1 and/or the SSO Volume Estimating Worksheet. The Public Works Supervisor or Sewer Video Operations Supervisor forwards ESD Form RF1-1, the SSO pictures, his completed check list and the *Service Request Check List* to the Principal Engineering Inspector.

The Sewer Construction/ Maintenance Supervisor or Principal Engineering Inspector will review the previously completed check lists to see if corrections are needed prior to completing his respective *5 Day Check List for Line Maintenance* and submitting the *5 Day Follow-up Report* (ESD Form RF3-1). The Sewer Construction/Maintenance Supervisor/Principal Engineering Inspector dates and initials any remarks or corrections. If significant corrections and/or changes are required, the Line Maintenance crew supervisor responsible for completing the *Wastewater Discharge Reporting Form* will be contacted to review the form with the Sewer Construction/Maintenance Supervisor or Principal Engineering Inspector. At the end of the month, for each SSO, the Sewer Construction/Maintenance Supervisor or Principal Engineering Inspector packages copies of the Service Requests, check lists, and completed forms and forwards to the Chief Civil Engineer.

### 7.2 Engineering

The package of SSOs for the previous month is sent to the Chief Civil Engineer prior to submission to the USEPA the following month. The SSO package is first reviewed by a Senior Civil Engineer who completes the *SSO Check List for Administration* for each SSO, notes any corrections and signs and dates the check list. After the review by a Senior Civil Engineer, the Chief Civil Engineer reviews the *SSO Check List for Administration* and enters the SSO data in the Access database for that specific month. Once all data has been entered, the SSO data is printed from the Access database and compared to the SSO package and the *SSO Check List for Administration* for each SSO by an additional Senior Civil Engineer who notes any omissions and/or corrections prior to

preparation and submission to the USEPA. The two Senior Civil Engineers, and/or Chief Civil Engineer initial, date, and sign for any remarks or corrections made on the *SSO Check List for Administration or 5 Day Follow-up Report*. The GIS Specialist receives the final Access database and imports the information into SIMS to represent the data geographically and ensure that the SSO corresponds with the reported location and provides corrections to the Chief Civil Engineer, as appropriate. Following the completion of the review process, the Sewer Construction/Maintenance Supervisor or Principal Engineering Inspector are provided the corrections/changes for their copy of the SSO reporting forms.

### 7.3 Records

All original and corrected forms related to an individual SSO are kept together in a file by month and year at the Shades Valley Administration Building for historical and reporting purposes. Copies can be requested by contacting the Sewer Construction/Maintenance Supervisor.

# Appendix A

Jefferson County, AL
Environmental Services Department
Suite A-300
716 Richard Arrington Jr. Boulevard, N
Birmingham, AL 35203

# WASTEWATER DISCHARGE REPORTING FORM

Reported Information — Service Request Number:

Photos Taken: ☐ Yes ☐ No Number of Photos Taken: _____

Date Reported: _____ Time SSO Began _____ Time SSO Stopped _____

Caller Name: _____ Caller Phone No.: _____

Location from Caller Street Address: _____

Overflow Location Street Address: _____

**Collection System Permit #** _____ Overflowing Manhole Number: _____

*Enter Mini-system number if overflow is from a cleanout*

| Municipality | ☐ County Maintained | ☐ Privately Maintained |
|---|---|---|
| ☐ Adamsville ☐ Bessemer ☐ Birmingham ☐ Brighton ☐ Center Point ☐ Fairfield ☐ Fultondale ☐ Gardendale ☐ Graysville ☐ Homewood ☐ Hoover ☐ Hueytown ☐ Irondale ☐ Leeds ☐ Lipscomb ☐ Mountain Brook ☐ Midfield ☐ Pleasant Grove ☐ Tarrant ☐ Trussville ☐ Vestavia ☐ Warrior | ☐ Cahaba ☐ Five Mile ☐ Leeds ☐ Prudes ☐ Trussville ☐ Turkey Creek ☐ Valley ☐ Village ☐ Warrior | ☐ Referred caller to municipality ☐ County Investigated ☐ Other<br>☐ Notification of Public<br>☐ Press Release ☐ Placement of Signs |

**Field Observation (If County Investigated)**

**Destination of Discharge:** ☐ Ground absorbed ☐ Drainage Ditch ☐ Storm Drain ☐ Creek or River _____ ☐ Other _____ ☐ Backup in Structure Exit? ☐ Yes ☐ No

**Estimated Discharge Volume:** ☐ Volume not determinable ☐ Estimated Volume (Gallons) _____

**Discharge Source:** ☐ Cleanout ☐ Pipe ☐ Treatment Plant ☐ Other _____ ☐ Manhole ☐ Pump Station ☐ Private Lateral/ Line

**Known or Suspected Discharge Cause: (Check all that apply)**
☐ Construction Damage ☐ Debris ☐ Infiltration/Inflow ☐ Force Main Break ☐ Gravity Main Break ☐ Grease ☐ Power outage ☐ P.S. Equipment Failure ☐ Rags ☐ Rocks ☐ Roots ☐ Surcharge from rain ☐ Vandalism ☐ Other _____

**Comments** _____

**Recent Weather** ☐ None **Rain:** ☐ Light ☐ Mod. ☐ Heavy **Estimated Duration:** _____

**Conditions Contributing to the Discharge:** **Flooding from rain in overflow area:** ☐ Yes ☐ No

**Action Taken (If County Investigated)**

☐ Blockage Removed ☐ Line Repaired ☐ Manhole Repaired ☐ Power Restored ☐ Additional Rehab Considered ☐ Project Planned to Replace/Repair Line ☐ Pump Station Repaired ☐ Other _____

SSO 24-Hour Notice FAXED? ☐ Yes ☐ No Date: _____

Remarks: _____

Maintenance Supervisor's Signature: _____ Date _____

I certify that I have personally examined and am familiar with the information submitted herein; and based on my inquiry of those individuals immediately responsible for obtaining the information. I believe the submitted information is true, accurate, and complete. I am aware that there are significant penalties for knowingly submitting false information.

JEFFERSON COUNTY, AL
ENVIRONMENTAL SERVICES DEPARTMENT
SUITE A - 300
716 RICHARD ARRINGTON JR. BOULEVARD, N
BIRMINGHAM, AL 35203

TO: Alabama Department of Environmental Management - Montgomery Office
Fax Number: (334) 279 - 3051
Attention: Kimberly Minton

## SANITARY SEWER OVERFLOW (SSO)
## 24 - HOUR REPORT

The Jefferson County Environmental Services Department verified the occurrence of a sanitary sewer overflow (SSO).

I am _____at 205-942-0681. The SSO started on _____ at _____ at the following
*(date)* *(time)*

location: _____
*(Street Address)* *(City, Zip)*

The *estimated* volume of the SSO was: _____ Destination of Flow: _____
*(Gallons)* *(Basin)* *(Permit Number)*

Length of Occurrence: _____ Cause of the SSO due to: _____
*(Minutes)* *(Blockage Type)*

Corrective action taken: _____

The receiving water if any was: _____

Additional information will be provided in a Follow-up Report within five (5) days.

**********

**FOR JEFFERSON COUNTY ESD PERSONNEL ONLY**

Service Request Number: _____

Date Called: _____ Date Faxed: _____

Time Called: _____ Time Faxed: _____

By: _____ _____
**Name** **Title**

*Jefferson County Environmental Services*
*Sewer Line Maintenance*
*1295 Oak Grove Road, Homewood, AL 35209*
*205 - 942 - 0681*

***If this page does not transmit clearly, please contact Sewer Line Maintenance @ 205-942-0681***

Jefferson County, AL
Environmental Services Department
Suite A-300
716 Richard Arrington Jr. Boulevard, N
Birmingham, AL 35203

# WASTEWATER DISCHARGE REPORTING FORM
## SSO - 5 - DAY FOLLOW - UP REPORT

Reported Information _____ Service Request Number: _____

Photos Taken: ☐ Yes ☐ No Number of Photos Taken: _____

Date Reported: _____ Time SSO Began _____ Time SSO Stopped _____

Caller Name: _____ Caller Phone No.: _____

Location from Caller Street Address: _____

Overflow Location Street Address: _____

**Collection System Permit #** _____ Overflowing Manhole Number: _____

*Enter Mini-system number if overflow is from a cleanout*

| Municipality | | | ☐ County Maintained | | ☐ Notification of Public |
|---|---|---|---|---|---|
| ☐ Adamsville | ☐ Graysville | ☐ Mountain Brook | ☐ Cahaba | ☐ Turkey Creek | ☐ Press Release |
| ☐ Bessemer | ☐ Homewood | ☐ Midfield | ☐ Five Mile | ☐ Valley | ☐ Placement of Signs |
| ☐ Birmingham | ☐ Hoover | ☐ Pleasant Grove | ☐ Leeds | ☐ Village | ☐ Other (Describe) |
| ☐ Brighton | ☐ Hueytown | ☐ Tarrant | ☐ Prudes | ☐ Warrior | |
| ☐ Center Point | ☐ Irondale | ☐ Trussville | ☐ Trussville | | |
| ☐ Fairfield | ☐ Leeds | ☐ Vestavia | | | |
| ☐ Fultondale | ☐ Lipscomb | ☐ Warrior | | | |
| ☐ Gardendale | | | | | |

**Field Observation (If County Investigated)**

**Destination of Discharge:** ☐ Ground absorbed ☐ Drainage Ditch ☐ Storm Drain ☐ Creek or River _____

**Monitoring of the receiving water is:** ☐ Complete ☐ Ongoing

**Estimated Discharge Volume:** ☐ Volume not determinable ☐ Estimated Volume (Gallons) _____

**Discharge Source:** ☐ Cleanout ☐ Manhole ☐ Pipe ☐ Pump Station ☐ Treatment Plant ☐ Other _____

**Known or Suspected Discharge Cause: (Check all that apply)**

☐ Construction Damage ☐ Debris ☐ Infiltration/Inflow ☐ Force Main Break ☐ Gravity Main Break
☐ Grease ☐ Power outage ☐ P.S. Equipment Failure ☐ Rags ☐ Rocks
☐ Roots ☐ Surcharge from rain ☐ Vandalism ☐ Other _____

**Recent Weather** ☐ None **Rain:** ☐ Light ☐ Mod. ☐ Heavy **Estimated Duration:** _____

**Conditions Contributing to the Discharge:** **Flooding from rain in overflow area** ☐ Yes ☐ No

**Action Taken (If County Investigated)**

☐ Blockage Removed ☐ Line Repaired ☐ Manhole Repaired ☐ Power Restored ☐ Additional Rehab Considered ☐ Project Planned to Replace/Repair Line ☐ Pump Station Repaired ☐ Other _____

SSO 24-Hour Notice FAXED? ☐ Yes Date & Time: _____

☐ Health Department ☐ Other (describe) _____

Remarks: _____

Principal Eng. Insp's Signature: _____ Date _____

I certify that I have personally examined and am familiar with the information submitted herein; and based on my inquiry of those individuals immediately responsible for obtaining the information. I believe the submitted information is true, accurate, and complete. I am aware that there are significant penalties for knowingly submitting false information.

# Sewer Overflow Advisory

**Issued By**

Jefferson County Commission
Environmental Services Department
A-300
716 Richard Arrington, Jr. Blvd. North
Birmingham, AL 35203

Sewer Line Maintenance
24 hour Dispatch Center
(205)942-0681

Date Issued _____ Time _____

Overflow Location _____

Waterway(s) Affected _____

Downstream Of _____

**Advisory**

A Jefferson County sanitary sewer line at the location listed above has experienced an overflow. Overflow was due to

Additional advisories will be issued as information becomes available.

# Appendix B

**JEFFERSON COUNTY, AL**

**ENVIRONMENTAL SERVICES DEPARTMENT**

Suite A-300
716 Richard Arrington Jr. Boulevard, N
Birmingham, AL 35203

# SSO VOLUME ESTIMATING WORKSHEET FOR MANHOLES

Date: _____ Sewer Service Request Number: _____

If MANHOLE is overflowing or not overflowing at the time the crew arrives at the reported location, pictures will be taken in accordance with the SSO Picture Procedure. The Jefferson County SSO Volume Estimating Procedure will be used to determine the estimated flow rate.

## Determine Duration

Time SSO Reported: _____ Time SSO Stopped: _____
(Dispatcher)

Time of Arrival: _____ * Duration of SSO: _____ Minutes

* DURATION OF SSO: If the MH is overflowing when crews arrive, then the SSO Start Time will be the Time SSO Reported (dispatcher) shown above. The duration of the SSO will be the difference between Time SSO Reported and Time SSO Stopped (minutes).

## Determine Volume

○ *SSO Digital Photo Measurement - to be used when MH is overflowing upon crew arrival.*

_____ Average measured height from measuring stick.

_____ Cover On or Off _____ Table Used _____ GPM

Volume from Table - _____

Duration of SSO - _____ Minutes

Estimated Volume = _____ Gallons (est. rate in GPM X est. duration in minutes)

---

○ *Ponding Calculation - to be used when SSO originated from MH, is not overflowing upon crew arrival, but is contained in an area*

Volume of Sewage = length (ft) X width (ft) X depth (ft) X 7.48* _____ length (ft)

_____ width (ft)

* 7.48 gallons = 1 $ft^3$ _____ depth (ft)

Volume = _____ $ft^3$ **X** 7.48 = _____ Gallons

---

○ *Not Determinable - when an SSO from a MH is not overflowing upon crew arrival and rate can not be determined.*

Explain: _____

_____

_____

_____

_____

Crew # : _____ Signed: _____

I certify that I have personally examined and am familiar with the information submitted herein; and based on my inquiry of those individuals immediately responsible for obtaining the information. I believe the submitted information is true, accurate, and complete. I am aware that there are significant penalties for knowingly submitting false information.

**JEFFERSON COUNTY, AL**
**ENVIRONMENTAL SERVICES DEPARTMENT**

Suite A-300
716 Richard Arrington Jr. Boulevard, N
Birmingham, AL 35203

Date: Sewer Service Request Number:

## SSO VOLUME ESTIMATING WORKSHEET FOR SERVICE CLEANOUTS

1 Determine diameter (d) of service cleanout. = _____ inches
2 Estimate height (h) of flow from service cleanout. = _____ inches
3 Determine estimated flow rate (Q) from charts below. = _____ gpm
4 Estimate time (t) of discharge. = _____ minutes
5 Multiply step 3 & 4 to obtain estimated volume. = _____ Gallons

| 4" Diameter Cleanout | |
|---|---|
| h (in) | Q (gpm) |
| 0.25 | 6 |
| 0.5 | 14 |
| 0.75 | 24 |
| 1 | 35 |
| 1.5 | 60 |
| 2 | 86 |
| 2.5 | 108 |
| 3 | 128 |
| 3.5 | 145 |
| 4 | 160 |
| 4.5 | 173 |
| 5 | 184 |
| 6 | 205 |
| 7 | 223 |
| 8 | 239 |
| 9 | 254 |
| 10 | 268 |
| 11 | 282 |
| 12 | 295 |
| 14 | 320 |
| 16 | 345 |
| 18 | 367 |
| 20 | 388 |

| 6" Diameter Cleanout | |
|---|---|
| h (in) | Q (gpm) |
| 0.25 | 9 |
| 0.5 | 23 |
| 0.75 | 40 |
| 1 | 58 |
| 1.5 | 100 |
| 2 | 150 |
| 2.5 | 205 |
| 3 | 250 |
| 3.5 | 293 |
| 4 | 330 |
| 4.5 | 365 |
| 5 | 395 |
| 6 | 445 |
| 7 | 485 |
| 8 | 520 |
| 9 | 550 |
| 10 | 585 |
| 11 | 631 |
| 12 | 650 |
| 14 | 705 |
| 16 | 755 |
| 18 | 800 |
| 20 | 850 |

Time SSO Reported:
(Dispatcher)
_____

Time of Arrival:
_____

Time SSO Stopped
_____

* Duration of SSO
_____
Minutes

*Duration of SSO: If the cleanout is overflowing when crews arrive, then the SSO start time will be the time SSO reported (dispatcher) shown above. The duration of SSO will be the difference between time SSO reported and time SSO stopped (minutes).

Crew #: _____ Signed: _____

I certify that I have personally examined and am familiar with the information submitted herein; and based on my inquiry of those individuals immediately responsible for obtaining the information. I believe the submitted information is true, accurate, and complete. I am aware that there are significant penalties for knowingly submitting false information.

Disclaimer:

This table was developed by the Jefferson County ESD utilizing *Chapter 14-Measurements in Pressure Conduits, Section 13-Trajectory Methods* of the *U.S. Department of the Interior Bureau of Reclamation Water Measurement Manual.* This table is provided as an example. Other Agencies may want to develop their own estimating tables.

# JEFFERSON COUNTY, AL

## ENVIRONMENTAL SERVICES DEPARTMENT

Suite A-300
716 Richard Arrington Jr. Boulevard, N
Birmingham, AL 35203

## SSO VOLUME ESTIMATING WORKSHEET FOR PIPES OR CLEANOUTS

Date: _____ Sewer Service Request Number: _____

If CLEANOUT is overflowing or not overflowing at the time the crew arrives at the reported location, pictures will be taken in accordance with the SSO Picture Procedure. The Jefferson County SSO Volume Estimating Procedure will be used to determine the estimated flow rate.

### Determine Duration

Time SSO Reported: _____ Time SSO Stopped: _____
(Dispatcher)

Time of Arrival: _____ * Duration of SSO: _____ Minutes

* DURATION OF SSO: If the PIPE is overflowing when crews arrive, then the SSO Start Time will be the Time SSO Reported (dispatcher) shown above. The duration of the SSO will be the difference between Time SSO Reported and Time SSO Stopped (minutes).

### Determine Volume

○ *Determine number of residential connections upstream of overflow. Each residence contributes approximately 250 gal/day-res (100 gal/day-cap X 2.5 cap/res), or 10.5 gal/hr-res (0.175 gal/min-res).*

Res. Connections - _____ X 0.175 = _____ GPM
Duration of SSO - _____ Minutes
Estimated Volume = _____ Gallons (est. rate in GPM X est. duration in minutes)

○ *Ponding Calculation - to be used when SSO is not overflowing upon crew arrival, but is contained in an area.*

Volume of Sewage = length (ft) X width (ft) X depth (ft) X 7.48*

_____ length (ft)
_____ width (ft)
_____ depth (ft)

* 7.48 gallons = 1 $ft^3$

Volume = _____ $ft^3$ **X** 7.48 = _____ Gallons

○ *Volume computed by Engineering Staff of ESD -*
*Attach copy of supporting documentation and Engineer's name.*

Comments: _____

Crew # : _____ Signed: _____

I certify that I have personally examined and am familiar with the information submitted herein; and based on my inquiry of those individuals immediately responsible for obtaining the information. I believe the submitted information is true, accurate, and complete. I am aware that there are significant penalties for knowingly submitting false information.

# Appendix C

# SSO PICTURE PROCEDURE

Please follow all steps to ensure that SSO pictures comply with requirements.

1) Verify that camera time and date are correct prior to taking pictures.

2) Verify that the time and date stamp is set to be active within the camera.

3) First picture should be taken from the side of the manhole or cleanout to show the height of the discharge on the measuring stick.

4) Second picture should be taken from a distance and angle so that a landmark (i.e.,house, street sign, mailbox) is visible in the picture.

5) If the SSO has ceased upon arrival, pictures are to be taken of the area surrounding the overflow.

6) The minimum number of pictures taken should be two. Additional pictures should be taken if necessary.

7) Please note the address of the closest structure or building to the manhole or cleanout. ***(Reported Location)***

8) The pictures should be submitted to the Public Works Supervisor or Sewer Video Operations Supervisor along with the ***Reported Location*** the same day.

9) The Public Works Supervisor or Sewer Video Operations Supervisor will then forward the pictures along with the signed ***SSO Check List for Line Maintenance*** to the Principle Engineering Inspector.

10) The Principal Engineering Inspector should insert the pictures on the **SSO Picture Form** and insert the required information. ***(Service Request Number, Address of Reported Location, Manhole number for overflowing manhole, Mini-system number for overflowing cleanout)***

11) The Principal Engineering Inspector will save an electronic copy of the SSO Picture Form with a file name of the Service Request Number.

# SSO PICTURE FORM

| SERVICE REQUEST NUMBER | MANHOLE OR MINI SYSTEM NUMBER | ADDRESS |
|---|---|---|
| | | |



PEI's Intials _____

Version 1

# Appendix D

# TABLES FOR ESTIMATED SSO FLOW OUT OF MANHOLES

## TABLE 'A'

### ESTIMATED SSO FLOW OUT OF M/H WITH COVER IN PLACE

#### 24" COVER

| Height of spout above M/H rim **H** in inches | S S O FLOW **Q** in gpm | in MGD | Min. Sewer size in which these flows are possible |
|---|---|---|---|
| 1/4 | 1 | 0.001 | |
| 1/2 | 3 | 0.004 | |
| 3/4 | 6 | 0.008 | |
| 1 | 9 | 0.013 | |
| 1 1/4 | 12 | 0.018 | |
| 1 1/2 | 16 | 0.024 | |
| 1 3/4 | 21 | 0.030 | |
| 2 | 25 | 0.037 | |
| 2 1/4 | 31 | 0.045 | |
| 2 1/2 | 38 | 0.054 | |
| 2 3/4 | 45 | 0.065 | |
| 3 | 54 | 0.077 | |
| 3 1/4 | 64 | 0.092 | |
| 3 1/2 | 75 | 0.107 | |
| 3 3/4 | 87 | 0.125 | |
| 4 | 100 | 0.145 | |
| 4 1/4 | 115 | 0.166 | |
| 4 1/2 | 131 | 0.189 | |
| 4 3/4 | 148 | 0.214 | |
| 5 | 166 | 0.240 | |
| 5 1/4 | 185 | 0.266 | |
| 5 1/2 | 204 | 0.294 | |
| 5 3/4 | 224 | 0.322 | 6" |
| 6 | 244 | 0.352 | |
| 6 1/4 | 265 | 0.382 | |
| 6 1/2 | 286 | 0.412 | |
| 6 3/4 | 308 | 0.444 | |
| 7 | 331 | 0.476 | |
| 7 1/4 | 354 | 0.509 | |
| 7 1/2 | 377 | 0.543 | |
| 7 3/4 | 401 | 0.578 | 8" |
| 8 | 426 | 0.613 | |
| 8 1/4 | 451 | 0.649 | |
| 8 1/2 | 476 | 0.686 | |
| 8 3/4 | 502 | 0.723 | |
| 9 | 529 | 0.761 | |

#### 36" COVER

| Height of spout above M/H rim **H** in inches | S S O FLOW **Q** in gpm | in MGD | Min. Sewer size in which these flows are possible |
|---|---|---|---|
| 1/4 | 1 | 0.002 | |
| 1/2 | 4 | 0.006 | |
| 3/4 | 8 | 0.012 | |
| 1 | 13 | 0.019 | |
| 1 1/4 | 18 | 0.026 | |
| 1 1/2 | 24 | 0.035 | |
| 1 3/4 | 31 | 0.044 | |
| 2 | 37 | 0.054 | |
| 2 1/4 | 45 | 0.065 | |
| 2 1/2 | 55 | 0.079 | |
| 2 3/4 | 66 | 0.095 | |
| 3 | 78 | 0.113 | |
| 3 1/4 | 93 | 0.134 | |
| 3 1/2 | 109 | 0.157 | |
| 3 3/4 | 127 | 0.183 | |
| 4 | 147 | 0.211 | |
| 4 1/4 | 169 | 0.243 | |
| 4 1/2 | 192 | 0.276 | |
| 4 3/4 | 217 | 0.312 | 6" |
| 5 | 243 | 0.350 | |
| 5 1/4 | 270 | 0.389 | |
| 5 1/2 | 299 | 0.430 | |
| 5 3/4 | 327 | 0.471 | |
| 6 | 357 | 0.514 | |
| 6 1/4 | 387 | 0.558 | 8" |
| 6 1/2 | 419 | 0.603 | |
| 6 3/4 | 451 | 0.649 | |
| 7 | 483 | 0.696 | |
| 7 1/4 | 517 | 0.744 | |
| 7 1/2 | 551 | 0.794 | |
| 7 3/4 | 587 | 0.845 | 10" |
| 8 | 622 | 0.896 | |
| 8 1/4 | 659 | 0.949 | |
| 8 1/2 | 697 | 1.003 | |
| 8 3/4 | 734 | 1.057 | |
| 9 | 773 | 1.113 | |

Disclaimer:

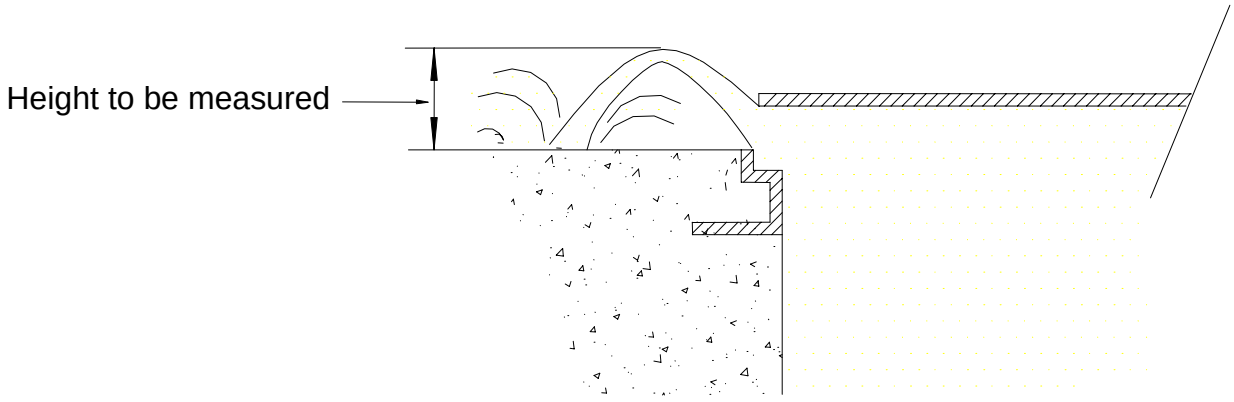
This sanitary sewer overflow table was developed by Ed Euyen, Civil Engineer, P.E. No. 33955, California, for County Sanitation District 1. This table is provided as an example. Other Agencies may want to develop their own estimating tables.

The formula used to develop Table A measures the maximum height of the water coming out of the maintenance hole above the rim. The formula was taken from hydraulics and its application by A.H. Gibson (Constable & Co. Limited).

Example Overflow Estimation:

The maintenance hole cover is unseated and slightly elevated on a 24” casting. The maximum height of the discharge above the rim is 5 ¼ inches. According to Table A, these conditions would yield an SSO of 185 gallons per minute.

**FLOW OUT OF M/H WITH COVER IN PLACE**




This sanitary sewer overflow drawing was developed by Debbie Myers, Principal Engineering Technician, for Ed Euyen, Civil Engineer, P.E. No. 33955, California, of County Sanitation District 1.

# TABLE 'B'

## ESTIMATED SSO FLOW OUT OF M/H WITH COVER REMOVED

### 24" FRAME

| Water Height above M/H frame **H** in inches | S S O FLOW **Q** in gpm | in MGD | Min. Sewer size in which these flows are possible |
|---|---|---|---|
| 1/8 | 28 | 0.04 | |
| 1/4 | 62 | 0.09 | |
| 3/8 | 111 | 0.16 | |
| 1/2 | 160 | 0.23 | |
| 5/8 | 215 | 0.31 | 6" |
| 3/4 | 354 | 0.51 | 8" |
| 7/8 | 569 | 0.82 | 10" |
| 1 | 799 | 1.15 | 12" |
| 1 1/8 | 1,035 | 1.49 | |
| 1 1/4 | 1,340 | 1.93 | 15" |
| 1 3/8 | 1,660 | 2.39 | |
| 1 1/2 | 1,986 | 2.86 | |
| 1 5/8 | 2,396 | 3.45 | 18" |
| 1 3/4 | 2,799 | 4.03 | |
| 1 7/8 | 3,132 | 4.51 | |
| 2 | 3,444 | 4.96 | 21" |
| 2 1/8 | 3,750 | 5.4 | |
| 2 1/4 | 3,986 | 5.74 | |
| 2 3/8 | 4,215 | 6.07 | |
| 2 1/2 | 4,437 | 6.39 | |
| 2 5/8 | 4,569 | 6.58 | 24" |
| 2 3/4 | 4,687 | 6.75 | |
| 2 7/8 | 4,799 | 6.91 | |
| 3 | 4,910 | 7.07 | |

### 36" FRAME

| Water Height above M/H frame **H** in inches | S S O FLOW **Q** in gpm | in MGD | Min. Sewer size in which these flows are possible |
|---|---|---|---|
| 1/8 | 49 | 0.07 | |
| 1/4 | 111 | 0.16 | |
| 3/8 | 187 | 0.27 | 6" |
| 1/2 | 271 | 0.39 | |
| 5/8 | 361 | 0.52 | 8" |
| 3/4 | 458 | 0.66 | |
| 7/8 | 556 | 0.8 | 10" |
| 1 | 660 | 0.95 | 12" |
| 1 1/8 | 1,035 | 1.49 | |
| 1 1/4 | 1,486 | 2.14 | 15" |
| 1 3/8 | 1,951 | 2.81 | |
| 1 1/2 | 2,424 | 3.49 | 18" |
| 1 5/8 | 2,903 | 4.18 | |
| 1 3/4 | 3,382 | 4.87 | |
| 1 7/8 | 3,917 | 5.64 | 21" |
| 2 | 4,458 | 6.42 | |
| 2 1/8 | 5,000 | 7.2 | 24" |
| 2 1/4 | 5,556 | 8 | |
| 2 3/8 | 6,118 | 8.81 | |
| 2 1/2 | 6,764 | 9.74 | |
| 2 5/8 | 7,403 | 10.66 | |
| 2 3/4 | 7,972 | 11.48 | 30" |
| 2 7/8 | 8,521 | 12.27 | |
| 3 | 9,062 | 13.05 | |
| 3 1/8 | 9,604 | 13.83 | |
| 3 1/4 | 10,139 | 14.6 | |
| 3 3/8 | 10,625 | 15.3 | 36" |
| 3 1/2 | 11,097 | 15.98 | |
| 3 5/8 | 11,569 | 16.66 | |
| 3 3/4 | 12,035 | 17.33 | |
| 3 7/8 | 12,486 | 17.98 | |
| 4 | 12,861 | 18.52 | |
| 4 1/8 | 13,076 | 18.83 | |
| 4 1/4 | 13,285 | 19.13 | |
| 4 3/8 | 13,486 | 19.42 | |

Disclaimer:

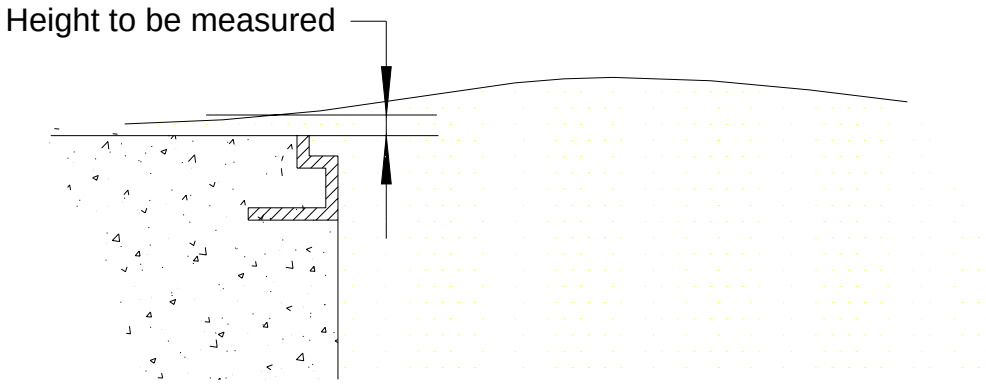
This sanitary sewer overflow table was developed by Ed Euyen, Civil Engineer, P.E. No. 33955, California, for County Sanitation District 1. This table is provided as an example. Other Agencies may want to develop their own estimating tables.

The formula used to develop Table B for estimating SSO's out of maintenance holes without covers is based on discharge over curved weir -- bell mouth spillways for 2" to 12" diameter pipes. The formula was taken from hydraulics and its application by A.H. Gibson (Constable & Co. Limited).

Example Overflow Estimation:

The maintenance hole cover is off and the flow coming out of a 36" frame maintenance hole at one inch (1") height will be approximately 660 gallons per minute.

## FLOW OUT OF M/H WITH COVER REMOVED (TABLE "B")




This sanitary sewer overflow drawing was developed by Debbie Myers, Principal Engineering Technician, for Ed Euyen, Civil Engineer, P.E. No. 33955, California, of County Sanitation District 1.

## TABLE 'C'

### ESTIMATED SSO FLOW OUT OF M/H PICK HOLE

| Height of spout above M/H cover **H** in inches | SSO FLOW **Q** in gpm |
|---|---|
| 1/8 | 1.0 |
| 1/4 | 1.4 |
| 3/8 | 1.7 |
| 1/2 | 1.9 |
| 5/8 | 2.2 |
| 3/4 | 2.4 |
| 7/8 | 2.6 |
| 1 | 2.7 |
| 1 1/8 | 2.9 |
| 1 1/4 | 3.1 |
| 1 3/8 | 3.2 |
| 1 1/2 | 3.4 |
| 1 5/8 | 3.5 |
| 1 3/4 | 3.6 |
| 1 7/8 | 3.7 |
| 2 | 3.9 |
| 2 1/8 | 4.0 |
| 2 1/4 | 4.1 |
| 2 3/8 | 4.2 |
| 2 1/2 | 4.3 |
| 2 5/8 | 4.4 |
| 2 3/4 | 4.5 |
| 2 7/8 | 4.6 |
| 3 | 4.7 |
| 3 1/8 | 4.8 |
| 3 1/4 | 4.9 |
| 3 3/8 | 5.0 |
| 3 1/2 | 5.1 |
| 3 5/8 | 5.2 |
| 3 3/4 | 5.3 |
| 3 7/8 | 5.4 |
| 4 | 5.5 |
| 4 1/8 | 5.6 |
| 4 1/4 | 5.6 |
| 4 3/8 | 5.7 |
| 4 1/2 | 5.8 |
| 4 5/8 | 5.9 |
| 4 3/4 | 6.0 |
| 4 7/8 | 6.0 |
| 5 | 6.1 |

| Height of spout above M/H cover **H** in inches | SSO FLOW **Q** in gpm | |
|---|---|---|
| 5 1/8 | 6.2 | |
| 5 1/4 | 6.3 | |
| 5 3/8 | 6.3 | |
| 5 1/2 | 6.4 | |
| 5 5/8 | 6.5 | |
| 5 3/4 | 6.6 | |
| 5 7/8 | 6.6 | |
| 6 | 6.7 | |
| 6 1/8 | 6.8 | |
| 6 1/4 | 6.8 | |
| 6 3/8 | 6.9 | |
| 6 1/2 | 7.0 | ← Unrestrained M/H cover will start to lift |
| 6 5/8 | 7.0 | |
| 6 3/4 | 7.1 | |
| 6 7/8 | 7.2 | |
| 7 | 7.2 | |
| 7 1/8 | 7.3 | |
| 7 1/4 | 7.4 | |
| 7 3/8 | 7.4 | |
| 7 1/2 | 7.5 | |
| 7 5/8 | 7.6 | |
| 7 3/4 | 7.6 | |
| 7 7/8 | 7.7 | |
| 8 | 7.7 | |
| 8 1/8 | 7.8 | |
| 8 1/4 | 7.9 | |
| 8 3/8 | 7.9 | |
| 8 1/2 | 8.0 | |
| 8 5/8 | 8.0 | |
| 8 3/4 | 8.1 | |
| 8 7/8 | 8.1 | |
| 9 | 8.2 | |
| 9 1/8 | 8.3 | |
| 9 1/4 | 8.3 | |
| 9 3/8 | 8.4 | |
| 9 1/2 | 8.4 | |
| 9 5/8 | 8.5 | |
| 9 3/4 | 8.5 | |
| 9 7/8 | 8.6 | |
| 10 | 8.7 | |

Note: This chart is based on a 7/8 inch diameter pick hole

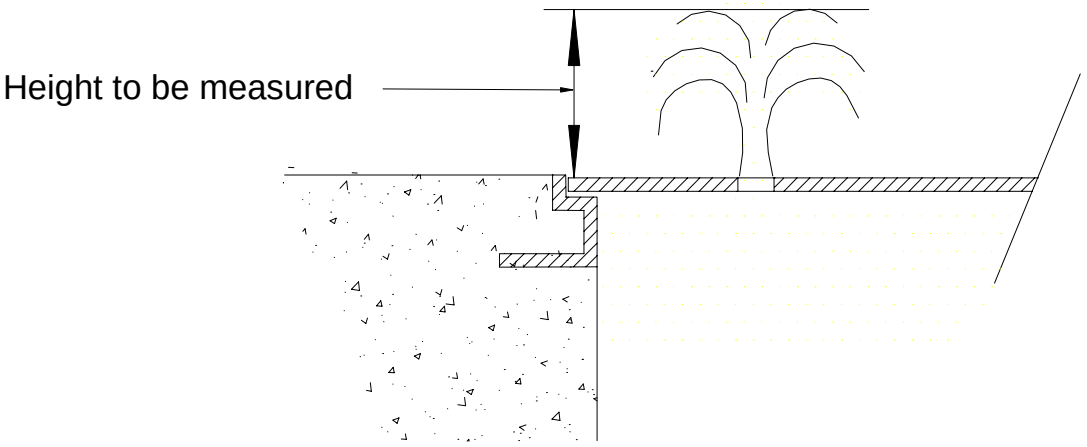
Disclaimer: This sanitary sewer overflow table was developed by Ed Euyen, Civil Engineer, P.E. No. 33955, California, for County Sanitation District 1. This table is provided as an example. Other Agencies may want to develop their own estimating tables.

The formula used to develop Table C is Q=CcVA, where Q is equal to the quantity of the flow in gallons per minute, Cc is equal to the coefficient of contraction (.63), V is equal to the velocity of the overflow, and A is equal to the area of the pick hole.[2] If all units are in feet, the quantity will be calculated in cubic feet per second, which when multiplied by 448.8 will give the answer in gallons per minute. (One cubic foot per second is equal to 448.8 gallons per minute, hence this conversion method).

Example Overflow Estimation:

The maintenance hole cover is in place and the height of water coming out of the pick hole seven-eighths of an inch in diameter (7/8") is 3 inches (3”). This will produce an SSO flow of approximately 4.7 gallons per minute.

## FLOW OUT OF VENT OR PICK HOLE (TABLE "C")




This sanitary sewer overflow drawing was developed by Debbie Myers, Principal Engineering Technician, for Ed Euyen, Civil Engineer, P.E. No. 33955, California, of County Sanitation District 1.

[2] Velocity for the purposes of this formula is calculated by using the formula h = v squared / 2G, where h is equal to the height of the overflow, v is equal to velocity, and G is equal to the acceleration of gravity.

# Appendix E

# SERVICE REQUEST CHECK LIST

| YES | NO | N/A | |
|---|---|---|---|
| ☐ | ☐ | ☐ | Customer's Name |
| ☐ | ☐ | ☐ | Customer's Complete Address ( No Abbreviations, Except in Directional) |
| ☐ | ☐ | ☐ | Problem Address (If different than caller address) |
| ☐ | ☐ | ☐ | City |
| ☐ | ☐ | ☐ | Zip Code |
| ☐ | ☐ | ☐ | Customer's Phone Number(s) |
| ☐ | ☐ | ☐ | Complete Customer Comments on problem having |
| ☐ | ☐ | ☐ | Sewer Basin (proper format - located on wall behind both computers) |
| ☐ | ☐ | ☐ | Map Page (Proper Format 46-Z13) |
| ☐ | ☐ | ☐ | Crew Dispatched to call |
| ☐ | ☐ | ☐ | Mini System Number |
| ☐ | ☐ | ☐ | Crew Arrival Time noted on request |
| ☐ | ☐ | ☐ | Complete Crew Comments |
| ☐ | ☐ | ☐ | Proper Code from Crew's Comments |
| ☐ | ☐ | ☐ | Closed Call (unless waiting for another crew) |
| ☐ | ☐ | ☐ | Did Crew talk with Homeowner/Business Owner? |

## Backup in Home/Business

| | | | |
|---|---|---|---|
| ☐ | ☐ | ☐ | Were Pictures Taken? If so by whom? |
| ☐ | ☐ | ☐ | Was SERVPRO called? Who did you speak with? Time? |

## Broken Sewer Line

| | | | |
|---|---|---|---|
| ☐ | ☐ | ☐ | Who is handling repair? |

## Cleanout Overflow

Overflow stopped at (time)?

Called into ADEM (Date & Time) *** Note these two are separate do not join together ***

Faxed ADEM & Health Department (Date & Time) *** Note (see above)***

WWTP Permit Number (located on wall behind computer monitor)

## Called Wrong Utility

Company called? Who did you speak with?

## GCP

Did crew discover grease or other debris/roots in line? Was Code changed?

## MH Overflow

Overflow stopped at (time)?

Overflowing Manhole Number(s)?

Called into ADEM (Date & Time) *** Note these two are separate do not join together ***

Faxed ADEM & Health Department (Date & Time) *** Note (see above)***

WWTP Permit Number (located on wall behind computer monitor)

If line was Surcharging was it checked every 2 hours?

Date & Times Surcharge was checked

## Overflow~BSL

Overflow stopped at (time)?

Overflowing Manhole Number(s)?

Called into ADEM (Date & Time) *** Note these two are separate do not join together ***

Faxed ADEM & Health Department (Date & Time) *** Note (see above)***

WWTP Permit Number (located on wall behind computer monitor)

## TV Inspection Codes

Locate Manhole - Was Manhole Number listed?

# SSO CHECK LIST FOR LINE MAINTENANCE

***PUBLIC WORKS SUPERVISOR/ SEWER VIDEO OPERATIONS SUPERVISOR***

Please verify that information is correct by placing a check in the box prior to each statement. If information is not correct make a note at the bottom of the next page and follow procedures as outlined in the SSORRP.

| YES | NO | N/A | |
|---|---|---|---|
| | | | Service Request Number |
| | | | Date Reported |
| | | | Time SSO Began |
| | | | Time SSO Stopped |
| | | | Caller's Name |
| | | | Caller's Phone Number |
| | | | Reported Location *(Make sure that the reported location is not the caller's location unless they are the same.)* |
| | | | Street Address |
| | | | City |
| | | | Zip Code |
| | | | Collection System Permit |
| | | | Overflowing Manhole Number *(If overflow is from a cleanout, mini-system should be recorded.)* |
| | | | Municipality |
| | | | Basin |
| | | | Notification of Public |
| | | | Destination of Discharge |
| | | | Estimated Volume |
| | | | Discharge Source |
| | | | Discharge Cause |
| | | | Recent Weather |

Service Request Number

| YES | NO | N/A | |
|---|---|---|---|
| ☐ | ☐ | ☐ | Conditions Contributing to the Discharge |
| ☐ | ☐ | ☐ | Action Taken |
| ☐ | ☐ | ☐ | 24 Hour Notice Faxed |
| ☐ | ☐ | ☐ | Date & Time |
| ☐ | ☐ | ☐ | Health Department/ Other |

CORRECTIONS

I certify that I have personally examined and am familiar with the information submitted herein; and based on my inquiry of those individuals immediately responsible for obtaining the information. I believe the submitted information is true, accurate, and complete unless noted above.

Signature _____ Date _____

# 5 DAY CHECK LIST FOR LINE MAINTENANCE

***PRINCIPAL ENGINEERING INSPECTOR***

Please verify that information is correct by placing a check in the box prior to each statement. If information is not correct make a note at the bottom of the next page. If a correction is required, the 5 day report should be corrected prior to submitting and procedures followed as outlined in the SSORRP.

| YES | NO | N/A | |
|---|---|---|---|
| ☐ | ☐ | ☐ | Service Request Number ☐ |
| ☐ | ☐ | ☐ | Date Reported |
| ☐ | ☐ | ☐ | Time SSO Began |
| ☐ | ☐ | ☐ | Time SSO Stopped |
| ☐ | ☐ | ☐ | Caller's Name |
| ☐ | ☐ | ☐ | Caller's Phone Number |
| ☐ | ☐ | ☐ | Reported Location *(Make sure that the reported location is not the caller's location unless they are the same.)* |
| ☐ | ☐ | ☐ | Street Address |
| ☐ | ☐ | ☐ | City |
| ☐ | ☐ | ☐ | Zip Code |
| ☐ | ☐ | ☐ | Collection System Permit |
| ☐ | ☐ | ☐ | Overflowing Manhole Number *(If overflow is from a cleanout, mini-system should be recorded.)* |
| ☐ | ☐ | ☐ | Municipality |
| ☐ | ☐ | ☐ | Basin |
| ☐ | ☐ | ☐ | Notification of Public |
| ☐ | ☐ | ☐ | Destination of Discharge |
| ☐ | ☐ | ☐ | Estimated Volume |
| ☐ | ☐ | ☐ | Discharge Source |
| ☐ | ☐ | ☐ | Discharge Cause |
| ☐ | ☐ | ☐ | Recent Weather |

Service Request Number

| YES | NO | N/A | |
|---|---|---|---|
| ☐ | ☐ | ☐ | Conditions Contributing to the Discharge |
| ☐ | ☐ | ☐ | Action Taken |
| ☐ | ☐ | ☐ | 24 Hour Notice Faxed |
| ☐ | ☐ | ☐ | Date & Time |
| ☐ | ☐ | ☐ | Health Department/ Other |

CORRECTIONS

I certify that I have personally examined and am familiar with the information submitted herein; and based on my inquiry of those individuals immediately responsible for obtaining the information. I believe the submitted information is true, accurate, and complete unless noted above.

Signature _____ Date _____

# SSO CHECK LIST FOR ADMINISTRATION

Please verify that information is correct by placing a check in the box prior to each statement. If information is not correct make a note at the bottom of the next page and follow procedures as outlined in the SSORRP.

| YES | NO | N/A | |
|---|---|---|---|
| ☐ | ☐ | ☐ | Service Request Number ☐ |
| ☐ | ☐ | ☐ | Date Reported |
| ☐ | ☐ | ☐ | Time SSO Began |
| ☐ | ☐ | ☐ | Time SSO Stopped |
| ☐ | ☐ | ☐ | Caller's Name |
| ☐ | ☐ | ☐ | Caller's Phone Number |
| ☐ | ☐ | ☐ | Reported Location *(Make sure that the reported location is not the caller's location unless they are the same.)* |
| ☐ | ☐ | ☐ | Street Address |
| ☐ | ☐ | ☐ | City |
| ☐ | ☐ | ☐ | Zip Code |
| ☐ | ☐ | ☐ | Collection System Permit |
| ☐ | ☐ | ☐ | Overflowing Manhole Number *(If overflow is from a cleanout, mini-system should be recorded.)* |
| ☐ | ☐ | ☐ | Municipality |
| ☐ | ☐ | ☐ | Basin *(Village - East or West)* *(Five Mile - Up or Down)* ***CIRCLE SELECTION*** |
| ☐ | ☐ | ☐ | Notification of Public |
| ☐ | ☐ | ☐ | Destination of Discharge |
| ☐ | ☐ | ☐ | Estimated Volume |
| ☐ | ☐ | ☐ | Discharge Source |
| ☐ | ☐ | ☐ | Discharge Cause |
| ☐ | ☐ | ☐ | Recent Weather |

Service Request Number

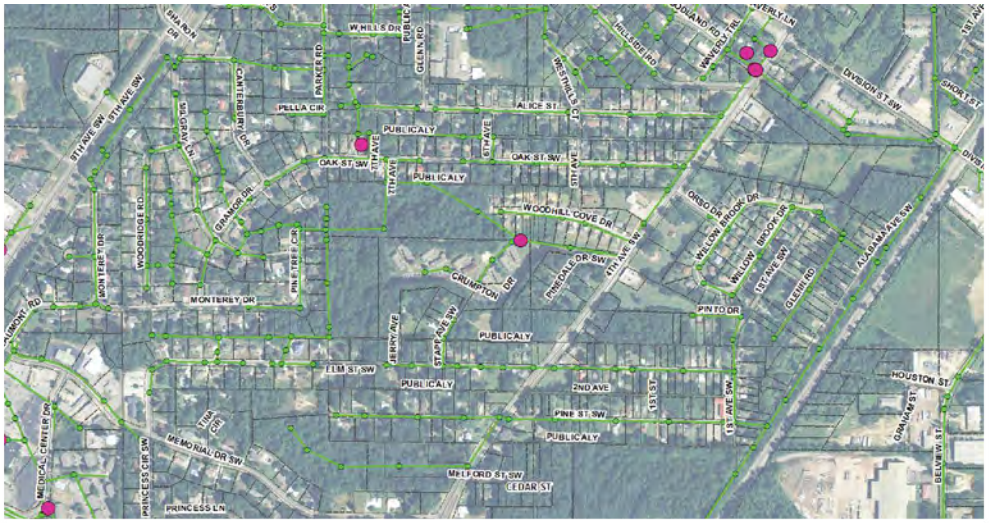
| YES | NO | N/A | |
|---|---|---|---|
| ☐ | ☐ | ☐ | Conditions Contributing to the Discharge |
| ☐ | ☐ | ☐ | Action Taken |
| ☐ | ☐ | ☐ | 24 Hour Notice Faxed |
| ☐ | ☐ | ☐ | Date & Time |
| ☐ | ☐ | ☐ | Health Department/ Other |

CORRECTIONS

I certify that I have personally examined and am familiar with the information submitted herein; and based on my inquiry of those individuals immediately responsible for obtaining the information. I believe the submitted information is true, accurate, and complete unless noted above.

Signature _____ Date _____

# Operations


W HILLS DR
PELLA CIR
ALICE ST
OAK ST SW
WOODHILL COVE DR
MONTEREY DR
PINE TREE CIR
CRUMPTON DR
PINTO DR
PUBLICALY
ELM ST SW
2ND AVE
PINE ST SW
MEMORIAL DR SW
MILFORD ST SW
CEDAR ST
PRINCESS LN
HOUSTON ST
DIVISION ST SW
5TH AVE SW
4TH AVE SW
1ST AVE SW
1ST ST













# Pump Station Operations and Maintenance Program

**Final**

December 2016

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# Acronyms

| | |
|---|---|
| CMMS | Computerized maintenance management system |
| CMOM | Capacity, Management, Operations, and Maintenance |
| EAM | Enterprise asset management |
| IMS | Information management system |
| JCESD | Jefferson County Environmental Services Department |
| KPI | Key performance indicator |
| O&M | Operations and maintenance |
| PM | Preventative maintenance |
| SSO | Sanitary sewer overflow |
| SSORRP | Sanitary Sewer Overflow Response and Reporting Program |
| SOP | Standard operating procedure |
| WWTP | Wastewater treatment plant |

# Pump Station Operations and Maintenance Program

## Program Overview

Pump stations are critical components in a collection system that are used to facilitate wastewater flow downstream when the construction of a gravity sewer is not practical or possible due to elevation or terrain obstacles. Prior to unification of wastewater collection systems within Jefferson County's wastewater service area, the Jefferson County Environmental Services Department (JCESD) owned and operated 37 pump stations. However, through unification and years of other acquisitions, the County's responsibilities have grown to 177 collection system pump stations. A list of the pump stations within the JCESD collection system is provided in **Appendix A**.

The unification process allows JCESD to identify and make improvements to the collection system network, as a whole, to improve operational efficiency, while leveraging its specialized operation and maintenance knowledge on behalf of the partner municipalities. JCESD continues to identify opportunities to assume responsibility for additional pump stations and upgrade them to County standards or eliminate them, where possible, with gravity sewer.

### Purpose and Goals

The purpose of JCESD's Pump Station Operations and Maintenance (O&M) Program is to:

- Ensure pump stations operate as designed.
- Increase dependability by identifying and providing necessary pump station maintenance before an operational issue occurs.
- Provide emergency response in the event of a pump station failure and continue wastewater conveyance during power outages.
- Improve the efficiency of the collection system network through pump station upgrades/improvements or elimination of a pump station through regionalization of sub systems.

The goals of the **Pump Station O&M Program** are to:

- Minimize the frequency and volume of a sanitary sewer service interruption or sanitary sewer overflow (SSO).
- Protect public health, safety and welfare.

## Program Components and Approach

This program plan describes the following components of the JCESD **Pump Station O&M Program**:

- Routine inspection components and related standard operating procedures (SOPs).
- Comprehensive condition assessment efforts for all pump stations operated and maintained by JCESD.
- Preventative and in-house maintenance capabilities.
- The pump station capital improvement process.
- An inventory of pump stations operated and maintained by JCESD.

This Pump Station O&M Program plan also includes:

- Staffing and equipment resources.
- Data management.
- Equipment and tools.
- Key performance indicators (KPIs) for tracking and documenting the performance and effectiveness of the **Pump Station O&M Program**.

The successful implementation of JCESD's **Pump Station O&M Program** will allow JCESD to provide continuous service to its customers while minimizing sanitary sewer surcharging and overflows into structures and the environment.

For more information on security and emergency pump station operation procedures, see the **Contingency Planning Program** plan.

# Program Resources

## Related CMOM Program Documents and Other References

JCESD developed SOPs and checklists for pump station inspection and preventive maintenance, pump station drawdown testing, and wastewater pump station standby generator preventive maintenance. These SOPs are provided in the JCESD **Standard Operation Procedures and Work Process Documentation for Field Operations** handbook.

Procedures used when responding to and reporting SSOs are detailed in JCESD's **Sanitary Sewer Overflow Response and Reporting Program (SSORRP)** plan.

Pump station design and construction requirements are outlined in JCESD's **Commercial and Residential Sanitary Sewer System Design and Construction Manual** (current version).For more information on pump station design and construction requirements, see the **Engineering Program** plan.

Other CMOM Program plans that are referenced in the **Pump Station O&M Program** plan are as follows:

- CMOM Program Organization
- Contingency Planning Program
- Engineering Program
- Equipment and Supplies Management Program
- Financial Analysis Program
- CMOM Information Management Systems Program
- Safety Program
- Training Program

## Staffing

An organizational chart for the JCESD Pump Station O&M Program (Department 7313) is provided the **CMOM Program Organization** plan. Positions within the group include:

- WWTP Manager
- WWTP Supervisor
- WWTP Shop Supervisor
- WWTP Plant Operator
- Electricians that are responsible for electrical maintenance
- Route Inspectors that perform daily pump station inspections and assist with maintenance of the pump station grounds
- Senior Maintenance and Maintenance Workers that are responsible for mechanical maintenance of the pump stations

The Pump Station O&M group is based at the Shades Valley Complex. This facility was upgraded in 1999 to house the additional staff required to handle the demands of the unified system.

To ensure the proper operation of the pumping system, O&M crews operate five days a week in eight hour shifts. If required, work is completed using overtime. Two person crews are typically used for routine O&M inspections and repairs. For projects requiring more than a two-person crew, a second crew is assigned to help.

## Equipment and Tools

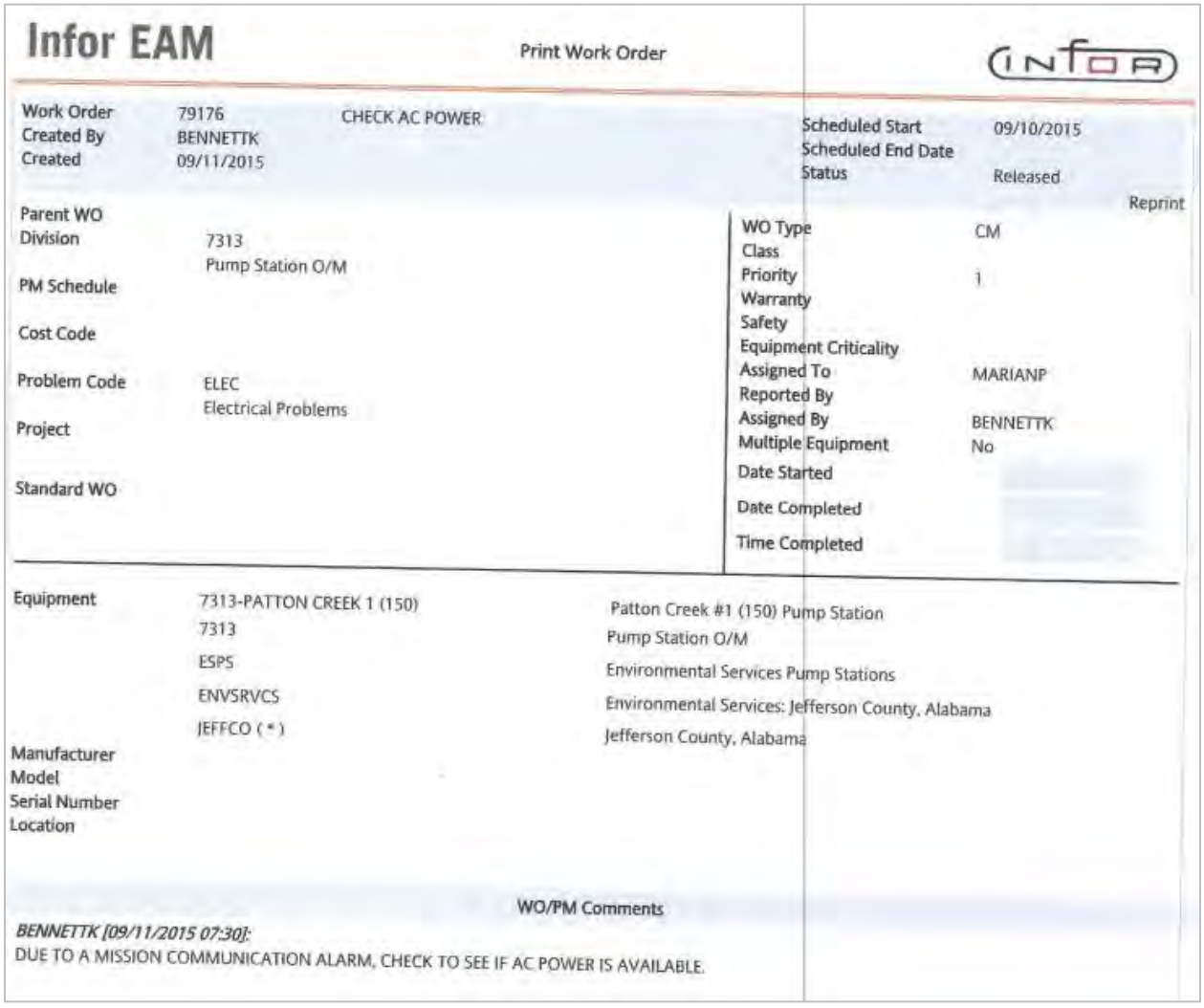
All pump station equipment, tools, and bulk inventory supplies, including backup pumps, generators, and confined space equipment, are stored at the Pump Station storage area located at the Shades Valley Complex, and staff has the equipment available to perform required maintenance activities.

See the **Equipment and Supplies Management Program** for additional details and inventories of the critical spare parts, equipment, and tools on hand.

## Data Management

Pump operation information, such as daily pump run time records, is maintained in digital and paper format. The specific forms that are used by O&M personnel will be discussed in detail under the Program Implementation section of this document. In addition, hard copy pump station O&M manuals and plans, where available, are maintained at the Shades Valley complex for reference by the Pump Station O&M personnel.

The enterprise asset management (EAM) software program "Infor EAM" is used to track maintenance work orders. Work orders are generated by the WWTP Manager for known and/or routine maintenance tasks. The first page from an example Infor EAM work order is shown in **Figure 1**. Completed work orders then serve as the maintenance logs for each pump station.



**Infor EAM** Print Work Order

| | | | |
|---|---|---|---|
| Work Order | 79176 | CHECK AC POWER | |
| Created By | BENNETTK | | |
| Created | 09/11/2015 | | |
| Scheduled Start | | | 09/10/2015 |
| Scheduled End Date | | | |
| Status | | | Released |
| | | | Reprint |
| Parent WO | | | |
| Division | 7313 Pump Station O/M | | |
| PM Schedule | | | |
| Cost Code | | | |
| Problem Code | ELEC Electrical Problems | | |
| Project | | | |
| Standard WO | | | |
| WO Type | | | CM |
| Class | | | |
| Priority | | | 1 |
| Warranty | | | |
| Safety | | | |
| Equipment Criticality | | | |
| Assigned To | | | MARIANP |
| Reported By | | | |
| Assigned By | | | BENNETTK |
| Multiple Equipment | | | No |
| Date Started | | | |
| Date Completed | | | |
| Time Completed | | | |
| Equipment | 7313-PATTON CREEK 1 (150) | Patton Creek #1 (150) Pump Station | |
| | 7313 | Pump Station O/M | |
| | ESPS | Environmental Services Pump Stations | |
| | ENVSRVCS | Environmental Services: Jefferson County, Alabama | |
| | JEFFCO (*) | Jefferson County, Alabama | |
| Manufacturer | | | |
| Model | | | |
| Serial Number | | | |
| Location | | | |

WO/PM Comments

*BENNETTK [09/11/2015 07:30]:*
DUE TO A MISSION COMMUNICATION ALARM, CHECK TO SEE IF AC POWER IS AVAILABLE.

**Figure 1.Example Infor EAM Work Order (Page 1)**

JCESD pump stations are equipped with a wireless monitoring and alarm system manufactured by MISSION Communications. These systems, which use cellular technology to communicate, monitor such functions as wet well level, pump run times, pump failure, and AC power failure, and will notify JCESD personnel in the event of a failure or alarm. The level control system provides real-time information that allows JCESD staff to respond to any issues in a timely manner.

For more information and details concerning the data management strategies and computerized maintenance management system (CMMS) used by JCESD, see the **CMOM Information Management Systems (IMS) Program** plan.

# Program Implementation

JCESD's **Pump Station O&M Program** has been established with preventative maintenance (PM) as the guiding principle. Rather than solely reacting to equipment failures and station alarms, JCESD is actively seeking out potential issues at the pump stations they operate and addressing these issues before emergency conditions develop. The following sections describe in detail how JCESD's preventative maintenance program is implemented throughout the County.

## Pump Station Design and Construction

JCESD compiled a comprehensive document that details the policies, procedures, design requirements, standard specifications and drawings for all pump stations constructed within the County. As stated previously, the **Commercial and Residential Sanitary Sewer System Design and Construction Manual** (current version), provides streamlined guidance and uniform expectations to developers, contractors, and engineers for all new pumping station construction. A copy of the standard guidelines is available for download through the JCESD website**.**

## Routine Inspections

As stated previously, JCESD owns and operates 177 pumping stations located throughout the County's wastewater service area. A detailed summary of each pump station's components, including location, number and type of pumps, design conditions, and standby power, is included in **Appendix B**.

JCESD has established SOPs for their pump station inspection and preventative maintenance process (refer to the JCESD **Standard Operation Procedures and Work Process Documentation for Field Operations** handbook). The goal of the O&M program is to visit each pump station two times each week for operational and preventative maintenance purposes. Critical pump stations or those that have been prone to issues in the past may be visited more frequently (e.g., three times per week or daily inspections).

There are eight inspection routes that are completed on a weekly basis. There are two routes per region (Northern, Southern, Western, and Central) and approximately twenty pump stations are visited per route. JCESD has developed and maintains a route inspection checklist for the operators to track the pumps stations that have been visited. Copies of the eight route inspection checklists are provided in the JCESD **Standard Operation Procedures and Work Process Documentation for Field Operations** handbook.

Starting in the fall of 2015, routine Weekly Pump Station Inspection Checklists are processed via mobile devices (smartphones). This provides real-time recording of the inspection and automated data transfer into the system. The WWTP Manager is made aware of any station problems via email from the reporting crew. JCESD also has SOPs and additional forms that operators must follow and complete for specific pump station components, such as mechanical and electrical systems. Additional information on these is provided in the following paragraphs.

## Mechanical Systems

As part of the weekly inspections, operators are required to document the pump run times. Operators record readings from the elapsed time meters for all pumps in each pump station on the Pump Station

O&M Daily Run Time Form (see **Figure 2** and **Figure 3** on the following pages), which are ultimately used to schedule routine interval services such as bearing lubrication, seal inspection, or impeller inspection. The Daily Run Time Forms are turned in at the end of the month to the WWTP Manager and are entered into the Infor EAM on a monthly basis.

Pump drawdown tests are performed on an "as needed" basis to determine or confirm the operating capacity of the installed pumps. Typically, the WWTP Manager will make the determination on when these tests are performed. A copy of the JCESD Pump Station Drawdown Testing Procedure SOP is included in the JCESD **Standard Operation Procedures and Work Process Documentation for Field Operations** handbook.

## Generators and Electrical Systems

Backup generators are installed in approximately sixty percent of all the pump stations operated and maintained by JCESD (see **Appendix B** for details). All pump stations constructed after the unification process that will be operated and maintained by the County are required to have a backup generator or standby engine driven pump. This applies to pump stations constructed by the County or by a private developer.

All existing generators are inspected weekly as detailed on the Weekly Pump Station Inspection Check Off Sheet and are exercised with no load. On a semi-annual basis the generators are run under the full pump station load. The JCESD **Standard Operation Procedures and Work Process Documentation for Field Operations Handbook** contains the Wastewater Pump Station Standby Generator Inspection and Preventative Maintenance SOP that documents the required inspections and frequency intervals for the generator components. It also contains a Standby Generator Inspection Check Off Sheet that must be completed by the operator when the generator inspection is performed and turned into the WWTP Manager.

Prior to performing any inspections or maintenance on a generator, operators must complete lock out and tag out of the equipment to ensure their personal safety during the inspection. A copy of the Lockout/Tagout Procedure is provided in the **Safety Program** plan.

JEFFERSON COUNTY ENVIRONMENTAL SERVICES
PUMPSTATION OPERATION AND MAINTENANCE

Station: MONTH:

| DAY OF MO. | TIME OF DAY | MINUTES OF OPERATION | | | | INSP. BY | DAY OF MO. | TIME OF DAY | MINUTES OF OPERATION | | | | INSP. BY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | PUMP#1 | PUMP#2 | PUMP#3 | PUMP#4 | | | | PUMP#1 | PUMP#2 | PUMP#3 | PUMP#4 | |
| 1 | | | | | | | 16 | | | | | | |
| 2 | | | | | | | 17 | | | | | | |
| 3 | | | | | | | 18 | | | | | | |
| 4 | | | | | | | 19 | | | | | | |
| 5 | | | | | | | 20 | | | | | | |
| 6 | | | | | | | 21 | | | | | | |
| 7 | | | | | | | 22 | | | | | | |
| 8 | | | | | | | 23 | | | | | | |
| 9 | | | | | | | 24 | | | | | | |
| 10 | | | | | | | 25 | | | | | | |
| 11 | | | | | | | 26 | | | | | | |
| 12 | | | | | | | 27 | | | | | | |
| 13 | | | | | | | 28 | | | | | | |
| 14 | | | | | | | 29 | | | | | | |
| 15 | | | | | | | 30 | | | | | | |
| | | | | | | | 31 | | | | | | |

| DATE | MAINTENANCE & REPAIRS PERFORMED |
|---|---|
| | |
| | |
| | |
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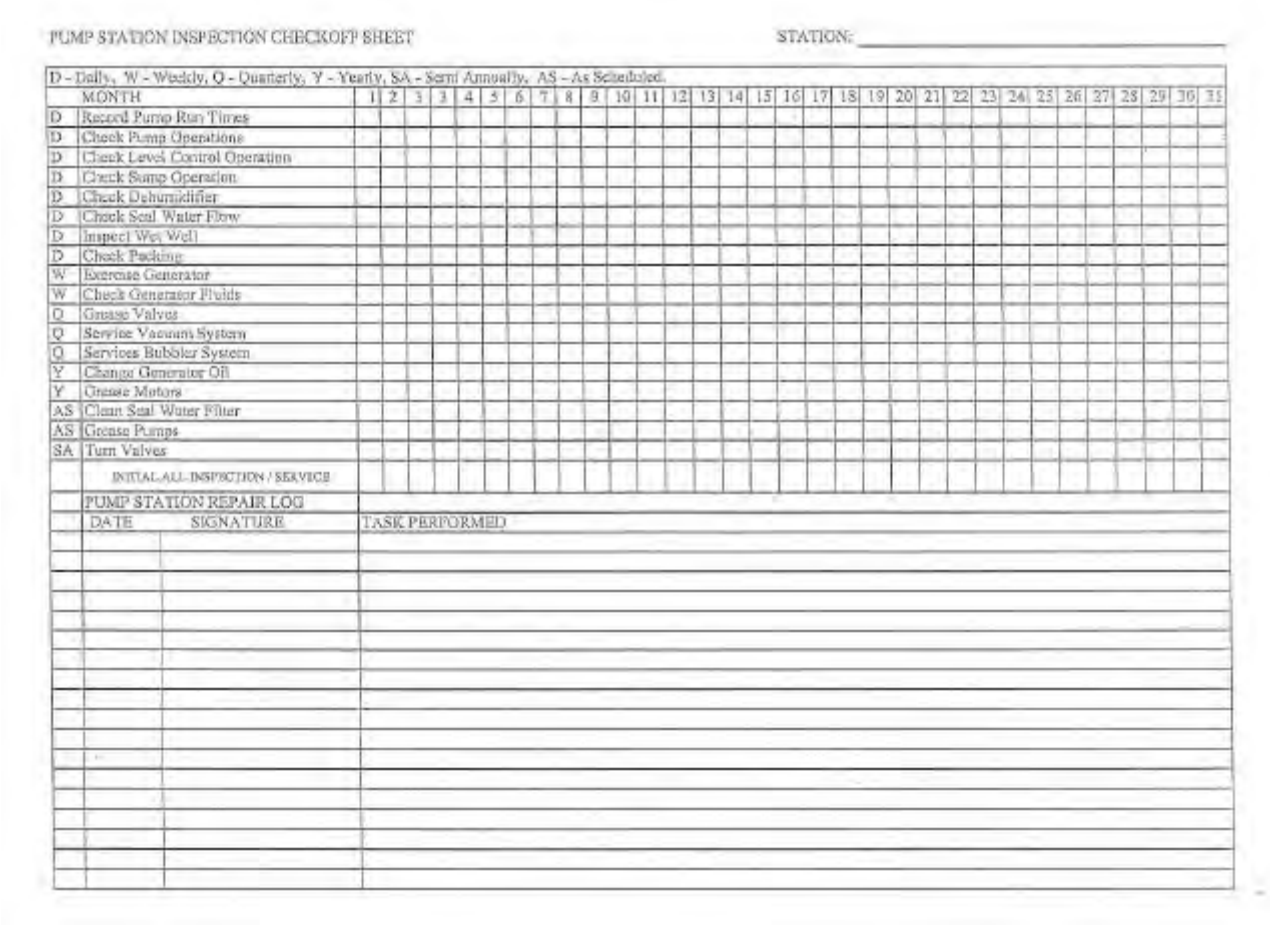
**Figure 2.Pump Station O&M Daily Run Time Form (Page 1)**



PUMP STATION INSPECTION CHECKOFF SHEET STATION: _____

D - Daily, W - Weekly, Q - Quarterly, Y - Yearly, SA - Semi Annually, AS - As Scheduled.

| | MONTH | 1 | 2 | 3 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Record Pump Run Times | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D | Check Pump Operations | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D | Check Level Control Operation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D | Check Sump Operation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D | Check Dehumidifier | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D | Check Seal Water Flow | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D | Inspect Wet Well | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D | Check Packing | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| W | Exercise Generator | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| W | Check Generator Fluids | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Q | Grease Valves | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Q | Service Vacuum System | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Q | Services Bubbler System | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Y | Change Generator Oil | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Y | Grease Motors | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AS | Clean Seal Water Filter | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AS | Grease Pumps | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SA | Turn Valves | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | INITIAL ALL INSPECTION / SERVICE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| PUMP STATION REPAIR LOG | | |
|---|---|---|
| DATE | SIGNATURE | TASK PERFORMED |
| | | |
| | | |
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**Figure 3.Pump Station O&M Daily Run Time Form (Page 2)**

## Condition Assessment

In late 2015, the County commissioned a survey and condition assessment of all the pump stations operated by JCESD. This survey will enable JCESD to evaluate and prioritize the needs of each station on a uniform basis, and make upgrades where they were they are needed the most. In addition, the overview will enable JCESD to determine if and where pump stations could be eliminated altogether with gravity sewer. Through the routine inspection process and short term repair program, JCESD is able to verify all of the pump stations are operable, as well as prioritize maintenance inspections and schedules for critical pump stations or those that have been prone to issues in the past.

A copy of the Pump Station Condition Assessment Checklists are provided in JCESD's **Standard Operation Procedures and Work Process Documentation for Field Operations Handbook**.

## Preventative and In-House Maintenance

Through routine inspections, unfavorable conditions or equipment issues are often identified that require maintenance. These may be issues that require immediate attention, or preventative maintenance items that require attention in the near future. When issues are discovered, operators typically will either:

- Notify the WWTP Manager in the event of an emergency situation.
- Address the required maintenance if it can be easily resolved and the tools are readily available.
- Note the required maintenance on the route sheet that will be reported through the smart phone application and continue their inspections. In this situation, a work order will be generated and personnel will be scheduled and dispatched to make the needed repairs. Completed maintenance and/or repairs are noted on subsequent Weekly Pump Station Inspection Check Off Sheets.

Unscheduled repair work is not considered an emergency repair when it is done in-house. Most unplanned repairs are discovered during routine inspections and can be resolved quickly. Of all the repairs JCESD handles, approximately sixty percent are unplanned, but have been able be addressed within the same week or, in some instances, the same day.

## Work Order Process

Preventative maintenance work orders are generated for both scheduled and unscheduled maintenance items. Work orders are created on an "as needed" basis by the WWTP Manager and assigned to the personnel or crew best suited to complete the required task. At the beginning of each month, the WWTP Manager prints out all preventive maintenance work orders for the month and issues them to the assigned personnel.

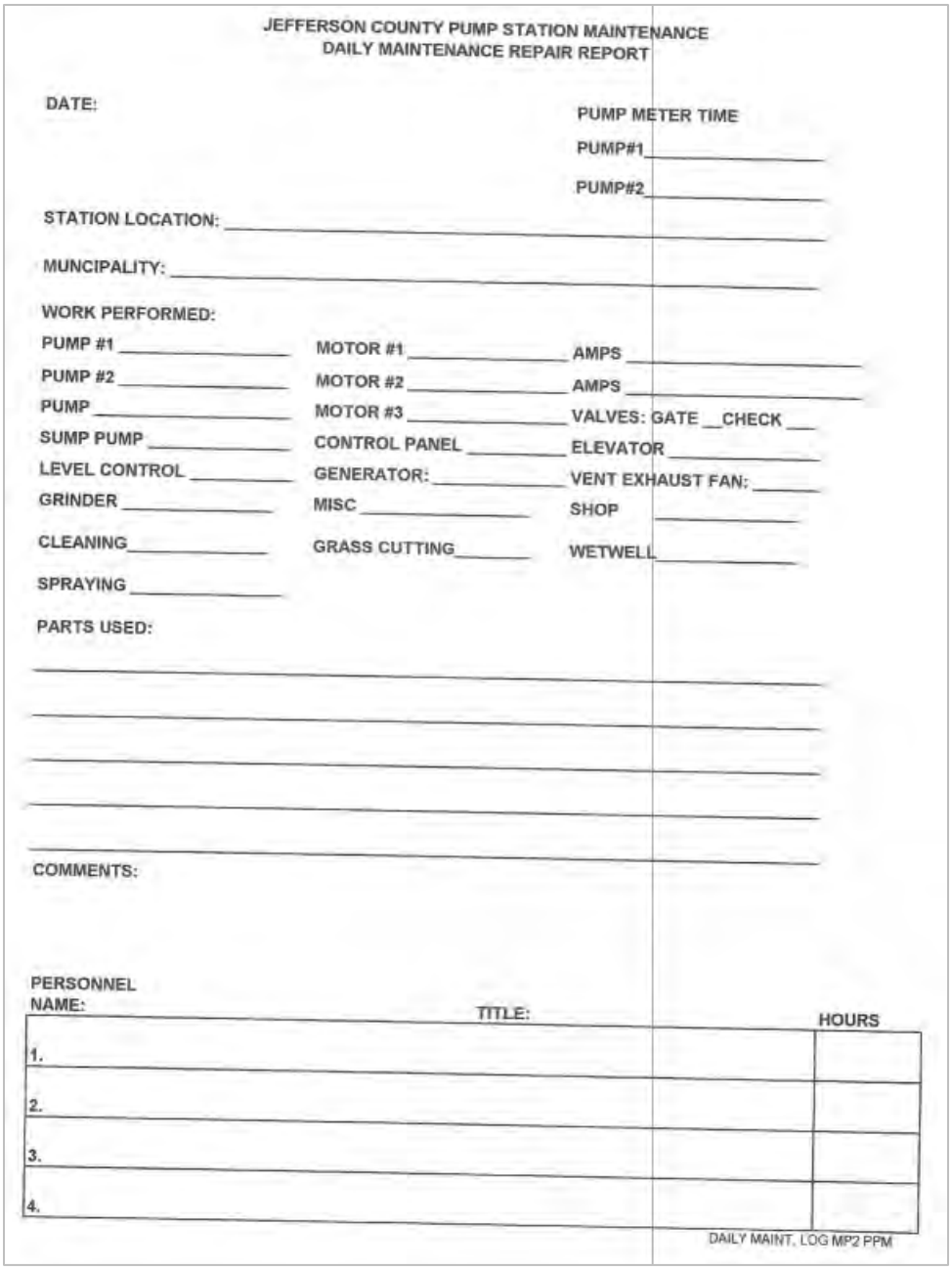
Upon completing the required maintenance, the assigned personnel will fill out the work order and return the hard copy form to the WWTP Manager. In addition, the assigned personnel will complete a Daily Maintenance Repair Report (see **Figure 4** on the following page) to track the maintenance performed on each piece of equipment in a pump station. The WWTP Manager will review these two forms and close out the work order when the maintenance has been satisfactorily addressed. The WWTP Manager is the only person authorized to close out work orders. Closed work orders and Daily Maintenance Repair Reports are entered into Infor EAM by available personnel as time allows, but ideally within 24 hours.

## Mechanical Maintenance

All pumps are serviced based on manufacturer recommended maintenance intervals and equipment performance history. Minor pump and component repairs can be completed on-site at a given pump station. For more complex repairs, a pump can be taken out of service and brought to the mechanical shop at the Shades Valley Complex, Village Creek, Five Mile Creek, or Valley Creek maintenance shops for in-house maintenance. These service shops are fully equipped with most of the tools and parts necessary for JCESD's maintenance needs. Spare and temporary pumps are available at the Shades Valley maintenance shop. Replaced components are also salvaged for reusable parts and materials.

## Site Maintenance

The Pump Station O&M crews are also responsible for general maintenance of the pump station sites. This includes inspections and repairs to fences and other external station components, grass, landscaping, signage, and access roads or driveways. Routine site maintenance is completed as needed. Maintenance of the grounds is performed by contractors hired by JCESD.



JEFFERSON COUNTY PUMP STATION MAINTENANCE
DAILY MAINTENANCE REPAIR REPORT

DATE:

PUMP METER TIME
PUMP#1 _____
PUMP#2 _____

STATION LOCATION: _____

MUNCIPALITY: _____

WORK PERFORMED:

PUMP #1 _____ MOTOR #1 _____ AMPS _____
PUMP #2 _____ MOTOR #2 _____ AMPS _____
PUMP _____ MOTOR #3 _____ VALVES: GATE __CHECK ___
SUMP PUMP _____ CONTROL PANEL _____ ELEVATOR _____
LEVEL CONTROL _____ GENERATOR: _____ VENT EXHAUST FAN: _____
GRINDER _____ MISC _____ SHOP _____
CLEANING _____ GRASS CUTTING _____ WETWELL _____
SPRAYING _____

PARTS USED:

COMMENTS:

| PERSONNEL NAME: | TITLE: | HOURS |
|---|---|---|
| 1. | | |
| 2. | | |
| 3. | | |
| 4. | | |

DAILY MAINT. LOG MP2 PPM

**Figure 4.Daily Pump Station Maintenance Repair Report**

## Generator Maintenance

In-house generator maintenance is currently limited to oil/filter changes and belt replacements, and CAT generator service is contracted out. Generators are routinely inspected and exercised. The JCESD **Standard Operation Procedures and Work Process Documentation for Field Operations** handbook contains the Wastewater Pump Station Standby Generator Inspection and Preventative Maintenance SOP that documents the required inspections and frequency intervals for the generator components.

## Pump Station Capital Improvements

The need for pump station capital improvements and large scale maintenance projects are identified through routine inspections and reporting, component repair and maintenance history, pump run time, flow measuring, and JCESD Engineering assessment. Funding is set aside annually for this work. The design of major component upgrades or new station construction is performed by engineering firms by contract.

For more information on capital improvement planning, design, construction and funding, see the JCESD **Engineering Program** and **Financial Analysis Program** plans.

## Critical Repairs

Critical repairs are defined by JCESD as repairs necessary to address problems that increase risk of system failure or a danger to public health and safety. Examples of these types of problems include force main breaks, pump failures, and level control failures.

JCESD has open purchase orders in place with component vendors who are able to supply parts needed for in-house personnel to perform critical repairs.

## Emergency Operation and Maintenance

### Emergency Operation

In the event a pump station becomes inoperable due to a power or mechanical failure, JCESD is prepared to respond to restore service as quickly and efficiently as possible. Additional support crews are also available from Sewer Line Construction and Sewer Line Maintenance, if needed.

Please refer to the **Equipment and Supplies Management Program** and **Contingency Planning Program** for additional details on the available emergency response equipment and procedures.

### Emergency Repairs

Emergency repairs are defined by JCESD as work that is not, or cannot be, done by in-house personnel. If contractors are required for structural, mechanical, or electrical issues, an expedited process is used to ensure the emergency is resolved in as short a time possible.

# Program Performance Metrics

Performance measures are important management tools that allow for continuous measurement and evaluation of program activities. Performance measures are designed to collect information that enable JCESD to determine if established goals and level of service are being met and, if not, what activities need to be adjusted to meet program goals.

The **Pump Station O&M Program** performance measures established at JCESD are shown in **Table 1** on the following pages.

**Table 1. Pump Station O&M Program Performance Metrics**

| Performance Measure | Formula | Definition | Desired Result | Data Interval |
|---|---|---|---|---|
| Pump Station Defects Identified | Value | Document the number and type of defects identified at pump stations during routine PM inspections or other emergency response exercises to pump stations | Track pump station defects in order to notify appropriate staff of emergency or maintenance improvements | Monthly |
| Odor complaints | Value | Document the number and types of odor complaints related to pump stations | Track odor complaints and notify appropriate staff of maintenance needs | Monthly |
| Number of pump stations inspected | Value | Document the number of pump station PM inspections performed each Month | Track performance and frequency of pump station inspections | Monthly |
| Routes Ran | Value | Document the number of specific station routes conducted during the month | Track performance and staff level abilities to perform the route work | Monthly |
| After Hours Calls | Value | Document the number and types of alarms and after-hours dispatched service requests | Track the number and types of calls to assess trending or problem areas | Monthly |
| Pumps Repaired | Value | Document the number and types of pumps repaired by month | Track the number of pumps repaired, assess staffing and costs | Monthly |
| Cuno Filters | Value | Document Cuno filter changes in stations using them | Track at which stations filters were changed, and what stations may need filter changes | Monthly |
| Stations PMs | Value | Document the number of preventative maintenance duties performed during routine station inspections | Track operational data retrieved in the inspections to generate work orders for the following month | Monthly |
| Generator Repairs | Value | Document type of maintenance and repair work performed on generators at pump stations | Track the generators serviced/repaired for trending and validate contractor maintenance work | Monthly |

| Performance Measure | Formula | Definition | Desired Result | Data Interval |
|---|---|---|---|---|
| Fuel Received at Pump Stations | Value | Document fuel delivery by vendors or fuel tank refills by in-house sources | Track fuel deliveries and amounts, and assess when next refueling is needed | Monthly |
| Plant Equipment | Value | Document inspections or repairs performed at the Scotts Branch pretreatment facility | Track inspection results and create work orders as needed | Monthly |
| Wetwells Cleaned | Value | Document station wet wells cleaned by Line Maintenance Division crews | Track the number of stations cleaned and provide data for routine scheduling work orders | Monthly |
| Station Upgrades | Value | Document all upgrades and specific types performed on stations and components | Track upgrades performed in all stations | Monthly |
| Station Cleanup | Value | Document cleaning activities on components inside and outside the facility | Track cleaning work performed and provide a better appearance to the public | Monthly |
| Electrical | Value | Document electrical work performed on station components | Track work orders issued to electrician | Monthly |
| Fuel Vault | Value | Document fuel vault sticking and/or inspections to assess consumption rate | Track fuel consumption and monitor levels for refilling | Monthly |
| Painting | Value | Document painting work performed to reduce corrosion or improve appearance | Track painting work performed in reporting period and assess if scheduled painting is needed | Monthly |
| Station Equipment Repaired | Value | Document repair work on all components (except pumps) | Track component repair and assess trending or problem areas | Monthly |
| Electricity – Total Cost | Value | Document total cost of electricity of all stations | Track monthly cost to provide an indication of station issues | Monthly |

# APPENDIX

## Appendix A List of Pump Stations Operated and Maintained by JCESD

| | | | | | |
|---|---|---|---|---|---|
| 1 | (The) Arbors | 61 | Garden Grove | 121 | Paden Park |
| 2 | 150 ( Jeff.Memorial) | 62 | Gardendale Med Center | 122 | Parkway Dr. |
| 3 | 150 West/459 | 63 | Garywood | 123 | Parkwest |
| 4 | 2 nd Ave ( G'ville Park) | 64 | Goocher Road | 124 | Parkwood |
| 5 | 3rd Place NW & 1st Ave NW | 65 | Goodrich | 125 | Patton Creek #1 (150) |
| 6 | 3rd St. E & 2nd Ave NE | 66 | Grand River | 126 | Patton Creek #2 |
| 7 | 7 th Ave & Main St. | 67 | Grubbs Avenue | 127 | Payne Rd. |
| 8 | 7th Street No. East | 68 | Haddon Trail | 128 | Penefield |
| 9 | Acton | 69 | Haddon Place | 129 | Pinewood |
| 10 | Adamsville | 70 | Halls Branch | 130 | Pipeshop |
| 11 | Alabama Boulevard | 71 | Harriman | 131 | Pleasant Grove |
| 12 | Alemeda | 72 | Hawkins Lane | 132 | Powder Plant Rd./459 |
| 13 | Ashton Way | 73 | Hawkridge | 133 | Powder Plant Rd./West |
| 14 | Ashville Road | 74 | Hidden Trace | 134 | Pump House Court |
| 15 | Bainbridge Tr. | 75 | Highland 2 | 135 | Republic |
| 16 | Belmar | 76 | Hillshire 2 | 136 | Rice Creek |
| 17 | Belmont No.1 | 77 | Hoover H.S. (Mars Hill) | 137 | Rice Creek Lane |
| 18 | Belmont No. 2 | 78 | Hoover Met. | 138 | Ridgemont Drive |
| 19 | Bent River | 79 | Hopewell | 139 | Riggins |
| 20 | Bentbrook | 80 | I-59 | 140 | Riverchase |
| 21 | Bessemer Hospital | 81 | Jackson Heights | 141 | Robertsfield |
| 22 | B'ham Race Course | 82 | Jeff Metro | 142 | Rosebud |
| 23 | Blue Ridge Blvd | 83 | K - Mart | 143 | Rosser Loop Road |
| 24 | Brighton | 84 | Lake sterling | 144 | Rowan Spring |
| 25 | Brookview Church | 85 | Lakecrest | 145 | Saddler Gap |
| 26 | Brookwood Dr. | 86 | Lance Way 2 | 146 | Sandusky |
| 27 | Brummit Heights | 87 | Larkway | 147 | Sears Drive |
| 28 | Cahaba Village | 88 | Leeds City Hall | 148 | Sherman Oaks |
| 29 | Cedar Creek Townhomes | 89 | Letson Farms | 149 | Shookhill |
| 30 | Chapel Drive #1 | 90 | Lewisburge #1 | 150 | Southpark |
| 31 | Chapel Drive #2 | 91 | Lewisburge #2 | 151 | Southwood |
| 32 | Chesswood | 92 | Longleaf - Alt. | 152 | Stadium Trace Pkway |
| 33 | Coleman Lakes | 93 | Lou George Loop | 153 | Summit |
| 34 | Collegeville | 94 | Magnolia Ridge | 154 | Surrey Oaks |
| 35 | Coosa Ave. | 95 | Magnolia Trace | 155 | Tearose |
| 36 | Corbet Branch #1 | 96 | Mariana | 156 | Tin Mill Road |
| 37 | Corbet Branch #2 | 97 | Mason City | 157 | Trace Ridge Road |
| 38 | Cottages At Fieldstown | 98 | Mays Village | 158 | Trussville 2 |
| 39 | Crosshaven | 99 | McAdory | 159 | Trussville Northeast |
| 40 | Cunningham Creek #1 | 100 | McAlpine | 160 | Vail Ave. |
| 41 | Cunningham Creek #2 | 101 | Medical Center East | 161 | Valewood Circle |
| 42 | Dana Drive | 102 | Minor Comm. School | 162 | Ves Trace |
| 43 | Day Optometry | 103 | Minor Parkway | 163 | Viginiana |
| 44 | Day Street Apartments | 104 | Minor Road | 164 | Vineyards |
| 45 | Dean Drive | 105 | Mississippi Ave | 165 | Vintage Trace |
| 46 | Deerfoot Cove | 106 | Morgan/Greenwood #1 | 166 | Visionland |
| 47 | Deerfoot Drive | 107 | Morgan/Greenwood #2 | 167 | Vulcan |
| 48 | Dennison | 108 | Moss Lane | 168 | Walker Ave. |
| 49 | Don Berri Apt. | 109 | Mountainview | 169 | WaterMark |
| 50 | Dover Circle | 110 | New Found Creek #1 | 170 | Wellington |
| 51 | Dunavant Rd. | 111 | New Found Creek #2 | 171 | Wenonah |
| 52 | Edgewater | 112 | Northbrook | 172 | Westsmithfield |
| 53 | Ellington | 113 | Oak Grove Road | 173 | Willow Lake Drive |
| 54 | Ellis Rd | 114 | Oaks Duplex | 174 | Wisteria Trace |
| 55 | Ellison | 115 | Oakwood Ave. | 175 | Wood Trace |
| 56 | Fairmont | 116 | Old Rocky Ridge Rd. | 176 | Woodbrooks Apt. |
| 57 | Fieldstown Road | 117 | Orchard Avenue | 177 | Wylam |
| 58 | Five Mile Creek West | 118 | Overton Rd. #1 | | |
| 59 | Fox Hollies | 119 | Overton Rd. #2 | | |
| 60 | Gadsden Highway | 120 | P.G. Shopping Center | | |

## Appendix B Detailed Pump Station Information

## PUMP STATION INFORMATION

| | NAME | ADDRESS | CITY | # OF PUMPS | EACH PUMP | | | GPM | TDH | BASIN | TYPE | BRAND | DISCHARGE | SBP | STANDBY POWER | | FUEL SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | HP | VOLT | PHASE | | | | | | | | RATING, KW | BRAND | |
| JEFFERSON COUNTY | Acton | 2421 Acton Rd | HVR | 2 | 10 | 230 | 3 | 250 | 50' | Cahaba | FS/Can | Smith & Loveless | 8 | YES | 100 | Caterpillar | Diesel |
| | Adamsville | 5004 Hazelwood Rd | ADVL | 2 | 50 | 460 | 3 | 800 | 130' | Prudes | FS/Concrete | Chicago | 12 | YES | 125 | Caterpillar | Diesel |
| | Alabama Boulevard | 530 Alabama Blvd | TVL | 2 | 40 | 460 | 3 | 230 | 136' | Trussville | Submersible | Yeoman | | YES | 85 | Cummins | Ntl Gas |
| | Ashton Way | 5679 Ashton Way | MCC | 2 | 5 | 460 | 3 | 100 | 42.4' | Valley | Submersible | Flygt | 4 | YES | 60 | Katolight | Ntl Gas |
| | Bainbridge Tr. | 3779 Bainbridge Trace Dr | IROND | 2 | 23 | 460 | 3 | 100 | 129 | Shades | Submersible | Flygt | 4 | YES | 60 | Onan | Ntl Gas |
| | Belmont No. 1 | 3562 Belmont Rd | IROND | 2 | 75 | 230/460 | 3 | 1300 | 170' | Shades | FS/Can | Fairbanks Morse | 8 | YES | 400 | Cummings | Ntl Gas |
| | Belmont No. 2 | 3553 Belmont Rd | IROND | 2 | 25 | 230/460 | 3 | 1325 | 63' | Shades | FS/Can | Fairbanks Morse | 8 | YES | 150 | Cummings | Ntl Gas |
| | Bentbrook | 4300 Pine Valley Drive | MCC | 2 | 25 | 230/460 | 3 | 210 | 119' | Valley | Suction Lift | Gorman Rupp | | YES | ST'BY PUMPING | Nissan | Ntl Gas |
| | Bent River | 4308 Bent River Pkwy | BHAM | 2 | 28 | 240 | 3 | 204 | 135 | Cahaba | Submersible | KSB | | YES | 90 | Kohler | Ntl Gas |
| | Bessemer Hospital | 1005 Golf Course Rd | BES | 2 | 15 | 240 | 3 | 350 | 50' | Valley | FS/Can | Chicago | 8 | YES | 30 | Caterpillar | Diesel |
| | Black Creek | 710 Sandusky Rd | BHAM | 3 | 20 | 480 | 3 | 1500 | | | FS/Concret | Clow | | YES | 125 | Cummings | Diesel |
| | Black Creek Lagoon | 700 Sandusky Rd | BHAM | 3 | 15 | 480 | 3 | 1740 | | | Sub/Concre | Flygt | | YES | 125 | Cummings | Diesel |
| | Blue Ridge Blvd | Blue Ridge Blvd | HVR | 2 | 40 | 480 | 3 | 500 | 87' | Cahaba | FS/Can | Smith & Loveless | 10 | YES | 100 | Cummings | Ntl Gas |
| | Brighton | Howard Street | BRIGHT | 2 | 40 | 230/460 | 3 | 400 | 123' | Valley | FS/Can | Clow | 6 | YES | 113 | Kohler | Diesel |
| | Brookview Church | 3691 Belmont Rd | IROND | 2 | 60 | 230/460 | 3 | 800 | 152' | Shades | FS/Can | Fairbanks Morse | 8 | YES | 230 | Cummings | Ntl Gas |
| | Cahaba Village | 3100 Cahaba Village Plaz | BHAM | 2 | 6 | 460 | 3 | 75 | 84' | Cahaba | Submersible | Flygt | | YES | 45 | Generac | Ntl Gas |
| | Coleman Lakes | 5829 High Forest Dr. | MCC | 2 | 40 | 460 | 3 | 220 | 125' | Valley | FS/Can | Fairbanks Morse | 6 | YES | 100 | Onan | Ntl Gas |
| | Corbet Branch #1 | 3300 Oakwood Rd | BHAM | 2 | 50 | 460 | 3 | 700 | 135' | Village | FS/Can | Smith & Loveless | 10 | YES | 80 | Kohler | Diesel |
| | Corbet Branch #2 | 2289 Minor Pkwy | BHAM | 2 | 40 | 460 | 3 | 700 | 101' | Village | FS/Can | Smith & Loveless | 10 | YES | 60 | Kohler | Diesel |
| | Crosshaven | 3248 Midland Dr. | VESTH | 2 | 40 | 460 | 3 | 600 | 92' | Cahaba | Suction Lift | Gorman Rupp | 6 | YES | ST'BY PUMPING | Wisconsin | Ntl Gas |
| | Cunningham Creek #1 | 2841 Potts Hollow Rd | BHAM | 2 | 30 | 240 | 3 | 900 | 75' | Five Mile | FS/Can | Smith & Loveless | 10 | YES | 60 | Onan/Cumm | Diesel |
| | Cunningham Creek #2 | 1572 Red Hollow Rd | BHAM | 2 | 100 | 460 | 3 | 2200 | 120' | Five Mile | FS/Can | Smith & Loveless | 16 | YES | 175 | Onan/Cumm | Diesel |
| | Deerfoot Cove | 4884 Deerfoot Cove | JEFF | 2 | 40 | 460 | 3 | 390 | 132 | Turkey | Suction Lift | Gorman Rupp | 4 | YES | ST'BY PUMPING | Zenith | Ntl Gas |
| | Deerfoot Drive | 6756 Deerfoot Drive | JEFF | 2 | 5 | 460 | 3 | 100 | 36.1 | Turkey | Submersible | Flygt | 4 | YES | 35 | Cummins | Ntl Gas |
| | Edgewater | 7500 Arabia Ave. | JEFF | 4 | 15 | 240 | 3 | 240 | 169.2' | Valley | Suction Lift | Gorman Rupp | 6 | YES | ST'BY PUMPING | Wisconsin | Ntl Gas |
| | Ellington | 24 Park Road | JEFF | 2 | 11 | 460 | 3 | 99 | 73' | Valley | Submersible | Flygt | | YES | 35 | Cummins | Diesel |
| | Ellison | 4935 Ellison Street N | JEFF | 2 | 15 | 460 | 3 | 200 | 56' | Five Mile | Suction Lift | Gorman Rupp | 4 | YES | ST'BY PUMPING | Wisconsin | Ntl Gas |
| | Five Mile Creek Relief | 1007 Five Mile Rd | BHAM | 2 | 60 | 480 | 3 | 8400 | 18' | Village | Suction Lift | Chicago | 24 | YES | 135 | Caterpillar | Diesel |
| | Five Mile Creek West | 5308 Freeman Rd | BES | 4 | 130 | 480 | 3 | 3250 | 83' | Valley | Submersible | KSB | 14 | YES | 350 | Caterpillar | Diesel |
| | Gardendale #1 | 846 Odum Dr | GDL | 2 | 20 | 240 | 3 | 100 | | | Suction Lift | Gormann Rupp | | NO | | | |
| | Gardendale#2 | 882 Odum Rd | GDL | 2 | 20 | 240 | 3 | 100 | | | Suction Lift | Gormann Rupp | | NO | | | |
| | Gardendale Med Center | 2257 Decatur Hwy | GDL | 2 | 10 | 480 | 3 | 52 | 130' | Five Mile | Submersible | ABS | 4 | YES | 60 | Cummings | Ntl Gas |
| | Garywood | 2733 Owen Circle | HY T | 2 | 10 | 240 | 3 | 600 | 41' | Valley | FS/Concrete | Chicago | 8 | YES | 50 | Katolight | Diesel |
| | Goocher Road | 4685 Goocher Road | BES | 4 | 40 | 480 | 3 | 450 | 155 | Valley | FS/Can | Fairbanks Morse | 4 | YES | | Cummins | Ntl Gas |
| | Grand River | 1450 Grand River Pkwy N. | Leeds | 2 | 40 | 460 | 3 | 450 | 62 | Leeds | Suction Lift | Gorman Rupp | 6 | YES | ST'BY | GM | Ntl Gas |
| | Grubbs Avenue | 173 Summit Blvd | GDL | 2 | 3 | 480 | 3 | 56 | 38' | Five Mile | Submersible | KSB | | YES | 25 | Kohler | Diesel |
| | Haddon Place | 1443 Haddon Place | BES | 2 | 7.5 | 230 | 3 | 48 | 111' | Shades | Submersible | | | YES | | Cummins | Ntl Gas |
| | Haddon Trail | 1309 Haddon Trail | BES | 2 | 15 | 230 | 3 | 96 | 186' | Shades | Submersible | KSB | | YES | 35 | Cummins | Ntl Gas |
| | Halls Branch | 115 Green Ridge | BES | 2 | 50 | 240 | 3 | 4050 | 36' | Valley | FS/Concrete | Chicago | 14 | NO | | | |
| | Hawkins Lane | 3000 Hawkins Lane | JEFF | 2 | 10 | | 3 | 100 | 53' | Five Mile | Submersible | KSB | | YES | 60 | Katolight | Ntl Gas |
| | Hawkridge | 3523 Harrier Rd | TVL | 2 | 4 | 230 | 3 | 44 | 43' | Trussville | Submersible | ABS | 4" | YES | 25 | Katolight | Ntl Gas |
| | Highland 2 | 0 Highland Drive | JEFF | 2 | 40 | 460 | 3 | 350 | 131' | Cahaba | Suction Lift | Gorman Rupp | 4 | YES | ST'BY PUMPING | | Ntl Gas |
| | Hillshire 2 | 809 Hillshire Drive | JEFF | 2 | 40 | 460 | 3 | 350 | 133' | Cahaba | Suction Lift | Gorman Rupp | 4 | YES | ST'BY PUMPING | | Ntl Gas |
| | Hopewell | 3050 Headrick Rd (Unit 1) | BES | 2 | 88 | 480 | 3 | 529 | 172' | Shades | Submersible | Flygt | | YES | 300 | Cummings | Ntl Gas |
| | I-59 | 4190 Prince St | BES | 2 | 20 | 240 | 3 | 442 | 80' | Valley | FS/Can | Smith & Loveless | 6 | YES | 50 | Cummings | Diesel |
| | Johns Transfer | | BES | 2 | | 240 | 3 | | | Valley | Suction Lift | Gorman Rupp | | NO | | | |
| | Lance Way 2 | 303 Lance Way | JEFF | 4 | 15 | 460 | 3 | 140 | 89' | Village | Suction Lift | Gorman Rupp | 4 | YES | 100 | Cummings | Ntl Gas |
| | Lake sterling | 458 Cahaba River Rd | HVR | 2 | 15 | 230 | 3 | 500 | 45' | Cahaba | Suction Lift | Gorman Rupp | 6 | YES | ST'BY PUMPING | Wisconsin | Ntl Gas |
| | Letson Farms | 6327 N Clubview Cir | BES | 2 | 5 | 480 | 3 | 93 | 50 | Valley | Submersible | Ebara | 3 | YES | 40 | Olympian | Ntl Gas |
| | Lou George Loop | 7249 Lou George Loop | JEFF | 2 | 15 | 160 | 3 | 180 | 81' | Valley | Suction Lift | Gorman Rupp | 4 | YES | ST'BY PUMPING | | Ntl Gas |
| | Mariana | 4870 Mariana St N U1 35207 | JEFF | 2 | 15 | 460 | 3 | 200 | 81' | Five Mile | Suction Lift | Gorman Rupp | 4 | YES | ST'BY PUMPING | Wisconsin | Ntl Gas |
| | Mays Village | 0 Mays Village Road | BES | 2 | 15 | 240 | 3 | 220 | 60' | Shades | Suction Lift | Gorman Rupp | 6 | YES | ST'BY PUMPING | Wisconsin | Ntl Gas |
| | McAdory | 6251 Eastern Valley Rd | MCC | 4 | 15 | 460 | 3 | 180 | 168' | Valley | Suction Lift | Gorman Rupp | 6 | NO | | | |
| | Mcneil | 1300 22nd Ave | BES | 2 | 10 | 240 | 3 | 620 | | Valley | Subm/Concrete | ABS | | NO | | | |
| | Medical Center East | 17 Medical Park East | BHAM | 2 | 75 | 460 | 3 | 2000 | 97' | Village | Suction Lift | Gorman Rupp | 10 | YES | 350 | Onan | Diesel |
| | Minor Comm. School | 3410 Minor School Rd | BHAM | 2 | 5 | 460 | 3 | | | Village | Submersible | KSB | 4 | YES | 81 | Kohler | |

## *PUMP STATION INFORMATION*

| | NAME | ADDRESS | CITY | # OF PUMPS | EACH PUMP | | | GPM | TDH | BASIN | TYPE | BRAND | DISCHARGE | SBP | STANDBY POWER | | FUEL SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | HP | VOLT | PHASE | | | | | | | | RATING, KW | BRAND | |
| JEFFERSON COUNTY | Minor Parkway | 2715 Docena Cut-Off Rd. | BHAM | 4 | 200 | 460 | 3 | 4340 | 120' | Village | FS/Concrete | Morris | 24 | YES | 1040 | Caterpillar | Ntl Gas |
| | Morgan/Greenwood #1 | 5038 Pleasant Hill Rd | BES | 4 | 60 | 460 | 3 | 1400 | 88' | Shades | Suction Lift | Gorman Rupp | 10 | YES | 125 | Cummings | Diesel |
| | Morgan/Greenwood #2 | 3696 Hill Top Rd | BES | 4 | 60 | 460 | 3 | 1400 | 67' | Shades | Suction Lift | Gorman Rupp | 10 | YES | 125 | Cummings | Diesel |
| | Mountainview | 2030 Winnepeg Cir | SHAN | 2 | 14.1 | 240 | 3 | | | Shades | Submersible | ABS | | YES | 35 | Onan | Ntl Gas |
| | New Found Creek #1 | 4802 New Found Rd | GDL | 3 | 100 | 460 | 3 | 1150 | 184' | Five Mile | FS/Concrete | Goulds | 16 | YES | 400 | Caterpillar | Ntl Gas |
| | New Found Creek #2 | 4791 New Found Rd | GDL | 3 | 50 | 460 | 3 | 1350 | 89' | Five Mile | FS/Concrete | Morris | 16 | YES | 255 | Caterpillar | Ntl Gas |
| | Northbrook | 1420 Northbrook Dr | GDL | 2 | 3 | 230 | 3 | | | Five Mile | Submersible | Ebara | 2 | NO | | | |
| | Oaks Duplex | 30 Park Road | PL G | 2 | 3 | 240 | 3 | | | Valley | Submersible | Ebara | 4 | NO | | | |
| | Old Rocky Ridge Rd. | 2738 Old Rocky Ridge Rd | HVR | 2 | 20 | 230/460 | 3 | 320 | 85' | Cahaba | Suction Lift | Gorman Rupp | 6 | YES | ST'BY PUMPING | Wisconsin | Ntl Gas |
| | Orchard Avenue | 4371 Orchard Avenue | BES | 2 | 40 | 230/460 | 3 | 550 | 82' | Shades | FS/Can | Fairbanks Morse | | YES | 100 | Cummings | |
| | Overton Rd. #1 | 5830 Overton Rd | IROND | 2 | 40 | 480 | 3 | 980 | 116' | Shades | FS/Can | Fairbanks Morse | 10 | YES | 230 | Cummings | Ntl Gas |
| | Overton Rd. #2 | 5550 Overton Rd | IROND | 2 | 60 | 230/460 | 3 | 980 | 163' | Shades | FS/Can | Fairbanks Morse | 10 | YES | 230 | Cummings | Ntl Gas |
| | Paden Park | 6324 Bay Dr | MCC | 2 | 100 | 460 | 3 | 800 | 179' | Valley | FS/Can | USEMCO | | YES | 230 | Cummings | Diesel |
| | Parkwest | Minor Parkway | JEFF | 2 | 10 | 460 | 3 | 200 | 53' | Village | Submersible | Ebara | 4 | NO | | | |
| | Patton Creek #1 (150) | 2920 Hwy 150 | HVR | 3 | 40 | 460 | 3 | 1000 | 85' | Cahaba | FS/Concrete | Chicago | 10 | YES | 500 | Caterpillar | Diesel |
| | Patton Creek #2 | 3989 Lorna Rd | HVR | 3 | 20 | 460 | 3 | 325 | 78' | Cahaba | FS/Concrete | Chicago | 10 | YES | 257 | Caterpillar | Diesel |
| | Pinewood | 1327 Atkins-Trimm | HVR | 2 | 60 | 230 | 3 | 1400 | 34' | Cahaba | FS/Concrete | Chicago | 12 | YES | 155 | Caterpillar | Diesel |
| | Pipeshop | 2115 Long 12th St. N. | BES | 2 | 15 | 230/460 | 3 | 700 | 27' | Valley | FS/Can | Dakota | 8 | YES | | Kohler | Ntl Gas |
| | Pleasant Grove | 4924 Forest Rd | PL G | 4 | 40 | 460 | 3 | 600 | 195' | Valley | FS/Can | Fairbanks(Dakota) | 12 | YES | 125 | Cummings | Diesel |
| | Powder Plant Rd./West | 650 Powder Plant Rd | BES | 2 | 20 | 230/460 | 3 | 815 | 25' | Valley | Suction Lift | Gorman Rupp | 8 | YES | ST'BY PUMPING | Nissan | Propane |
| | Powder Plant Rd./459 | 2060 Powder Plant Rd | MCC | 2 | 10 | 480 | 3 | 530 | 35' | Valley | Submersible | Flygt | | YES | 35 | Onan | Ntl Gas |
| | Prudes Creek #1 | 680 Bivens Brookside Rd | GRVL | 2 | 20 | 460 | 3 | 780 | 61' | Prudes | Sub | Hydromatic | 14 | YES | | Cummings | Diesel |
| | Prudes Creek #2 | 4269 Brookville School Rd | GRVL | 2 | 20 | 460 | 3 | 380 | 40' | Prudes | Sub | Hydromatic | 10 | YES | | | |
| | Pump House Court | 1562 PumpHouse Court | VESTH | 2 | 15 | 240 | 3 | 100 | 144' | Cahaba | Submersible | KSB | | YES | 61 | Kohler | Ntl Gas |
| | Rice Creek | 3150 Morgan Rd | BES | 2 | 60 | 460 | 3 | 1000 | 102' | Shades | FS/Can | Fairbanks Morse | 8 | YES | 100 | Caterpillar | Diesel |
| | Rice Creek Lane | 2528 Rice Creek Lane | JEFF | 2 | 6 | 240 | 3 | 96 | 186' | Shades | Sub | Flygt | | YES | 37 | Kohler | Ntl Gas |
| | Ridgemont Drive | 4340 Ridgemont Circle | JEFF | 2 | 20 | 480 | 3 | 110 | 115 | Cahaba | Sub | KSB | | YES | 60 | Cummings | Ntl Gas |
| | Riverchase | 1859 Data Dr | HVR | 5 | 125 | 480 | 3 | 2325 | 100' | Cahaba | FS/Sub | Chicago | 20 | NO | 425 | Caterpillar | Ntl Gas |
| | Rosser Loop Road | 4730 Rosser Loop Road | BES | 2 | 10 | 460 | 3 | 100 | 94.9' | Valley | Submersible | Flygt | | YES | 35 | Cummings | Ntl Gas |
| | Saddler Gap | 910 Gadsden Hwy | BHAM | 2 | 40 | 230/460 | 3 | 464 | 110' | Village | FS/Can | Fairbanks Morse | 8 | YES | 100 | Onan | Ntl Gas |
| | Second Creek | 1051 Sandusky Rd | BHAM | 2 | 75 | 480 | 3 | 1410 | | Village | FS/Sub | Fairbanks | | YES | 175 | Caterpillar | Diesel |
| | Trussville 2 | 7771 Meadowlark Dr | TVL | 2 | 3 | 230/460 | 3 | 135 | 25.5' | Trussville | Suction Lift | Gorman Rupp | 4 | YES | 25 | Cummings | Diesel |
| | Trussville Northeast | 4800 Cardinal St. | TVL | 2 | 25 | 460 | 3 | 600 | 73' | Trussville | FS/Concrete | ITT | 8 | YES | 100 | Olympian | Ntl Gas |
| | Ves Trace | 1991 Ves Trace | VESTH | 2 | 3.7 | | 1 | 60 | 30' | Cahaba | Submersible | ABS | | YES | 25 | Katolight | Ntl Gas |
| | Warrior Plant | 700 Blackburn Ln. | WAR | 2 | | 208 | 3 | | | Warrior | Sub | Gorman Rupp | | YES | | | |
| | Westsmithfield | 1548 Westsmithfield Rd | BHAM | 2 | 11.3 | 240 | 3 | | | Valley | Submersible | Barnes | 4 | YES | | Kohler | Ntl Gas |
| HOOVER P.S. | 150 ( Jeff.Memorial) | 2662 Highway 150 | HV | 2 | 25 | 230 | 3 | 200 | 67' | Shades | Submersible | Hydromatic | 4 " | YES | ST'BY PUMPING | | Diesel |
| | 150 West/459 | 2385 Highway 150 | HV | 2 | 88 | 460 | 3 | 1400 | 143' | Valley | Submersible | Flygt | 12" | YES | ST'BY PUMPING | | Diesel |
| | Chesswood | 1647 Chesswood Cir. E. | HV | 2 | 5 | 240 | 1 | 100 | 38' | Shades | Submersible | Ebara | 4" | NO | | | |
| | Hoover H.S. (Mars Hill) | 400 Mars Hill Road | HV | 2 | 84 | 480 | 3 | 1000 | 166' | Shades | Submersible | ABS | 12" | YES | | Cummings | Ntl Gas |
| | Hoover Met. | 100 Ben Chapman Drive | HV | 2 | 20 | 480 | 3 | 149 | | Shades | Submersible | Flygt | | NO | | | |
| | Lakecrest | 2485 Highway 150 | HV | 2 | 88 | 460 | 3 | 1700 | 113' | Shades | Submersible | Flygt | 12" | YES | | Caterpillar | |
| | Magnolia Trace | 5400 Staduim Trace Dr. | HV | 2 | 120 | 460 | 3 | 1600 | 161' | Shades | Submersible | Flygt | 12" | YES | ST'BY PUMPING | | Diesel |
| | Moss Lane | 3762 S. Shdescrest Rd. | HV | 2 | 30 | 230 | 3 | 175 | | Shades | Submersible | Ebara | | NO | | | |
| | Parkwood | 3329 Parkwood Rd. | HV | 2 | 15 | 230/460 | 3 | 320 | 36' | Shades | FS/Can | Fairbanks Morse | | YES | 60 | ONAN | Ntl Gas |
| | Southwood | 3892 Parkwood Rd. SE | HV | 2 | 14.3 | 240 | 3 | | 210' | Shades | Submersible | ABS | | NO | | | |
| | Stadium Trace Pkway | 6201 Stadimum Trace Dr. | HV | 2 | 88 | 460 | 3 | 1375 | 161' | Shades | Submersible | Flygt | 10" | YES | ST'BY PUMPING | | Diesel |
| | Tearose | 1511 Tearose Cir. | HV | 2 | 3 | 230 | 3 | | | Shades | Submersible | Ebara | | NO | | | |
| | Trace Ridge Road | 211 Trace Ridge Road | HV | 2 | 5 | 230 | 3 | 48 | 122' | Shades | Submersible | Ebara | 4" | NO | | | |
| | Valewood Circle | 1936 Valewood Cir. | HV | 2 | 15 | 230 | 3 | 100 | 96' | Shades | Submersible | Ebara | 4" | NO | | | |
| | Willow Lake Drive | 5691 Willow Lake Dr. | HV | 2 | 5 | 230 | 3 | 100 | | Shades | Submersible | Ebara | 8" | NO | | | |
| | Wood Trace | 2140 Woodstrace | HV | 2 | 30 | 208 | 3 | 175 | 113' | Shades | Submersible | Ebara | 4" | NO | | | |

| | NAME | ADDRESS | CITY | # OF PUMPS | EACH PUMP | | | GPM | TDH | BASIN | TYPE | BRAND | DISCHARGE | SBP | STANDBY POWER | | FUEL SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | HP | VOLT | PHASE | | | | | | | | RATING, KW | BRAND | |
| GARDENDALE P.S. | (The) Arbors | 991 Wren Way | G'Dale | 2 | 7.5 | 230 | 3 | 100 | 58' | Five Mile | Submersible | Flygt | | YES | 20 | Onan | LP |
| | Brookwood Dr. | Brookwood Ct. | G'Dale | 2 | 5 | 230 | 3 | 90 | 75' | Five Mile | Submersible | MYERS | 3" | NO | | | |
| | Cottages At Fieldstown | 1960 Fieldstow Rd. | G'Dale | 2 | 25 | 230 | 3 | 500 | 77' | Five Mile | Suction Lift | Gorman Rupp | | YES | ST'BY PUMPING | Wisconsin | Ntl Gas |
| | Day Optometry | 1500 Hwy. 31 N. | G'Dale | 1 | 2 | 230 | 1 | | | Five Mile | Submersible | | | NO | | | |
| | Day Street Apartments | 330 Day St. Unit 6 | G'Dale | 2 | 2 | 230 | 1 | 42 | 105' | Five Mile | Submersible | ABS | 8" | NO | | | |
| | Dean Drive | 0 Dean Dr. | G'Dale | 2 | 5 | 230 | 3 | 120 | 45' | Five Mile | Suction Lift | Gorman Rupp | 8" | NO | | | |
| | Don Berri Apt. | 0 Godwin Dr. | G'Dale | 2 | 15 | 230 | 3 | 140 | 63' | Five Mile | Suction Lift | HYDROMATIC | | NO | | | |
| | Fieldstown Road | 0 Fieldstown Road | G'Dale | 2 | 30 | 230 | 3 | 250 | 155' | Five Mile | Suction Lift | SMITH&LOVELESS | | NO | | | |
| | K - Mart | 903 Decatur Hwy | G'Dale | 2 | 40 | 230 | 3 | 800 | 70' | Five Mile | Suction Lift | HYDROMATIC | 8" | YES | | Caterpillar | |
| | Laurel Ave. | 1810 Laurel Ln. | G'Dale | 2 | 7.5 | | | 300 | 106' | Five Mile | CAN | SMITH 7LOVELESS | 6" | NO | | | |
| | Minor Road | 617 Decatur Hwy | G'Dale | 2 | 3 | 460 | 3 | 91 | 30' | Five Mile | Submersible | Flygt | 4" | NO | | | |
| | Mt. Olive Rd. | 0 Mt. Olive Ave. | G'Dale | 1 | 2 | | | 30 | 40' | Five Mile | Sub | ABS | | NO | | | |
| | Payne Rd. | 200 Payne Rd. | G'Dale | 2 | 5 | 240 | 3 | 100 | 40' | Five Mile | Submersible | KSB | 4" | YES | 35 | Cummins | Ntl Gas |
| | Vineyards | 813 Blackberry Grov | G'Dale | 2 | 7.5 | 230 | 3 | 125 | 34' | Five Mile | Suction Lift | Gorman Rupp | | YES | ST'BY PUMPING | Wisconsin | Ntl Gas |
| | Woodbrooks Apt. | 330 Woodbrook Dr. | G'Dale | 2 | 5 | 230 | 3 | 120 | 45' | Five Mile | Suction Lift | Smith & Love | 6" | NO | | | |
| TRUSSVILLE P.S. | Cedar Creek Townhomes | 3690 Cedar Creek Cir. | T'Ville | 2 | 7.5 | 240 | 3 | 165 | 37' | Trussville | Submersible | Flygt | 4" | No | | | |
| | Hidden Trace | 3448 Annette St. | T'Ville | 2 | 15.0 | 240 | 3 | 80 | 85' | Trussville | Submersible | Yeoman | 4" | Yes | 60 | Olympian | Ntl Gas |
| | Service Rd. | 6032 Service Rd. | T'Ville | 2 | | | | 80 | 33' | | S.L. | Gorman Rupp | 4" | No | | | |
| | Sherman Oaks | 128 Redwood Dr. | T'Ville | 2 | 3.0 | 230 | 1 | 38 | 80' | Trussville | Submersible | Flygt | 3" | No | | | |
| | Vann Drive | 3536 Vann Dr. | T'Ville | 2 | | | | 35 | | | Sub/D | | 1 1/2" | No | | | |
| | Wisteria Trace | 5100 Wisterial Trace | T'Ville | 2 | 10.0 | 240 | 3 | 80 | 100 | Trussville | Submersible | Paco | 4" | Yes | 30 | Olympian | Ntl Gas |
| GRAYSVILLE P.S. | 2 nd Ave ( G'ville Park) | 2nd Ave. SW Unit J | G'ville | 2 | 5.0 | 230 | 3 | 100 | 51' | P. Creek | Submersible | Hydromatic | 3" | No | | | |
| | 3rd Place NW & 1st Ave NW | 160 3rd Place NW | G'ville | 2 | 3.0 | 240 | 3 | 50 | 96' | P. Creek | Submersible | Hydromatic | 4" | Yes | 30 | Kohler | Ntl Gas |
| | 3rd St. E & 2nd Ave NE | 212 2nd Avenue NW | G'ville | 2 | 15.0 | 230 | 3 | | 125' | P. Creek | Submersible | KSB | | Yes | 80 | Kohler | Ntl Gas |
| | 7 th Ave & Main St. | 773 1st Place SW | G'ville | 2 | 7.5 | 240 | 3 | 90 | 107' | P. Creek | Submersible | Ebara | 4" | No | | | |
| | 7th Street No. East | 60 7th St. No.East | G'ville | 2 | 5.0 | 240 | 3 | 50 | 36' | P. Creek | Submersible | Hydromatic | 3" | No | | | |
| HUEYTOWN P.S. | Chapel Drive #1 | 81 Chapel Dr. | H'Town | 2 | 2.0 | 115 | 1 | 20 | 46' | Valley Creek | Submersible | ABS | | No | | | |
| | Chapel Drive #2 | 100 Chapel Dr. | H'Town | 2 | 7.5 | 220/440 | 3 | 120 | 64' | Valley Creek | FS/Can | S&L | 4" | No | | | |
| | Mississippi Ave | 2217 Mississippi Ave. | H'Town | 2 | 7.5 | 220/440 | 3 | 350 | 35' | Valley Creek | FS/Can | S&L | 4" | Yes | 65 | Onan | Ntl Gas |
| | Oakwood Ave. | 427 Oakwood Ave. | H'Town | 2 | 10.0 | 230/460 | 3 | 40 | 53' | Valley Creek | FS/Can | | 4" | No | | | |
| | Vail Ave. | Vail Ave. | H'Town | 2 | 15.0 | 220/440 | 3 | 200 | 73' | Valley Creek | FS/Can | Fairbanks Morse | 4" | No | | | |
| | Walker Ave. | 134 Walker Ave. | H'Town | 2 | 7.5 | 220/440 | 3 | 100 | 45' | Valley Creek | FS/Can | S&L | 4" | No | | | |
| HOMEWOOD P.S. | Oak Grove Road | 401 Westwood Place | H'wood | 2 | 2.0 | 230 | 1 | 25 | 75' | Shades | Submersible | Ebara | 2" | No | | | |
| BIRMINGHAM P.S. | Alemeda | Almenda Ave & 33rd St | B'ham | 2 | 7.5 | 230 | 3 | 625 | 21' | Valley | FS/Can | Fairbanks Morse | 4' | No | | | |
| | Belmar | 520 Belmar Dr. | B'ham | 2 | 7.5 | 230 | 3 | 125 | 26' | Five Mile | Suction Lift | Hydromatic 40MP | 4' | No | | | |
| | B'ham Race Course | 1000 John Rogers Dr. | B'ham | 2 | 88 | 460 | 3 | 1275 | 138' | Village Cr. | Submersible | Flygt | 8' | No | | | |
| | Bham Zoo | | B'ham | 2 | 5 | 230 | 1 | | | Cahaba | Sub | Gould | | No | | | |
| | Collegeville | 2901 Huntsville Road | B'ham | 2 | 25 | 230 | 3 | 3650 | 19.5' | Village Cr. | FS/Concret | Worthington | 12' | No | | | |
| | Dennison | 228 Dennison Ave | B'ham | 2 | 3 | 230 | 3 | 75 | 26' | Valley Cr. | Suction Lift | Hydromatic | 4' | No | | | |
| | Fairmont | 2029N 41st Ct. | B'ham | 2 | 10 | 230 | 3 | 525 | 50' | Five Mile | FS/Can | Fairbanks Morse | 4' | No | | | |
| | Gadsden Highway | 808 Gadsden Highway | B'ham | 2 | 10 | 230 | 3 | 100 | 55' | Village Cr. | Suction Lift | Hydromatic | 4' | No | | | |
| | Goodrich | Goodrich Drive | B'ham | 2 | 15 | 480 | 3 | 645 | | Five Mile | Submersible | | | No | | | |
| | Harriman | 4400 Shuttesworth Dr | B'ham | 2 | 5 | 220/440 | 3 | 380 | 30' | Five Mile | FS/Can | F'banks/Clow | 4' | No | | | |
| | Jackson Heights | 2516 Tempest Dr | B'ham | 2 | 7.5 | 230 | 3 | 300 | 45' | Valley Cr. | FS/Can | Worthington | 6' | No | | | |
| | Lance Way | 303 Lance Way | B'ham | 2 | 20 | 230/460 | 3 | 100 | 155' | Village Cr. | Can | Clow | 4' | No | | | |
| | Larkway | 1630 Madison Ave SW | B'ham | 2 | 5 | 230/460 | 3 | 100 | 20' | Valley Cr. | FS/Can | Aurora | 4' | No | | | |
| | Lewisburge #1 | 4570 Lewisburge Road | B'ham | 2 | 20 | 230/460 | 3 | 250 | 85' | Five Mile | FS/Can | Clow | 4' | No | | | |
| | Lewisburge #2 | 4140 Lewisburge Road | B'ham | 2 | 20 | 230/460 | 3 | 400 | 80' | Five Mile | FS/Can | Clow | 4' | No | | | |
| | Mason City | 1449 Spaulding Road | B'ham | 2 | 10 | 230/460 | 3 | 250 | 49' | Valley Cr. | FS/Can | Fairbanks Morse | 4' | No | | | |
| | McAlpine | 1031 Ave H | B'ham | 2 | 20 | 220 | 3 | 2100 | 23.5' | Village Cr. | FS/Concret | Worthington | 8' | No | | | |

# PUMP STATION INFORMATION

| | NAME | ADDRESS | CITY | # OF PUMPS | EACH PUMP | | | GPM | TDH | BASIN | TYPE | BRAND | DISCHARGE | SBP | STANDBY POWER | | FUEL SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | HP | VOLT | PHASE | | | | | | | | RATING, KW | BRAND | |
| BIRMINGHAM P.S. | Mulga Loop | 523 Mulga Road | B'ham | 2 | | 480 | 3 | 175 | 153' | | Can | Flygt | 8' | No | | | |
| | Penefield | Penefield Drive | B'ham | 2 | 10 | 230 | 3 | 100 | 90' | Five Mile | FS/Can | F/M(Usemco) | 4' | No | | | |
| | Republic | 2225 Republic Drive | B'ham | 2 | 15 | 230 | 3 | 1400 | 27' | Village Cr. | FS/Concret | Chicago | 8' | No | | | |
| | Riggins | 3177 N 44th Ct. | B'ham | 2 | 15 | 460 | 3 | | | Five Mile | Submersible | Barnes | 4' | No | | | |
| | Robertsfield | 1139 Robertfield Ind. Dr. | B'ham | 2 | 7.5 | 230/460 | 3 | 85 | 30' | Village Cr. | FS/Can | Fairbanks Morse | 4' | No | | | |
| | Rosebud | 133 Rosebud Drive | B'ham | 2 | 20 | 230/460 | 3 | 100 | 93' | Village Cr. | FS/Can | Aurora | 3' | Yes | | Caterpillar | Diesel |
| | Sandusky | 301 Bibb Street | B'ham | 2 | 10 | 230/460 | 3 | 125 | 60' | Village Cr. | FS/Can | Fairbanks | 4' | No | | | |
| | Sears Drive | 9317 Sears Drive | B'ham | 2 | 7.5 | 240/440 | 3 | 125 | 47' | Village Cr. | Suction Lift | Hydromatic 40 | 4' | No | | | |
| | Southpark | 38 Southpark Road SW | B'ham | 3 | 5,7,10 | 230 | 3 | 700 | 29' | Valley Cr. | FS/Concret | Fairbanks Morse | 4' | No | | | |
| | Steiner | 2913 Steiner Ct. | B'ham | 2 | | | | 100 | 26' | | Suction Lift | Crown | 4' | No | | | |
| | Summit | 105 Summit Blvd | B'ham | 2 | 25 | 460 | 3 | 325 | 149' | Cahaba | Submersible | Fairbanks Morse | 4' | Yes | 125 | Onan | Diesel |
| | Tin Mill Road | 701 Tin Mill Road | B'ham | 2 | 7.5 | 230 | 3 | 350 | 48' | Valley Cr. | FS/Can | S&L | 4' | No | | | |
| | Viginiana | 9778 Virginianna | B'ham | 2 | 15 | 230/460 | 3 | 100 | 70' | Five Mile | FS/Can | F/M(Usemco) | 4' | No | | | |
| | Vulcan | 3324 N 35 St | B'ham | 2 | 5 | 230/460 | 3 | 380 | 20' | Village Cr. | FS/Can | Fair bank Morse | 4' | No | | | |
| | Wenonah | 2800 Wallace Cove Cir. | B'ham | 2 | 7.5 | 208/230 | 3 | 225 | 50 | Valley Cr. | FS/Can | F/M(Usemco) | 6' | No | | | |
| | Wylam | 5401 8th Avenue Wylam | B'ham | 2 | 20 | 200 | 3 | 315 | 105' | Valley | FS/Can | Fairbanks Morse | 6' | Yes | 160 | Caterpillar | Diesel |
| TARRANT | Brummit Heights | 2095 Weatherly Heights | Tarrant | 2 | 25 | 230/460 | 3 | 300 | 102' | Five Mile | Suction Lift | ITT Marlow | | Yes | 80 | Cummins | Ntl Gas |
| LEEDS | Ashville Road | Cedar Grove Road | Leeds | 1 | 10 | 460 | 3 | 690 | | Leeds | Submersible | Flygt | 4' | No | | | |
| | Leeds City Hall | 1430 9th Street S.E. | Leeds | 1 | 2 | 230 | 1 | 14 | | Leeds | Submersible | Ebara | 1 1/2' | No | | | |
| | Coosa Ave. | Coosa Avenue | Leeds | 2 | 60 | 230/460 | 3 | 450 | 185' | Leeds | FS/Can | Fairbanks Morse | 4' | No | | | |
| | Dover Circle | 1198 Dover Drive | Leeds | 2 | 7.5 | 208/230 | 1 | 360 | | Leeds | Suction Lift | | 4' | Yes | 43.6 | Onan | Ntl Gas |
| | Dunavant Rd. | Dunnavant Rd. | Leeds | 2 | 5 | 230/460 | 3 | 80 | 50' | Leeds | Suction Lift | Fairbanks Morse | 4' | No | | | |
| | Parkway Dr. | 1200 Parkway Dr. | Leeds | 2 | 7.5 | 230 | 3 | 450 | 35' | Leeds | Suction Lift | Fairbanks Morse | 4' | No | | | |
| | Rowan Spring | 998 Rowan Springs Dr. | Leeds | 2 | 7.5 | 230/460 | 3 | 200 | 27' | Leeds | Suction Lift | Gorman Rupp | 6' | Yes | 35 | Onan | Ntl Gas |
| BESSEMER | Academy | | | | | | | | | | | | | | | | |
| | Dublin Circle (Certex) | | | | | | | | | | | | | | | | |
| | Fox Hollies | Sew Pump-Fox Hollies B | Bess | 2 | 2 | 230/460 | 3 | 75 | 30' | Shades | Suction Lift | Fairbanks Morse | 4" | No | | | |
| | Jeff Metro | 7240 Jeff Metro Parkway | Bess | 2 | 3 | 460 | 3 | 150 | 21' | Valley | Submersible | Flygt | | Yes | | Cummins | Ntl Gas |
| | Vintage Trace | 5300 Eastern Valley Rd | Bess | 2 | 15 | 230/460 | 3 | 200 | 71' | Valley | Suction Lift | Gorman Rupp | 4" | Yes | ST'BY PUMPING | Wisconsin | Ntl Gas |
| | Visionland | 5051 Prince St. P | Bess | 2 | 71 | 460 | 3 | 517 | 193 | Valley | Submersible | KSB | | Yes | 200 | Onan | Ntl Gas |
| | WaterMark | 4500 Katies Way | Bess | 2 | 20 | 230/460 | 3 | 300 | 39.5' | Valley | Suction Lift | Gorman Rupp | | Yes | ST'BY PUMPING | Wisconsin | Ntl Gas |
| VESTAVIA | Longleaf - Alt. | 2001 Long Leaf Blvd. | V. Hillis | 2 | 20 | 460 | 3 | 150 | 105' | Cahaba | Submersible | KSS | | Yes | | Kohler | Diesel |
| | Magnolia Ridge | 2203 Magnolia Cove | Vestavia | 2 | 20 | 230/460 | 3 | 150 | 85' | Cahaba | Submersible | Smith& Love | 4 | Yes | 30 | Generac | Ntl Gas |
| | Surrey Oaks | 1801 Surrey Oaks W. | Vestavia | 2 | 5 | 230 | 3 | 85 | 76' | Cahaba | Submersible | Ebara | 4 | No | | | |
| | Wellington | 1708 Manchester Rd. | Vestavia | 2 | 10 | 240 | 3 | 100 | | Cahaba | Submersible | Fairbanks Morse | | No | | | |
| WARRIOR | Dana Drive | 391 Dana Road | Warrior | 2 | 10 | 460 | 3 | 227 | 37' | Warrior | Submersible | Ebara | 4" | Yes | 1250 | Caterpillar | Ntl Gas |
| | Ellis Rd | 9775 Ellis Rd. | Warrior | 2 | 10 | 230/460 | 3 | 300 | 63' | Warrior | Suction Lift | Gorman Rupp | 4" | Yes | 35 | Onan | Ntl Gas |
| PLEASANT GROVE | Garden Grove | 93 Annie Ln. | P.G. | 2 | 20 | 230/460 | 3 | 611 | 79 | Valley | FS/Can | Smith&Loveless | 4" | Yes | | Onan | Ntl Gas |
| | P.G. Shopping Center | 27 Park Rd. | P.G. | 2 | 7.5 | 230 | 3 | | | Valley | Submersible | Barnes | | No | | | |
| MOUNTAIN BROOK | Shookhill | 2821 Shookhill Circle | Mt. B. | 2 | 10 | 230 | 3 | | | Shades | Submersible | KSB/Flygt | 6" | NO | | | |

# Pretreatment Program

## Final

December 2016

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# Acronyms

| | |
|---|---|
| ADEM | Alabama Department of Environmental Management |
| AWPCA | Alabama Water Pollution Control Act |
| CFR | Code of Federal Regulations |
| CMOM | Capacity, Management, Operations, and Maintenance |
| CWA | Clean Water Act |
| DMR | Discharge monitoring report |
| FOG | Fats, oils, and grease |
| FSF | Food service facility |
| JCESD | Jefferson County Environmental Services Department |
| IMS | Information management system |
| LIMS | Laboratory information management system |
| NPDES | National Pollutant Discharge Elimination System |
| POTW | Publicly owned treatment works |
| SID | State indirect discharge |
| SSO | Sanitary sewer overflow |
| WWTP | Wastewater treatment plant |

# Pretreatment Program

## Program Overview

The 1977 amendments to the Federal Clean Water Act (CWA) and the Federal Pretreatment Regulations in Code of Federal Regulations (CFR) Section 40 Part 403 require Publicly Owned Treatment Works (POTWs) that have significant industrial users to administer a local pretreatment program. This local program must control the discharge of pollutants to the public wastewater treatment system from industries so that the industrial discharges do not:

- Cause an interference with the operation of the wastewater collection system and wastewater treatment plant (WWTP), including sludge disposal, or
- Pass through the WWTP and cause violations of either the WWTP's National Pollutant Discharge Elimination System (NPDES) Permit or the water quality standards of the receiving water body.

Jefferson County Environmental Services Department (JCESD) administers its Pretreatment Program under the regulatory authority of the Alabama Department of Environmental Management (ADEM). ADEM oversees the Alabama NPDES Program for industrial sources and the Pretreatment Program for significant indirect industrial sources. Under the NPDES program, industrial facilities are permitted to discharge stormwater and/or wastewater to surface waters of the state. Under the State Indirect Discharge (SID) program, industrial facilities are permitted to discharge to publicly or privately owned wastewater treatment works.[1]

ADEM's Industrial Section is also responsible for performing on-site inspections of industrial facilities and industrial wastewater treatment systems; reviewing plans, reports and applications pertaining to pollution prevention and design of wastewater treatment systems; and serving as a liaison between private citizens, municipalities, industrial facilities and other governmental agencies in the investigation and resolution of environmental compliance problems and complaints.

Industrial facilities that meet the definition of a "Significant Industrial Discharger" or "Significant Industrial User" are required to apply for a SID permit through ADEM. A "Significant Industrial User" is defined in the **Jefferson County Sewer Use Administrative Ordinance**, adopted November 6, 2012, as follows:

> "Significant Industrial User" shall mean any Industrial User of the System that is subject to Categorical Pretreatment Standards and/or who has a discharge flow of 25,000 gallons or more per average work day, or has a flow greater than 5% of the flow in the County wastewater treatment facility providing treatment, or has in its wastewater toxic pollutants as defined herein or within the Act, or is found by the County, ADEM, or the EPA to have significant impact, either singly or in combination with other contributing industries, on the System, the quality of sludge, or effluent quality

[1] http://www.adem.state.al.us/programs/water/industrial.cnt

ADEM's administrative code does not permit the agency to designate a local authority to enforce the Alabama Water Pollution Control Act (AWPCA) through the SID permit requirements; however, local POTW owners such as JCESD are still responsible for protecting the collection system and treatment facilities.

As of January 2016, there were 46 monitored industrial facilities within the JCESD service area, of which 30 are SID permitted, in addition to 8 landfills (see Significant Industrial User List in **Appendix A**). Most these industries are well established and include, but are not limited to, manufacturers of metals, fire extinguishers, and pipe coatings; dairy, food, and soda production; breweries, uniform cleaners and bakeries. JCESD also receives occasional requests for a one-time discharge related to a distinct event (i.e., for a groundwater discharge in a remediation situation).

## Purpose and Goals

The purpose of JCESD's **Pretreatment Program** is to:

- Prevent the introduction of pollutants into the sewer system that may interfere with the operation of the system or contaminate the resulting sludge
- Prevent the introduction of pollutants into the sewer system that will pass through the system inadequately treated into receiving waters or the atmosphere, or otherwise be incompatible with the sewer system
- Improve the opportunity to recycle and reclaim wastewaters and sludge from the sewer system
- Minimize the possibility of sanitary sewer overflows (SSOs)
- Calculate surcharge fees for administration of the Pretreatment Program and collection of revenue from industrial users for the transmission and treatment of industrial discharges

The goals of the **Pretreatment Program** are:

- Comply with all applicable State and Federal laws required by the CWA and the general Pretreatment Regulations (40 CFR, Part 403)
- Comply with all NPDES permit requirements

## Program Components and Approach

This program plan describes the following components of the JCESD **Pretreatment Program**:

- The legal authority to administer and enforce the local pretreatment program
- The permit application process and industry inspection and sampling procedures that were developed to ensure compliance with the regulatory requirements for a local pretreatment program
- Enforcement mechanisms for response to instances of industrial noncompliance
- A list of significant industrial users

The successful implementation of JCESD's **Pretreatment Program**, required by Federal and State laws, enables JCESD to better control the high strength waste introduced into its collection system, and provides a mechanism to monitor and enforce controls needed to prevent sanitary sewer surcharging and overflows into structures and the environment.

# Program Resources

## Related CMOM Program Documents and Other References

Other CMOM Program plans that reference or are referenced in the **Pretreatment Program** plan are as follows:

- CMOM Information Management Systems Program
- CMOM Program Organization
- Corrosion Control Program
- Fats, Oils & Grease (FOG) Management Program
- Legal Support Program
- Service Connection and Disconnection Program
- Water Quality Monitoring Program

## Staffing

The JCESD Pretreatment Program is comprised of an Environmental Coordinator, Sewer Service Supervisor, 4 inspectors and an administrative assistant. In addition, a fifth inspector position is currently vacant. This department is also responsible for administration of the Fats, Oils and Grease (FOG) Management Program (refer to the **FOG Management Program** for additional details).

While the staff time is divided between the Pretreatment and FOG Programs, this document focuses solely on the employees' pretreatment-related responsibilities, as detailed below:

- Calculate industry surcharges (fees) for sampling and analysis of their discharges by JCESD.
- Assist with data entry related to calculation of the industry surcharges.
- Review discharge applications and written requests, and provide a written determination in response to these requests.
- Maintain the comprehensive listing of industries monitored by JCESD.
- Schedule and conduct inspections for industry sampling. Inspectors have industry-specific training and sample monitored industries twice a year.
- Conduct groundwater monitoring well sampling throughout the County, landfill leachate sampling, and discharge sampling for the JCESD-owned waste water treatment facilities.
- Complete source track-down, as needed, in the event of an illicit discharge.

### Data Management

Microsoft Excel is the primary tool used for Pretreatment Program data management. A list of the significant industrial users and landfills that are monitored by the Pretreatment Program (**Appendix A**) is maintained in a Microsoft Excel spreadsheet. In addition, an industry-specific spreadsheet is maintained for each Significant Industrial User that is monitored by JCESD. The spreadsheet is used to record sample parameter data and calculate averages in key sample categories.

Industries are also required to self-monitor and submit a Discharge Monitoring Report (DMR) to ADEM and JCESD monthly. ADEM receives an electronic copy, while JCESD receives hard copy DMRs. The data provided in each DMR is entered manually into the industry-specific files.

JCESD also maintains a surcharges database that is used to determine the fees each industry is charged for sampling and analysis, based on the average parameters calculated from sampling events and DMR data.

For more information on JCESD's Laboratory Information Management System (LIMS) and other data management strategies used by JCESD, see the **CMOM Information Management Systems (IMS) Program** plan.

## Program Implementation

### Legal Authority

JCESD has the legal authority necessary to regulate and enforce the connections to its sanitary sewer system, including industrial users. The legal authority is described in Article IV of the **Jefferson County Sewer Use Administrative Ordinance**, adopted November 6, 2012. In addition, JCESD is responsible for complying with all NPDES permit requirements, which are issued and enforced by ADEM.

### Public Information

JCESD maintains a webpage with basic information on the Pretreatment Program as a means of public education. The webpage, shown in **Figure 1** on the following page, includes contact information for the department where the public can call with any questions pertaining to the Pretreatment Program.

### SID Permit Applications

Industrial facilities that meet the definition of a "Significant Industrial Discharger" or "Significant Industrial User" are required to apply for a SID Permit through ADEM. The applicant is required to submit a completed application with an engineering report to ADEM, and a hard copy is also sent directly to JCESD. JCESD reviews the application package and coordinates directly with ADEM during the review process. Ultimately, JCESD provides ADEM with a written "Letter of Acceptance" that states whether JCESD will accept the proposed discharge and if there are any recommendations for special permit conditions. An example letter is provided in **Appendix B**. JCESD also coordinates with and provides approvals to ADEM on permit renewals.




**Figure 1.JCESD Pretreatment Program Webpage**

In addition to obtaining a SID permit, industrial users must also apply for an impact permit before connection and discharge to the JCESD system will be granted. For more information on the impact permit process and fees, see the **Service Connection and Disconnection Program** plan.

## Industry Inspections and Sampling

ADEM is responsible for completing inspections of SID-permitted industries on an annual basis. ADEM utilizes standard forms for inspection and notification of violations that are available through their website (http://www.adem.state.al.us/programs/water/waterforms.cnt).

In addition, JCESD samples the monitored industries a minimum of twice a year. A hard-copy chain of custody form is completed for each sample that is taken and accompanies the sample through the analysis process. A copy of the JCESD chain of custody form is provided in **Appendix C**.

Typically, the inspector will take a sample in the field at a designated sampling location, complete the chain of custody form, and deliver the sample and form to Barton Laboratory for analysis. Not all of the parameters can be analyzed at Barton Laboratory and, when necessary, samples are sent to a contracted laboratory for further analysis. The sampling information is accessible through LIMS. Once the analysis is complete, chain of custody forms are returned to either the Environmental Coordinator or Sewer Service Supervisor and the sample data is input into the industry-specific spreadsheet file. This data will then be used to calculate the industry surcharges (fees) for JCESD sampling and analysis.

Targeted investigations are also performed by Pretreatment Program staff to identify the root cause of observed pipe defects. As an example, the department is currently investigating possible sources of corrosion observed downstream of food service facilities (FSFs).

### Enforcement

ADEM is primarily responsible for enforcement in the JCESD service area. ADEM will send a Notice of Violation to industrial users in violation of their SID permit limits or as the result of an illicit discharge. Also, in the event of a process upset or bypass, industrial users are required to notify JCESD so that the downstream wastewater treatment facility can prepare.

If JCESD receives any industry-related complaints or observes an obvious permit violation, the Environmental Coordinator will first talk with the offender and then contact ADEM to start the enforcement process. In addition, JCESD will send out a non-compliance letter to monitored industries when measured sample parameters are above required limits.

Per JCESD's NPDES Permit, the County is required to notify ADEM of SID discharges that have a disruptive impact on the collection system or WWTP. A standardized reporting form is used for this type of notification.

## Program Performance Metrics

Performance measures are important management tools that allow for continuous measurement and evaluation of program activities. Performance measures are designed to collect information that enable JCESD to determine if established goals and level of service are being met and if not, what activities need to be adjusted to meet program goals.

The Pretreatment Program performance measures established at JCESD are shown in **Table 1**.

**Table 1. Pretreatment Program Performance Metrics**

| Performance Measure | Formula | Definition | Desired Result | Data Interval |
|---|---|---|---|---|
| SID Permits Discharging to System | Number | Total Number and List of SID Permittees in each sewershed serving the treatment facilities | Maintain list of active SID Permittees, Location of Discharge and compounds/quantities discharged | Annual |
| Industrial Inspection and Monitoring | Number of Events | Scheduled or reactive sampling events at industrial users to assess compliance with JCESD and ADEM discharge requirements, as well as assess impacts to collection and treatment system | Maintain documentation concerning the compliance of industrial users and monitor potential toxic or corrosive discharges | Annual |
| Industrial Users Enforcement | Annual | Document enforcement action by JCESD or ADEM or both concerning an industrial user discharging to the JCESD collection and treatment system | Maintain documentation of industrial users' discharges, particularly with respect to release of potential toxic or corrosive compounds | Annual |

# APPENDIX

## Appendix A Significant Industrial Users List

| Significant Industrial Users (includes non-permitted) |
|---|
| ADM c/o Emergency Response Serviecs |
| Allied Energy |
| Aramark |
| Amerex Corporation |
| Avondale Brewing/Turner Key |
| Birmingham Coca-Cola Bottling |
| Birmingham Hide and Tallow |
| Birmingham Tank Wash/Southwash Services |
| BNSF Railway c/o Ecova, Inc-MS 2181 |
| Buffalo Rock Bottling Company |
| Cahaba Brewing |
| Chevron Bulk Terminal Birmingham |
| Cintas Corp. |
| Cowin Equipment Co., Inc. |
| CRB |
| Cummins Mid-South, LLC |
| Evans Meats |
| Good People Brewing |
| Goldwire Chevron |
| Greystone Foods |
| Hanna Steel |
| Harsco Industrial IKG |
| Home Baking Company |
| Kaiser Industries |
| Kent Corporation |
| L.B. FOSTER |
| M & B Metals |
| Max Coating |
| Mayfield Dairy Farms, Inc. |

| Significant Industrial Users (cont.) |
|---|
| Milner Milling |
| Milo's Tea Company, Inc. |
| Mrs. Stratton's Salads Inc. |
| Nutec Metal Finishing,LLC |
| Paramount Cleaners |
| Precoat |
| Progressive Metal Finishers, Inc. (Bill: Deaver Ind.) |
| Scholar Craft Products, Inc. |
| SRA Foods, Inc. |
| Target Container, Co. |
| Thompson Tractor Company, Inc. |
| Tractor Equipment Co. |
| Trim Tab Brewing Company |
| Turnipseed Truck Wash |
| Unifirst |
| Ventura Foods Inc. |
| W.W. Williams |

| Landfills |
|---|
| Cedar Hill |
| Eastern Area Landfill |
| Green Mountain |
| New Georgia Landfill |
| Pineview Landfill |
| Star Ridge |
| Santek |
| Willow Ridge Landfill |

## Appendix B Example Letter of Acceptance

**JEFFERSON COUNTY COMMISSION**

DAVID CARRINGTON – PRESIDENT
GEORGE F. BOWMAN
SANDRA LITTLE BROWN – PRESIDENT PRO TEMPORE
T. JOE KNIGHT
JAMES A. "JIMMIE" STEPHENS

**TONY PETELOS –**
**CHIEF EXECUTIVE OFFICER**

ENVIRONMENTAL SERVICES

Office of

DAVID A. DENARD
Director of Environmental Services
Suite A-300
716 Richard Arrington, Jr. Blvd. N.
Birmingham, Alabama 35203
Telephone (205) 325-5979
Fax (205) 325-5981

**LETTER OF ACCEPTANCE**

*DATE*

Jefferson County Environmental Services Department
Barton Lab/Industrial Pretreatment
1290 Oak Grove Road
Homewood, Al 35209

**RE: LETTER OF ACCEPTANCE FOR WASTEWATER DISCHARGE**

This correspondence shall serve as a request for a "LETTER OF ACCEPTANCE" for permission to discharge the following wastewater generated by _____ from the facility located at _____ to the Jefferson County sanitary sewer system:

**Chemical Name #1 –** _____

**Chemical Name #2 –** _____

**Chemical Name #3 –** _____

**Chemical Name #4 –** _____

We have enclosed a copy of a Material Safety Data Sheet for all chemicals and raw materials expected to be discharged in this wastewater.
This process wastewater is being generated from _____
_____

Our process wastewater *will or will not* receive any treatment prior to discharge to the sanitary sewer. [If there is any pretreatment, list here].

**We understand that this "Letter of Acceptance" is issued to _____ for the specific chemicals listed above and discharged from _____ to the sanitary sewer.** We also understand that any change in chemicals, volumes, and/or discharge pollutants must be approved by Jefferson County Industrial Pretreatment Office. We realize that the discharge of unapproved chemicals/pollutants or volumes may result in revocation of this "Letter of Acceptance and will require that the wastewater be sent off-site for disposal.

I am the person designated by _____ to be responsible for compliance with the conditions outlined in this "Letter of Acceptance".

Sincerely,

cc: *President/Plant Manager of Company*

*Xxx*
*Xxx*

*March 7, 2016*

---

***JEFFERSON COUNTY INDUSTRIAL PRETREATMENT PROGRAM***

**_____DISCHARGE APPROVED _____DISCHARGE DENIED**

***If approved, Jefferson County reserves the right to void or temporarily suspend this Letter of Acceptance at any time should this discharge cause a problem at the POTW or in the collection system.***

_____

Signature/Title Date

[*SUBMIT TWO ORIGINAL COPIES OF THIS DOCUMENT. THE COUNTY WILL SIGN, DATE AND SEAL BOTH ORIGINALS. ONE ORIGINAL WILL BE SENT BACK TO THE COMPANY. THE OTHER ORIGINAL WILL BE MAINTAINED IN COUNTY FILES.]*

## Appendix C Sample Collection Chain of Custody

Jefferson County Commission Environmental Services Department–Barton Laboratory

**Industrial Pretreatment Sample Collection / Chain of Custody / Request for Analysis**

| | |
|---|---|
| **Sample ID:** | Primary Measuring Device: |
| Sample Set-up Date: Time: | Sampler Type & ID#: |
| First/Start Sample Date: Time: | Flow Meter Type & ID#: |
| Last Sample Date: Time: | Sample Interval |
| Collection Date: Time: | Sample Type: Grab ☐ Composite ☐ {TVVC / TCVC / TCVV} |
| **DAY 1:** Weather Crew: | **DAY 2:** Weather Crew: |
| Sample Collected by: Date: Time: | |

Comments:

Sample Split? Yes ☐ No ☐ Facility Discharge-Gallons per day 24 hour:____ Instantaneous:_____ Time:_____

**CHAIN OF CUSTODY**

| Barton Laboratory | | | Industry Split | | |
|---|---|---|---|---|---|
| Relinquished by | Date | Time | Relinquished by | Date | Time |
| Received by | Date | Time | Received by | Date | Time |
| Relinquished by | Date | Time | Relinquished by | Date | Time |
| Received by | Date | Time | Received by | Date | Time |

MUST BE COMPLETED! Preservation Method: AX BX C D by WWTP ☐ / by Field Crew X☐ Time __ ____

**REQUEST FOR ANALYSIS**

| ☒ | Analyte | Value | Units | PM | Analyst Name | |
|---|---|---|---|---|---|---|
| | pH grab | | S.U. | | | Lab ☐ Field ☐ |
| | pH composite | | S.U. | | | Lab ☐ Field ☐ |
| | $BOD_5$ | | mg/L | | | |
| | TSS | | mg/L | | | |
| | COD | | mg/L | | | |
| | $NH_3$-N | | mg/L | | | |
| | Total-P | | mg/L | | | |
| | Oil & Grease | | mg/L | | | |
| | O&G non-Polar SGT-HEM | | mg/L | | | |
| | TRC | | mg/L | | | |
| | | | | | | |
| | Aluminum, T | | | | | |
| | Arsenic, T | | | | | |
| | Barium, T | | | | | |
| | Cadmium, T | | | | | |
| | Chromium, T | | | | | |
| | Cr Hexavalent | | | | | |
| | Copper, T | | | | | |

**PM** = PRESERVATION METHOD:
A --Iced, 4° C.
B --$H_2SO_4$ to pH<2
C --$HNO_3$ to pH<2
D --NaOH to pH>11

| ☒ | Analyte | Value | Units | PM | Analyst Name |
|---|---|---|---|---|---|
| | Iron, T | | | | |
| | Lead, T | | | | |
| | Lead, T Recov | | | | |
| | Magnesium, T | | | | |
| | Manganese, T | | | | |
| | Mercury, T | | | | |
| | Molybdenum,T | | | | |
| | Nickel, T | | | | |
| | Sodium, T | | | | |
| | Silver, T | | | | |
| | Tin, T | | | | |
| | Zinc, T | | | | |
| | Cyanide, T | | | | |
| | Chloride, T | | | | |
| | BTEX | | | | |

**ANALYTICAL METHODS:** R2=*EPA-600/4-79-020;* R3=*EPA Method 1664;* {##}=*EPA SW-846;* all others ref. *Standard Methods, 22nd Ed.* or later. DO, 4500-O C; Conductivity, 2510-B; pH, 4500-$H^+$ -B; $BOD_5$, 5210-B; $CBOD_5$, 5210-B; TSS, 2540-D; COD, 5220-D; TKN, *R2* 351.2; $NH_3$-N, 4500-$NH_3$-G; Total-P, 4500-P F; *ortho*-P, 4500-P F; TOC, 5310 B; Nitrate, 4500-NO3 H; Nitrite, 4500-$NO_2$ H; Turbidity, 2130 B; Hardness, 2340 C; Oil & Grease, *R3*, 1664; Mercury, 3112B {7471 B}. Lead or Silver, Total Recoverable {3005A},{200.7}; 3030-Fb, 3111-B,3113-B. TOTAL METALS--Aluminum, Antimony, Arsenic, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Selenium, Silver, Thallium, Tin,

*C* *20050414 AH, C:\Barton Forms\IPT Sample Collection, Chain of Custody*




# Corrosion Control Program

## Final

December 2016

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# Acronyms

| | |
|---|---|
| ARV | Air release valve |
| CCTV | Closed-circuit television |
| CMMS | Computerized maintenance management system |
| CMOM | Capacity, Management, Operations, and Maintenance |
| COF | Consequence of failure |
| CSSAP | Continuous Sewer System Assessment Program |
| GIS | Geographic Information System |
| $H_2S$ | Hydrogen sulfide |
| HDPE | High density polyethylene |
| JCESD | Jefferson County Environmental Services Department |
| LOF | Likelihood of failure |
| NASSCO | National Association of Sewer Service Companies |
| NPDES | National Pollutant Discharge Elimination System |
| PACP | Pipeline Assessment and Certification Program |
| PVC | Polyvinyl chloride |
| SOP | Standard operating procedure |
| SSO | Sanitary sewer overflow |
| TVI | Television inspection |

# Corrosion Control Program

## Program Overview

### Purpose and Goals

The purpose of the **Corrosion Control Program** is to identify and inspect infrastructure within Jefferson County's wastewater collection system that is corroded or at risk of corrosion, conduct defect analysis, and prioritize repairs and rehabilitation. This program will be conducted as part of the **Continuous Sewer System Assessment Program (CSSAP)**, described in the Jefferson County Environmental Services Department's (JCESD) **Engineering Program** plan. As part of the **CSSAP**, gravity sewers (pipes and manholes) will be assessed for defects. Additionally, the Corrosion Control Program will include the assessment of ductile iron pressure force main pipelines, air release valves (ARVs), and lift stations. Efforts will first be focused on priority areas where known or anticipated corrosion issues may have occurred, including corrosion related defects identified as part of the **CSSAP**. Areas of corrosion risk have also been identified downstream of industrial dischargers and restaurants, where corrosive materials are mingled with the sanitary sewer discharged from the premises, causing corrosion of the pipe inverts.

The goals of the **Corrosion Control Program** are to invest in activities that proactively identify corrosion sources in high potential areas and to initiate strategies to reduce the impacts of corrosion in the wastewater collection and conveyance system that would ultimately contribute to SSOs. In doing so, JCESD will improve overall compliance with its National Pollutant Discharge Elimination System (NPDES) permits by reducing the risk of sanitary sewer overflows (SSOs) resulting from the degradation of force main and gravity sewer pipes.

Infrastructure areas that may be considered high-risk areas for corrosion include those listed in **Table 1**.

**Table 1. High Risk Areas for Corrosion**

| Corrosion Risk | Corrosion Type |
|---|---|
| Flat, low velocity/long retention time gravity sewers areas | Internal – Hydrogen Sulfide ($H_2S$) corrosion |
| Pump stations in sequence or having long periods between pumping intervals | Internal - $H_2S$ corrosion |
| Turbulent areas, drop manholes, force mains, and force main discharge points | Internal - $H_2S$ corrosion |
| Inverted siphon discharges | Internal - $H_2S$ corrosion |
| Areas with chronic odor complaints | Internal - $H_2S$ corrosion |
| Exposed metal pipes in streams | External - Corrosion |
| Pipes that cross major petroleum or gas transmission pipelines | External - Corrosion from stray currents |
| Industrial areas where corrosive chemicals discharge | Internal - Acidic discharge corrosion |

In addition to identifying high risk areas in the collection system for corrosion inspection, pipe material also needs to be considered in the prioritization process. Concrete and iron pipes, which are susceptible to $H_2S$-induced internal corrosion and acidic discharges from industrial sites, need to be evaluated before vitrified clay and plastic pipes [polyvinyl chloride (PVC) and high density polyethylene (HDPE)] that are generally very resistant to hydrogen sulfide corrosion.

## Program Components and Approach

This plan describes the components and approach to implementing a corrosion control program that involves assessment of gravity sewer pipelines and manholes, as well as force mains, lift stations, and ARVs. This plan includes a description of the following:

- Resources – Staffing and Equipment
- Tools for Implementation
- Assessment Strategies
- Prioritization process for addressing corrosion-related defects

From past experience and inspections of the wastewater collection and conveyance system, JCESD has identified hydrogen sulfide as the primary source of corrosion in force mains, gravity pipes, manholes, and appurtenances. More recently, JCESD has identified gravity pipeline corrosion due to chemical discharges in the wastewater collection system as a significant issue in specific locations. See the JCESD **Pretreatment Program** plan for more information on how JCESD monitors industrial dischargers for compliance with industrial wastewater discharges. The customer listed has an ADEM issued State Indirect Permit to discharge to the JCESD sanitary sewer system with specific constraints. Through the collaborative work of JCESD and ADEM, the State of Alabama has taken necessary enforcement action to require more pretreatment at this particular site. There are corrosion issues in the invert of the pipe requirement rehabilitation and replacement of pipe segments to eliminate the threat of SSOs.

JCESD has also observed invert corrosion issues in gravity sewers located downstream of fast food restaurants and is currently working to identify the source of the corrosion so that a more comprehensive policy can be adopted to eliminate this source from entering the sanitary sewer system, which will ultimately protect public assets.

## Shades Valley Transfer Study

JCESD completed a study to identify corrosion issues in the Shades Valley Transfer, which is approximately 18 miles of sanitary sewer that provides wastewater service to portions of southeast Jefferson County, serving areas that include Irondale, Birmingham, West Bessemer, Mountain Brook, and Homewood. The corrosion control study performed by Tetra Tech included an assessment of 54 to 72 inch reinforced concrete pipe. The study included the identification of risk assessment priorities, focus areas to perform detailed corrosion inspections, and monitoring and testing of the Shades Valley Transfer for hydrogen sulfide. Data was collected to calibrate a computerized corrosion model to predict the useful life of the pipeline. Following the assessment, the remaining life was predicted for the Shades Valley Transfer based upon the structural and hydraulic integrity of the pipeline. (Also see **Shades Valley Transfer Study – Final Report**, April 2009, by Tetra Tech)

The study identified no structural deficiencies that required immediate repair, but there was approximately 4,360 feet of pipe located downstream of the Red Mountain Tunnel that needed to be rehabilitated. Additional recommendations included ongoing corrosion monitoring and additional flow monitoring and SCADA improvements to monitor the hydraulic capacity.

# Program Resources

## Related CMOM Program Documents and Other References

JCESD developed Standard Operating Procedures (SOPs) for various Capacity, Management, Operations, and Maintenance (CMOM)-related job duties, including ARV inspection and maintenance. Copies of the SOPs are provided in the JCESD's **Standard Operation Procedures and Work Process Documentation for Field Operations** manual.

Other CMOM program plans that are referenced and/or are related to the **Corrosion Control Program** plan include:

- CMOM Program Organization
- CSSAP, which is detailed in the Engineering Program plan
- Equipment and Supplies Management Program
- Gravity Line Preventive Maintenance Program
- Information Management Systems Program
- Pretreatment Program

JCESD's **Commercial and Residential Sanitary Sewer System Design and Construction Manual** (current version) describes the requirements for new sewer design and construction.

## Staffing

JCESD requires the careful coordination between the Line Maintenance and Pump Station Maintenance Divisions to execute a Corrosion Control Program, as each share responsibilities to operate and maintain the wastewater collection system. The Line Maintenance Division has responsibility for linear assets associated with the wastewater collection system, including gravity sewer manholes and associated items. The Pump Station Maintenance Division is responsible for maintenance of all pump stations, force mains, and air release valves in the wastewater collection system.

The two divisions coordinate efforts to assess the operation of pump stations and to identify corrosion sources in the wastewater collection system under the direction of the Chief Civil Engineer overseeing the Line Maintenance and Pump Station Divisions. Each Division also coordinates with the Construction Division to perform repairs on defective sewer assets, unless the remedial action exceeds the capabilities of the JCESD resources (For more information, see the **CMOM Program Organization** plan).

Pump Station personnel identify operation and maintenance (O&M) related issues while performing routine pump station inspections and reactive maintenance, and document observed corrosion and

other issues that require additional attention. Line Maintenance personnel perform cleaning and inspection services for gravity sewer pipes, manholes, and pump station wet wells. Line Maintenance crews document all defects found in pipes and manholes for further evaluation.

JCESD Sewer Construction personnel may perform repair work on sewer mains with corrosion defects. Due to the nature and complexity of required repair work, sewer replacement and repairs to address defects caused by corrosive forces may be performed by contractors.

# Program Implementation

## Data Review Process to Identify Infrastructure Corrosion or at Risk of Corrosion

Activities to be considered for the identification of infrastructure corroded or at risk of corrosion include the following:

- Use of Geographic Information System (GIS), asset databases, and as-built drawings to identify assets with the following attributes:
    - Metallic and concrete gravity sewer pipe and manholes
    - Ductile Iron force mains and force main discharge points
    - Air release valves and combination air release valves
    - Exposed metallic or concrete pipes in creeks
    - Pipes that cross major petroleum or gas transmission pipelines
    - Pump stations
    - Drop manholes (Memphis Tee)
    - Manholes with structural defects susceptible to corrosion
- Review and document chronic odor complaints that are stored in the JCESD Customer Service and the Cityworks database records of service requests. Such areas will be flagged for corrosion inspection.
- Review subbasins where sewers have been internally inspected and coded with corrosion defects, and utilize the linear asset data collected in executing the **Gravity Line Preventative Maintenance (GLPM) Program** to code and score corrosion defects for continuous identification of defective areas.
- Identify industrial areas where corrosive chemical discharges may be occurring or have occurred.
- Interview supervisors and field crews to identify chronic odor issues and areas of corrosion visually identified.
- Review flow monitoring data to identify pipe segments with low velocity/long retention time.
- Once assets are screened and listed for each identified Priority Area, proceed to the next step for inspection of infrastructure as part of the asset assessment strategy in the **CSSAP,** which is included in the **Engineering Program**, and **GLPM Program** plans.

- Assets identified with corrosion defects will be added to one of the following categories for the next steps of the Program:
    - Follow up inspections and monitoring for minor corrosion related defects.
    - Maintenance performed on the asset to mitigate corrosion issues, which could include chemical addition to neutralize the pH or oxidize the wastewater, and minimize formation of septic environments.
    - Perform rehabilitation to line or coat the asset as a barrier to protect from corrosives and further damage to the asset.
    - Perform replacement of the asset if significant structural damage has occurred.
    - Where identified corrosion related issues can be linked to a particular source (industry, commercial, other), the source and lessons learned will be incorporated into the long-term solution to mitigate corrosives from being discharged to the sanitary sewer system (i.e., policies, regulations).

## Prioritization and Corrosion Defect Analysis

Corrosion defects are analyzed to determine if the source of the corrosion is readily identified (i.e., hydrogen sulfide, other corrosive wastewater, or operations/maintenance related activities). This determination is based on the categories of deficiencies or defects identified, such as:

- Presence of hydrogen sulfide during inspections of manholes, gravity pipes, force mains, and pump stations, as identified by visual inspection or using a portable gas detector.
- Corrosion defects that are identified in areas with no presence of hydrogen sulfide will be investigated further to determine the source of the corrosion. This process will include identification of upstream industrial dischargers and review of Industrial Pretreatment waste sampling reports. Reports will be reviewed for low pH and the presence of potentially corrosive chemicals.
- Retention times of wastewater in wet wells may be a major component of hydrogen sulfide and slime build up that causes the generation of hydrogen sulfide gas. Operations and maintenance changes to reduce the impact of hydrogen sulfide gas on infrastructure will be evaluated.

Prioritization of repair of corrosion defects is an inclusive process that occurs in tandem with the **CSSAP,** as part of the **Engineering Program,** and the **Gravity Line Preventive Maintenance Program** processes. Corrosion defects and their severity provide for a condition score and form the basis for a subsequent risk ranking process of assets. Gravity sewers (pipe segments), force mains, and pump stations are assigned likelihood of failure (LOF) values and consequence of failure (COF) consideration. Corrective actions (repairs or rehabilitation) are then determined per the highest risk based priority.

## Inspection of Infrastructure at Risk of Corrosion

### Manholes

Manhole condition assessments for those assets identified during the data review and risk identification step will be completed using inspection technologies such as visual and/or pole camera inspections.

In the field, the presence of hydrogen sulfide may initially be identified by its distinctive "rotten egg" sulfur odor. Rodding crews and Television Inspection (TVI) crews also carry portable gas detectors, which are used to alert staff of the presence of $H_2S$ gas above preset concentration levels. The presence or absence of $H_2S$ gaseous odors will be noted and reported to the Line Maintenance Supervisor for further consideration and assessment.

Manholes that have severely compromised structural integrity and that pose a hazard to personnel or threat to the public are reported to supervisors immediately. Manhole corrective actions are documented by field crews and supervisors and entered into work orders. For more information on work orders and Cityworks, see the **CMOM Information Management Systems Program** plan.



**Figure 1.Concrete Manhole Corrosion from $H_2S$ Gas**

## Gravity Sewers

Pipe segments (manhole to manhole) or other areas identified as having high risk for corrosion have been included as priority areas in the **CSSAP** for asset condition assessments (See the description of the **CSSAP** in the **Engineering Program** plan for more information concerning practice and procedures for sewer system assessment). If not already included in previous assessment efforts, they will be inspected by Closed Circuit Television (CCTV) cameras and coded using the National Association of Sewer Service Companies' (NASSCO's) Pipeline Assessment and Certification Program (PACP) defect code format, including defects specifically related to corrosion.



**Figure 2.Ductile Iron Pipe $H_2S$ Corrosion**

If the areas have already been inspected, the previous CCTV inspection results will be reviewed to identify corrosion defects. The inspection results will be documented in accordance with the **CSSAP** described in the **Engineering Program** plan.

The defects will be analyzed to establish a priority-based schedule of rehabilitation by methods appropriate for each area. Should CCTV inspection results not indicate significant internal corrosion defects, the Supervisor overseeing the Line Maintenance Division will schedule a high frequency inspection on the area because of its susceptibility to corrosion.

The Supervisor may reduce the frequency of the accelerated inspections in the event that subsequent inspections do not indicate a rapid rate of corrosion of the pipe.




**Figure 3.Ductile Iron Pipe Invert Corrosion from Acidic Discharge**

## Ductile Iron Force Mains and Force Main Discharge Points

Corrosion has not been a significant contributor to date of force main failures within the JCESD service area. SSOs have occasionally been caused by a failed ARV or a damaged cleanout.

Cleanouts have been installed on force mains in the past for maintenance purposes, but have become a risk to JCESD as the above ground portions can be hit during mowing or other maintenance work, thus damaging the force main. When a force main breaks because of a damaged cleanout, JCESD removes the cleanout and makes necessary repairs to the force main to eliminate the risk of future breaks and SSOs at that location. JCESD will continue to monitor SSO and force main maintenance records to document corrosion issues and adjust assessment plans accordingly.

## Pump Stations

JCESD's Asset Management Program Manager is assisting JCESD with performing condition assessments of its wastewater pump stations. The work being completed includes a visual inspection to evaluate the physical condition each pump station to obtain adequate data to determine rehabilitation needs for the lift station. Pump drawdown tests are performed to assess the hydraulic performance of the pumps related to the design operating points. Electrical components are being assessed to document condition defects that require improvements. Wet well conditions are assessed to document observed corrosion effects of hydrogen sulfide gas on the concrete and steel components of the pump station.

The data is tracked and stored in the JCESD Infor computerized maintenance management system (CMMS). For more information on the Infor CMMS, see the **CMOM Information Management Systems Program** plan.

Capital improvements are prepared for defective assets, in whole or in part, associated with each pump station and are ranked based on severity and risk to affect performance.

## Air Release Valves

There are generally three types of ARVs:

- *Air Release Valve*: Includes slow air release function only; typically placed at intermediate high points along the force main
- *Air Vacuum Valve*: includes vacuum breaking and high volume air release; typically located at absolute high points, where the HGL drops below the pipe and air must enter to eliminate vacuum conditions, and along force mains to facilitate proper filling
- *Combination Air Valve*: Includes slow release, vacuum breaking air release, high volume air release plus, in many cases, controlled air release

Internal corrosion of a metallic pipe can occur when a vacuum breaking ARV introduces air into the pipe. For this reason, metallic force mains should use air release-only ARVs wherever possible, especially where the pipe is not protected with a ceramic epoxy or equivalent liner. Additionally, external corrosion can occur inside the ARV vault as the air from the pipe is released. If the air contains hydrogen sulfide, the external wall of the pipe, the ARV itself, the saddle and isolation valve attaching the ARV to the pipe, the vault, and the vault cover may all become corroded over time.

Air valves are inspected periodically on a priority basis in areas where there is a history of pump station or force main issues. Maintenance information can be found in the ARV SOPs, which are included in JCESD's **Standard Operation Procedures and Work Process Documentation for Field Operations** manual.

## Corrosion Control Provisions Included in New Sewer Design and Construction Guidelines

JCESD has developed the **Commercial and Residential Sanitary Sewer System Design and Construction Manual** (current version) that defines design standards for new wastewater system appurtenances that minimize the risk of corrosion. JCESD has a minimum slope criteria for all new gravity sewer pipe that is intended to produce a minimum velocity in the system, so that solids will remain suspended in the wastewater stream and conditions that promote hydrogen sulfide gasses are not created. During design of a new gravity system, peak storm flows, as well as dry weather flows, are considered; however, there may be periods of extreme low flow conditions that promote hydrogen sulfide generation. When such cases cannot be avoided, design should include corrosion barriers to cementitious infrastructure and ductile iron pipe or consider alternative pipe and/or manhole coating materials.

JCESD has also updated its specifications to include Permox™ interior liquid epoxy lining by TNEMEC. This modified polyamine ceramic epoxy coating is solids/abrasion resistant, specifically designed for wastewater applications, and provides resistance to hydrogen sulfide gas and subsequent pipe corrosion. JCESD has also expanded application for plastic pipes such as PVC and HDPE, as well as including Xypex™ as an alternative for areas with high corrosion potential.

# Program Performance Metrics

Performance measures are important management tools that allow for continuous measurement and evaluation of program activities. Performance measures are designed to collect information that enable JCESD to determine if established goals and level of service are being met and if not, what activities need to be adjusted to meet program goals. **Table 2** summarizes the performance measures that have been established at JCESD.

**Table 2. Corrosion Control Performance Metrics**

| Performance Measure | Formula | Definition | Desired Result | Data Interval |
|---|---|---|---|---|
| Pipe Corrosion Assessment | Value | Length of pipe inspected for corrosion. | # per month | Annual |
| Manhole Corrosion Assessment | Value | Number of manholes inspected for corrosion. | # per month | Annual |

# Fats, Oils & Grease (FOG) Management Program

**Final**

December 2016

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# Acronyms

| | |
|---|---|
| BMP | Best management practice |
| CCTV | Closed-circuit television |
| CMMS | Computerized maintenance management system |
| CMOM | Capacity, Management, Operations, and Maintenance |
| CSSAP | Continuous Sewer System Assessment Program |
| FAQs | Frequently asked questions |
| FOG | Fats, oils, and grease |
| FSF | Food service facilities |
| GCD | Grease control device |
| GIS | Geographic Information System |
| GLPMP | Gravity Line Preventive Maintenance Program |
| GRD | Grease removal device |
| I/I | Infiltration and inflow |
| IMS | Information management system |
| JCDH | Jefferson County Department of Health |
| JCESD | Jefferson County Environmental Services Department |
| NCN | Non-compliance notification |
| NPDES | National Pollutant Discharge Elimination System |
| PM | Preventive maintenance |
| SOP | Standard operating procedure |
| SSO | Sanitary sewer overflow |
| SSORRP | Sanitary Sewer Overflow Response and Reporting Program |
| USEPA | United States Environmental Protection Agency |
| WWTP | Wastewater treatment plant |

# FOG Management Program

## Program Overview

### Purpose and Goals

The purpose of the Jefferson County Environmental Service Department (JCESD) **Fats, Oils, and Grease (FOG) Management Program** is to:

- Provide necessary resources and training to sustain the program.
- Provide grease trap and interceptor design standards.
- Regularly inspect grease traps and interceptors.
- Maintain a current food service facility (FSF) inventory.
- Establish FOG best management practices (BMPs).
- Provide a fair and credible enforcement component.
- Administer a public education program for residential sources of FOG.
- Keep FOG data current in the information management system (IMS) program.

The goals of the **FOG Management Program** are to:

- Minimize FOG from entering the County sanitary sewer infrastructure in concentrations or rates that exceed those established by the County.
- Preserve sewer capacity by minimizing FOG related flow obstructions.
- Reduce or eliminate collection system surcharges and sanitary sewer overflows (SSOs) caused by FOG related flow obstructions.
- Prevent FOG related maintenance and operational issues associated with sanitary sewer infrastructure, thereby reducing operational and maintenance costs.

### Program Components and Approach

The **FOG Management Program** includes a comprehensive system of administrative, management, regulatory oversight, and documentation activities. The program plan includes a description of each program element. In addition, the program includes procedures for inspection and compliance with JCESD design and construction standards.

Specifically, the following items are included in this program document, where appropriate:

- A description of the FOG Management Program, including but not limited to, a summary of the extent of FSFs and the County inspections protocols, including the frequencies and priorities of inspections.
- Written standard operating procedures, including procedures for identifying and permitting existing and new unpermitted facilities.

- Key performance metrics for tracking and documenting the performance and effectiveness of the **FOG Management Program**, as well as foster strategies to improve the **FOG Management Program**.
- Data attributes for the **Sewer Mapping Program** (as described in the **Engineering Program** plan) to allow the FOG Management Program data to be compared in the JCESD computerized maintenance management system (CMMS) against other pertinent data, such as the occurrence of SSOs and permit violations.
- Training program tailored to increase communication efficiency between sewer system operations and maintenance personnel and FOG Management Program personnel.

SSOs present a major concern to wastewater agencies across the country and they can occur due to individual or the synergistic interaction of multiple agents, such as FOG, roots, infrastructure defects, or extraneous flows. Sewers are designed to carry FOG, but there are many variables that can alter the initial design conveyance capacity of the sewer if sewer maintenance or FOG management are deficient. Although utilities across the United States differ on how FOG contributes to SSOs in their system, it is widely reported that FOG can be the most frequent sole or contributory cause of SSO events. Reports also indicate wet weather infiltration and inflow (I/I) may be a less frequent SSO cause, but it can be the greatest SSO volume impacting source.

The "root cause" of SSOs is difficult to accurately assess and, therefore, national reporting figures on the extent of FOG being the source of SSOs should be considered, understanding that methods of identifying the root cause will vary from surface level visual inspection to internal pipe inspections using closed circuit television (CCTV) inspection technology. However, regardless of the actual percentage of direct or indirect causative impact that FOG has on SSOs, it is good practice to manage its introduction into the sewer system, including through FOG regulatory measures, especially downstream of heavy grease producing locations such as FSFs or localized areas of residential housing.

The **FOG Management Program** is intended to reduce the number of SSOs, contributing to compliance with JCESD's National Pollutant Discharge Elimination System (NPDES) permits. JCESD has the legal authority to implement and enforce the **FOG Management Program** to reach this goal through the **Jefferson County Sewer Use Administrative Ordinance**, described in the **Legal Support Program** plan.

# Program Resources

## Related CMOM Program Documents and Other References

The following Jefferson County Administrative Ordinances (current versions) are referenced in this Plan:

- Jefferson County Sewer Use Administrative Ordinance
- Jefferson County Sewer Use Charge Ordinance

JCESD developed standard operating procedures (SOP) for implementation of the FOG Management Program. This document (**Fats, Oils & Grease (FOG) Program Food Service Establishment Inspection Training Guide and Standard Operating Procedures, February 2013**), included as **Appendix A**, details

safety, equipment, inspection procedures and documentation, enforcement actions and data management related to the program. A copy of the FOG Inspection form is included in **Appendix B**.

JCESD's **Commercial and Residential Sanitary Sewer System Design and Construction Manual** (current version) describes the requirements for grease control devices.

Other CMOM Program plans that are referenced in the **FOG Management Program** plan are as follows:

- CMOM Program Organization
- Legal Support
- Customer Service
- Overflow Tracking
- Sanitary Sewer Overflow Response and Reporting Program (SSORRP)

## Staffing

Currently, a nine-person staff supports the JCESD FOG Management Program and activities related to the Pretreatment Program, including one manager, one supervisor, five inspectors, and an Administrative Assistant. While the JCESD Director has overall responsibility for the FOG Management Program, day-to-day activities of the program are supervised by the Environmental Coordinator (Barton Laboratory) and are executed by the Sewer Service Supervisor and five Sewer Service Inspectors. Outreach and community education are administered by the Public Relations Coordinator. Oversight of the FOG Management Program is provided by the Environmental Compliance Administrator.

For more information, see the FOG Management Program staffing chart in the **CMOM Organization Program** plan.

## Information Management System

The databases used by the FOG Management Program are compatible with electronic data management systems used by other County Departments and Divisions, to allow for data sharing with other entities. Sharing of compatible information increases the communication value between the departments and provides a consistent focus on JCESD's goal of minimizing SSOs.

Identification of FSFs that are non-compliant with their FSF permit or the County FOG Regulations is provided to the Line Maintenance Division for evaluation and scheduling of sewer inspection and cleaning within the CMMS. Sewer lines downstream of these FSFs may be subject to an increased potential of FOG related blockages. Cleaning, maintenance, and CCTV activities in these areas should be scheduled more frequently until a sense of any impact is determined.

Strategies for further integration of FOG data into the CMMS are being evaluated, including incorporating the Grease Control Program database, inspection data, and work order preparation into the Cityworks CMMS system.

# Program Implementation

## FOG Characterization

An effective and efficient FOG Management Program must be based on a good understanding and knowledge of FOG sources and the extent of FOG related problems. JCESD completes a FOG characterization study on an annual basis to determine problem maintenance areas in the sanitary sewer system and the root causes of the problems; particularly if there is a pattern of higher than expected system surcharging or SSOs. The characterization study assists JCESD in determining the root causes that appear to be FOG-related and which FOG sources are the primary contributors to the issues.

## FOG Sources

Major contributors to FOG in the JCESD sewer collection system are commercial establishments involved in food preparation. There are over 2,000 active FSFs in Jefferson County. Residential areas, particularly locations of high density housing and apartments, can also be significant FOG sources. JCESD's FOG Management Program includes strategies for addressing and minimizing, where possible, FOG contributions to the sanitary sewer system from both sources.

## Food Service Facility FOG Management Requirements

All new FSFs that discharge FOG into the system are required to install, operate, and maintain properly sized grease removal devices (GRDs), as indicated in the **Jefferson County Sewer Use Administrative Ordinance** and in accordance with all regulatory authorities having jurisdiction. New FSF construction includes remodels where plumbing is being re-worked, excavation is being performed on-site, or when there is a change in size or type of food preparation equipment. Existing FSFs may be required to modify existing grease control devices (GCDs), or to install new or additional GCDs.

Permits are required for all GCDs/GRDs in accordance with the process detailed in **Figure 1**. Permitting program documents, including FSF Permitting Frequently Asked Questions (FAQs), New FSF Permitting Guidelines, Grease Control Program Permit Application/Application for Exemption, and Grease Interceptor Cleaning Guidance, are included in **Appendix C** through **Appendix F**. A list of currently permitted FSFs is provided in **Appendix G**.

For more information on grease control permit requirements, see the **Jefferson County Sewer Use Administrative Ordinance**, Article VIII.A.

## Grease Traps

Grease traps are required for each new and existing FSF if the service provided by the establishment includes food preparation, operation of a food grinder or an automatic dishwasher, as follows:

- Grease traps must have a capacity of not less than two (2) 1,000 gallon traps installed in series for a total capacity of 2,000 gallons;
- JCESD may approve the use of a single 1,000-gallon trap where site conditions prevent the installation of two 1,000 gallon traps in series; and
- JCESD may approve the use of a single 1,000-gallon trap for a FSF if it is demonstrated that a single 1,000-gallon trap can accommodate the nature of the food service provided.

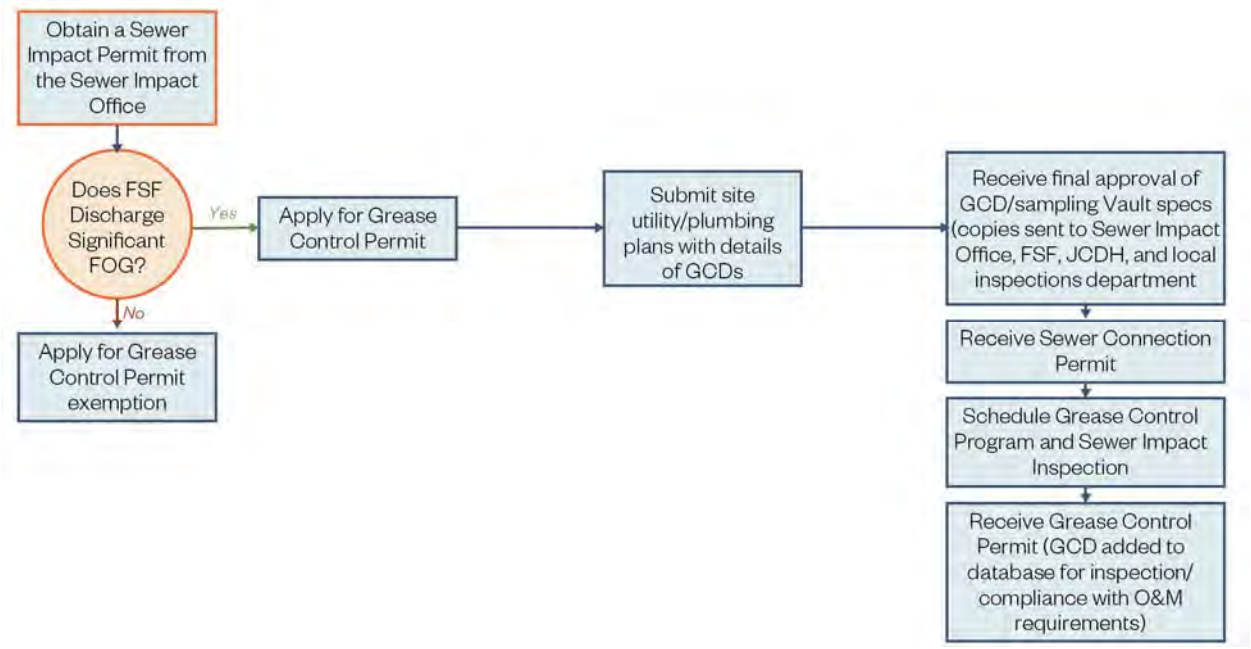


**Figure 1. Grease Control Permit Process**

Grease trap specifications can be obtained from the JCESD Grease Control Program website. If additional FSFs are added to an existing trap, a professional engineer must certify that the existing trap can properly function with the additional FOG loading.

For more information on grease trap requirements, see the **Jefferson County Sewer Use Administrative Ordinance**, Article VIII.A.2.a.

## Grease Interceptors

Grease interceptors may be approved for use by the County for indoor installations if site conditions prevent the installation of outdoor grease traps, if the FSF operates infrequently, or if the facility is replacing an existing grease interceptor, provided that the FSF is not equipped with a dishwasher or a food waste grinder.

Grease interceptors must be sized in accordance with Plumbing and Drainage Institute Standard PDI-G101, Testing and Rating Procedure for Grease Interceptor with Appendix of Sizing and Installation Data.

Discharge of the following materials to an indoor grease interceptor is prohibited:

- Wastewater with a temperature higher than 140 degrees F,
- Wastewater discharged from a dishwasher,
- Acidic or caustic cleaners, or
- Wastewater discharged from a food waste grinder (disposal).

For more information on grease interceptor requirements, see the **Jefferson County Sewer Use Administrative Ordinance**, Article VIII.A.2.b.

## Alternative Grease Removal Technologies

Alternative grease removal technologies may be approved by the County for the purpose of controlling FOG discharge into the sewer system in lieu of a standard grease interceptor or trap if JCESD determines that the device employing such technology is at least as effective as a standard grease interceptor or trap. The approved device must be wired directly to a circuit breaker and must contain audio and visual alarms that can only be reset by opening and servicing the device.

The user must provide the following information to JCESD for the evaluation of the proposed technology:

- A design that is specific to the FSF submitting the information, prepared and certified by a professional engineer. The County will not consider a general proposal.
- Complete information regarding the performance of the technology and proof of effectiveness in removing FOG from the waste stream.
- Specifications for maintenance service and frequency.
- The manufacturer's installation and operation manuals.

If the alternative technology is approved, the user must install and maintain the device in accordance with the manufacturer's installation and operation specifications. Maintenance must be performed at least as often as stipulated in the permit, even if the manufacturer specifies less frequent maintenance.

For more information on grease control permits requirements, see the **Jefferson County Sewer Use Administrative Ordinance**, Article VIII.A.2.c.

## FOG Disposal Options

FSFs must ensure that all waste material removed from FOG traps and interceptors is disposed of in a manner that complies with all federal, state, and local statutes, rules, regulations, policies and ordinances.

All grease haulers must be licensed by the Jefferson County Department of Health (JCDH) and hold a Septic Tank Haulers Permit. Grease trap waste must not be combined with septic tank waste and transported to the disposal site as part of a mixed load. Discharge of mixed septage and waste grease loads are prohibited at both the Airport Dump Site and the Village Creek Wastewater Treatment Plant (WWTP) facility.

Grease manifests must accompany all grease interceptor and trap waste to the disposal site. The grease hauler must complete the middle portion of the grease disposal manifest and deliver the manifest to the disposal site for completion and return to the FSF. The waste hauler must also sign the transporter portion of the FOG manifest and leave a copy of the manifest with the owner or user of the FOG trap and/or interceptor. The FOG manifest must be presented to the disposal operator to complete and sign the disposal section, and one copy of the manifest must be left with the disposal site operator. Completed copies of the FOG manifests are reviewed by JCESD's FOG Management Program monthly.

Grease trap maintenance must include the following minimum services:

- Complete removal of all grease interceptor or trap contents, rather than skimming the top grease layer;
- Thorough cleaning of the grease interceptor or trap to remove grease and scum from inner walls and baffles;
- Filling cleaned interceptor or trap with cold potable water; and
- Completion of middle section of the grease disposal manifest form and delivery to waste disposal site along with the grease interceptor or trap waste.

Top skimming, decanting or back flushing of the grease interceptor or trap or its contents for reducing the volume of waste to be hauled is prohibited. Vehicles capable of separating water from grease must not discharge separated water into the grease trap or into the wastewater collection system.

Only grease collected in Jefferson County may be discharged at the Village WWTP. Grease collected outside of Jefferson County must not be discharged at the Village WWTP or at any other location in the Jefferson County sanitary sewer system. Grease disposal manifests must accompany all grease interceptor and trap waste and be delivered to the grease disposal site.

FSFs and the County are responsible for verifying that waste material removed from FOG traps and interceptors is disposed of in a manner that complies with the requirements of the County FOG Regulations. FSFs must have the FOG manifests available on site for inspection by the Compliance Inspector. Compliance Inspectors must check that the FOG manifest is complete and it proves delivery by the transporter to an authorized disposal or processing facility. FOG manifests must be available for inspection for a period of three (3) years as specified by the **Jefferson County Sewer Use Administrative Ordinance** Article VIII.C.

## Private Haulers Program

Any person or company engaged in the hauling of wastewater (either septic or grease) to the Jefferson County sanitary sewer system must have a current, valid certificate of competency from the JCDH and a license from the Alabama Onsite Wastewater Board. The discharge of hauled wastewater to the sanitary sewer system will not be permitted without such documentation of credentials.

Grease disposal and septage disposal is permitted at designated JCESD WWTPs by purchase of a disposal ticket book from the JCESD Permitting and Inspections Office. Each ticket allows the disposal of 300 gallons of grease (or 250 gallons of septage) at the designated plants listed below.

- **Grease and Septage**: Village Creek WWTP
- **Septage Only**: Septage Facility near Birmingham Municipal Airport, Valley Creek WWTP

The County reserves the right to refuse any hauled wastewater when it will interfere with the effective operation of the system and /or treatment plant. The County may collect samples of each load of hauled wastewater to ensure compliance with guidelines and /or require the hauler to provide an analysis of the wastewater of any load prior to discharge. Mixed loads of grease trap waste and septage waste are not allowed.

The County maintains information related to grease hauler requirements and disposal options on the JCESD website: http://www.jeffcoes.org/Default.asp?ID=95.

## Routine Food Service Facility Inspection

FSFs are inspected by JCESD annually at a minimum, in accordance with the process shown in **Figure 2** on the following page. Inspections follow the protocol detailed in the **Fats, Oils & Grease (FOG) Program Food Service Establishment Inspection Training Guide and Standard Operating Procedures**, dated February 2013 (**Appendix A**). A copy of the FOG Inspection form is included in **Appendix B**.

## FOG Public Education

### Food Service Facility Best Management Practice Education

Article VIII of the **Jefferson County Sewer Use Administrative Ordinance** requires proper disposal of FOG using BMPs. Specific BMPs regarding handling, storage, and disposal of FOG are detailed in the County FOG Regulations. Prohibited practices include pouring FOG down the drain, putting food scraps down the drain, or utilizing a hot water rinse for cooking implements, dishes, and pans to rinse FOG down the drain.

In addition, the JCESD FOG Management Program reduces the FOG discharge loading into the sewer system by educating FSFs on BMPs, which help reduce FOG entering the grease trap or interceptor. BMPs include the prohibition of certain practices; good housekeeping tips and pollution prevention; operation and maintenance procedures; and other practices established by FSF management.

JCESD's FSF FOG Management education campaign includes:

- Providing a checklist of BMPs with the FSF permit.
- Providing posters/kitchen signage on BMPs and waste minimization practices.
- Including a BMP checklist with the FSF Inspection Sheet for Compliance Inspectors to use.
- Witnessing kitchen practices performed by FSF employees during inspection.
- Dispensing of educational brochures (e.g., the County posters and brochures on proper grease management practices) to FSFs.
- Dispensing of educational video to FSF Managers and requiring all employees to watch the video and be familiar with waste minimization practices.
- Providing communications in multiple languages.
- Reinforcing that specific BMPs are mandated by the County FOG Regulations.

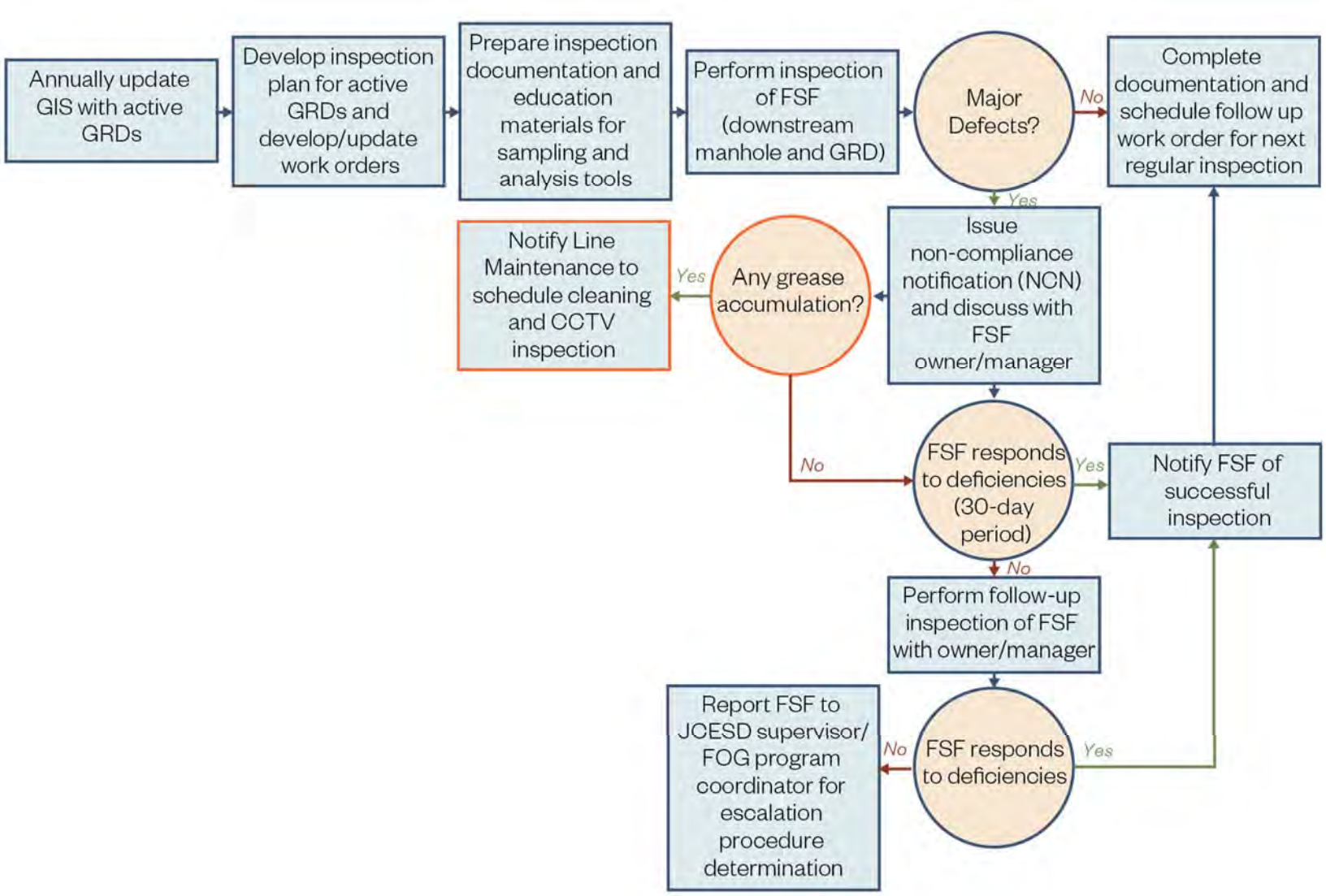


**Figure 2. Food Service Facility Grease Removal Device Inspection Process**

## Residential FOG Public Outreach

Residential communities are also large contributors to SSOs related to FOG. JCESD recognizes that public education is a critical component of an effective FOG Management Program. JCESD produced (in 2007) a countywide public education campaign on grease management that received high accolades from the public and neighboring counties. JCESD developed brochures, posters, for its outreach campaign.

JCESD maintains public information on residential FOG management, including a description of the Household Grease Recycling Program and the location of residential grease recycling facilities, on the Jefferson County Website at http://www.aeconline.org/recycling/dropoffs/jefferson-county-cooking-oil-and-grease-collection.

Annual public education campaigns are initiated and will be expanded in the future. The JCESD residential FOG Management education campaign includes the following activities:

- Distributing educational brochures at municipal facilities and other County events (e.g., WEF brochure "Fat Free Sewers" on proper grease management practices at municipal bill payment locations and street fairs).
- Issuing periodic public service announcements (e.g., local newspapers, County web site, radio morning shows) prior to pending holidays to remind residents of proper grease management practices.
- Providing educational brochures to apartment complexes (e.g., FOG letter, “Fat Free Sewers” brochure) after finding FOG immediately downstream of apartment connection.
- FOG door hangers distributed to homes on block upstream of discovered FOG build up in County sewer.
- Providing educational brochures (e.g., FOG BMP posters for posting around apartment complex) to apartment owners/managers. Information is provided in English and Spanish languages, as appropriate for the community.

For more information on JCESD’s public education and information efforts, see the **Customer Service Program** plan.

## Evaluation of FOG Locations Potentially Contributing to SSOs

Following the report of an SSO, a Line Maintenance crew responds to investigate the SSO and, accompanied by a Supervisor or Principal Engineering Inspector, determine the apparent cause of the blockage or overflow. When a SSO or blockage is determined to be FOG related, the Supervisor/Inspector notifies the FOG Management Program staff. A Sewer Service Inspector inspects the FSFs and grease traps in the affected area and reviews their FOG manifests. If the SSO is not attributable to a FSF, JCESD personnel will alert the nearby public of the overflow in accordance with JCESD’s **SSORRP** plan, and personnel of the FOG Program will target the area for receipt of educational materials. This notification system between Line Maintenance staff and FOG Program staff is essential to controlling FOG discharges.

Immediate inspections of FSFs and sewer lines downstream, and within approximately 1,500 to 2,000 linear feet of an SSO, are important to help determine whether the root cause of the SSO was solely grease or if the grease accentuated a structure or maintenance defect. Videos from CCTV cameras can be invaluable to confirming the root cause and whether increased FSF inspection is necessary, if the enforcement component of the FOG Management Program should be pursued, and if County engineering should perform life cycle analysis on permanently correcting structural or maintenance defects in the pipe.

After a SSO investigation has been completed, FOG Management Program staff collect data related to the overflow for incorporation into an analysis spreadsheet. Using the support of JCESD's Geographical Information System (GIS) Specialist, the locations of the sewer "hot spots" are overlaid with FSF locations, which assist in identifying potential problem FSFs or possible sewer system deficiencies. JCESD utilizes this data to identify a connection between potential problem areas and FOG discharges, as recommended by the United States Environmental Protection Agency (USEPA). **Figure 3** on the following page shows an overlay of FOG-related SSOs with FSFs for FY2015.

Monthly meetings of relevant JCESD staff are held to discuss the overflow occurrences, the spill data analysis, and strategies for reduction. Analysis consists of mapping and plotting variables such as pipe size, rainfall, sewershed, drainage basin, cause, etc., reviewing GIS information, field data, and in many cases, potential impacts due to grease contributors.

A preliminary analysis of 2015 SSO data indicated that many of the FOG-related SSOs are associated with 8-inch lines, and multiple spills on the same line are in close proximity to multi-family dwellings, such as apartment complexes. JCESD is continually adding focus on the contribution of FOG from multi-family dwellings. The FOG public outreach and education program includes providing materials related to FOG prevention to apartment managers. JCESD has begun a more in depth analysis of the relationship between number, volume, frequency of SSOs, and location of apartment complexes. JCESD has also mapped the location of SSOs near apartment complexes and overlaid them with sub-basins, sewersheds, and watersheds.

For more information on SSO occurrences in the Jefferson County service area, see the **Overflow Tracking Program** plan.

## High Frequency Maintenance Inspections and Cleaning

As described in the **Gravity Line Preventive Maintenance Program (GLPMP)** plan, JCESD cleans and inspects portions of the sewer system each year through the **Continuous Sanitary Sewer Assessment Program (CSSAP)**. Specific lines in the system are cleaned more frequently than others based on frequency and cause of SSOs and other factors affecting maintenance.

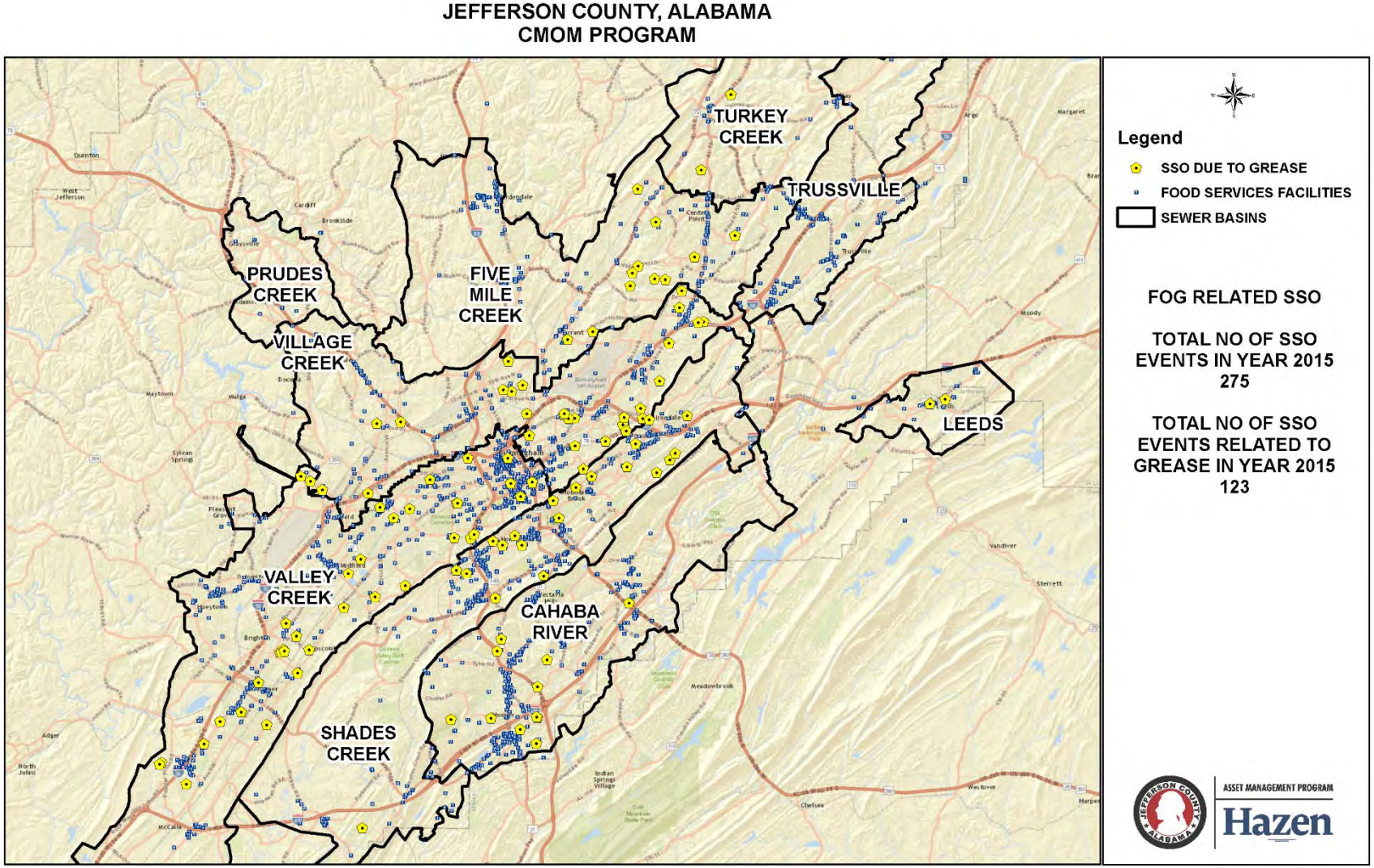


**Figure 3. FOG-Related SSO GIS Analysis Map**

Sewer segments with recurring SSOs and backups caused by residential FOG and non-compliant grease removal devices (GRDs) are cleaned at a higher frequency than others. A monthly preventive maintenance (PM) cleaning schedule has been created for these locations and sewer segments that have experienced overflow conditions in the past. A listing of these segments is included in **Appendix H**.

More information on line cleaning can be found in the **GLPMP** plan. For more information on the **CSSAP**, see the **Engineering Program** plan.

# Program Performance Metrics

Performance measures are important management tools that allow for continuous measurement and evaluation of program activities. Performance measures are designed to collect information that enable JCESD to determine if established goals and level of service are being met and if not, what activities need to be adjusted to meet program goals.

**Table 1** provides the **FOG Management Program** performance metrics that have been established at JCESD.

**Table 1. FOG Management Program Performance Metrics**

| Performance Measure | Formula | Definition | Desired Result | Data Interval | JCESD Group |
|---|---|---|---|---|---|
| FSF Inspections | Value | Number of inspection performed | Value | Monthly /Annually | FOG Program |
| FSFs Permitting | Value | Number of new FSFs Permitted or re-purposed FSFs Permitted | Value | Monthly /Annually | FOG Program |
| Noncompliance Notices Issued and Resolved | Value | Number of Noncompliance Notices Issued and Resolved | Value | Monthly /Annually | FOG Program |
| SSOs due to FOG | Value | Number and percentage of SSOs due to FOG | Value | Monthly /Annually | FOG Program |
| SSOs due to FSF FOG | Value | Number and percentage of SSOs due to FSF FOG | Value | Monthly /Annually | FOG Program |
| SSOs due to household FOG | Value | Number and percentage of SSOs due to household FOG | Value | Monthly /Annually | FOG Program |
| FOG container distribution | Value | Number of residential FOG containers distributed | Value | Weekly | FOG Program |
| Residential FOG received | Value | Number of gallons of residential FOG received | Value | Weekly | FOG Program |
| Ratio of Inspectors to FSFs | Value | Number of Inspectors per total number of FSFs | Value | N/A | FOG Program |

# APPENDIX

## Appendix A Fats, Oils & Grease (FOG) Program Food Service Establishment Inspection Training Guide and Standard Operating Procedures

# Fats, Oils & Grease (FOG) Program
# Food Service Establishment Inspection Training Guide and Standard Operating Procedures

February 2013

*This document is provided to the Jefferson County Environmental Services Department FOG Program Inspectors by the Asset Management Team to provide standard operating procedures and training in conducting inspections at food service establishments.*

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## Safety

Safety should be the first consideration when conducting food service establishment (FSE) FOG inspections. Inspectors will be exposed to a wide variety of conditions. Thus, it is important that the inspector take time to assess each condition so that safety and common sense are always considered. Below are some specific safety considerations.

**Vehicles/Traffic:** The FSE parking lot traffic can be dangerous due to motorists backing their vehicles out of parking spaces or driving through the parking lot. The inspector needs to be aware that the motorist has blind spot areas, and they are not expecting someone to be working or standing in a parking space or traffic area.
Another traffic safety consideration is when the inspector is pulling manhole covers on or near a street to check for FOG in the sewer system. The inspector must consider the traffic and road conditions to determine if the conditions are safe for a manhole cover to be removed. Some traffic and road conditions (i.e. heavy traffic, blind curve areas) will require additional vehicles and personnel to ensure safety for personnel and the motorists.

- At all times the inspector should wear a yellow or orange safety vest.
- The inspector's vehicle should be equipped with flashing lights on the top of the vehicle (or clearly visible), in addition to the regular vehicle flashers.
- The inspector should use orange road cones or clearly marked barricades to place in areas where trap or manhole inspections are being conducted.
- The inspector should have a flashlight for use as a motorist recognition indicator and for checking traps and sewers.

**Confined Space Entry/Dangerous Gases:** The inspector should never enter a manhole, nor should they allow their head/face area to be in close proximity to an open manhole. Grease Traps and sanitary sewers can have high levels of hydrogen sulfide, methane, and other dangerous gases that can be harmful or even fatal. If the inspector identifies problems in the sewer system, pumping station area or a grease trap, the inspector should contact trained maintenance personnel (approved or permitted confined space entry trained) to resolve the problem.

- The inspector should pull the manhole cover and allow some time for any concentrated gases to escape into the atmosphere before standing near the manhole or grease trap opening to conduct the inspection.

**Safety Equipment:** The inspector should have the following personal protective gear or equipment to prevent injuries while conducting FOG inspections:

- Steel Toed boots or shoes
- Gloves
- Orange or yellow safety vest
- Safety glasses or goggles
- Orange safety cones or clearly marked barricades
- Vehicle with flashing lights on top of vehicle (or clearly visible to other vehicles)
- Flashlight
- First Aid kit
- Sanitizer or alcohol wipes
- 1 gallon of clean water
- Paper towels

**Pulling Grease Trap and Manhole Covers/Lids:** The inspector should consider the weight of the manhole cover/lid, which can vary from 40 to 200 pounds depending on the type of lid. Proper posture and leverage need to be observed while pulling the manhole cover to prevent back, arm and neck injuries. The inspector should have proper equipment (manhole cover "pullers", pry bars, shovel, etc…) to remove the manhole cover. NEVER place your fingers or hand under a partially open manhole cover/lid, since the heavy cover/lid can slip, resulting in an injury to the inspector. The inspector should not wear jewelry (rings, watches, etc…) that could pinch or cause other injury to the inspector while pulling the manhole cover/lid. Also, the inspector needs to remember that any items (cell phones, pens, etc…) that are in their shirt pockets can easily fall into an open grease trap or sewer manhole.

## Equipment

The inspector should have the following equipment available for use (Refer to "**SAFETY**" section; "**Safety Equipment**" for proper safety equipment):

- Digital Camera
- Sewer Plat (either hard copy or lap top GIS access)
- Street Map (Handy Map)
- Badge or visible ID
- Manhole cover/lid pullers, pry bars, or other manhole cover removal equipment
- Long blade shovel (will assist with some manhole cover removal and determining the grease layer depth in the trap)

- Hammer or small sledge hammer (will assist to loosen some manhole covers or clear asphalt or concrete from the lid)
- Wrench to open cleanouts
- Litmus paper, pH strips, or pH meter
- Notebook, or clipboard, and folder to keep forms/materials
- FSE forms/materials (inspection forms, enforcement forms, GI and GT handouts, GI and GT certification forms, other educational materials, etc…)
- Flashlight
- FOG and food solids depth indicators – even though the long blade shovel can assist in determining the depth of the top FOG layer, and an estimate of the food solids layer (2x FOG layer) can then be made, a precise measurement of both layers is sometimes needed. A wide diameter grease trap sampler or "sludge judge" can be used. Other devices that have been used are laser indicators and some have used a metal measuring tape to "feel" the bottom solids layer.

## FOG DEFINED

There are two basic types of FOG (Fats, oils, and grease): Polar (vegetable/plant and animal based, and Non-Polar (Petroleum based). Another FOG category is Brown Grease and Yellow Grease. Brown grease is FOG that comes from the kitchen drains (sinks, floors, etc…). Yellow grease is the FOG that is removed from pans, woks, etc… and put in the grease recycle bin. The FSE FOG is defined as organic polar compounds derived from vegetable/plant and animal sources that are composed of long chain triglycerides. The FSE FOG is made up of fatty acids and a glycerol molecule. Technically defined as:

Triglyceride: 3 fatty acids and 1 glycerol

Diglyceride: 2 fatty acids and 1 glycerol

Monoglyceride: 1 fatty acid and 1 glycerol

There are hundreds of fatty acids (oleaic, stearic, palmitic, etc…) that combine to make certain triglycerides. The glycerol exists in natural oils as the base. Glycerol can be defined as a sweet, syrupy trihydroxy alcohol (1,2,3 Propanetriol), and is also referred to as glycerin. Remember that butter, lard, shortening, and cream, as well as the typical oils are considered FOG.

Inspectors should be aware that certain FOG types may not react the same in the trap or to treatment technologies. The reason for this is that some oils are saturated, and some are partially-hydrogenated oils. The partially hydrogenated oil is derived when hydrogen is injected into the oil to provide a longer shelf life. All of this is provided to make the inspector aware of the variety of FOG that may be encountered.

## INSPECTIONS-STEP 1: RECONNAISSANCE/ VISUAL SURVEY

The inspector's first action is to conduct a visual survey of the FSE and the area near the FSE. This visual survey should include the following areas:

- Evidence of FOG spills, and pavement or concrete discoloration
- Evidence of construction activities, such as new pavement or parking lot repairs that lead to the kitchen area, sewer cleanouts, or the grease trap
- Cleanliness of the FSE area, including dumpster and recycle bin
- Missing or damaged sewer clean-out covers
- Outdoor mop sinks or "can" wash stations
- Vent hood area cleanliness
- Storm grates or storm drains with evidence of FOG discharge or mop water dumping
- Gutters or roof drain discharges. Are these connected to outdoor mop sinks or drains? Do they impact the hydraulic loading to the grease trap?
- Identify the location of the grease trap
- Downstream sewer line impacts as well as the correct manhole or sewer plat ID

***Considerations on the time to conduct the FSE FOG inspections:***

The inspector can conduct the visual survey and manhole survey work at most any time, however the inside FSE inspection and FSE manager/owner interview should consider the FSE's business. This would mean that the inspector makes efforts to not interrupt the FSE operation during the main lunch period (11:30 AM to 1:00 PM).

1. <u>Grease Recycle Bin areas</u>- If the grease recycle bin areas have spills, then there is a high probability that the grease trap or interceptor is not properly maintained. "First impressions of the appearance of the area can indicate how conscientious the FSE management is regarding grease control awareness". Notify the FSE owner or manager about the grease recycle bin problem (best to show them the problem), tell them to use dry clean up (oil absorb material, kitty litter, sand, etc…) to clean up the spill, and not to wash the area with water since this would cause a further stormwater impact. Notify the proper stormwater compliance personnel. Document on the inspection form if the FSE has a grease recycle bin. If no grease recycle bin is located, the inspector should ask the FSE owner/manager where yellow grease is disposed.

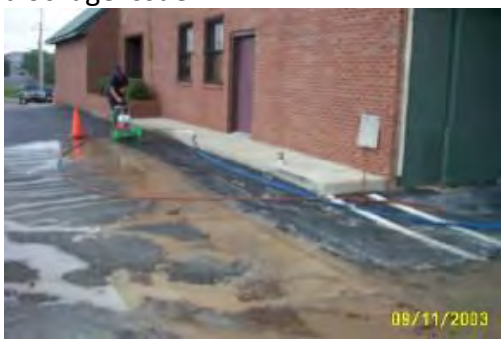
   To prevent potential problems with grease recycle bins being turned over and spilling the yellow grease:

   - Make sure the recycle bin is on level ground
   - Recommend that concrete curbs, metal poles or other device be placed between the grease recycle bin and the dumpster to prevent the garbage truck from accidentally overturning the recycle bin when they empty the dumpster.






2. <u>Construction activities, pavement or parking lot area disturbances</u>- The inspector should check the parking lot area for any pavement area disturbances that may indicate recent private sewer line replacement work was done, possibly due to FOG blockage issue.




3. <u>Missing or damaged sewer clean-out covers</u>- The inspector should check the FSE area for sewer clean-out covers. Normally, there is a sewer clean-out near the kitchen area for the kitchen wastewater sewer line. This can assist the inspector in identifying the location of the grease trap, if the trap manhole covers are buried underneath landscape materials or other debris. If the sewer clean-out covers are missing or damaged, then this needs to be noted on the inspection form and the FSE manager/owner needs to be notified to repair or replace the clean-out covers to prevent rainfall inflow and possible blockage from debris going into their private sewer system. See example pictures on next page.









4. Outdoor mop sinks or trash can wash stations- The inspector should identify any outdoor mop sinks or drains, especially those drains that are near the grease trap. Many FSEs have these outdoor drains connected to the kitchen wastewater sewer line or to the sanitary sewer line. If the mop sink or other drains are not covered to prevent rainfall inflow, then the rain water will go to the sanitary sewer, or worse the rain water will go to the grease trap, causing hydraulic overload. One of the worst instances is when a roof gutter or downspout discharges to an outdoor mop sink or drain that is connected to the trap. The inspector should note the problem and corrective action necessary on the inspection form and inform the FSE manager/owner about the problem. Rainfall inflow to the grease trap can cause a heavy FOG discharge to the sewer system, and any rainfall discharge to the sanitary sewer system is prohibited.







5. Storm grates or drains – The inspector should check the FSE area storm grates and drains for any FOG discharge impacts. This is especially critical if the inspector does not locate a grease recycle bin. Thus, if the FSE does not have an internal recycled grease storage tank, the yellow grease is likely either poured down the sanitary sewer or the storm water sewer. If the inspector identifies any discoloration of the pavement near a storm grate or there is FOG residue on the storm grate (especially if the residue is in the middle of the storm grate), then the inspector should see if any evidence exists in the storm sewer, or check any nearby streams, or ditch areas that the storm water sewer would discharge. Normally, a simple look at the slope of the land will lead you to the storm water discharge location. If a stormwater impact is identified, contact the stormwater enforcement personnel.






6. Vent Hood areas- The inspector should identify the location of the kitchen vent hoods and determine if there is a FOG discharge impact for the stormwater sewer or the sanitary sewer. When many FSEs clean their vent hood system, they hire a contractor that will use a product with either sodium hydroxide or potassium hydroxide (both with an alkaline pH range of 10 to 12 standard units). This high pH solution emulsifies the FOG and it is then washed from the vent hood system. The inspector should ask the FSE manager/owner how often the vent hood system is cleaned, and where is the alkaline wastewater disposed. In some cases, the FSE may have installed an automatic vent hood cleaning system. The inspector needs to make the FSE manager/owner aware that if the vent hood cleaning is too frequent (of course the FSE must clean the vent hoods for safety purposes and at the frequency designated by the Fire Dept.), then the high pH could cause the downstream sewer lines to form a soap-like product that can get extremely hard to remove. Remember, the way they use to make soap was to use chicken fat, lard or tallow and mix with lye or lime.






**IMPORTANT- SEWER LINE IMPACTS/MANHOLE INSPECTIONS!**

7. **Downstream Sewer Line Impacts / Manhole inspections-** The inspector should locate the immediate downstream public sewer manhole and check for FOG impacts, corrosion impacts, or any other blockages or obstruction due to paper towels, rags, gravel or other debris. Also, the inspector should check the manhole for any inflow/infiltration problems. In addition, the inspector should document any structural or flow issues, such as low slope that is allowing solids to deposit in invert, or a sewer discharge that flows into or at an angle to the main invert flow that causes a hydraulic dam effect. The inspector should remember to observe all safety guidelines during the manhole inspections. The three areas of the manhole that the inspector should use in describing the conditions in the manhole are: walls,

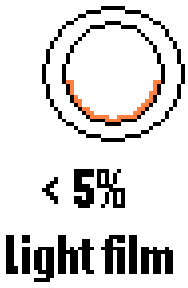
the invert (or area where the wastewater flows in the sewer) and the shelf (or the elevated, normally level, area above the invert).

**FOG impacts:** The inspector should review the sewer plat or GIS information to ensure that the correct manhole identification is made. The inspector should determine the severity of the FOG impact on the sewer system and document with a digital photo, and on the inspection form. **When the inspector identifies a sewer line/manhole as having heavy FOG, the inspector should report this immediately to be cleaned.** Also, a Noncompliance Notification should be issued to the FSE. Moderate or slight FOG should be reported by the inspector to sewer maintenance with a recommended "Clean by" date. In all cases, the inspector should conduct a manhole survey above the FSE immediate downstream manhole to determine if the FOG impact is coming from another source upstream. **Also, the inspector should continue to check downstream manholes to determine how far downstream the FOG impact is, and be able to report the completely affected sewer line segment information to the MMS President or Field Inspection Supervisor.** DON'T FORGET TO DOCUMENT WITH DIGITAL PHOTOS!

The inspector should consider the slope of the sewer system when conducting the manhole survey. An example would be a FSE that is on an elevated area, and they discharge to the sewer system that has a steep slope where the wastewater is flowing fast. In this case the FOG impacts may be 100 to 400 feet downstream, or in an area where the slope has diminished, where the wastewater flow rate is slower. Another reason to check additional downstream manholes is the temperature of the discharged FSE kitchen wastewater, which could be in the 120 to 150 degree F range. It takes time for the wastewater temperature to decrease, and once the temperature decreases then there is greater probability of FOG deposits in the sewer system.

Another situation where the inspector needs to have heightened awareness is when full service FSEs only have an under-the-sink grease trap or floor grease trap. In these cases, there is a high probability of FOG impact from the FSE, unless Best Management Practices (BMPs) are strictly observed. Also, areas below strip malls or multi-unit facilities should be thorough checked by the inspector.

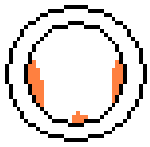
The following FOG Impact ID system (light film, slight, moderate, heavy) can be used by the inspector to communicate the information to the sewer maintenance personnel.







Light Film on invert



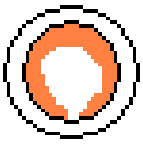










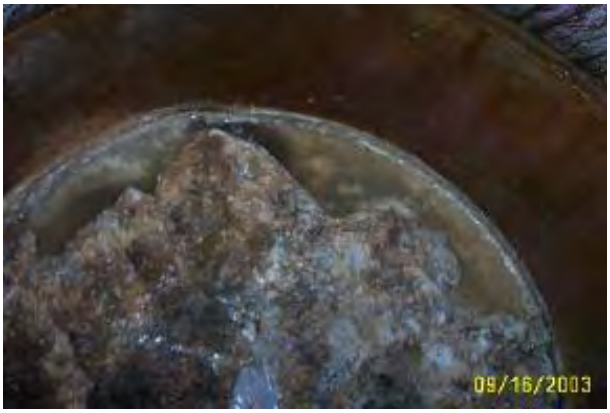






FOG obstructing flow in invert and also FOG on the manhole shelf. Other heavy FOG pictures are provided.

Heavy FOG sewer impact examples:












## FSE Downstream Manhole Survey: The inspector should remember to…

1. Follow all Safety Guidelines
2. Check the sewer plat or GIS to ensure the manhole and sewer line segments are properly identified
3. Take a digital photo of the FOG impact to the sewer system and properly label the picture with ID (Note: turn on the "date" designation option on your camera so the date will be displayed)
4. Check manholes upstream and downstream from the FSE, until the complete FOG impact area has been documented
5. Document the sewer line segment (manhole IDs) for reporting purposes
6. Immediately report heavy FOG impacts to sewer maintenance personnel with ID of sewer line segment that needs to be cleaned, and the nearest address. Report moderate FOG impacts with sewer line segment, nearest address and recommended "clean by" date.

**Corrosion impacts:** The average discharge pH from a FSE grease trap is approximately 5.0 standard units (this is an acidic discharge; based on a pH scale of 0 to 14 standard units, neutral pH is generally considered in the 6 to 9 range, with lower readings being acidic and higher readings being caustic). In some cases the FSEs that use high volumes of sugars (i.e. doughnut and bakery facilities) have observed discharge pH values as low as 1.2 standard units. The low pH readings can be due to several factors, which include: anaerobic conditions (septic) that lead to hydrogen sulfide generation which can form sulfuric acid; high sugar content of wastewater where the sugar acts as a catalyst in driving the pH down; cleaners; colas, carbonated drinks and coffee contribute to a low pH). Thus, the inspector should be aware of where sewer corrosion impacts can originate from commercial food service establishments (doughnut, bakeries, coffee shops, or any FSE that has a GI with a long retention time or it is not cleaned often enough), and that corrosion damage can occur in the sewer system due to sewer pumping station discharges where the wastewater is septic in the force main from the pump station and hydrogen sulfide is generated.

It may be difficult for the inspector to identify corrosion in the FSE's grease trap, but if severe pitting or concrete deterioration is noted then this needs to be addressed during the FSE manager/owner interview.

The inspector should document any corrosion impacts that are identified and report any severe corrosion to the sewer maintenance personnel. Below are a few examples of sewer corrosion:




Hydrogen sulfide damage in manhole



Concrete deterioration in invert below coffee shop







Grease trap baffle wall corrosion

8. Other Obvious Issues that can be encountered during the Visual Survey:







Grease Traps that are overflowing. This needs to be reported to the Health Department and Stormwater personnel. The FSE manager/owner needs to be immediately notified that the grease trap should be pumped as soon as possible.







Private Sewer Overflows at strip malls- The inspector needs to make the FSE manager/owner aware of problem, and request that any private plumbing company that cleans the private sewer lines should contact the sewer maintenance personnel to ensure that large amounts of FOG are not pushed into the downstream sewer system and cause another blockage. Also, the Health Dept. should be contacted, which in many cases will result in the closure of the FSE(s).



Trash issues should be reported to the Health and Stormwater Depts.

## INSPECTIONS-STEP 2: GREASE TRAPS

The inspector should locate the grease trap during the visual survey portion of the inspection. It is best if the inspector goes to the FSE manager/owner prior to opening the grease trap to identify themselves and let the FSE manager/owner know that the FSE's grease trap is being inspected. At this time, the inspector should notify them that soon they will be returning to conduct a kitchen walk-through and provide educational materials and results of the inspection. Of course, when schools or manufacturing facilities are inspected, it is necessary to report to the front office prior to any visual survey or grease trap inspection activities.






Typical Grease Trap installation with two manhole access

Grease Traps are outdoor, in-ground tanks, which have the following standard tank capacities: 500, 750, 1000, 1500, 2000, 2500, and 3000 gallons. Most traps are concrete, with a few that are fiberglass or polyethylene. Some FSEs may have two or more grease traps in "series".



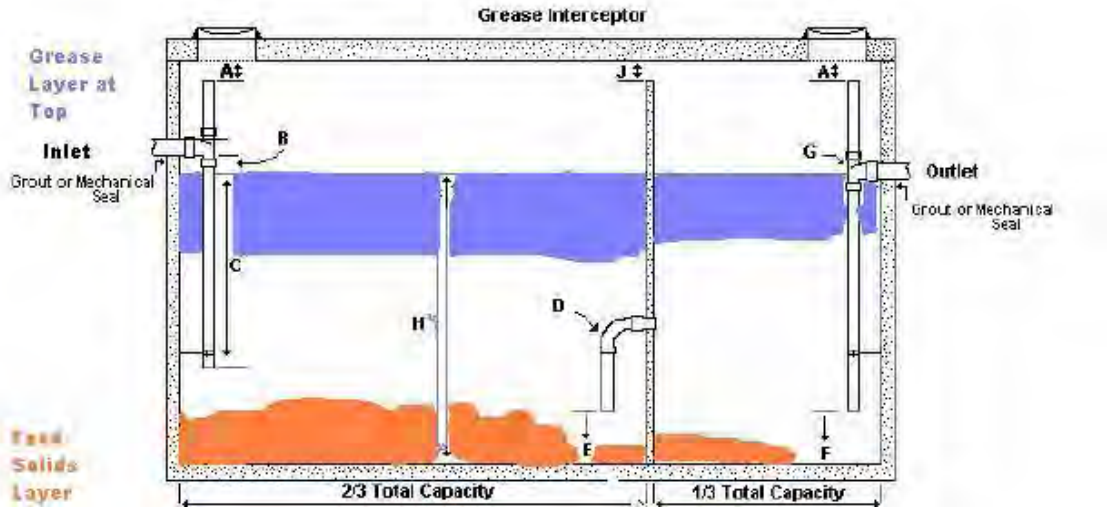

Two traps in series operation

**How Grease Traps Work:** Kitchen wastewater flows into the grease trap, the FOG waste will float or go to the top of the trap liquid level, and the food solids and other solids will go to the

bottom of the trap. The reason the FOG layer goes to the top of the trap liquid level is due to the density of FOG versus the density of water. Water is 8.34 pounds per gallon, and the fats, oils and grease densities are less than 8.34 pounds per gallon. Here are a few example FOG densities:

| | |
|---|---|
| Peanut Oil | 7.62 |
| Olive Oil | 7.66 |
| Soybean Oil | 7.73 |
| Corn Oil | 7.69 |
| Cocoa Butter | 8.04 |
| Coconut Oil | 7.67 |
| Sesame Oil | 7.66 |

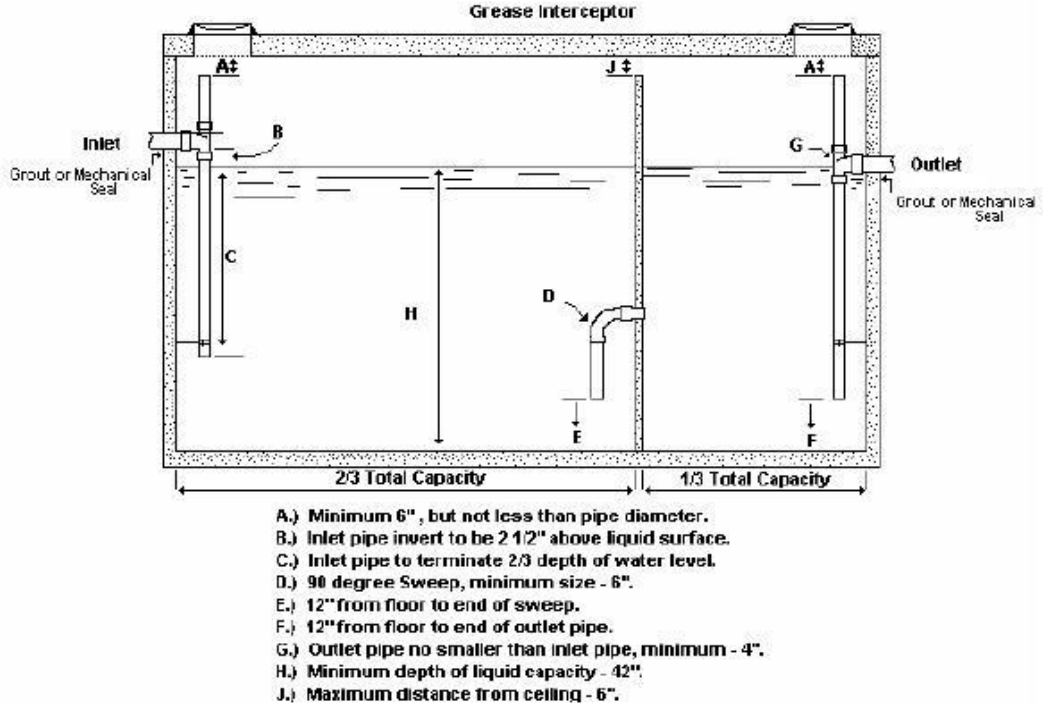
The key for proper grease trap operation is to have the proper sizing, configuration, components (inlet and outlet Ts), and maintenance. The grease trap is designed to allow for adequate detention time for the kitchen wastewater so the FOG can separate from the wastewater and be contained in the top layer.




*Why a complete pump of the Grease Trap is necessary:* Both the FOG layer and the food solids layer take up capacity in the trap. The food solids layer will normally be 1x to 2x the FOG layer depth. If the FSE prepares chicken, seafood or rice, the food solids layer will be 2x to 4x the FOG layer. Thus, short-circuiting of the grease trap can occur if the full contents of the trap are not pumped.

*Diurnal Flow and Temperature:* The inspector should understand that during certain times of the day the FSE will have more kitchen wastewater discharged to the trap. This may be more pronounced at full service FSEs that have a dishwasher connected to the grease trap, and they may be using the dishwasher continuously for several hours near the end of the work day. The dishwasher can have high temperatures (120 to 140 *F), and high flows that can impact the trap's FOG removal efficiency.

**Grease Trap Location:** The inspector should describe the location of the grease trap on the inspection form so future inspectors or other personnel will be aware of where the trap is located. The inspector can document with a photo, or if possible, record GPS coordinates.




**Manhole Access:** Hopefully, the grease trap has a two manhole access that allows visual inspection of the inlet and outlet Ts. In some cases, the grease trap may only have one access manhole, which may be located at the center of the trap or maybe over only the outlet T or the inlet T. If the trap only has one access manhole, the inspector should try to determine if there is still access to both chambers (inlet and outlet) for pumping/cleaning of complete contents. If there is no access to one of the chambers or there is difficulty in seeing the outlet T, then the inspector should issue a Noncompliance Notification (NCN) to the FSE to require a grease trap certification (to verify that the inlet and outlet Ts are visible and in proper working condition) be completed, submitted to the County, and corrective action taken to ensure proper access to all trap components.

**Size of the Trap:** The inspector should review the most recent grease waste hauler manifest, which should have the "gallons pumped" documented. If there are no records available, the inspector should use a measuring tape to calculate an approximate capacity. When the trap manhole covers/lids are pulled, the inspector can use the measuring tape to get an approximate length and wide of the trap. Then use a pole, sludge judge device, or measuring tape to get a liquid depth. To calculate the capacity of the trap use the following formula:

Length (ft) x Width (ft) x Depth (ft) = cubic ft. Multiply cubic ft by 7.481 to get gallons capacity.
*Example: 8 ft x 4 ft x 4.25 ft = 136 cubic ft. 136 cu ft x 7.481 = 1,017 gallons (1000 gallons)*

**Inlet Ts:** The inlet (or influent) T is critical for the following reasons:

- Prevent FOG layer from clogging the FSE discharge pipe
- Prevent the influent or inlet kitchen wastewater from disturbing or "knocking down" the FOG layer, which can cause FOG to short-circuit the trap.

The length of the inlet T is not as critical as the length of the outlet T, but should be an adequate length to be below the FOG layer. An inlet T length of 1/2 to 2/3 the trap liquid depth is acceptable.
The preferred material for the inlet T is a schedule 40 (or stronger) PVC pipe that is 4 inches or 6 inches. The inlet T should be sturdy, not loose. The outlet T is more critical than the inlet T, so the inspector should not confuse the length requirements or other requirements for the inlet T versus the outlet T (See outlet T information below).

**Trash, Debris, Plastics in Grease Trap:** The inspector should check the trap for any plastic bags, cans, stirrers, straws, or other debris. These materials can cause blockages in the FSE private sewer and in the trap, resulting in FSE sewer line back-ups or grease trap overflows. The inspector should document the types of debris in the trap, take a photo, and report this to the FSE manager/owner. The inspector should check the floor drains and mop sinks inside the FSE to make sure that all drains have secure screens to prevent trash/debris from entering the kitchen sewer line. The inspector should make the FSE manager/owner aware of the consequences (sewer back-ups, overflows) that can result if the floor drains do not have proper, secured screens/strainers. Also, the inspector should emphasize that the FSE manager/owner make FSE employees aware of not allowing any trash or debris to get into the floor drains or mop sinks.

*Sanitary items in the Grease Trap:* If the inspector identifies toilet paper, human waste, or other sanitary items in the grease trap, then it is likely that a bathroom is connected to the grease trap. The FSE manager/owner should be notified immediately to correct the problem by having the sanitary waste disconnected from the kitchen wastewater sewer line, and properly plumbed to the sanitary wastewater line. Allowing sanitary wastewater to get in the grease trap is not only a codes violation but will also cause hydraulic overload of the grease trap.



Plastic “pasta” bags, heavy FOG layer



No Inlet T! Also, straws, stirrers, trash




No Inlet T! Plastic bags, straws

**Outlet Ts:** The outlet (or effluent) T is one of the most critical components on the grease trap to prevent a FOG discharge from the trap. The outlet T:

- Should be made of schedule 40 PVC. No flexible materials (SD-35 plastic, aluminum, etc…are allowed, since these material will collapse under the pressure of the wastewater and FOG.
- Should be sturdy with nothing loose at the fitting.
- Should extend to within 12” to 15” of the trap tank bottom. (Do NOT approve an outlet T that is too close ( < 12” from tank bottom) or too far (> 15” from the tank bottom) from the bottom of the trap. If the outlet T is too close to the tank bottom then clogging and back-ups can occur. If the outlet T is too far from the tank bottom then short-circuiting of the wastewater can occur.
- Should NOT be “U shaped” or “V shaped” baffle style that is connected to the wall of the grease trap. Eventually, the screws or nails that hold these type outlet baffles to the wall of the trap will come apart, allowing FOG to be discharged.

When inspecting the outlet T, check the inside of the outlet T to see if there is a significant amount of FOG inside the T. If there is a significant amount of FOG in the outlet T, then this could indicate that there is moderate to heavy FOG discharging from the trap. This could be due to hydraulic overload, lack of consistent maintenance, or poor grease trap design.

Below are a few example pictures of grease trap outlet Ts.




Example of clear water in outlet T (Good!)



Example of properly installed schedule 40 PVC Outlet T







Examples of FOG in outlet T that indicate FOG discharge to sewer system



No outlet T, even with additional baffle, FOG can be Discharged if there is no outlet T attached




Floating flexible plastic “U shaped” outlet T that has become dislodged from the trap wall.




No outlet T!




No outlet T located due to depth of FOG, no Grease trap maintenance! Noncompliance




This is an example of a grease trap that is not maintained. FOG is overflowing the top of the outlet T. In some cases, the top of the outlet T is too close to the liquid level and will allow FOG to overflow into the outlet pipe. Thus, the FSE should be required to extend the top of the outlet T pipe approximately 5 inches to prevent FOG overflowing the top. Of course, the extended outlet T top should not interfere with the opening and closing of the grease trap manhole lid. Also, another issue may be that the outlet T length is too long (less than 12" from the tank bottom). In some cases, the outlet T has been found to be only 2" from the tank bottom, which will result in a blockage and FOG/wastewater overflowing the top of the outlet T, or backing up in the FSE.

**Baffle Wall or "mid-wall" baffle:** The baffle wall is necessary to allow for the proper retention time for FOG to separate from the kitchen wastewater. Thus, on the inspection form, the inspector should refer to the area on the inlet side of the baffle wall as the grease trap inlet chamber and area on the outlet side of the baffle wall as the outlet chamber. The term "mid-wall baffle" is actually not correct, since the grease trap design should place the baffle wall at approximately 2/3 of the tank length (Inlet chamber = first 2/3 tank length, outlet chamber is final 1/3 of tank length). The inspector should make sure that the trap has been installed properly. If the inspector sees that the inlet T discharge pipe from the kitchen drains is partially underwater, or that the inlet chamber is only 1/3 the length of the grease

trap, and notes that the outlet T is approximately 3 inches above the wastewater/FOG layer, then the grease trap is probably installed backwards. Another indicator is if the FSE manager/owner complains of kitchen sewer line back-ups or slow drains.
Unless the grease trap is pumped during the inspector's visit, it will be difficult to identify the baffle wall type or condition. Thus, for FOG "hotspot" areas or sewer line segments with chronic FOG blockages or obstructions, the inspector can request that the FSE owner or manager contact their grease waste hauler company to schedule a time to pump the grease trap so the inspector can see the tank and its components. Sometimes, the inspector can identify if a baffle wall is in place, especially if one of the trap access manholes is over the baffle wall. As previously mentioned, the inspector should check for corrosion damage at the top of the baffle wall and visible portions of the trap walls.

*Baffle Wall Sweeps or Ts:* For all new FSEs or new grease trap installations at existing FSEs, the grease trap should have a 90 degree schedule 40 PVC sweep or T to prevent short-circuiting of the kitchen wastewater. The baffle wall sweep has proven to be very effective in increasing the retention time and preventing short-circuiting.

*No baffle walls:* In some cases the grease trap certification submittal or the inspector will identify that a particular FSE's grease trap does not have a baffle wall. This is probably a septic tank design. Of course, this is not good, but the inspector needs to document any downstream sewer problems and determine if the FSE is contributing FOG to the sewer system. If there is a history of FOG discharges or sewer system problems, then the FSE should be place on a compliance schedule to install a new grease trap.

*Baffle Wall Types:* There are several baffle wall designs. The County approved baffle wall design is a single hole in the baffle wall (and for new grease trap installations, must include the 90 degree schedule 40 PVC sweep or T). All other baffle wall designs (slit style opening) have proven to be not as efficient in retaining FOG in the trap. In particular, one baffle wall design, "hanging baffle wall" (or a baffle wall that is connected at the top of the trap and extends downward as a solid wall until it nears the bottom of the tank, at approximately 18" from the tank bottom the wall stops, allowing a large opening for kitchen wastewater to short-circuit to the outlet T) can cause FOG problems in the sewer system. Below are a few examples of baffle walls:



Single hole in baffle wall



Outlet chamber side view of PVC sweep (90 degree portion

Is on inlet chamber side)







Slit style baffle walls, are not as efficient as the single hole baffle wall design

**Coloration of the Grease Trap FOG layer:** The "normal" coloration of the FOG layer in the grease trap will be mixed or mottled color with various brown, cream, black colors visible. If the inspector notices that the FOG layer is a very consistent, smooth cream color, then there is a good possibility that the FSE employees are dumping yellow grease (or recycled grease) down the drains. Also, if the FOG layer has a dark liquid texture then this can indicate that the FSE employees are dumping yellow grease down the drain. However, if the FSE is using additives then this may cause the top FOG layer to be dark liquid as well. The inspector can check the pH of the liquid that may assist in determining if additives are used (example: pH result of the liquid is 10).

**IMPORTANT: Are all kitchen sewer lines/fixtures connected to the grease trap**? Believe it or not, one of the major problems encountered is not all of the kitchen waste lines are connected to the trap. If the FSE is maintaining the trap and all components are properly connected, but FOG is still problem in downstream sewer, then request that a dye test or other testing (CCTV) be conducted to verify all kitchen drain lines are connected to the trap. Many national franchise FSEs have been identified as having this problem (i.e. 3 compartment sink, pre-rinse sink to the dishwasher not connected to the trap).

**Outdoor Grease Traps or Customized Traps:** The inspector may identify some FSEs that have outdoor grease traps (small, "water meter" sized, in-ground traps) or FSEs with customized (50 gallon to 250 gallon) grease traps. FSE inspection experience indicates that the majority of these type devices do not control FOG discharges very well, and the inspector can expect to have FOG impacts in the downstream sewer lines. The problem is magnified if the FSE is a full service facility that serves chicken, rice, seafood, Mexican style, Chinese style, or buffet style foods. The inspector should document any downstream sewer line problems and conduct the inspection of the grease control equipment, as you would a grease trap inspection. Identify the inlet T, outlet T, baffle wall, any signs of corrosion, etc… The inspector should look for any signs of the outdoor grease trap or customized trap overflowing onto the pavement/parking lot area. The inspector should determine the FOG layer depth

and food solids depth to assess if pumping frequency is adequate. For small outdoor grease traps at a full service FSE, the frequency of pumping should be every 1 to 2 weeks, depending on the type of food served and the FSEs Best Management Practices (BMPs).



Under vault top, 250 gallon customized GI


Small 50 gallon outside floor trap



Small 30 gallon outside floor trap w/ heavy FOG, no Ts



Outside trap with lime covering top due to recent Overflow






Outside floor trap that has overflowed. Undersized for this FSE, need large grease trap. Inspector should check downstream sewer lines and issue a NCN to the FSE. Also, the inspector should contact the Health Dept and Stormwater personnel.

## INSPECTIONS-STEP 3: INSIDE THE FSE

The inspector should have their County Identification Badge ready to be presented to the FSE manager/owner. Remember, the inspector should be as efficient as possible to limit the time that they are interrupting the FSE's business. Inspections should not be conducted during the busy lunch hour (11:30 am to 1:00 pm), unless there is a sewer back-up or other emergency condition that the inspector needs to relay to the FSE owner/mgr. The inspector should request to speak to the owner, and if they are not present, then request to speak to the manager in charge. If you speak to a FSE hostess/receptionist, the inspector should identify themselves, and let the hostess/receptionist know that you want a few minutes with the owner/manager to complete the sewer system fats, oils and grease inspection. The inspector should have FSE FOG educational materials (FSE FOG information folder, GI or GT maintenance handout, etc…) ready to show the FSE owner/mgr so the explanation of the reason for the FSE FOG inspection can easily be explained using the handout photos and information. The inspector should include in their opening statement that this inspection is not only due to prevention of sewer line blockages and sewer overflows, but also due to federal and state mandates regarding maintenance of the County sewer system. Remember, many FSE owners/mgrs will first think you are talking about yellow grease or the grease recycle bin. Thus, the need to have educational materials available is critical for a timely explanation of the reason for the inspection.

The inspector's opening statement can be something like this:

"Hello, I am _*(name)*_____ , an inspector for Jefferson County Environmental Services Department. We are conducting inspections of food service establishments to ensure that there is proper grease control equipment installed and maintained to prevent sewer system blockages and overflows. *(show the FSE owner/mgr pictures of overflows and grease trap (or grease interceptor) while explaining what the pictures represent).* I want to take a few minutes and conduct a walk-through of the kitchen area, provide you with some educational materials on Best Management Practices, proper maintenance on the grease trap (or grease interceptor), and provide to you a copy of the inspection form with findings of the fats, oils and grease inspection." *(If the inspector did not identify a grease trap outside the FSE, then the inspector may tell the FSE owner/mgr that* "an outdoor grease interceptor was not located. Do you know if you have a grease trap or a grease interceptor installed?" *(refer to educational materials photo).*

**FSE Information:** The inspector should have the following information included in the County FSE FOG inspection form:

- Verify FSE physical address
- Verify FSE mailing address
- FSE phone number (Email address, if available)
- FSE Contact Person Information (Owner is preferred, then manager. If the FSE is a franchise, then the inspector should get the corporate district or regional managers name, or the corporate environmental representatives name and contact information. If FSE is in a strip mall, the inspector should get the property manager's name or company name and contact information.)
- FSE Menu Items (Many times the FSE will have their menu posted on the front window of the facility. The inspector should take time to review menu items to check on high FOG potential items such as: chicken, wings, fish/seafood, bar-b-q, fries, hamburgers, meat and three dishes, buttered mushrooms, etc…)

**Inspection Form:** The inspector needs to write the information on the inspection form so that the FSE owner/manager can clearly read the information. Remember that the FSE owner/manager is not familiar with most of the abbreviations or acronyms (GI, GT, GCE, etc…), so the inspector should clearly (legibly) write information on the inspection form so the FSE owner/manager understands. Also, the inspection form information will have to be used for input into the database, so the inspector should include information that will track any noncompliance issues or the location of the grease control equipment. ALWAYS print name and sign the inspection form and leave the pink copy with the FSE owner/manager.

**FSE Kitchen Walk-Through Inspection:** The inspector should ask the FSE owner/mgr to provide a basic explanation of what food is prepared and how it is prepared. The inspector should listen to the FSE owner/mgr to ensure that they cover the high FOG potential foods in their menu. The inspector should document the following during the kitchen walk-through:

- Types and number of kitchen equipment
    - Fryers (ask the size of the fryer(s), and frequency that oil is changed in the fryers)
    - Stove
    - Woks
    - Tilt skillets (if present, is there a floor drain immediately below the tilt skillet? This can be high potential FOG discharge.)
    - Grill (compartment under grill to collect FOG and meat residue?)
    - 3 compartment sink
    - 2 compartment sink
    - Mop sink (any evidence of butter or other oils or fats being dumped?)
    - Floor sink
    - Hand sink

- Dishwasher

- **Floor Drains**
  - Number of floor drains
  - Covers or screens on floor drains are secure to prevent trash/debris (straws, plastic bags, stirrers, "red bull" cans, etc…) from causing sewer line blockages and overflows. **IMPORTANT! If plastic bags or other trash items are found in the trap, make sure that the FSE owner/manager is made aware that this can cause blockages in the FSE sewer line and problems in the trap.**
- Dish washing or dishwasher area
  - Use of 3 compartment sink (cleaning pans, pots, plates in sink? Are BMPs being observed?). Check nearby trash can to see if they are scraping food, FOG, etc… into the trash.
  - Dishwasher
    - Temperature setting (120 to 160 degree F is normal range)
    - Number of cycles per day?
    - When dishwasher is used the most? (normally used most during closing hours)
    - <u>Is dishwasher connected to the undersink Grease Trap?</u> If so, then the dishwasher should be removed from the grease trap due to causing hydraulic overload.
- Yellow Grease Recycling container
  - If the inspector was not able to locate the grease recycle bin during the visual survey, then the inspector should ask where the grease recycle bin is located. Some FSEs have installed the automated heated tank recycle oil systems that are inside the FSE.
  - If the FSE does not have a grease recycle bin for Yellow Grease and the FSE has fryers and other oils that are used, then this is major red flag that the FSE is dumping yellow grease into the sewer system.
- Additives (enzymes, "bacteria", acids, caustics, alcohols, ketones, surfactants, soaps, etc…)
  - Check for any additives in the kitchen area, especially under the 3 compartment sink.
  - Ask the FSE owner/manager if additives are used. Get the name of the product used.
  - If the FOG layer in the grease trap is liquid, and also may have coffee color, then this could indicate additives are used.
  - If heavy FOG impact is found in the downstream sewer lines and a NCN is issued, then the inspector needs to tell the FSE owner/manager of the FOG impact, and request that the additives not be used, explaining that most additives partially break down the FOG, allowing it to flow. However, as it dilutes and goes downstream in the sewer system it will re-congeal and cause problems.

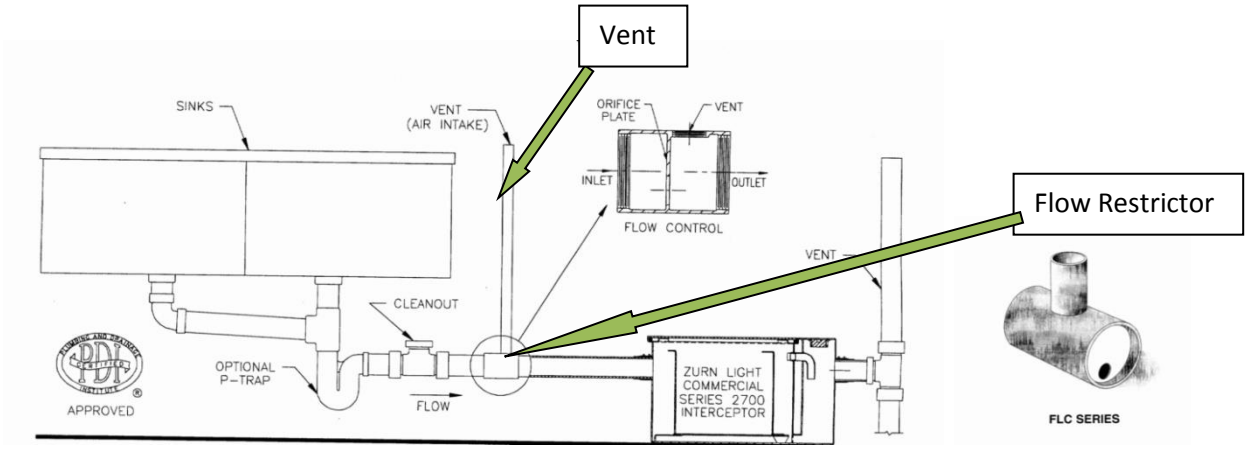
## GREASE INTERCEPTORS

There are two basic types of indoor grease interceptors (GIs): Under-the-Sink Grease Interceptors and Floor Grease Interceptors.

**Under-the-Sink Grease Interceptors:** The sizing of the grease interceptor is based on the size of the flow restrictor. The first number (gallons per minute) is the size of the flow restrictor opening. The second number in the GI identification is the capacity of the tank in pounds. The second number or pounds capacity will always be double the gallons per minute or first number. Grease interceptor sizes have a wide range, including:

5 gallon per minute (gpm) / 10 pound (lb) capacity
7 gpm/14 lb
10 gpm/20 lb
15 gpm/30 lb
20 gpm/40 lb (County minimum acceptable size)
25 gpm/50 lb
35 gpm/70 lb
50 gpm/100 lb
100 gpm/200 lb
150 gpm/300 lb

The inspector needs to locate the flow restrictor if possible. Normally, the flow restrictor will be located a few inches to approximate 2 feet in front of the grease interceptor. Many times, but not always, it will have red colored metal pipe. It should have a vent pipe connection that should be visible on top of the flow restrictor portion. You should be able to see the vent pipe coming from the flow restrictor area. In some grease interceptors, the flow restrictor is in the front part of the grease interceptor box.




The inspector needs to verify the following when checking the grease interceptor:

- How often is the interceptor cleaned? Should be cleaned of completed contents every 2 weeks. Some FSEs will need to do more often.
- Who cleans the interceptor?

- Where is the interceptor waste disposed? If they put in trash or dumpster, is it in sealed bag or container to prevent leaching? If the FSE owner/mgr says they put the interceptor waste in the recycle oil bin, then the inspector needs to notify them that it is not proper disposal since some of the yellow grease may be used for animal feed additives or other products.
- Are records available of interceptor cleaning?
- Are there any signs of deterioration or severe rusting of the interceptor?
- Is there access to be able to remove the lid and clean the interceptor?
- Is the flow restrictor and vent pipe installed? If not, or cannot determine, then require that a grease interceptor certification be done to ensure all components are properly connected and working.
- Is a dishwasher connected to the interceptor? If yes, then the dishwasher will need to be removed from the interceptor. Grease interceptors were intended for single fixture units such as one grease interceptor on one 3 compartment sink.
- What is the size of the grease interceptor? There are two ways to determine the size:
    - The label on the outside of the grease interceptor at either the inlet or outlet tank side, or
    - The size of the grease interceptor will be labeled on the inside of the grease interceptor lid. This can be done by inspector but there will be odors associated with this, or request interceptor certification be completed.



**Additives,** with automated feed system, connected to the front of the Grease Interceptor (this one is located in parking garage below a FSE). Additives (acids, caustics, soaps, surfactants, enzymes, etc…) should never be allowed prior to a grease interceptor!




Grease interceptor with size label




Cut away view of plastic Grease Interceptor design with special inlet and outlet baffle. This is a 20 gpm / 40 pound GT and is approximately 15 inches deep, and 24 inches long.

**Floor Grease Interceptors:** Many of these in-floor grease interceptors were never designed to be installed in the floor, meaning the materials that they were constructed were not specified for in-floor installation. Thus, many of these start to rust and deteriorate. The inspector has to rely on the FSE records many times due to limited information. The floor interceptor is a device that is in-between an interceptor and a small interceptor in how it performs. Many times the floor interceptor design is similar to a miniature interceptor with inlet and outlet baffles and a mid-wall baffle. The size of the floor interceptor can be estimated by the inspector, or it should have a size label inside the top lid of the floor interceptor. The inspector should request that a grease interceptor certification be completed and that the inlet and outlet structures should be documented to at least ensure that the floor interceptor has a baffle system to prevent FOG from discharging.
Some FSEs have been known to use high temperature water to "wash out" the floor interceptor, which will lead to sewer line clogs.

NOTE ON FLOOR INTERCEPTORS- Many full service FSEs with floor interceptors have had downstream sewer FOG impacts! Thus, the inspector should have increased awareness to look in several downstream manholes for FOG impacts below FSEs with floor interceptors.







Floor Interceptor

**Grease Control Equipment Certification or Verification of Components:** For FSEs with chronic FOG discharge problems causing blockage or obstruction in the sanitary sewer system, the inspector should request that the grease trap (or grease interceptor) be pumped to check to make sure all components (inlet T, outlet T, baffle wall) are properly installed. The inspector should request that the FSE schedule the pumping of the grease interceptor (or grease trap) with the grease waste hauler company so that the County inspector can be present to verify the components are installed correctly. Also, the inspector should note if the grease waste hauler has access to all compartments to properly clean the trap.

## INSPECTIONS-STEP 4: FSE OWNER/MANAGER INTERVIEW

Prior to the interview, the inspector should have the inspection form completed (legible, with no abbreviations so the FSE owner/manager can understand what is written), grease trap or grease interceptor maintenance handouts ready, and if necessary, any noncompliance notifications completed. The inspector should take a few minutes after the kitchen walk-through to complete the inspection form and have other materials ready. The inspector should remember to be as efficient as possible to limit the time the FSE owner/manager needs to spend with them. In some instances, the FSE employees will tell the inspector that the FSE owner or manager is not available or not in, and there is no manager on site at the moment. The inspector should ask the FSE employee when the FSE owner or manager will return so that the inspector can review the inspection findings with them.

**Grease Trap and Grease Interceptor Cleaning/Pumping Records or Manifests**

The inspector should ask the FSE owner/mgr for the records of the grease trap (or grease interceptor) pumping, cleaning or maintenance. The trap, or interceptor, pumping information should include:

- Generator information: FSE name and address
- Transporter information: Grease Waste Hauler (GWH) Company name, phone number, address, GWH employee name
    - Date pumped
    - Time pumped
    - Volume pumped (the inspector should be able to verify the size of the grease interceptor with this information. Important: some GWH companies may not list the volume pumped, but this is required for to identify if the grease trap or grease interceptor has had a complete pump of contents and the GWH knows the size of the trap or interceptor.)
- Disposal information: Location or site for final disposal of the FOG waste, name of facility treating the waste, date delivered.

If there are no significant problems identified, then the inspector should review the following with the FSE owner/manager

- grease interceptor or grease trap maintenance requirements,
- recordkeeping requirements, and
- Best Management Practices

If there are minor issues, such as “no maintenance records”, then the inspector should write “need to keep grease interceptor maintenance records onsite” on the inspection form. Other minor issues may include damaged or missing one sewer cleanout cover, and slight FOG around the yellow grease recycle bin.

## INSPECTIONS-STEP 5: FOLLOW-UP ACTIONS / ENFORCEMENT ACTIONS

If the inspector identifies any significant problems, then an enforcement action notice or Noncompliance Notification (NCN) should be issued. The inspector should check the NCN, or notice, to ensure that date issued, date response due, and correct deficiency or problem are identified. The inspector should show the FSE owner/manager the NCN and specific problems identified. The inspector will need to provide details of the identified deficiency or problem (i.e. the outlet T is missing, showing the picture in the handout with the proper outlet T installed) for the FSE owner/manager so the problem can be corrected. Normally, NCNs are issued with a due date that is 30 days from the issue date. NCNs should be issued for any of the following significant deficiencies:

- Heavy to moderate FOG in downstream sewer system.
- Grease trap outlet T not attached, or outlet T is loose, allowing FOG discharge to the sewer system.
- FSE has no grease control equipment installed.
- Grease trap outlet T is not visible or accessible for inspection (due to single access manhole or outlet of trap not able to be viewed by inspector). This is particularly critical when the inspector finds heavy to moderate FOG in the downstream sewer line. The inspector should require that a grease trap certification be done to verify if there is an outlet T installed. The inspector should remember that sometimes the FOG layer can become so thick that it covers the top of the outlet T, or the outlet T may have a cap on it which is covered by FOG. The inspector should use their long blade shovel or manhole pullers to determine if the outlet T is covered by the FOG layer.
- The grease trap has signs of deterioration, or severe pitting of concrete.
- The grease trap FOG layer and food solids layer is greater than 25% of the total tank capacity. If the FOG layer is greater than 4 inches, indicates that normally the bottom food solids layer will be 4 to 8 inches deep, the trap needs to be pumped of complete contents. For some FSEs that serve chicken, fish, or rice the food solids layer can be 2 times to 4 times the FOG layer depth. The inspector should use best judgment and emphasize the need to have the trap on a regular complete pump schedule. Thus, if

pump records do not indicate regular pumping, then the inspector should issue the NCN.

If there are other deficiencies noted by the inspector, the inspector should mark all the deficiencies on the NCN. Again, the inspector should ask the FSE owner/manager if they understand the deficiencies/problems that have been identified, and that they understand that they should initiate corrective actions.

The inspector should have hard copies of all completed FSE inspection forms and enforcement notices or NCNs on file. Any digital photos taken should be properly identified and stored in the database or on the inspector's computer or on a CD. The inspection data should be entered into the database as soon as possible. The inspector should track all NCNs issued in order to ensure that a proper response has been received from the FSE.

If the FSE owner/manager does not respond to the initial enforcement action or NCN due date the inspector should conduct an onsite inspection with the FSE owner/manager to determine if any corrective action progress has been made. In some cases, the FSE may have already corrected the problem/deficiency, but simply did not contact the County.
If the inspector finds that no corrective action has been completed, then the inspector must follow the enforcement response plan protocol and report this to JCESD supervisor or FOG Program Coordinator. The JCESD supervisor or FOG Program Coordinator should determine the proper escalation in enforcement action. The escalation in enforcement action should consider the severity of the deficiency/problem (i.e. heavy FOG in the sewer line that is causing an obstruction), the chronic nature of the problem, and the FSE's history of noncompliance. The inspector must keep records (including the dates and FSE personnel involved) of all inspection and enforcement actions.

Communication with Sewer Maintenance: The inspector should make the sewer system maintenance personnel aware of any moderate to heavy FOG found during their FSE inspections. Also, the inspector should communicate with the sewer system maintenance personnel to be notified of any moderate to heavy sewer line FOG that they identify. If the inspector identifies slight to moderate FOG, or FOG blockage that is not critical but needs to be cleaned to prevent further problems, the inspector should provide the sewer line segment identification and a time frame for the sewer line segment to be cleaned (i.e. within next 4 weeks). The inspector should be familiar with the FOG "hotspot" areas and make extra efforts to identify any FSE that discharges FOG to the sewer system.

## INSPECTIONS-STEP 6: DATA MANAGEMENT

The inspector must make sure that all FSE inspection forms and NCNs are filed for easy reference. Also, the inspector should ensure that the following information is input into the database.

- FSE name (sometimes the name changes but ownership does not)
- FSE address, zip code (be sure to ask for the physical address and the mailing address, and during later inspections make sure it is correct)
- FSE owner or manager name
- FSE phone number
- If a new FSE replaces an "out of business" FSE, be sure to document this in the new FSE file and the FSE that is out of business.
- Type of Grease Control Equipment
    - Grease Trap
    - Grease Interceptor
    - No Grease Control Equipment
- Size of Grease Interceptor or Grease Trap
- Location of Grease Interceptor or Grease Trap
- Frequency of cleaning or pumping the Grease Interceptor or Grease Trap
- Grease Waste Hauler used
- Dates for Grease Interceptor or Grease Trap Certification
    - Pass or Fail
    - If Fail, there should be correspondence on corrective action to be taken
- Inspection dates and findings
- Noncompliance Notifications-NCNs (or other enforcement actions) issue dates, due dates, deficiencies noted, and corrective action taken, as well as the completed date for corrective action.
- Sewer Plat ID (closest downstream manhole that the FSE discharges)
- REPORTS- A few of the reports that the inspector should be able to generate:
    - Listing of all active FSEs with FSE name, physical address, mailing address, contact name, phone number, Type and size of grease control equipment, grease waste hauler used
    - List of all inspections completed, with FSEs in alphabetical order, inspection date and findings
    - List of all NCNs, with FSEs in alphabetical order, issue date, response date, issued by (inspector), completed date, deficiency/problem ID, and corrective action taken
    - List of all Grease Control Equipment (interceptors and traps) Certifications completed, with certification date, grease waste hauler or plumber name, Pass or Fail, and if fail reason for failure and corrective action taken.

## INSPECTIONS 7: RESIDENTIAL FOG

Discharge of FOG from houses, duplexes, apartments, mobile home parks, and public housing facilities can cause sewer line blockages and SSO events. Single family residences are less likely to cause FOG related sewer line blockages, than apartments, mobile home parks, or public housing facilities. The County inspectors need to communicate with the sewer maintenance personnel to identify the residential area FOG "hotspots" that have recurring or chronic FOG blockages in the sewer system. The inspector should have a "Residential Notification" that provides information, and contains pictures, to the residents about how FOG can cause sewer back-ups in private plumbing, and blockages and overflows in the County's sewer system. The "Residential Notification" should also include Best Management Practices for the residents to implement to prevent FOG discharges.

Apartment Inspections: Prior to going to the apartment complex, the inspector should collect historical sewer maintenance/sewer line cleaning information from the sewer maintenance section. This record of sewer line cleaning and maintenance will provide the inspector with information to share with the apartment owner or manager to show them the ongoing problem in the downstream sewer system from their facility.
The inspector should do recon of the area to identify the discharge point or sewer connection location of the apartment complex. There may be many connection points to the County sewer system, so the inspector should be sure to check any private manholes that the apartment complex has to try to identify if one particular unit of apartments is causing most of the problem. Also, apartment complexes may have heavy amounts of paper products, or rags, which are in the sewer system. Sometimes, FOG is identified as the primary cause of a blockage or SSO event, when it could be paper products or rags. The inspector should take photos to document any problems found in the sewer system. Following the recon of the area, the inspector should meet with the apartment owner or manager to collect contact information and number of apartment units, review the findings of the inspection, the sewer maintenance history, and provide "Residential Notifications" that are to be distributed to all tenants by the apartment owner or manager. Contact information should include: owner name, if applicable, management company name, street address, mailing address, phone number, and number of apartment units. This information will need to be recorded or input in the database so future tracking of any problems from this apartment complex can be documented. Also, the number of apartment units can be used to track the number of "Residential Notifications" that were distributed. The inspector should explain that if there are continued FOG discharges from the apartment that result in sewer line blockages or SSO events, that enforcement action and/or charges for sewer line cleaning may be initiated.
Public housing facility and mobile home park inspections would be similar to the apartment inspection protocol described above.

Single Family Residents: The sewer maintenance section should have door-hangers or notifications to provide to single family resident houses. If the FOG related problem in a particular area is chronic, then a mail out of the residential notifications should be done to the houses in that particular neighborhood. Also, an automated phone call system can be initiated to call residents in a particular area to make them aware of then need to control FOG discharges from their homes. Again, the County should track all notifications (door-hangers, letters, phone calls, etc…) made to residents to keep records of the number and areas that have been notified of the need for FOG control and best management practices to prevent FOG discharges.

***Inspectors should do recon of the particular residential neighborhood to determine if an individual is running a catering business or mobile food unit from their home.**

## Appendix B Food Service Facility FOG Inspection Form

Jefferson County Environmental Services Department

# FOOD SERVICE FACILITY GREASE CONTROL INSPECTION FORM

**PERMIT # :** _____

**Facility Name:** _____ **Inspection Date:** _____

**Facility Representative:** _____ **Title:** _____

**Phone:**_____ **Owner/Regional Manager Name:**_____

**Facility Address:**_____ Mail Address: _____

_____ (if different) _____

**Sewer ID:** **Pump Station:** **GPS ID:**

___**Initial Inspection** ___**Annual Inspection** ___**1st NOV Re-inspection** ___**2nd NOV Re-inspection** ___**3rd NOV Re-inspection**

___**New Construction Inspection** ____**Re-inspection (Other)**_____

**1.) Grease Trap**? ____ Yes ____ No
*(For #1, if "NO" then go to # 19)*

**2.)** Trap Size(gallons): ____1000 ____1500 ____2000 ____3000
___Two Traps in series Other:_____

**3.)** Manhole Access:__1 __2 __3 __4 __5 __6 __7 __ 8 **4.)** Grease Layer Depth: ____ 1"-3" ____ 4"-6" ____ 6"-9" ___ >10"

**5.)** Influent T visible? ___Yes ___No **6.)** Influent T attached & in good condition: ____Yes ____No _____ Unknown

**7.)** Effluent T visible? ___Yes ___No **8.)** Effluent T attached & in good condition: ____Yes ____No _____ Unknown

**9.)** Mid - Wall Baffle visible? ____Yes ____No **10.)** Baffle Wall in good condition: ____Yes ____No ____Unknown

**11.)** Sample Vault/Port? _____ Yes _____No **12.)** Bacteria/Enzymes used:____Yes_____No

**14.)** Grease Trap Contractor/Hauler used: _____ **13.)** Product Name:_____

**15.)** Frequency Trap Cleaned: _____ **16.)** Complete Contents Pumped? ____Yes ____ No

**17.)** Records of Maintenance/Cleaning Available? ____ Yes ____ No **18.)** Last date cleaned:_____

**19.) Grease Interceptor?** ___Yes ___No **20.)** Location: __ Under sink interceptor __ Floor interceptor __ Outside "floor" int.

**21.)** Grease Interceptor flow-through rating / lb capacity: _____10 gpm/ 20 lb or < ____15 gpm/ 30 lb ____20 gpm/40 lb

____ 25 gpm / 50 lb _____ 35 gpm / 70 lb _____ 50 gpm / 100 lb ____Other:_____

**22.)** Other Interceptors? Location, Size._____

**23.)** Flow Restrictor Visible / In place? _____Yes _____No _____Undetermined ***(FSF must Verify / Install Flow Restrictor)***

**24.)** Grease Interceptor Hauler used: _____ **25.)** Bacteria/Enzymes used:___Yes___No

**26.)** Product Name:_____

**27.)** Frequency Interceptor is cleaned:_____ **27.)** Maintenance / Cleaning Records? _____ Yes _____ No

**28.)** Last Date Cleaned: _____ **29.)** Grease Interceptor comments/location waste disposed:_____

**30.)** Best Management Practices Implemented ___Yes ___No **31.)** Outside Recycle Bin ___Yes ___No

**32.)** Food Grinder on Sewer?____ Yes ____ No **33.)** Inside Recycle Oil System ___Yes __No

**34.)** Cleanout Covers missing or damaged? ___Yes ___No (# Cleanout covers missing: _____ damaged: _____)
(Facility needs to repair missing or damaged cleanout covers immediately)

**35.)** FOG impact at dumpster,recycle bin, storm sewer? ___Yes ___ No (if **Yes** give explanation below)

**36.) Downstream Sewer:** _____ Evidence of Grease in Manhole _____none_____slight _____moderate _____ heavy

Evidence of Grease in Sample Vault? ____Yes ___No. Manhole(s) ID with Grease:

**37.)** Picture ID:_____ // _____ of Trap _____ of downstream MH _____other:_____

**38.) Inspection Results:** _____**PASS** _____**WARNING** _____**FAIL (Notice of Violation Issued)**

**Inspection results, comments:**

**Inspector Name:** _____ **FSF Rep:** _____

Jefferson County Website for Food Service Facility info: www.jeffcoes.org (go to Customer Care, Commercial, Food Service)

## Appendix C Food Service Facility Permitting FAQs

## Grease Control Program Frequently Asked Questions and Answers:

- **Is there grandfathering for existing food service facilities?**
  No, every food service facility (FSF) that discharges waste into the Jefferson county sanitary sewer system is required to obtain a Grease Control Program (GCP) Permit or an exemption from GCP Permit.

- **Are the training classes mandatory?**
  No, but they are highly recommended. The classes offer valuable training skills for managers and/or workers to help control the amounts of fats, oils, and grease being discharged from the FSF.

- **Can I clean the grease interceptor or trap at my food service facility?**
  Yes, however the Jefferson County Health Department requires a permit for anyone or any firm that pumps, transports, stores, treats, or disposes of grease septage.

- **Will I have to change the current grease trap or interceptor that is currently installed? If so, when is the deadline to accomplish this?**
  Existing FSFs may be required to modify existing grease control devises or install additional grease control devices. If modifications or additions are required you will have 30 days to submit an Action Plan from the initial inspection. The upgrades shall be in place 90 days from the approval of the Action Plan.

  **What is the difference between grease traps and grease interceptors?**
  The location and size. Both devices do the same thing – separate and retain free-floating oils and grease. The two terms can be used interchangeably. For Jefferson County's purposes grease interceptors are referred to as the small, in-floor or under-the-sink prefabricated steel units. Grease traps are the larger devices located outdoors that offer much longer hydraulic retention times.

- **Is a sample vault needed?**
  Yes, in all new construction and may be required to retrofit older establishments if deemed necessary. It should be located downstream of the last grease trap.

- **Are permits transferable?**
  No. Each time a FSF changes owners/operators a new permit must be applied for.

- **Must the permit be displayed?**
  No. It should be kept on file and presented at the inspector's request.

- **What is the difference between fryer oil and FOG?**
  FOG is animal fats, oils & grease used for the purpose of preparing foods or resulting from food preparation. Fryer Oil means oil that is used and/or reused in fryers for the preparation of foods such as fried chicken and French fries.

## Appendix D New Food Service Facility Permitting Guidelines

**NEW FOOD SERVICE FACILITY PERMITTING GUIDELINES**

Listed below are guidelines for new food service facilities (FSFS) permitting with the Grease Control Program. New FSFS include new construction, remodels where plumbing is being reworked, excavation is being performed onsite or when there is a change in size or type of food preparation equipment.

**1.** Obtain a sewer impact permit from the Sewer Permitting and Inspection Office prior to issuance of a Grease Control Program Permit.

**2.** Apply for a Grease Control Program Permit or an Exemption from Permit Requirements. Remit applicable fees along with the application.

| NUMBER OF DEVICES | FEES |
|---|---|
| 1-5 | $300.00 |
| 6-10 | $500.00 |
| 11+ | * |

* Units in excess of 10 shall be assessed $500.00 plus $200 for each additional 5 units in excess of 10

**3.** Submit site utility and/or plumbing plans with details, size and location of the grease control device(s) and sampling vault(s), inclusive of locations for all sinks, dishwashers, sewer connections, etc. The grease control device(s) shall be sized in accordance with the rules and regulations set forth by the Jefferson County Sewer Use Administrative Ordinance.

**4.** Receive final approval of specifications for the grease control device(s) and sampling vault(s). Copies of the approval will be sent to the Sewer Impact Department, the FSFS, the Jefferson County Department of Health, and the local inspections department.

Approval must be obtained before (1) a Sewer Connection Permit is issued for new construction or (2) an Impact Permit is issued for remodels on existing structures. Please allow a 10 business day review period.

**5.** If applicable, receive a sewer connection permit before start of installation of the grease control device(s) and sampling vault(s).

**4.** Make an appointment for inspections from the Grease Control Program (205-238-3866 or 205-238-3876) and Sewer Impact (205-325-5801) to achieve approval on the installation of the grease control device(s) and sampling vault(s). Any work completed without prior notice shall be subject to a non-compliance fee.

**5.** Receive Grease Control Program Permit.

## Appendix E Grease Control Program Permit Application/Application for Exemption

JEFFERSON COUNTY
ENVIRONMENTAL SERVICES DEPARTMENT
GREASE CONTROL PROGRAM
**FOOD SERVICE FACILITY**
**GREASE CONTROL PROGRAM PERMIT APPLICATION**

## Facility Information

Facility Name: _____

Business License # _____ Tax ID # _____

Address: _____

Phone Number: _____

Facility Contact Name: _____

Position/Title: _____

Corporate Name: _____

Mailing Address: _____

Phone Number: _____

## Food Service Activity

Provide a brief narrative of food service activity; list type of food served.

_____

_____

_____

_____

_____

Provide NAICS code for this facility [see NAICS code book]

| Product or Service | NAICS Code | % of Activity |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Describe operations which generate wastewater: _____

_____

_____

_____

For ESD Use Only

Date Received: _____ Check No. _____ New Construction: _____ On Septic: _____

Change of Ownership/Business: _____ Reviewed by: _____ Permit No. _____

Is wastewater discharge continuous [water left running] or batch [faucet turned on only when needed]?_____

Months of operation _____ Peak months _____

Days of operation _____ Open on holidays? _____

Total number of employees _____

Number of employees - Shift 1 _____Time _____ to _____

Number of employees - Shift 2 _____Time _____ to _____

Number of employees - Shift 3 _____Time _____ to _____

Total seating capacity _____ [from Sewer Impact Department]

List all major equipment used for food preparation; i.e. grills, fryers, dishwashers, etc.; list sizes and capacities when appropriate.

| Equipment | Equipment |
|---|---|
| | |
| | |
| | |
| | |

List all sinks, the number of compartments per sink, and their intended use; i.e. hand, pre-rinse, wash, sanitize, 2 compartments, etc.

| Location | Number of Compartments | Intended Use | Size (gallons) |
|---|---|---|---|
| Example: Kitchen | 4 compartment | Rinse, wash, sanitize | 30 gallons |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Describe any wastewater pretreatment systems in place [grease interceptor, grease trap or grease removal device]. _____

_____

_____

Provide information on each grease interceptor, grease trap or grease removal device.

| Location | Size/Capacity | Manufacturer | Model # | Additional Information |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |

**Fryer Oil Maintenance** [Fryer oil cannot be discharged to sanitary sewer.]

Do you have fryer oil? Yes / No [circle one] Amount: _____gallons

If answer is no, skip to section on grease interceptor or grease trap maintenance.

Describe how fryer oil is handled: _____

_____

_____

Fryer Oil Hauler:_____

Address:_____

_____

Contact_____ Telephone: _____

Fryer Oil Disposal Site: _____

Address: _____

_____

Contact: _____ Telephone: _____

**Grease Interceptor or Trap Maintenance:**

Grease Interceptor or Trap Waste Hauler:_____

Address:_____

_____

Contact_____ Telephone: _____

Grease Interceptor or Trap Waste Disposal Site: _____

Address: _____

_____

Contact: _____ Telephone: _____

Frequency of grease interceptor or trap maintenance: _____

Describe how grease interceptor or trap maintenance is performed: _____

_____

_____

_____

Does your company verify that all FOG wastes removed from your property are disposed of properly? Yes / No [circle one]

**Water Account Numbers:**

| | |
|---|---|
| | |
| | |
| | |
| | |

Name on Water Account: _____

Service Address: _____

_____

Billing Address [if different]: _____

_____

If your facility uses water from another source [well, etc.], describe: _____

_____

**ATTACH A COPY OF YOUR MOST RECENT WATER BILL FOR THIS FACILITY.**

**Provide an up to date copy of indoor and outdoor plumbing plans. These plans should include the location of all water meters, sewer connections, floor drains, grease removal equipment, sinks, dishwashers, restrooms, etc. Blue prints are acceptable. A "to scale" hand drawn sketch may be acceptable in some cases.**

## AUTHORIZED REPRESENTATIVE STATEMENT

I, being duly authorized to sign this document, and in consideration for the granting of a Food Service Facility Grease Control Permit, do hereby agree to allow duly authorized employees of the Jefferson County Environmental Services Department the right to enter upon said company properties, without prior notification, for the purposes of inspection, observation, measurement, sampling, copying of records, photography, or testing.

Additionally, I agree to abide by all applicable provisions of the Jefferson County Grease Control Program.

I understand that failure to abide by the terms of this permit may be cause for disconnection of sewer service to the property authorized to discharge by this permit.

I certify under penalty of law that this document and all attachments were prepared under my direct supervision in accordance with a system designed to assure that qualified personnel properly gathered 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 additional fees for submitting false information.

SIGNATURE: _____

PRINTED NAME: _____

TITLE: _____

DATE: _____

JEFFERSON COUNTY
ENVIRONMENTAL SERVICES DEPARTMENT
GREASE CONTROL PROGRAM
**FOOD SERVICE FACILITY**
**APPLICATION FOR EXEMPTION FROM PERMIT REQUIREMENT**

## Facility Information

Facility Name: _____

Business License # _____ Tax ID # _____

Address: _____

Phone Number: _____

Facility Contact Name: _____

Position/Title: _____

Corporate Name: _____

Mailing Address: _____

Phone Number: _____

## Food Service Activity

Provide a brief narrative of food service activity; list type of food served.

_____

_____

_____

_____

_____

Provide NAICS code for this facility [see NAICS code book]

| Product or Service | NAICS Code | % of Activity |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Describe operations which generate wastewater: _____

_____

_____

_____

For ESD Use Only

Date Received: _____ Check No. _____ New Construction: _____ On Septic: _____

Change of Ownership/Business: _____ Reviewed by: _____ Permit No. _____

Is wastewater discharge continuous [water left running] or batch [faucet turned on only when needed]?_____

Months of operation _____ Peak months _____

Days of operation _____ Open on holidays? _____

Total number of employees _____

Number of employees - Shift 1 _____Time _____ to _____

Number of employees - Shift 2 _____Time _____ to _____

Number of employees - Shift 3 _____Time _____ to _____

Total seating capacity _____ [from Sewer Impact Department]

List all major equipment used for food preparation; i.e. grills, fryers, dishwashers, etc.; list sizes and capacities when appropriate.

| Equipment | Equipment |
|---|---|
| | |
| | |
| | |
| | |

List all sinks, the number of compartments per sink, and their intended use; i.e. hand, pre-rinse, wash, sanitize, 2 compartments, etc.

| Location | Number of Compartments | Intended Use | Size (gallons) |
|---|---|---|---|
| Example: Kitchen | 4 compartment | Rinse, wash, sanitize | 30 gallons |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

**Water Account Numbers:**

| | |
|---|---|
| | |
| | |
| | |
| | |

Name on Water Account: _____

Service Address: _____

_____

Billing Address [if different]: _____

_____

If your facility uses water from another source [well, etc.], describe: _____

_____

**ATTACH A COPY OF YOUR MOST RECENT WATER BILL FOR THIS FACILITY.**

**Justification for Exemption**

Use this space to provide further details to support request for exemption from Grease Control Program Permit requirements.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

**Provide an up to date copy of indoor and outdoor plumbing plans. These plans should include the location of all water meters, sewer connections, floor drains, grease removal equipment, sinks, dishwashers, restrooms, etc. Blue prints are acceptable. A "to scale" hand drawn sketch may be acceptable in some cases.**

## AUTHORIZED REPRESENTATIVE STATEMENT

I, being duly authorized to sign this document, and in consideration for the granting of an Exemption from the Food Service Facility Grease Control Permit program, do hereby agree to allow duly authorized employees of the Jefferson County Environmental Services Department the right to enter upon said company properties, without prior notification, for the purposes of inspection, observation, measurement, sampling, copying of records, photography, or testing.

Additionally, I agree to abide by all applicable provisions of the Jefferson County Grease Control Program.

I understand that any changes in food service activities which generate FOG will require notification of JCESD and may require a Grease Control Program Permit.

I certify under penalty of law that this document and all attachments were prepared under my direct supervision in accordance with a system designed to assure that qualified personnel properly gathered 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.

If an exemption has been falsely obtained, additional fees of $500 per group of 5 grease interceptors or traps will be assessed.

SIGNATURE: _____

PRINTED NAME: _____

TITLE: _____

DATE: _____

## Appendix F Grease Interceptor Cleaning Guidance

# How to Clean a Grease Interceptor

## Why is it necessary to clean the grease interceptor?

Scheduled cleaning of the interceptor every 14 days is required by the Jefferson County Grease Control Ordinance #1778. Keeping the interceptor clean will prevent overflows and backups into food service facilities and residences. Frequent cleaning reduces odors, makes routine maintenance easier and reduces the amount of time it takes to clean the interceptor.

## Suggested materials:

Large trash can
Several heavy duty trash bags (industrial strength lawn bags doubled) or
Many sealable containers (such as fryer oil jugs or pickle barrels)
Large screwdriver
Pry bar
Scraper
Scoop or small bucket
Wet/Dry vacuum
Rubber gloves
Safety glasses
Paper Towels

## To Begin:

- Prepare the work area by clearing area of all material, debris and equipment that will not be needed in the cleaning of the grease interceptor.
- Line the trash cans with multiple trash bags or gather the containers with lids.
- Remove the lid of the grease interceptor. (Pay attention to how the parts are installed because an interceptor that is not assembled properly will cause a discharge of FOG into the sanitary sewer system which could result in an overflow).
- Begin removing contents of the interceptor by dipping with a bucket or scoop and/or vacuuming the contents with a wet dry vacuum into trash bags or containers with lids.
- Do not use: hot water, de-greasers or soaps to clean the interior parts of the interceptor.
- Scrape the inside walls and baffles.
- Flush screens to ensure movement of water through the device.
- Use dipper or vacuum to remove scrapings and other residue.
- Make sure that internal components are properly placed and seated.
- Replace lid
- Securely tie bag(s) or seal container so it does not leak.
- Place waste in dumpster in sealed container if it is less than 10 gallons; if it is more than 10 gallons contract with a grease hauler for pick up and disposal.
- Update maintenance records with amount removed and date in log book for inspectors review.

** **NOTE**: due to the strong odor that may be produced during cleaning, it is recommended scheduling grease interceptor maintenance during non-business hours. Always make sure the area is well ventilated when the interceptor is opened. Frequent cleaning will help to minimize the odor.

## Appendix G List of Permitted Food Service Facilities

| FSFNAME | FSFADDRESS | FSFADDRESS2 | FSFCITY | FSFSTATE | FSFZIP | FSFPHONE | STATUS | PERMITNO |
|---|---|---|---|---|---|---|---|---|
| 10th Avenue Deli | 4500 10th Ave N | NULL | Birmingham | AL | 35212 | 595-5337 | Compliant | 20151031 |
| 117 Air Refueling Wing Dining Facility | 5401 East Lake Blvd | NULL | Birmingham | AL | 35217 | 714-2504 | Non-compliant | 20150010 |
| 29- Seven, LLC/ Babalu & Jimmy Johns | 2808 7Th Avenue South | NULL | Birmingham | AL | 35233 | 205-936-7890 | Compliant | 20153390 |
| 3rd Avenue So Mixed Use Dev. | 300 20Th Street South | NULL | Birmingham | AL | 35294 | 205-936-7890 | New Const. | Pending |
| 4 Seasons Bar & Grill | 719 Graymont Avenue North | NULL | Birmingham | AL | 35204 | 205-566-7552 | Non-compliant | Pending |
| A Light in the World | 816 Earline Street | NULL | Birmingham | AL | 35215 | 853-1622 | Compliant | EXEMPT |
| A Social Affair/ Gourmet To Go | 127 Oak St | NULL | Birmingham | AL | 35213 | 871-8494 | Compliant | 20150386 |
| A Star Buffet | 180 State Farm Parkway | NULL | Birmingham | AL | 35209 | 942-9842 | Non-compliant | Pending |
| AAA Convenience Store | 3220 Morgan Rd | NULL | Bessemer | AL | 35022 | 426-1734 | Compliant | EXEMPT |
| Abrams Elementary Child Nutrition Program | 1200 23rd Street North | NULL | Bessemer | AL | 35020 | 432-3110 | Compliant | 20151366 |
| Acapulco Bar & Grill | 430 Greensprings Hwy | NULL | Homewood | AL | 35209 | 941-1183 | Compliant | 20151161 |
| Acipco Employees Cafeteria | 1501 31st Avenue, North | NULL | Birmingham | AL | 35207 | 325-7967 | Compliant | 20150437 |
| Acton Road Daylight Donuts | 2409 Acton Road | Ste 101 | Vestavia | AL | 35243 | 205-612-2021 | Non-compliant | Pending |
| Adamsville Elementary School | 4600 Midway Road | NULL | Adamsville | AL | 35005 | 379-2129 | Compliant | 20150438 |
| Advent Episcopal School | 2017 6Th Ave No | NULL | Birmingham | AL | 35203 | 251-2324 | Compliant | 20151719 |
| AFC Sushi @ UAB | 900 16Th Street South | NULL | Birmingham | AL | 35294 | NULL | New Const. | Pending |
| Airport Mini Mart | 4010 Messer Airport Highway | NULL | Birmingham | AL | 35222 | NULL | Non-compliant | Pending |
| Airport Store | 3828 Messer Airport Hwy | NULL | Birmingham | AL | 35222 | 205-595-8700 | Non-compliant | Pending |
| AKF Chevron | 4101 3Rd Avenue South | NULL | Birmingham | AL | 35222 | 205-592-0996 | Non-compliant | Pending |
| Al's Deli & Grill | 1629 10th Avenue South | NULL | Birmingham | AL | 35205 | 939-4278 | Compliant | 20150635 |
| Alabama Clinical Schools | 1221 Alton Dr | NULL | Birmingham | NULL | 35210 | 836-9923 | Compliant | 20153103 |
| Alabama Dept of Corrections (B'ham CBF) | 1216 25th Street No | NULL | Birmingham | AL | 35234 | 252-2994 | Compliant | 20151639 |
| Alabama School of Fine Arts | 1800 8th Avenue North | NULL | Birmingham | AL | 35203 | 252-9241 | Compliant | 20150440 |
| Alagasco | 20 Powell Avenue South | NULL | Birmingham | AL | 35203 | 205-326-8200 | Non-compliant | Pending |
| Alcohol & Drug Abuse Treatment (Pearson Hall) | 2701 Jefferson Ave Sw | NULL | Birmingham | AL | 35211 | 923-6552 ext 12 | Compliant | 20150442 |
| Alcohol & Drug Abuse Treatment Ctr. Olivias House | 8017 2nd Ave | NULL | Birmingham | AL | 35206 | 836-7832 | Compliant | 20150443 |
| Alethia House | 135 Finley Avenue West | NULL | Birmingham | AL | 35204 | 324-6502 | Compliant | 20153085 |
| Alethia House | 4246 5th Avenue S | NULL | Birmingham | AL | 35222 | 595-1114 | Compliant | 20153101 |
| Alexanders Deli & Catering | 800 Shades Creek Pky | NULL | Homewood | AL | 35209 | 879-2123 | Compliant | EXEMPT |
| Alexanders Deli & Catering | 2100- B Southbridge Pkwy | Ste 295 | Birmingham | AL | 35209 | 414-0270 | Non-compliant | Pending |
| Alfredo's Pizza Cafe | 803 Greensprings Hwy | NULL | Birmingham | AL | 35209 | 205-587-9191 | Compliant | 20153311 |
| All Original Pizzeria, LLC. | 4760 Eastern Vally Rd | NULL | Mccalla | AL | 35111 | 477-1123 | Compliant | EXEMPT |
| Allens Food Mart #11 | 2197 Eastern Valley Rd | NULL | Bessemer | AL | 35022 | 428-9202 | Compliant | EXEMPT |
| Altadena Valley Golf & Country Club | 2651 Alta Vista Drive | NULL | Birmingham | AL | 35243 | 967-5322 | Compliant | 20150301 |
| Amerex Corporation | 7595 Gadsden Hwy | NULL | Trussville | AL | 35173 | 655-3271 | Compliant | 20150006 |
| America's Best Inn- West | 6400 Kelco Place | NULL | Fairfield | AL | 35064 | 205-780-5155 | Compliant | EXEMPT |
| America's Best Value Inn | 1813 Crestwood Blvd | NULL | Irondale | AL | 35210 | 956-3650 | Compliant | EXEMPT |
| American Deli | 1940 Bessemer Road | NULL | Birmingham | AL | 35208 | 781-3511 | Compliant | 20153322 |
| American Deli | 1680 Montclair Road | Ste 400 | Birmingham | AL | 35210 | 591-2222 | Compliant | 20151417 |
| American Deli Buffalo Wings | 306 Oxmoor Road | NULL | Birmingham | AL | 35209 | 205-912-7114 | Compliant | 20153188 |
| American Grille | 1011 9Th Avenue S W | NULL | Birmingham | AL | 35022 | NULL | New Const. | Pending |
| American Legion Post #347 | 5021 Gary Ave | NULL | Fairfield | AL | 35064 | 781-5244 | Compliant | 20152988 |
| American Legion Post 171 | 8325 1st Avenue, North | NULL | Birmingham | AL | 35206 | 836-9143 | Compliant | EXEMPT |
| American Legion Shades Valley Post #134 | 4 Hollywood Blvd | NULL | Birmingham | AL | 35209 | 870-9421 | Compliant | 20153563 |
| American Legion Tarrant #113 | 1135 Pinson St | NULL | Tarrant | AL | 35217 | 841-8855 | Compliant | EXEMPT |
| American Ranch House | 1600 Pinson Valley Parkway | NULL | Tarrant | AL | 35217 | 205-841-7779 | Non-compliant | Pending |
| Amigos Mexican Grill | 3659 Lorna Rd | NULL | Hoover | AL | 35216 | 682-8090 | Compliant | 20151503 |
| Another Broken Egg Cafe | 2418 Montevallo Road | NULL | Mountain Brook | AL | 35223 | 799-8295 | Compliant | 20153075 |
| Another Level Cafe | 541 Graymont Avenue | NULL | Birmingham | AL | 35204 | 205-224-5699 | Compliant | 20153576 |
| APCO Aramark Main Kitchen | 600 18th St N | NULL | Birmingham | AL | 35203 | 257-3601 | Compliant | 20153041 |
| Applebee's Neighborhood Grill & Bar | 1250 Boots Blvd | NULL | Fultondale | AL | 35068 | NULL | Compliant | 20153249 |
| Applebees Neighborhood Grill & Bar | 5050 Academy Ln | NULL | Bessemer | AL | 35022 | 424-5255 | Compliant | 20151167 |
| Applebees Neighborhood Grill & Bar | 2933 John Hawkins Pky | NULL | Hoover | AL | 35244 | 444-1102 | Compliant | 20151156 |
| Applebees Neighborhood Grill & Bar | 1600 Huffman Rd | NULL | Center Point | AL | 35215 | 853-3200 | Compliant | 20151106 |
| Applebees Neighborhood Grill & Bar | 2246 Bessemer Road | NULL | Birmingham | AL | 35208 | NULL | Compliant | 20151317 |
| Applebees Neighborhood Grill & Bar | 4711 Norrel Dr | NULL | Trussville | AL | 35173 | 661-0607 | Compliant | 20151168 |
| Arbys #234 | 1482 Montgomery Hwy | NULL | Vestavia | AL | 35216 | 823-0116 | Compliant | 20150457 |
| Arbys #268 | 2100 7th Ave S | NULL | Birmingham | AL | 35233 | 328-2586 | Compliant | 20150458 |
| Arbys #306 | 9328 Parkway E | NULL | Birmingham | AL | 35215 | 833-9650 | Compliant | 20150459 |
| Arbys #5512 | 544 Fieldstown Rd | NULL | Gardendale | AL | 35071 | 631-8296 | Compliant | 20150460 |
| Arbys #5515 | 996 Forestdale Blvd | NULL | Birmingham | AL | 35214 | 798-1069 | Compliant | 20150461 |
| Arbys #609 | 7735 Crestwood Blvd | NULL | Birmingham | AL | 35210 | 595-5482 | Compliant | 20150464 |
| Arbys #6882 | 159 State Farm Pky | NULL | Birmingham | AL | 35209 | 945-8811 | Compliant | 20150473 |
| Arbys #6913 | 5984 Chalkville Mountain Rd | NULL | Birmingham | AL | 35235 | 655-4054 | Compliant | 20150474 |
| Arbys #7118 | 3990 Methodist Cir | NULL | Bessemer | AL | 35022 | 425-8799 | Compliant | 20150475 |
| Arbys #7139 | 1668 Gadsden Hwy | NULL | Birmingham | AL | 35235 | 661-2251 | Compliant | 20151094 |
| Arbys #7237 | 3775 Lorna Rd | NULL | Hoover | AL | 35216 | 985-4344 | Compliant | 20150477 |
| Arbys #7448 | 1915 28th Ave S | NULL | Birmingham | AL | 35209 | 871-9772 | Compliant | 20150478 |
| Arbys #7650 | 105 River Square Plz | NULL | Hueytown | AL | 35023 | 491-8275 | Compliant | 20150479 |
| Arbys #8005 | 227 Howell Street | NULL | Fultondale | AL | 35068 | 808-5308 | Compliant | 20150996 |
| Arlington Historical House | 331 Cotton Avenue | NULL | Birmingham | AL | 35211 | 254-6314 | Compliant | 20150555 |
| Arlington Rehabilitaion & Health Care Center | 1020 Tuscaloosa Ave S W | NULL | Birmingham | AL | 35211 | 788-6330 | Compliant | 20153283 |
| Armed Forces Reserve Center | 5300 57th Street North | NULL | Birmingham | AL | 35217 | 205-808-3245 | Non-compliant | 20122458 |
| Arrington Middle School | 2101 Jefferson Ave Sw | NULL | Birmingham | AL | 35211 | 231-7270 | Compliant | 20152547 |
| Art Play Johnson House | 1006 19th Street S | NULL | Birmingham | AL | 35294 | 205-975-4769 | Compliant | EXEMPT |
| Ashley Mac's | 4730 Chace Circle | Ste 100 | Hoover | AL | 35244 | NULL | Non-compliant | Pending |
| Ashley Mac's Inc | 3147 Green Valley Road | NULL | Vestavia Hills | AL | 35243 | 205-822-4142 | Compliant | 20153203 |
| Ashville Road Church of Christ | 1401 Ashville Road | NULL | Leeds | AL | 35094 | NULL | Compliant | EXEMPT |
| Asian Rim Sushi Co | 3419 Colonnade Parkway | Ste 100 | Birmingham | AL | 35243 | 205- | Compliant | 20153398 |
| Auntie Annes Pretzels | 2000 Riverchase Galleria | #148 | Birmingham | AL | 35244 | 987-2700 | Compliant | EXEMPT |
| Austie's Deli | 3800 Colonnade Parkway | NULL | Birmingham | AL | 35243 | 969-1046 | Compliant | EXEMPT |
| Avo/ Dram | 2721 Cahaba Road | NULL | Mountain Brook | AL | 35223 | 870-9669- temp | Compliant | 20153044 |
| Avondale Elementary School | 4000 8th Ct S | NULL | Birmingham | AL | 35222 | 231-7270 | Compliant | 20152544 |
| Avondale Hotbox @ Parkside | 4036 5Th Avenue South | NULL | Birmingham | AL | 35222 | 850-766-9864 | New Const. | Pending |
| Avondale Sunoco Hunts Bro Pizza | 300 41St Street South | NULL | Birmingham | AL | 35222 | NULL | Non-compliant | Pending |
| B & A Warehouse | 3700 5th Avenue South | NULL | Birmingham | AL | 35222 | 326-4220 | Compliant | 20151147 |
| B & A Warehouse | 1531 1st Ave S | NULL | Birmingham | AL | 35233 | NULL | Compliant | 20150008 |
| B A M Sports Grill | 3144 Cahaba Heights Village | NULL | Birmingham | AL | 35243 | 830-660-1150 | Compliant | 20153557 |
| B A P S South East | 500 Biscayne Drive | NULL | Birmingham | AL | 35206 | 205-833-3287 | Compliant | 20153365 |
| Backyard Burgers | 1428 Montgomery Hwy | NULL | Vestavia | AL | 35216 | 979-1292 | In-Collection | 20070483 |
| Bahama Buck's | 3177 Green Valley Road | NULL | Cahaba Heights | AL | 35243 | 205-310-4677 | New Const. | Pending |
| Bakers Famous Pizza | 757 Shades Mtn Plz | NULL | Hoover | AL | 35226 | 822-4848 | Compliant | 20150007 |
| Bama Hot Dogs | 1613 Pinson Valley Pky | NULL | Tarrant | AL | 35217 | 849-2244 | Compliant | 20150484 |
| Bamboo on 2nd | 2212 2Nd Avenue North | NULL | Birmingham | AL | 35203 | 205-222-2498 | Non-compliant | Pending |
| Banks Southern Style | 5204 Bessemer Super Highway | NULL | Birmingham | AL | 35020 | 434-2051 | Non-compliant | Pending |
| Baptist Medical Ctr Princeton- Dietary | 701 Princeton Ave Sw | NULL | Birmingham | AL | 35211 | 783-3561 | Compliant | 20150485 |
| Bar 31 | 1485 Montgomery Hwy | NULL | Vestavia | AL | 35216 | 205-824-3160 | Compliant | 20153636 |
| Barbeque Stop | 6633 Old Springville Road | NULL | Pinson | AL | 35126 | 205-681-5575 | Compliant | 20153499 |
| Barnes & Noble | 171 Main Street | NULL | Hoover | AL | 35244 | 682-9494 | Compliant | EXEMPT |
| Barnes & Noble #2858 | 201 Summit Blvd | Suite 100 | Birmingham | AL | 35243 | NULL | Compliant | EXEMPT |

| FSFNAME | FSFADDRESS | FSFADDRESS2 | FSFCITY | FSFSTATE | FSFZIP | FSFPHONE | STATUS | PERMITNO |
|---|---|---|---|---|---|---|---|---|
| Barrett School | 7605 Division Ave | NULL | Birmingham | AL | 35206 | 231-7270 | Compliant | 20152543 |
| Baskin Robbins | 2772 John Hawkins Pkwy | Suite 106 | Birmingham | AL | 35244 | 428-8316 | New Const. | Pending |
| Bass Pro Shop-General Store | 5000 Bass Pro Blvd | NULL | Leeds | AL | 35094 | 417-873-5000 | Compliant | 20152958 |
| Bayles Catering | 5422 1St Avenue North | NULL | Birmingham | AL | 35203 | 205-706-2470 | Non-compliant | Pending |
| Baymont Inn | 1466 Montgomery Hwy | NULL | Vestavia | AL | 35216 | 822-2224 | Compliant | EXEMPT |
| BBVA Brock Center Cafe | 701 32Nd Street South | NULL | Birmingham | AL | 35233 | 297-1151 | Non-compliant | Pending |
| Beijing Express | 3659 Lorna Road | Ste 161 | Hoover | AL | 35216 | 205-982-9688 | Compliant | 20153610 |
| Bellissimo | 738 Brookwood Village | NULL | Birmingham | AL | 35209 | 205-414-7761 | Compliant | 20153431 |
| Bessemer Academy | 1705 4th Ave Sw | NULL | Bessemer | AL | 35022 | 428-6288 | Compliant | 20150556 |
| Bessemer City High Concession | 4950 Premiere Park Way | NULL | Bessemer | AL | 35022 | NULL | Compliant | EXEMPT |
| Bessemer City High School | 4950 Premiere Park Way | NULL | Bessemer | AL | 35022 | NULL | Compliant | 20153142 |
| Bessemer City Middle School | 100 High School Drive | NULL | Bessemer | AL | 35020 | 432-3610 | Compliant | 20153475 |
| Bessemer Civic Center | 1130 9th Avenue SW | NULL | Bessemer | AL | 35022 | NULL | Compliant | EXEMPT |
| Bessemer Cut-off Post 149 (American Legion) | 1926 3rd Ave. N | NULL | Bessemer | AL | 35020 | 426-5304 | Compliant | EXEMPT |
| Bessemer Deli & Grocery | 542 Brewer Drive | NULL | Birmingham | AL | 35228 | 205-425-4771 | Non-compliant | 20143449 |
| Best Western | 5041 Academy Lane | NULL | Bessemer | AL | 35022 | 481-1950 | Compliant | EXEMPT |
| Best Western Gardendale | 842 Thompson Street | NULL | Gardendale | AL | 35071 | 205-631-1181 | Compliant | EXEMPT |
| Best Western/Carlton Suites | 140 State Farm Pky | NULL | Birmingham | AL | 35209 | 940-9990 | Compliant | 20151197 |
| Best Wings & Deli | 5017 Richard Arrington Blvd No | Ste A | Birmingham | AL | 35212 | NULL | Non-compliant | Pending |
| Best Wings And Deli | 2429 Carraway Blvd | NULL | Birmingham | NULL | 35234 | 322-1244 | Compliant | 20151064 |
| Bethel Baptist Church | 1708 Spencer Avenue | NULL | Birmingham | AL | 35214 | 205-798-0371 | Compliant | 20153626 |
| Bettola | 2901 2nd Ave S | NULL | Birmingham | AL | 35233 | 731-6499 | Compliant | 20151165 |
| Big B Foods | 4050 Vanderbilt Road | NULL | Birmingham | AL | 35217 | 205-281-6496 | New Const. | Pending |
| Billys Bar & Grill | 2012 Cahaba Rd | NULL | Mountain Brook | NULL | 35223 | 879-2238 | Compliant | 20151283 |
| Birmingham Botanical Gardens | 2612 Lane Park Road | NULL | Birmingham | AL | 35223 | 414-3900 | Compliant | 20153021 |
| Birmingham Bread | 2408 7Th Avenue South | NULL | Birmingham | AL | 35233 | 205-933-7517 | New Const. | Pending |
| Birmingham City Hall | 710 19Th Street North | NULL | Birmingham | AL | 35203 | 205-254-2644 | Compliant | 20153369 |
| Birmingham City Jail | 425 6th Ave S | NULL | Birmingham | AL | 35205 | 254-2644 | Compliant | 20150559 |
| Birmingham Civil Rights | 520 16th Street N | NULL | Birmingham | AL | 35203 | 328-9696 | Compliant | EXEMPT |
| Birmingham Cross Plex At Fair Park | 2337 Bessemer Rd | Atten: Kevin Moore | Birmingham | AL | 35208 | 279-8900 | Compliant | 20153318 |
| Birmingham Dining Southern Cuisine "CLOSED?" | 7632 5Th Avenue North | NULL | Birmingham | AL | 35206 | 205-868-3130 | Non-compliant | Pending |
| Birmingham Dreamland, Inc. | 1427 14th Ave S | NULL | Birmingham | AL | 35205 | 205-933-2133 | Compliant | 20150560 |
| Birmingham Entertainment | 2700 16th Street North | NULL | Birmingham | AL | 35204 | 413-2896 | Non-compliant | Pending |
| Birmingham Nursing & Rehab | 1000 Dugan Ave | NULL | Birmingham | AL | 35214 | 798-8780 | Compliant | 20151697 |
| Birmingham Nursing & Rehab | 733 Mary Vann Ln | NULL | Birmingham | AL | 35215 | 854-1361 | Compliant | 20152698 |
| Birmingham Race Course | 1000 John Rogers Drive | NULL | Birmingham | AL | 35235 | 838-7500 | Compliant | 20150009 |
| Birmingham Westin Hotel | 2221 Richard Arrington Blvd No | NULL | Birmingham | AL | 35203 | 205-458-8409 | Non-compliant | 20143402 |
| Bistro V | 521 Montgomery Highway | Ste 113 | Vestavia | AL | 35216 | 205-823-1505 | Compliant | 20153252 |
| BJCC Arena Commissary Convention Complex | 2100 Richard Arrington Blvd N | NULL | Birmingham | AL | 35202 | 458-8473 | Compliant | 20150481 |
| Black Creek Park Concession | 900 Yarbrough Road | NULL | Fultondale | AL | 35068 | 205-841-4481 | Compliant | 20153362 |
| Black Market Bar | 3411 Colonnade Pkwy | Suite 800 | Birmingham | AL | 35243 | 205-967-8787 | Non-compliant | 20133152 |
| Black Pearl Asian Cuisine | 3439 Colonnade Pkwy | Ste 300 | Birmingham | AL | 35243 | 205-262-9888 | Compliant | 20153452 |
| Blackmon's Cafe | 5620 Avenue J | Suite B | Birmingham | AL | 35208 | 925-2300 | Non-compliant | 20133442 |
| Blackwell's Neighborhood Pub | 3151 Green Valley Road | NULL | Vestavia | AL | 35243 | 205-337-7048 | Non-compliant | 20092985 |
| BLC Warming Kit (Childrens Harbor) | 1600 6th Ave S | 4th FLOOR | Birmingham | AL | 35233 | 205-638-9533 | Compliant | EXEMPT |
| Blue Hat Club | 5700 Valley Rd | NULL | Fairfield | AL | 35064 | 205-240-0889 | Compliant | 20150590 |
| Bluff Park Diner | 591 Shades Crest Rd | NULL | Hoover | AL | 35226 | 824-4320 | Compliant | 20150565 |
| Bluff Park Elementary | 569 Park Ave | NULL | Hoover | AL | 35226 | 229-5060 | Compliant | 20151007 |
| Boatengs Cajun Creations Restaurant LLC | #2 19th Street North | NULL | Bessemer | AL | 35020 | 205-436-2848 | Compliant | 20153324 |
| Bob Sykes Bar B-Q, Inc. | 1724 9th Avenue | NULL | Bessemer | AL | 35020 | 426-1400 | Compliant | 20150436 |
| Bogues Restaurant | 3120 Clairmont Avenue | Ste 110 | Birmingham | AL | 35205 | 205-254-9780 | Non-compliant | 20123382 |
| Bojangles #858 | 1533 Montclair Road | NULL | Irondale | AL | 35210 | 704-940-8669 | Compliant | 20153177 |
| Bojangles #860 | 4780 Eastern Valley Road | NULL | McCalla | AL | 35111 | 704-940-8669 | Compliant | 20153209 |
| Bojangles #901 | 1880 Gadsden Hwy | NULL | Trussville | AL | 35235 | 704-940-8669 | Compliant | 20153492 |
| Bojangles #922 | 1600 Morris Avenue | NULL | Fultondale | AL | 35068 | 205-841-4118 | Compliant | 20153483 |
| Bojangles #950 | 1548 Montgomery Highway | NULL | Hoover | AL | 35216 | NULL | Compliant | 20153575 |
| Bonefish Grill | 3430 Galleria Circle | NULL | Hoover | AL | 35244 | 985-9545 | Compliant | 20150048 |
| Bongiorno Italian Restaurant | 68-A Church St | NULL | Mountain Brook | AL | 35213 | 879-5947 | Compliant | EXEMPT |
| Books A Million/Joe Muggs | 2037 Cahaba Road | NULL | Mountain Brook | AL | 35243 | 871-6009 | Compliant | EXEMPT |
| Books A Million/Joe Muggs | 757 Brookwood Village | NULL | Birmingham | AL | 35209 | 870-0213 | Compliant | EXEMPT |
| Books A Million/Joe Muggs | 1615 Montgomery Hwy | Suite 120 | Hoover | AL | 35216 | 979-3046 | Compliant | EXEMPT |
| Books A Million/Joe Muggs | 1624 Gadsden Hwy | NULL | Trussville | AL | 35235 | 661-9177 | Compliant | EXEMPT |
| Books-A-Million/Joe Muggs | 3429 Lowery Pkwy | NULL | Fultondale | AL | 35068 | 943-0599 | Compliant | EXEMPT |
| Boston Fish | 4201 Richard Arrington Blvd | NULL | Birmigham | AL | 35212 | 205-595-0337 | Non-compliant | Pending |
| Boston Fish & Wings | 144 6Th Avenue SW | NULL | Birmingham | AL | 35211 | 601-490-6009 | Compliant | 20153606 |
| Boston Fish Supreme | 1363 Bessemer Road | NULL | Birmingham | AL | 35208 | 925-9880 | Compliant | 20153113 |
| Bottega Restaurant & Cafe | 2240 Highland Ave S | NULL | Birmingham | AL | 35205 | NULL | Compliant | 20150500 |
| Bottenfield M. D. | 400 Hillcrest Drive | NULL | Adamsville | AL | 35005 | NULL | Non-compliant | Pending |
| Boutwell Municipal Auditorium | 1930 8th Ave N | NULL | Birmingham | AL | 35203 | 254-2820 | Compliant | EXEMPT |
| BP Shop 150 | 600 14Th Street South | NULL | Bessemer | AL | 35020 | 205-425-8998 | Non-compliant | Pending |
| Bragg Middle School | 840 Ash Avenue | NULL | Gardendale | AL | 35071 | 379-2129 | Compliant | 20150566 |
| Brava | 321 20Th Street North | NULL | Birmingham | AL | 35203 | NULL | New Const. | Pending |
| Briarwood Christian School | 2204 Briarwood Way | NULL | Birmingham | AL | 35243 | 776-5822 | Compliant | 20151420 |
| Brick & Tin | 214 20th St N | NULL | Birmingham | AL | 35203 | 205-266-0103 | Compliant | 20153196 |
| Brick & Tin | 2901 Cahaba Road | NULL | Birmingham | AL | 35223 | 205-502-7971 | Compliant | 20153548 |
| Bright Star Cafe | 304 19th St N | NULL | Bessemer | AL | 35020 | 424-9444 | Compliant | 20150530 |
| Brighton School | 3400 Brown Circle | NULL | Brighton | AL | 35020 | 379-2129 | Compliant | 20150567 |
| Brio Tuscan Grille | 591 Brookwood Village Ln | NULL | Birmingham | AL | 35209 | 879-9177 | Compliant | 20150569 |
| Brito's Supermarket LLC #3 | 118 Greensprings Hwy | NULL | Homewood | AL | 35209 | 205-941-2017 | Non-compliant | 20123295 |
| Brixx Wood Fired Pizza | 181 Main Street | Ste 241 | Hoover | AL | 35244 | 205-437-0998 | Compliant | 20153616 |
| Brocks Gap Intermediate School | 1730 Lake Cyrus Pky | NULL | Hoover | AL | 35244 | 229-5060 | Compliant | 20151008 |
| Brookdale Place | 400 University Park Dr | NULL | Birmingham | AL | 35209 | 870-0786 | Compliant | 20150356 |
| Brookdale Place University Park Health Care Center | 501 University Park Drive | NULL | Birmingham | AL | 35209 | 205-379-7900 | Compliant | 20153615 |
| Brooklane Baptist Academy | 160 Brooklane Dr | NULL | Hueytown | AL | 35023 | 497-0967 | Compliant | 20152337 |
| Brookville Elementary School | 4275 Brookville School Road | NULL | Graysville | AL | 35073 | 379-2129 | Compliant | 20150571 |
| Brookwood Forest Ele. School (Septic) | 3701 South Brookwood Road | NULL | Birmingham | AL | 35223 | NULL | Compliant | Pending |
| Brookwood Med Ctr: Main Cafe | 2010 Brookwood Med. Cntr Dr. | NULL | Homewood | AL | 35209 | 877-1088 | Compliant | 20151164 |
| Brother Bryans Mission | 1616 2nd Ave N | NULL | Birmingham | AL | 35203 | 322-0092 | Compliant | 20151577 |
| Brothers Sports Bar & Grill | 209 Pratt Hwy | NULL | Birmingham | AL | 35214 | 835-1787 | Non-compliant | 20123395 |
| Brown Derby | 3630 6th Ave S | NULL | Birmingham | AL | 35222 | NULL | Non-compliant | 20140172 |
| Brown Elementary School | 4811 Court J | NULL | Birmingham | AL | 35208 | 231-7270 | Compliant | 20152542 |
| Brusco's New York Style Pizza & Subs | 2516 Rocky Ridge Road | NULL | Vestavia Hills | AL | 35243 | 770-789-5579 | Compliant | 20153115 |
| Brusters Real Ice Cream | 1008 Vestavia Pky | NULL | Vestavia | NULL | 35216 | 978-2347 | Compliant | EXEMPT |
| Bryant's Seafood | 3096 Allison Bonnett Drive | NULL | Hueytown | AL | 35023 | 491-9143 | Compliant | 20150503 |
| BSC Catering Kitchen/Norton Court | 900 Arkadelphia Rd | NULL | Birmingham | NULL | 35204 | 226-4630 | Compliant | EXEMPT |
| Buffalo Wild Wings | 5915 Trussville Crossing Pky | NULL | Birmingham | AL | 35235 | 655-2521 | Compliant | 20150548 |
| Buffalo Wild Wings | 2772 John Hawkins Pky | NULL | Hoover | AL | 35244 | NULL | Compliant | 20150209 |
| Buffalo Wild Wings Grill & Bar | 2505 Caufield Drive | NULL | Gardendale | AL | 35071 | NULL | Compliant | 20153427 |
| Bumpers Billiards | 2132 Lorna Ridge Lane | Suite 100 | Hoover | AL | 35216 | NULL | Compliant | EXEMPT |
| Bumpus Middle School | 6055 Flemings Parkway | NULL | Hoover | AL | 35244 | 229-5060 | Compliant | 20151006 |

| FSFNAME | FSFADDRESS | FSFADDRESS2 | FSFCITY | FSFSTATE | FSFZIP | FSFPHONE | STATUS | PERMITNO |
|---|---|---|---|---|---|---|---|---|
| Burger King #04431 | 1555 Montgomery Hwy | NULL | Hoover | AL | 35216 | 823-1442 | Non-compliant | 20151278 |
| Burger King #05120 | 1500 Pinson Valley Pky | NULL | Tarrant | AL | 35217 | | Compliant | 20151281 |
| Burger King #05501 | 9528 Parkway E | NULL | Birmingham | AL | 35215 | 838-8255 | Compliant | 20151282 |
| Burger King #09834 | 740 Academy Dr | NULL | Bessemer | AL | 35022 | 425-9855 | Compliant | 20151275 |
| Burger King #1069 | 1524 6Th Ave South | NULL | Birmingham | AL | 35233 | 256-478-0038 | Compliant | 20153459 |
| Burger King #12003 | 2229 Bessemer Road | NULL | Birmingham | AL | 35208 | 256-478-0038 | Compliant | 20153466 |
| Burger King #12295 | 1701 Fulton Road | NULL | Fultondale | AL | 35068 | 256-478-0038 | Compliant | 20153463 |
| Burger King #12427 | 801 3Rd Ave West | NULL | Birmingham | AL | 35204 | 256-478-0038 | Compliant | 20153461 |
| Burger King #16228 | 100 Wiebel Drive | NULL | Midfield | AL | 35228 | NULL | Compliant | 20152417 |
| Burger King #16437 | 7757 Crestwood Blvd | NULL | Birmingham | AL | 35210 | 256-478-0038 | Compliant | 20153462 |
| Burger King #17389 | 2700 University Blvd | NULL | Birmingham | AL | 35233 | 256-478-0038 | Compliant | 20153464 |
| Burger King #17921 | 1402 Gadsden Hwy | NULL | Birmingham | AL | 35235 | 256-478-0038 | Compliant | 20153467 |
| Burger King #19958 | 3016 Allison Bonnett Mem Drive | NULL | Hueytown | AL | 35023 | 205-436-8202 | Compliant | 20153502 |
| Burger King #20826 | 530 Fieldstown Road | NULL | Gardendale | AL | 35071 | NULL | Compliant | 20153580 |
| Burger King #461 | 290 Oxmoor Road | NULL | Birmingham | AL | 35209 | 256-478-0038 | Compliant | 20153465 |
| Burger King #6305 | 3600 Lloyd Noland Pkwy | NULL | Birmingham | AL | 35064 | 256-478-0038 | Compliant | 20153460 |
| Burger King #8152 | 5961 Chalkville Mt. Road | NULL | Birmingham | AL | 35235 | 334-649-1122 | Compliant | 20153541 |
| Burger King - The Grove - Hoover | Lot 1-B The Grove | NULL | Hoover | AL | 35226 | 305-378-7011 | New Const. | Pending |
| Burger King -Tannehill #17003 | 5001 Bond Blvd | NULL | Bessemer | AL | 35022 | NULL | Compliant | 20152992 |
| Bush Hill Academy | 901 16th St W | NULL | Birmingham | AL | 35208 | 231-6370 | Compliant | 20152552 |
| C & S Concessions | 1800 John Rodgers Drive | NULL | Birmingham | AL | 35210 | NULL | New Const. | Pending |
| C. F. Hard Elementary Child Nutrition Program | 2801 Arlington Avenue | NULL | Bessemer | AL | 35020 | 432-3310 | Compliant | 20151363 |
| Cafe Castillo Tex Mex Grille (Inside Ashleys Furn) | 4435 Galleria Blvd, Suite B | NULL | Hoover | AL | 35244 | 444-1572 | Non-compliant | 20133420 |
| Cafe Dupont | 113 20th St N | NULL | Birmingham | AL | 35203 | 322-1282 | Compliant | 20150261 |
| Cafe Iz | 2514 Rocky Ridge Rd | NULL | Birmingham | AL | 35243 | 979-7522 | Compliant | 20153119 |
| Cafe Iz | 3325 Rocky Ridge Road | NULL | Birmingham | AL | 35243 | 979-7522 | Compliant | 20152418 |
| Cafe M | 4012 24Th Street North | NULL | Birmingham | AL | 35207 | 205-281-6496 | Non-compliant | 20133443 |
| Cafe On 1st "CLOSED" | 8429 1st Ave N | NULL | Birmingham | AL | 35206 | NULL | In-Collection | 20070578 |
| Cafe On Main | 218 Main St | Ste 110 | Trussville | AL | 35173 | NULL | Compliant | 20150550 |
| Cahaba Grand Conference Center | 3660 Grandview Parkway | Suite 100 | Birmingham | AL | 35243 | 970-5918 | Non-compliant | 20140580 |
| Cahaba Heights Sports Complex | 4401 Dolly Ridge Road | NULL | Vestavia | AL | 35243 | 410-6656 | Compliant | 20152962 |
| Cahaba River Health & Rehab, LLC | 3000 Healthy Way | Lot 4 | Vestavia Hills | AL | 35242 | 205-310-0521 | New Const. | Pending |
| Cahaba Village Ele. School | 301 Parkway Drive | NULL | Trussville | AL | 35173 | NULL | New Const. | Pending |
| Cahaba Village/ Newks Cafe/Nothing But Noodles | 2800 Cahaba Village Plaza | NULL | Birmingham | AL | 35243 | 281-3560 | Non-compliant | 20141997 |
| Cajun Seafood House | 2531 Rocky Ridge Road | Ste 107 | Vestavia | AL | 35243 | NULL | Non-compliant | Pending |
| Cajun Steamer Hoover | 180 Main St | NULL | Hoover | AL | 35244 | 985-7785 | Compliant | 20150581 |
| Cajun Steamer of Trussville, Inc. | 5071 Pinnacle Sq | NULL | Birmingham | AL | 35235 | NULL | Compliant | 20151012 |
| California Pizza Kitchen | 238 Summit Blvd | NULL | Birmingham | AL | 35243 | 298-7931 | Compliant | 20150582 |
| California Pizza Kitchen #235 | 3470 Galleria Cir | NULL | Hoover | AL | 35244 | 444-0777 | Compliant | 20150583 |
| Callahan Eye Foundation - Cafe 1720 | 1720 University Blvd | NULL | Birmingham | AL | 35233 | 325-8678 | Compliant | EXEMPT |
| Canterbury United Methodist | 350 Overbrook Road | NULL | Mountain Brook | AL | 35213 | NULL | Compliant | EXEMPT |
| Cantina | 2901 2nd Ave S | Suite 110 | Birmingham | AL | 35233 | 323-6980 | Non-compliant | 20130538 |
| Cantina On Wheels Commissary | 4120 2nd Avenue South | NULL | Birmingham | AL | 35222 | 205-801-1592 | New Const. | Pending |
| Captain D's Seafood | 2259 Bessemer Road | NULL | Birmingham | AL | 35208 | 205-522-0199 | Compliant | 20153579 |
| Captain Ds #3314 | 1143 Forestdale Blvd | NULL | Birmingham | AL | 35214 | 743-8911 | Compliant | 20150877 |
| Captain Ds #3503 | 666 Bessemer Super Hwy | NULL | Fairfield | AL | 35064 | 743-8911 | Compliant | 20150880 |
| Captain Ds #3505 | 7718 Crestwood Blvd | NULL | Birmingham | AL | 35210 | 743-8911 | Compliant | 20151017 |
| Captain Ds #3512 | 1473 Montgomery Hwy | NULL | Vestavia | AL | 35216 | 743-8911 | Compliant | 20151015 |
| Captain Ds #3513 | 9973 Parkway E | NULL | Birmingham | AL | 35215 | 743-8911 | Compliant | 20151019 |
| Captain Ds #3515 | 514 16th St S | NULL | Birmingham | AL | 35233 | 743-8911 | Compliant | 20151020 |
| Captain Ds #3516 | 560 West Town Plz | NULL | Bessemer | AL | 35020 | 743-8911 | Compliant | 20150878 |
| Captain Ds #3571 | 1228 Decatur Hwy | NULL | Gardendale | AL | 35071 | 743-8911 | Compliant | 20150881 |
| Captain Ds #3592 | 3067 Allison Bonnet Mem Dr | NULL | Hueytown | AL | 35023 | 743-8911 | Compliant | 20150879 |
| Captain Ds #3598 | 407 Main St | NULL | Trussville | AL | 35173 | 743-8911 | Compliant | 20151021 |
| Captain Ds #3690 | 1817 Ashville Road | NULL | Birmingham | AL | 35094 | 743-8911 | Compliant | 20152982 |
| Captain Ds #3736 | 1725 Finley Blvd | NULL | Birmingham | AL | 35204 | 743-8911 | Compliant | 20150876 |
| Caregiving Kids Academy Site II | 1901 Woodland Avenue Sw | NULL | Birmingham | AL | 35211 | NULL | New Const. | Pending |
| Carlile's BBQ | 3511 6Th Avenue, South | NULL | Birmingham | AL | 35222 | 254-9266 | Compliant | 20151294 |
| Carnation Buffet | 5020 Academy Lane | NULL | Bessemer | AL | 35022 | 205-425-6155 | Compliant | 20153335 |
| Carrigans Public House | 2430 Morris Avenue | NULL | Birmingham | AL | 35203 | 205-369-2673 | Compliant | 20153456 |
| Carver High Concession Stands | 5th Avenue North | NULL | Birmingham | AL | 35207 | 205-231-3900 | Compliant | EXEMPT |
| Carver High School | 3900 24th Street No | NULL | Birmingham | AL | 35207 | 231-7270 | Compliant | 20152540 |
| Casa Fiesta | 3417 Lowery Parkway | Suite 103 | Fultondale | AL | 35068 | 256-347-4435 | Compliant | 20151519 |
| Casa La Bamba Grill | 1006 Oxmoor Road | NULL | Birmingham | AL | 35209 | 205-637-7331 | Compliant | 20153630 |
| Cedar House Cafeteria | 1001 Cedar Street | NULL | Tarrant | AL | 35217 | 841-1001 | Compliant | 20150332 |
| Cedar Phoenician Club | 301 Green Springs Ave South | | Birmingham | AL | 35205 | 251-3351 | Compliant | 20150534 |
| Cedar's Grille | 1870 Chace Lake Drive | NULL | Hoover | AL | 35244 | 334-220-6330 | Compliant | 20153539 |
| Center of Excellence | 1700 7th Avenue North | NULL | Bessemer | AL | 35020 | 425-4735 | Compliant | 20152297 |
| Center Point Elementary School | 4801 Indian Trail | NULL | Birmingham | AL | 35215 | 379-2129 | Compliant | 20150586 |
| Center Point High School | 2955 Jefferson Street Parkway | NULL | Birmingham | AL | 35215 | 205-379-3420 | Compliant | 20153288 |
| Center Point Park Main Concession | 1000 Chalkville School Rd | NULL | Birmingham | AL | 35215 | Amy Green | Compliant | 20153437 |
| Center Street Middle School | 1832 Center Way S | NULL | Birmingham | AL | 35205 | 231-7270 | Compliant | 20152539 |
| Central Avenue Retail | 2821 Central Avenue | NULL | Birmingham | AL | 35209 | 205-451-1872 | Compliant | 20153325 |
| Central Park Elementary | 4915 Avenue Q | NULL | Birmingham | AL | 35208 | 231-7270 | Compliant | 20152538 |
| Century Restaurant & Bar | 2021 Park Place North | NULL | Birmingham | AL | 35203 | 329-7939 | Compliant | 20153436 |
| Chace Lake Station Bldg A/ The Egg & I | 4741 Chace Circle | Ste 105 | Hoover | AL | 35244 | 205-451-1868 | Non-compliant | 20143042 |
| Chace Lake Station Bldg B/Baha Burgers/ Taziki's | 4745 Chace Circle | NULL | Hoover | AL | 35244 | 451-1868 x515 | Compliant | 20153057 |
| Chace Landing Partners,LLC/ 5 Guys/Ashley Mac's | 4730 Chace Lake Circle | NULL | Hoover | AL | 35244 | 205-977-9797 | Compliant | 20153533 |
| Chalkville Elementary School | 940 Chalkville School Road | NULL | Birmingham, | AL | 35215 | 379-2129 | Compliant | 20150587 |
| Changed Lives Christian Center | 1308 26th Ave N | NULL | Birmingham | AL | 35204 | 205-966-9654 | Compliant | 20153157 |
| Char House Foods | 2520 4th Ave S | NULL | Birmingham | AL | 35233 | NULL | Compliant | 20150242 |
| Charleys Grilled Subs | 744 Brookwood Village | Ste 239 | Birmingham | AL | 35209 | 614-581-5095 | Compliant | 20150588 |
| Charlie's Tap House | 1845 Montgomery Highway | NULL | Birmingham | AL | 35244 | 988-5558 | Non-compliant | 20143284 |
| Charlsie's Catering & Cakes | 320 Fieldstown Road | NULL | Gardendale | AL | 35071 | 631-4633 | Compliant | EXEMPT |
| Chateau Vestavia | 2435 Columbiana Rd | NULL | Vestavia | AL | 35216 | 822-4773 | Compliant | 20151957 |
| Chef's Workshop | 3439 Lorna Lane | NULL | Hoover | AL | 35216 | 205-541-6329 | Compliant | 20153428 |
| Chen Express | 221 Country Club Park | NULL | Birmingham | AL | 35213 | 871-7588 | Compliant | 20150132 |
| Chen Express II | 3161 Green Valley Road | NULL | Birmingham | AL | 35243 | 205-968-6988 | Compliant | 20153470 |
| Cherokee Bend Elementary School | 4400 Fair Oaks Drive | NULL | Birmingham | AL | 35213 | 871-4608 | Compliant | 20150591 |
| Cherry Hill Healthcare Center | 1250 Jeff Germany Pkwy | NULL | Birmingham | AL | 35214 | 796-0214 | Compliant | 20152678 |
| Chevron Food Mart | 490 Forestdale Blvd | NULL | Birmingham | AL | 35214 | 798-4090 | Compliant | 20152981 |
| Chez Fon Fon | 2007 11th Ave S | NULL | Birmingham | AL | 35205 | 205-939-3221 | Compliant | 20151070 |
| Chicago Mikes Hot Dogs | 2701 18Th Street So | NULL | Birmingham | AL | 35209 | NULL | Non-compliant | Pending |
| Chick Fil A The Grove | Outparcel 4 | NULL | Hoover | AL | 35244 | 404-765-2557 | New Const. | Pending |
| Chick Fil A Trailer | 900 16Th Street South | NULL | Birmingham | AL | 35294 | 205-996-6571 | New Const. | Pending |
| Chick-Fil- A | 1808 Ashville Road | NULL | Leeds | AL | 35094 | 205-699-1118 | Compliant | 20153169 |
| Chick-Fil-A | 385 Fieldstown Rd | NULL | Gardendale | AL | 35071 | NULL | Compliant | 20150011 |
| Chick-Fil-A | 2000 Highland Ave | NULL | Birmingham | AL | 35205 | 404-765-2557 | Compliant | 20153308 |
| Chick-Fil-A | 9345 Parkway East | NULL | Birmingham | AL | 35215 | NULL | Compliant | 20150405 |
| Chick-Fil-A | 3020 John Hawkins Pkwy | NULL | Hoover | AL | 35244 | NULL | Compliant | 20150192 |

| FSFNAME | FSFADDRESS | FSFADDRESS2 | FSFCITY | FSFSTATE | FSFZIP | FSFPHONE | STATUS | PERMITNO |
|---|---|---|---|---|---|---|---|---|
| Chick-Fil-A | 5886 Trussville Crossing Pky | NULL | Trussville | AL | 35235 | NULL | Compliant | 20150012 |
| Chick-Fil-A | 2000 Riverchase Galleria | NULL | Hoover | AL | 35244 | NULL | Compliant | 20150249 |
| Chick-Fil-A | 1609 Montgomery Hwy | NULL | Hoover | AL | 35216 | 979-1729 | Compliant | 20150193 |
| Chick-Fil-A | 1913 5th Ave. N | NULL | Birmingham | AL | 35203 | 324-6161 | Compliant | 20150194 |
| Chick-Fil-A | 6000 Harris Lane | | Bessemer | AL | 35022 | 426-3190 | Compliant | 20152800 |
| Chick-Fil-A at Eastwood Village #2229 | 1648 Montclair Road | NULL | Birmingham | AL | 35210 | 957-2229 | Compliant | 20151418 |
| Chick-Fil-A Fultondale | 215 Howell Street | NULL | Fultondale | AL | 35068 | 404-765-2557 | Compliant | 20151517 |
| Chick-Fil-A Jaxnco, LLC | 746 Brookwood Vlg | NULL | Homewood | AL | 35209 | NULL | Compliant | 20150133 |
| Chick-Fil-A Jaxnco, LLC | 211 Lakeshore Pky | NULL | Homewood | AL | 35209 | NULL | Compliant | 20151069 |
| Chicken Salad Chick | 1830 29Th Avenue South | Ste 100 | Birmingham | AL | 35209 | 637-5578 | Compliant | 20153593 |
| Chicken Salad Chick | 2118 7Th Avenue So | NULL | Birmingham | AL | 35233 | 334-219-0097 | Compliant | 20153632 |
| Chik N Out | 1550 Montgomery Hwy | Suite P | Hoover | AL | 35216 | 822-1980 | Compliant | 20153608 |
| Children's Hospital | 1600 7th Ave. S | NULL | Birmingham | AL | 35233 | NULL | Compliant | 20151295 |
| Childrens Fresh Air Farm | 501 Park Ave | NULL | Birmingham | AL | 35226 | 205-907-2888 | Compliant | 20150049 |
| Chilis #1507 | 203 Howell Street | NULL | Fultondale | AL | 35068 | 901-462-0470 | Compliant | 20151108 |
| Chilis Grill & Bar # 701 | 1676 Gadsden Hwy | NULL | Trussville | AL | 35235 | 661-6102 | Compliant | 20150256 |
| Chilis Grill & Bar #392 | 209 State Farm Pky | NULL | Homewood | AL | 35209 | 942-3129 | Compliant | 20150257 |
| China Ben | 790 Montgomery Hwy | NULL | Vestavia | AL | 35216 | 823-8920 | Compliant | 20151426 |
| China Bistro | 160 Main Street | Ste 140 | Hoover | AL | 35244 | 205-901-0331 | Compliant | 20153585 |
| China Buffet | 9136 Parkway East | NULL | Birmingham | AL | 35206 | 853-8789 | Compliant | 20153135 |
| China East Restaurant | 1151 Huffman Rd | NULL | Birmingham | AL | 35215 | NULL | Compliant | 20150164 |
| China King | 4760 Eastern Valley Rd | NULL | Mccalla | AL | 35111 | 477-8388 | Compliant | 20150361 |
| China Kitchen | 437 Caldwell Drive | NULL | Warrior | AL | 35180 | NULL | Compliant | 20150014 |
| China Kitchen | 5108 Old Springville Road | NULL | Pinson | AL | 35126 | 347-873-6363 | Compliant | 20153409 |
| China Luck | 4502 Center Point Rd | NULL | Pinson | AL | 35126 | 683-0801 | Compliant | 20150593 |
| China Master Express | 1801 4th Ave S | NULL | Birmingham | AL | 35233 | 321-9039 | Compliant | 20150596 |
| China Moon | 3312 Clairmont Ave | NULL | Birmingham | AL | 35222 | 324-2332 | Compliant | 20150330 |
| China Palace | 1930 Edwards Lake Rd | Ste 122 | Birmingham | AL | 35235 | 655-7889 | Compliant | 20151857 |
| China Sea | 3102 Allison Bonnet Memorial D | NULL | Hueytown | AL | 35023 | 491-7500 | Compliant | 20151237 |
| China Wok | 730 Brookwood Vlg | NULL | Homewood | AL | 35209 | 871-1059 | Non-compliant | 20150807 |
| China Wok H Inc | 3979 Parkwood Road | Ste 111 | Bessemer | AL | 35022 | 205-428-8801 | Compliant | 20153432 |
| Chipotle Mexican Grill | 1031 Montgomery Hwy | Ste 111 | Vestavia Hills | AL | 35216 | NULL | New Const. | Pending |
| Chipotle Mexican Grill | 1759 Montgomery Hwy | NULL | Hoover | AL | 35216 | NULL | Compliant | 20150875 |
| Chocolate Biscuit Tearoom | 335 Main St | NULL | Trussville | AL | 35173 | 655-8119 | Compliant | EXEMPT |
| Chongwah Express: Wok & Roll | 7201 Aaron Aronov Drive | Ste 27 | Fairfield | AL | 35064 | 923-4044 | Compliant | 20153416 |
| Chop Suey Inn | 813 Greensprings Hwy | NULL | Homewood | AL | 35209 | 942-9782 | Compliant | 20151105 |
| Chow Tyme Grill & Buffett | 1668 Montgomery Hwy | NULL | Hoover | AL | 35216 | 917-680-8188 | Compliant | 20153289 |
| Chris Z's Inc. | 2808 University Blvd. | NULL | Birmingham | AL | 35233 | 458-1007 | Non-compliant | 20140715 |
| Chubbys Three (CLOSED) | 2512 16th St N | NULL | Birmingham | AL | 35204 | NULL | In-Collection | 20070598 |
| Chuck E Cheese | 500 Olde Town Rd | NULL | Vestavia | AL | 35216 | 979-3421 | Compliant | 20150599 |
| Church of the Highlands | 4700 Highlands Way | NULL | Birmingham | AL | 35210 | 205-980-5577 | Compliant | 20103182 |
| Church Street Coffee & Books | 81 Church Street | Ste 106 & 107 | Mountain Brook | AL | 35213 | 205-870-1117 | Compliant | EXEMPT |
| Churchs Fried Chicken #1042 | 5410 Bessemer Hwy | NULL | Midfield | AL | 35228 | 205-413-3892 | Compliant | 20150601 |
| Churchs Fried Chicken #1136 | 1145 3rd Ave W | NULL | Birmingham | AL | 35204 | 780-4740 | Compliant | 20150602 |
| Churchs Fried Chicken #1209 | 4009 Vanderbilt Rd | NULL | Birmingham | NULL | 35217 | 849-7102 | Compliant | 20150603 |
| Churchs Fried Chicken #142 | 3052 Jefferson Ave Sw | NULL | Birmingham | AL | 35211 | 925-2822 | Compliant | 20150605 |
| Churchs Fried Chicken #160 | 1136 25th St N | NULL | Birmingham | AL | 35234 | 328-6783 | Compliant | 20150606 |
| Churchs Fried Chicken #173 | 2324 29th Ave N | NULL | Birmingham | AL | 35207 | 251-4869 | Compliant | 20150607 |
| Churchs Fried Chicken #215 | 7529 1st Avenue North | NULL | Birmingham | AL | 35206 | 205-413-3892 | Compliant | 20150508 |
| Churchs Fried Chicken #217 | 2501 Avenue E | NULL | Birmingham | AL | 35218 | 788-2894 | Compliant | 20150995 |
| Churchs Fried Chicken #233 | 9929 Parkway E | NULL | Birmingham | AL | 35215 | 205-413-3892 | Compliant | 20150608 |
| Churchs Fried Chicken #237 | 1801 Carolina Ave | NULL | Bessemer | AL | 35020 | 205-413-3892 | Compliant | 20150609 |
| Churchs Fried Chicken #4707 | 794 Allison-Bonnett Mem Drive | NULL | Dolomite | AL | 35061 | 205-413-3892 | Compliant | 20150610 |
| Churchs Fried Chicken #5306 | 5036 Ford Pky | NULL | Bessemer | AL | 35022 | 205-426-8020 | Compliant | 20150611 |
| Churchs Fried Chicken #5403 | 824 3rd Ave N | NULL | Birmingham | AL | 35203 | 328-0007 | Compliant | 20150612 |
| Churchs Fried Chicken #9923 | 1428 Forestdale Blvd | NULL | Birmingham | AL | 35214 | 205-541-1444 | Compliant | 20150600 |
| Chuy's | 216 Summit Blvd | | Birmingham | AL | 35243 | 967-0111 | Compliant | 20152919 |
| Cindys Cinnamon Rolls | 267A Riverchase Galleria | NULL | Hoover | AL | 35244 | NULL | Compliant | EXEMPT |
| City Park | 4671 Carnegie Ave | NULL | Fairfield | AL | 35064 | 780-0404 | Compliant | EXEMPT |
| Civic Center Health & Rehab. (Northport Health) | 1201 22nd St N | NULL | Birmingham | AL | 35234 | 251-5271 | Compliant | 20151737 |
| Classic BBQ | 1732 15th St N | NULL | Bessemer | AL | 35020 | 424-5742 | Compliant | 20150617 |
| Classic Cafe | 4600 East Lake Blvd | NULL | Birmingham | AL | 35217 | 849-4722 | Compliant | 20150472 |
| Clay Chalkville Football- Band Boosters | 6623 Roe Chandler Rd | NULL | Pinson | AL | 35126 | 680-9353 | Compliant | 20152799 |
| Clay Chalkville High School | 6623 Roe Chandler Road | NULL | Pinson | AL | 35126 | 379-2129 | Compliant | 20150619 |
| Clay Chalkville Middle School | 6700 Trussville Clay Road | NULL | Clay | AL | 35235 | 379-2129 | Compliant | 20150620 |
| Clay Commons | 6723 Deerfoot Parkway | NULL | Pinson | AL | 35126 | 933-0870 | Compliant | 20153092 |
| Clay Elementary School | 6745 Old Springville Road | NULL | Clay | AL | 35126 | 379-2129 | Compliant | 20150621 |
| Clay-Chalkville MS Fieldhouse | 6700 Trussville Clay Road | NULL | Trussville | AL | 35173 | 481-1246 | Compliant | EXEMPT |
| Cloray's Cafe | 2530 9Th Avenue North | NULL | Bessemer | AL | 35020 | 205-230-7903 | Non-compliant | 20133476 |
| Club M | 521 3rd Avenue West | NULL | Birmingham | AL | 35204 | 205-327-4720 | New Const. | Pending |
| Coffee-ol-ogy | 200 Municipal Drive | | Hoover | AL | 35216 | 987-0176 | Compliant | EXEMPT |
| Coldstone Creamery | 1430 Gadsden Hwy | NULL | Trussville | AL | 35235 | 655-3776 | Compliant | EXEMPT |
| Colonial Properties/5GuysFam Burgers & Cocina Sup | 2101 6th Avenue No Ste 750 | NULL | Birmingham | AL | 35203 | 205-414-8459 | Non-compliant | 20143094 |
| Columbia Cottage Assisted Living | 3776 Crosshaven Drive | NULL | Birmingham | AL | 35223 | 968-0000 | Compliant | 20153093 |
| Comedy Club | 1818 Data Drive | NULL | Hoover | AL | 35244 | 444-0008 | Compliant | 20150303 |
| Comfort Inn & Suites | 4400 Colonnade Pkwy | NULL | Birmingham | AL | 35243 | 968-3700 | Compliant | EXEMPT |
| Comfort Inn & Suites | 4740 Norrell Drive | NULL | Trussville | AL | 35173 | 661-3636 | Compliant | EXEMPT |
| Comfort Inn Airport | 4965 Montevallo Road | NULL | Birmingham | AL | 35210 | 957-0084 | Compliant | EXEMPT |
| Comm Kit of B'ham- Grace | 5712 1st Ave N | NULL | Birmingham | AL | 35212 | 251-3569 | Non-compliant | 20140626 |
| Community Kitchens Of B'ham | 1024 12th Street South | NULL | Birmingham | AL | 35205 | 251-3569 | Non-compliant | 20142979 |
| Concordia Beneficial Society | 3400 1st Ave N | NULL | Birmingham | AL | 35222 | 252-3570 | Compliant | EXEMPT |
| Consult America Cottage Hill | 700 1st Ave. | NULL | Pleasant Grove | AL | 35127 | 744-8120 | Compliant | 20150627 |
| Continental Bakery Downtown | 1820 4Th Ave North | NULL | Birmingham | AL | 35203 | 323-4110 | Non-compliant | 20143543 |
| Continental Bakery/Chez Lulu | 1909 Cahaba Rd | NULL | Birmingham | AL | 35223 | 205-870-7011 | Compliant | EXEMPT |
| Cooper Green Homes Daycare Center | 1501 Arthur Shores Drive | NULL | Birmingham | AL | 35211 | 521-0630 | New Const. | Pending |
| Cooper's Corner | 2001 Tom Williams Way | NULL | Irondale | AL | 35210 | 745-7450 | Non-compliant | Pending |
| Corner Stone Middle School | 959 Huffman Road | NULL | Birmingham | AL | 35215 | 205-769-0300 | Non-compliant | Pending |
| Cornerstone Schools of Alabama | 116 55th Street North | NULL | Birmingham | AL | 35212 | 591-7600 | Compliant | 20153089 |
| Corry's | 1800 24th Street SW | NULL | Birmingham | AL | 35211 | 205-643-0785 | Non-compliant | 20123087 |
| Cosmos Pizza | 2012 Magnolia Ave | NULL | Birmingham | AL | 35205 | 930-9971 | Non-compliant | 20103047 |
| Costa's Famous BBQ | 613 Old Springville Road | NULL | Birmingham | AL | 35215 | 853-9933 | Compliant | 20153141 |
| Costas Famous BBQ Express | 215 Lakeshore Parkway | NULL | Birmingham | AL | 35209 | 263-0145 | Compliant | 20151242 |
| Costas Mediterranean Cafe | 5891 Trussville Crossings Pky | NULL | Birmingham | AL | 35235 | 655-9779 | Compliant | 20151762 |
| Costas Mediterranean Cafe | 3443 Lorna Rd | NULL | Hoover | AL | 35216 | 978-1603 | Compliant | 20151381 |
| Costco Wholesale #362 | 3650 Galleria Cir | NULL | Hoover | AL | 35244 | 909-1039 | Compliant | 20150630 |
| Country Club of Birmingham | 3325 Country Club Road | NULL | Birmingham | AL | 35213 | 205-879-4611 | Compliant | 20150041 |
| Country Inn & Suites | 485 Wildwood Cir N | NULL | Homewood | AL | 35209 | NULL | Compliant | EXEMPT |
| Country Inn & Suites | 4985 Academy Court | NULL | Bessemer | AL | 35022 | 481-0007 | Compliant | EXEMPT |
| Courtyard By Marriott | 1824 Montgomery Highway South | NULL | Hoover | AL | 35244 | 988-5000 | Compliant | 20150631 |
| Courtyard by Marriott | 3651Roosevelt Blvd. | NULL | Birmingham | AL | 35235 | NULL | Compliant | 20150509 |

| FSFNAME | FSFADDRESS | FSFADDRESS2 | FSFCITY | FSFSTATE | FSFZIP | FSFPHONE | STATUS | PERMITNO |
|---|---|---|---|---|---|---|---|---|
| Courtyard By Marriott | 500 Shades Creek Pky | NULL | Birmingham | AL | 35209 | 205-879-0400 | Non-compliant | 20153010 |
| Courtyard by Marriott - Birmingham Colonnade | 4300 Colonnade Pkwy | Attn: Vernessa Cribbs | Birmingham | AL | 35243 | 967-4466 | Non-compliant | 20140632 |
| Courtyard By Marriott @ UAB | 1820 5th Ave S | NULL | Birmingham | AL | 35233 | 254-0004 | Non-compliant | 20143038 |
| Covenant Classical School Daycare | 5390 Magnolia Trace | NULL | Hoover | AL | 35244 | 205-988-0222 | Compliant | EXEMPT |
| Covenant Classical School Homewood | 151 Covenant Way | NULL | Birmingham | AL | 35209 | NULL | New Const. | Pending |
| Covenant Classical School Trace Crossings | 5390 Magnolia Place | NULL | Birmingham | AL | 35244 | 205-733-5437 | New Const. | Pending |
| Covenant Place Of Gardendale | 1409 Thompson Circle | NULL | Gardendale | AL | 35071 | 608-2200 | Compliant | 20152377 |
| Covenant Presbyterian Church | 65 Old Montgomery Highway | NULL | Birmingham | AL | 35209 | 871-7002 | Compliant | EXEMPT |
| Cracker Barrel Old Country Store, Inc. #580 | 3415 Colonnade Parkway | NULL | Birmingham | AL | 35243 | 205-969-1126 | Non-compliant | 20150497 |
| Cracker Barrel Old Country Store, Inc. #237 | 901 Fieldstown Road | NULL | Gardendale | AL | 35071 | 631-8011 | Compliant | 20150496 |
| Cracker Barrel Old Country Store, Inc. #301 | 5040 Acadamy Lane | NULL | Bessemer | AL | 35020 | 428-7080 | Compliant | 20150492 |
| Cracker Barrel Old Country Store, Inc. #368 | 4710 Norrell Road | NULL | Trussville | AL | 35173 | 655-8498 | Compliant | 20150491 |
| Crape Myrtles Cafe | 2721 18th St S | NULL | Homewood | AL | 35209 | 879-7891 | Non-compliant | 20141215 |
| Creative Montessori School | 1650 28th Ct S | NULL | Homewood | AL | 35209 | 879-3278 | Compliant | EXEMPT |
| Crestline Bagel Inc | 66 Church St | NULL | Mountain Brook | AL | 35213 | 871-4583 | Compliant | EXEMPT |
| Crestline Elementary School | 3785 Jackson Boulevard | NULL | Mountain Brook | AL | 35213 | 967-3421 | Compliant | 20151151 |
| Crestwood Coffee Company | 5512 Crestwood Blvd | NULL | Birmingham | AL | 35212 | 595-0300 | Compliant | EXEMPT |
| Crossroads School | 2826 Columbiana Road | NULL | Hoover | AL | 35216 | 205-439-1800 | Compliant | 20153500 |
| Culinard Cafe @ Innovation Depot | 1500 1st Ave N | NULL | Birmingham | AL | 35203 | 205-271-8232 | Compliant | 20152097 |
| Cup Food You Pick Up | 73 Church Street | NULL | Mountain Brook | AL | 35213 | 205-874-6660 | Non-compliant | Pending |
| Cuzs Deli | 2204 Lakeshore Dr | NULL | Homewood | AL | 35209 | NULL | Compliant | EXEMPT |
| D & W Convenience Store | 3340 Wilson Rd | NULL | Birmingham | AL | 35211 | 925-2469 | Compliant | 20150641 |
| Dairy Queen | 5969 Chalkville Mountain Road | NULL | Birmingham | AL | 35235 | 655-1250 | Compliant | 20150532 |
| Dairy Queen | 3134 Cahaba Heights Road | NULL | Birmingham | AL | 35243 | 205-540-0695 | Compliant | 20150531 |
| Dairy Queen | 383 Fieldstown Road | NULL | Gardendale | AL | 35071 | 205-522-8351 | Non-compliant | 20143413 |
| Dairy Queen | 1349 Hueytown Rd | NULL | Hueytown | AL | 35023 | 491-2798 | Compliant | 20150046 |
| Dales Southern Grill | 1843 Montgomery Hwy | NULL | Hoover | AL | 35244 | 987-4757 | Non-compliant | 20100643 |
| Daniel George Restaurant | 2837 Culver Rd | NULL | Mountain Brook | AL | 35223 | 871-3266 | Compliant | 20150260 |
| Dartmouth One Stop | 3227 Dartmouth Avenue | NULL | Bessemer | AL | 35020 | 205-434-2036 | Non-compliant | 20143511 |
| Daves Bakery | 1819 29th Ave. S | NULL | Homewood | AL | 35209 | NULL | Compliant | 20150015 |
| Dawghouse Cafe | 10 25Th Avenue Ne | NULL | Birmingham | AL | 35215 | 205-856-1200 | Non-compliant | 20143536 |
| Dawsons Burger, Wings & Fries | 1617 4th Ave N | NULL | Birmingham | AL | 35203 | NULL | In-Collection | 20070644 |
| Daylight Donuts | 2910 Allison Bonnet Mem Drive | Ste 106 | Birmingham | AL | 35023 | 205-789-1766 | Compliant | 20153512 |
| Daylight Donuts | 1544 Forestdale Blvd | NULL | Birmingham | AL | 35214 | 978-677-0112 | New Const. | Pending |
| Daylight Donuts | 6736 Deerfoot Pkwy | Ste 102 | Trussville | AL | 35173 | 832-767-9379 | Non-compliant | Pending |
| Days Inn | 616 Decatur Highway | NULL | Fultondale | AL | 35068 | 205-249-1105 | Non-compliant | EXEMPT |
| Days Inn Birmingham | 1485 Montgomery Highway | NULL | Birmingham | AL | 35216 | 205-823-4300 | Compliant | EXEMPT |
| Deer Valley Elementary School | 4990 Deer Valley Pkwy | NULL | Hoover | AL | 35226 | 229-5060 | Compliant | 20151004 |
| Deerman's BBQ | 2444 Palamino Lane | NULL | Birmingham | AL | 35214 | 913-0468 | Compliant | 20152918 |
| Delicio's | 3150 Overton Road | Ste 3 | Birmingham | AL | 35223 | NULL | New Const. | Pending |
| Delta Blues | 1318 20Th Street South | NULL | Birmingham | AL | 35205 | 205-502-7298 | New Const. | Pending |
| Demetris Barbecue | 1901 28th Ave S | NULL | Birmingham | AL | 35209 | 222-0596 | Compliant | 20150645 |
| Denny's 8621 | 224 Daniel Payne Drive | NULL | Birmingham | AL | 35207 | 214-3987 | Compliant | 20153323 |
| Department of Youth Services-Vacca Campus | 8950 Roebuck Blvd | NULL | Birmingham | AL | 35206 | 838-4910 | Compliant | 20153246 |
| Devincis Pizza | 2707 18th St S | NULL | Homewood | AL | 35209 | 879-1455 | Compliant | 20151219 |
| Diplomat Deli | 1413 Montgomery Hwy | NULL | Vestavia | AL | 35216 | 979-1515 | Compliant | EXEMPT |
| Dish'N It Out, LLC. | 1111 Dunston Avenue | NULL | Birmingham | AL | 35213 | 871-5444 | Compliant | EXEMPT |
| Do Di Yo's | 1831 28th Avenue S | Ste 110 | Homewood | AL | 35209 | 914-9573 | Compliant | 20153098 |
| Domino's Pizza | 726 23rd Street South | NULL | Birmingham | AL | 35233 | 205-320-0220 | Compliant | 20153363 |
| Domino's Pizza | 7201 Aaron Aronov Drive | NULL | Fairfield | AL | 35064 | 923-2626 | Compliant | EXEMPT |
| Dominos Pizza | 2304 Columbiana Rd | NULL | Vestavia | AL | 35226 | 823-1888 | Compliant | EXEMPT |
| Dominos Pizza | 1506 Montclair Rd | NULL | Birmingham | AL | 35210 | 956-8300 | Compliant | EXEMPT |
| Dominos Pizza | 5031 Ford Parkway | Unit #114 | Bessemer | AL | 35022 | 436-4300 | Compliant | EXEMPT |
| Dominos Pizza | 2446 Old Springville Road | NULL | Birmingham | AL | 35215 | 856-0030 | Compliant | EXEMPT |
| Dominos Pizza | 7709 Parkway Drive | NULL | Leeds | AL | 35094 | 699-2727 | Compliant | EXEMPT |
| Dominos Pizza | 3659 Lorna Rd | Suite 163 | Hoover | AL | 35216 | 985-4700 | Compliant | EXEMPT |
| Dominos Pizza | 445 Main St | NULL | Trussville | AL | 35173 | 655-9080 | Compliant | EXEMPT |
| Dominos Pizza | 1710 Decatur Highway | NULL | Fultondale | AL | 35068 | 841-3700 | Compliant | EXEMPT |
| Dominos Pizza | 1535 Forestdale Blvd | NULL | Birmingham | AL | 35214 | 999-1220 | Compliant | EXEMPT |
| Dominos Pizza | 269 Forest Rd | NULL | Hueytown | AL | 35023 | 744-0900 | Compliant | EXEMPT |
| Dominos Pizza | 3979 Parkwood Rd | Morgan Road Station Ste | Bessemer | AL | 35022 | 426-1131 | Compliant | EXEMPT |
| Dominos Pizza | 110 5th St E | NULL | Warrior | AL | 35180 | 590-3733 | Compliant | EXEMPT |
| Dominos Pizza #5381 | 430 Greensprings Hwy | NULL | Homewood | NULL | 35209 | 916-0070 | Compliant | EXEMPT |
| Dominos Pizza #5844 | 3135 Cahaba Heights Rd | NULL | Birmingham | AL | 35243 | 972-1220 | Compliant | EXEMPT |
| Donald Elementary School | 715 Valley Rd | NULL | Fairfield | AL | 35064 | NULL | Compliant | 20152897 |
| Donatos Pizza | 629 Montgomery Hwy | NULL | Vestavia | AL | 35216 | 824-1112 | Compliant | EXEMPT |
| Donut Joe's Gardendale | 1021 Main Street | NULL | Gardendale | AL | 35071 | 205-631-8774 | Compliant | 20153400 |
| Donz Convenience Store (CLOSED) | 817 Allison Bonnet Mem Dr | NULL | Hueytown | AL | 35023 | 205-744-4652 | In-Collection | 20070649 |
| Doodle's Sorbets and Ices | 3238 Cahaba Heights Road | NULL | Birmingham | AL | 35243 | 969-0726 | Compliant | EXEMPT |
| Doubletree Hotel Birmingham | 808 20th St S | NULL | Birmingham | AL | 35205 | 933-9000 | Compliant | 20151057 |
| Down Home Bar B Q & Fine Foods (CLOSED) | 1116 Lomb Avenue, S W | NULL | Birmingham | AL | 35211 | 205-296-4277 | In-Collection | 20081149 |
| Dream Cakes | 960 Oxmoor Road | NULL | Homewood | AL | 35209 | 871-9377 | Compliant | EXEMPT |
| Dream Kitchen | 3004 33Rd Street S W | NULL | Birmingham | AL | 35211 | NULL | Non-compliant | Pending |
| Drury Inn & Suites | 160 State Farm Parkway | NULL | Homewood | AL | 35209 | 940-9500 | Compliant | EXEMPT |
| Ds Tamales To Go | 101 Hueytown Plaza | NULL | Hueytown | AL | 35023 | 491-3333 | Non-compliant | 20131600 |
| Dunkin Donuts | 2109 6th Ave S | NULL | Birmingham | AL | 35205 | 205-901-3254 | Compliant | 20153265 |
| Dunkin Donuts | 2178 Eastern Valley Road | NULL | Bessemer | AL | 35022 | 205-425-1333 | Compliant | 20153255 |
| Dunkin Donuts | 505 Brookwood Blvd | NULL | Homewood | AL | 35209 | 678-458-9866 | Compliant | 20153551 |
| Dunkin Donuts #2 | 309 Cane Creek Road | NULL | Warrior | AL | 35180 | 205-529-2445 | Compliant | 20153477 |
| Dunkin Donuts #3 | 2600 Centerpoint Road | NULL | Birmingham | AL | 35215 | 205-791-6988 | Compliant | 20153491 |
| Dunkin Donuts & Baskin Robbins | 333 Greensprings Highway | NULL | Birmingham | AL | 35209 | NULL | New Const. | Pending |
| Dupy School | 1400 14Th Ave | NULL | Birmingham | AL | 35212 | NULL | Non-compliant | Pending |
| Dyrons Low Country | 121 Oak Street | NULL | Birmingham | AL | 35213 | 834-8257 | Compliant | 20153149 |
| E.P.I.C. Elementary School | 1000 10th Ave S | NULL | Birmingham | AL | 35205 | 231-7270 | Compliant | 20152549 |
| Eagles Cafe | 2610 16th St N | NULL | Birmingham | AL | 35204 | 320-0099 | Non-compliant | 20070651 |
| Earth Fare Grocery Store | 3230 Galleria Circle | NULL | Hoover | AL | 35244 | 205- | Compliant | 20153360 |
| East 59 Coffee Shop | 7619 1St Avenue North | NULL | Birmingham | AL | 35206 | 205-901-4920 | New Const. | Pending |
| East Bham Christian School | 5600 1st Ave N | NULL | Birmingham | AL | 35212 | 591-1680 | In-Collection | NONE |
| East Buffet | 5978 Chalkville Mountain Road | NULL | Birmingham | AL | 35235 | 205-655-6898 | Compliant | 20150262 |
| East Glen, LLC | 53 Medical Park Drive East | NULL | Birmingham | AL | 35235 | 838-5327 | Compliant | 20150510 |
| East Lake Superette Texaco | 421 Oporto Madrid Blvd North | NULL | Birmingham | AL | 35206 | 836-3377 | Compliant | 20150652 |
| East Of The Mississippi | 3103 Ensley Ave. | NULL | Birmingham | AL | 35208 | 781-7837 | Compliant | 20150179 |
| Eastview Healthcare Center | 7755 4th Ave S | NULL | Birmingham | AL | 35206 | 833-0146 | Compliant | 20152821 |
| Easy Shop Inc. | 1312 3Rd Avenue West | NULL | Birmingham | AL | 35208 | NULL | Non-compliant | Pending |
| Edgar's Bakery | 505 20Th Street North | Ste 150 | Birmingham | AL | 35203 | 205-910-3917 | Compliant | 20153621 |
| Edgars Bakery | 180 Main St W | NULL | Hoover | AL | 35244 | 987-0790 | Compliant | EXEMPT |
| Edgars Bakery | 3407 Colonnade Parkway | NULL | Birmingham | AL | 35243 | 987-0790 | Compliant | 20150402 |
| Edgemont Town Center | 437 Greensprings Hwy | Suite 111 | Homewood | AL | 35209 | 942-6490 | Compliant | 20151243 |
| Edgewood Creamery | 936 Oxmoor Road | NULL | Homewood | AL | 35209 | 870-0092 | Compliant | EXEMPT |
| Edgewood Elementary School | 901 College Avenue | NULL | Homewood | AL | 35209 | 870-4203 | Compliant | 20151152 |

| FSFNAME | FSFADDRESS | FSFADDRESS2 | FSFCITY | FSFSTATE | FSFZIP | FSFPHONE | STATUS | PERMITNO |
|---|---|---|---|---|---|---|---|---|
| Edible Arrangements | 2801 John Hawkins Pkwy | suite 109 C | Hoover | AL | 35244 | 987-1700 | Compliant | EXEMPT |
| Egg Roll Express | 100 Bessemer Hwy | NULL | Midfield | AL | 35228 | 925-4670 | Compliant | 20150498 |
| Einstein Brothers Bagels | 309 Riley Road | NULL | Birmingham | AL | 35209 | 205-229-9129 | New Const. | Pending |
| EL Barrio Restaurant | 2211 2nd Avenue North | NULL | Birmingham | AL | 35203 | 205-789-1518 | Compliant | 20153340 |
| EL Cazador | 1930 Edwards Lake Rd | NULL | Birmingham | AL | 35235 | 661-0904 | Compliant | 20151288 |
| EL Cazador Foods | 1540 Montclair Road | NULL | Birmingham | AL | 35210 | NULL | Compliant | 20150536 |
| EL Chile | 273 West Valley Avenue | NULL | Homewood | AL | 35209 | 942-0808 | Compliant | 20153173 |
| EL Gringo | 748 Shades Mountain Plaza | NULL | Hoover | AL | 35226 | 205-423-5095 | Non-compliant | Pending |
| EL Gringo Mexican Restaurant | 100 Frankfurt Circle | Ste A & B | Birmingham | AL | 35211 | 205-917-1117 | Non-compliant | 20153353 |
| EL Mercado - Deli/Bakery | 2085 Colonial Drive | Suite 131 | Hoover | AL | 35216 | 987-9281 | Compliant | 20151598 |
| EL Pablano Mexican Restaurant | 2499 Rocky Ridge Road | NULL | Birmingham | AL | 35243 | 823-0442 | Compliant | 20150219 |
| EL Palenque Mexican Grill | 1420 Forestdale Blvd | NULL | Birmingham | AL | 35214 | 637-1963 | Non-compliant | Pending |
| EL Sol Cantina & Taqueria | 328 Valley Ave | NULL | Birmingham | AL | 35209 | 945-4900 | Compliant | 20151360 |
| EL Super Taco | 3947 Pinson Valley Pkwy | NULL | Birmingham | AL | 35217 | 205-337-3849 | Non-compliant | Pending |
| EL Taco Loco | 702 Valley Avenue | NULL | Birmingham | AL | 35209 | NULL | Compliant | 20153230 |
| EL Vecino Mexican Super Grill | 1492 Forestdale Blvd | NULL | Birmingham | AL | 35214 | 798-5188 | Compliant | 20150661 |
| Elmcroft of Grayson Valley | 2366 Old Springville Road | NULL | Birmingham | AL | 35215 | 854-2888 | Compliant | 20152984 |
| Embassy Suites Hotel | 2300 Woodcrest Place | NULL | Homewood | AL | 35209 | 879-7400 | Compliant | 20150663 |
| Embassy Suites, Hoover | 2960 John Hawkins Parkway | NULL | Hoover | AL | 35244 | 281-2424 | Compliant | 20153147 |
| End Zone Sports Grill | 1539 Main Street | NULL | Graysville | AL | 35073 | 674-1114 | Non-compliant | 20093118 |
| Ensley Place Market | 4000 Avenue I Ensley | Ste A | Birmingham | AL | 35208 | 205-541-3526 | Compliant | 20153487 |
| Ensley Seafood | 3100 Ensley Ave | NULL | Birmingham | AL | 35208 | 780-8070 | Compliant | 20150854 |
| Ensley Seafood Express | 3501 Avenue E Ensley | NULL | Birmingham | AL | 35218 | 205-788-2788 | Non-compliant | Pending |
| Ensley Seafood Express | 2161 Carson Rd | NULL | Birmingham | AL | 35215 | NULL | Compliant | 20150306 |
| Episcopal Church of the Ascension | 1912 Canyon Road | NULL | Birmingham | AL | 35216 | 205-822-3480 | New Const. | Pending |
| Erwin Intermediate School | 528 23rd Avenue N.W. | NULL | Birmingham | AL | 35215 | 379-2129 | Compliant | 20150666 |
| Erwin Middle School | 532 23rd Avenue N.W. | NULL | Birmingham | AL | 35215 | 379-2129 | Compliant | 20150667 |
| Eurest Dining @ Regions ROC | 2090 Parkway Office Cir. | NULL | Birmingham | AL | 35244 | NULL | Compliant | 20150016 |
| Eurest Dining @ Wells Fargo | 210 Wildwood Pky | Atten: George Wallace | Homewood | AL | 35209 | NULL | Compliant | 20151086 |
| Event Center @ Watermark Place | 4500 Katies Way | Suite 220 | Bessemer | AL | 35020 | 425-4529 | Compliant | 20152987 |
| Exotic Wings & Things | 1254 Centerpoint Pky | NULL | Birmingham | AL | 35215 | 856-2900 | Compliant | 20150668 |
| Exotic Wings & Things | 208 Greensprings Ave | NULL | Birmingham | AL | 35205 | 320-1090 | Compliant | 20150669 |
| Exotic Wings & Things | 4567 Pinson Valley Pky | NULL | Birmingham | AL | 35215 | 815-2373 | Compliant | 20150670 |
| Ezell's Catfish | 5060 Academy Lane | NULL | Bessemer | AL | 35022 | 424-5860 | Non-compliant | 20143247 |
| Faircrest Drive Church of God | 1600 Faircrest Drive | NULL | Hueytown | AL | 35023 | 491-8369 | New Const. | Pending |
| Fairfield H S Football | 610 Valley Rd | NULL | Fairfield | AL | 35064 | 785-5176 | Non-compliant | 20143286 |
| Fairfield High School | 610 Valley Rd | NULL | Fairfield | AL | 35064 | NULL | Compliant | 20152898 |
| Fairfield Inn & Suites by Marriott | 4980 Academy Court | NULL | Bessemer | AL | 35022 | 277-1700 | Compliant | EXEMPT |
| Fairfield Seafood | 3710 Richard Scrushy Parkway | NULL | Fairfield | AL | 35064 | 781-4680 | Compliant | 20150178 |
| Fairhaven-Meth Home For Aging | 1424 Montclair Rd | NULL | Birmingham | AL | 35210 | 956-4150 | Compliant | 20150672 |
| Fairview Health & Rehab Ctr | 1028 Bessemer Rd | NULL | Birmingham | AL | 35228 | 923-1777 | Compliant | 20152637 |
| Family Affair | 234 8th Ave W | NULL | Birmingham | AL | 35204 | 327-4004 | Non-compliant | Pending |
| Famous Freds | 1615 Montgomery Hwy | NULL | Hoover | AL | 35216 | NULL | Compliant | 20150336 |
| Fancy's on 5th | 416 41St Street South | NULL | Birmingham | AL | 35222 | 205-917-5000 | New Const. | Pending |
| Fantasyland Restaurant | 4545 Bessemer Super Highway | NULL | Birmingham | AL | 35020 | 205-425-6363 | Compliant | 20153605 |
| Fat Sams Substation | 1154 11th Ave S | NULL | Birmingham | AL | 35205 | 252-2300 | Compliant | 20150237 |
| Fayes Famous Franks | 1214 Decatur Hwy | NULL | Fultondale | AL | 35068 | 849-8308 | Compliant | 20150047 |
| FDSK German Club | 2318 2nd Avenue North | NULL | Birmingham | AL | 35203 | 324-5949 | Compliant | EXEMPT |
| Fifes Restaurant | 2321 4th Ave N | NULL | Birmingham | AL | 35203 | 254-9167 | Compliant | 20150499 |
| Firebirds Rocky Mountain Grill | 191 Main St | NULL | Hoover | AL | 35244 | 733-2002 | Non-compliant | 20140017 |
| Firehouse Subs | 623 Montgomery Highway | NULL | Vestavia Hills | AL | 35216 | 296-4353 | Compliant | EXEMPT |
| Firehouse Subs | 1483 Gadsden Hwy | NULL | Birmingham | AL | 35235 | 296-4353 | Compliant | EXEMPT |
| Firehouse Subs | 1928 11Th Avenue South | Suite B | Birmingham | AL | 35205 | 205-731-3473 | Compliant | EXEMPT |
| Firehouse Subs | 3477 Lowery Parkway | Ste 115 | Fultondale | AL | 35068 | 841-2322 | Compliant | EXEMPT |
| Firehouse Subs | 181 Main Street | Ste 213 | Hoover | AL | 35244 | 205-585-6899 | Compliant | EXEMPT |
| Firehouse Subs | 4917 Promenade Parkway | Ste 105 | Bessemer | AL | 35022 | 205-428-5844 | Compliant | EXEMPT |
| Firehouse Subs | 4704 Cahaba River Road | Ste J-1 | Birmingham | AL | 35243 | 612-3186 | Compliant | EXEMPT |
| Firehouse Subs #294 | 429 Green Springs Hwy | NULL | Homewood | AL | 35209 | NULL | Compliant | EXEMPT |
| First Baptist Church of Birmingham | 2209 Lakeshore Drive | NULL | Birmingham | AL | 35209 | 870-3888 | Compliant | 20153227 |
| Fish & Wings | 2233 10th Ave | NULL | Bessemer | AL | 35020 | 428-8429 | Compliant | 20150553 |
| Fish Market Restaurant | 612 22nd St S | NULL | Birmingham | AL | 35233 | 322-3330 | Compliant | 20151110 |
| Fitzgerald Deli | 2601 Carson Rd | NULL | Birmingham | AL | 35215 | 854-1295 | Compliant | EXEMPT |
| Five | 744 29Th Street South | NULL | Birmingham | AL | 35233 | 205-868-3841 | Compliant | 20153411 |
| Five Guys Burgers & Fries | 3345 Lowery Pkwy | Ste 1125 | Fultondale | AL | 35068 | 205-849-5143 | Non-compliant | 20143228 |
| Five Guys Famous Burgers and Fries | 5084 Pinnacle Square | Suite 104 | Trussville | AL | 35235 | 804-237-8913 | Non-compliant | 20141060 |
| Five Star Event Catering | 6079 Barber Motorsports Pkwy | NULL | Leeds | AL | 35094 | 699-2783 | Compliant | 20151427 |
| Flemings Prime Steakhouse | 103 Summit Blvd | NULL | Birmingham | AL | 35243 | 205-262-9463 | Compliant | 20150018 |
| Flight Grille | 710 Abraham Woods Jr Blvd | NULL | Birmingham | AL | 35204 | 205-321-3915 | Non-compliant | Pending |
| Florentine Building | 2101 2Nd Ave North | NULL | Birmingham | AL | 35203 | 205-503-4470 | Compliant | 20153598 |
| Food Bar, LLC | 3154 Cahaba Heights Village | NULL | Birmingham | AL | 35243 | 205-613-5742 | Compliant | 20153486 |
| Food Depot | 945 Main Street | NULL | Gardendale | AL | 35071 | 205-631-4132 | Compliant | EXEMPT |
| Food Depot Quick Stop Shop | 1312 3Rd Ave West | Ste A | Birmingham | AL | 35208 | 205-786-3722 | Non-compliant | Pending |
| Food Giant #3 Deli | 145 Hueytown Plz | NULL | Hueytown | AL | 35023 | NULL | Compliant | 20150019 |
| Food Giant #410 | 1675 Centerpoint Parkway | NULL | Birmingham | AL | 35215 | 520-5525 | Compliant | 20153123 |
| Food Giant #5 Deli | 700 19th St N | NULL | Bessemer | AL | 35020 | NULL | Compliant | 20150021 |
| Food Giant #6 | 6662 Hwy 75 | NULL | Pinson | AL | 35126 | NULL | Compliant | 20150022 |
| FOP B'ham Lodge #1 | 2988 Winewood Road | NULL | Birmingham | AL | 35215 | 205-853-6610 | Compliant | 20153414 |
| Forest Hill Adult/Child Center | 6701 Forest Drive | NULL | Fairfield | AL | 35064 | NULL | New Const. | Pending |
| Forest Hill School | 7000 Grasselli Rd | NULL | Fairfield | AL | 35064 | NULL | Compliant | 20152899 |
| Formaggios Italian Bistro | 1713 10th Ave S | NULL | Birmingham | AL | 35205 | NULL | Non-compliant | 20131056 |
| Frank House Municipal Golf | 801 Golf Course Rd | NULL | Bessemer | AL | 35022 | 424-9540 | Compliant | EXEMPT |
| Fraternal Order Of Eagles | 145 Persimmon St | NULL | Birmingham | AL | 35214 | 798-5820 | Compliant | 20151761 |
| Fried Green Tomato's | 1615 Montgomery Hwy | Ste 1 | Birmingham | AL | 35216 | 205-516-1556 | Compliant | 20153591 |
| Frontera Grill | 5651 Grove Blvd | NULL | Hoover | AL | 35226 | 907-2750 | Compliant | 20153136 |
| Frontera Grill | 5974 Chalkville Mountain Rd | NULL | Birmingham | AL | 35235 | 661-3318 | Compliant | 20150502 |
| Fuego Cantina | 1101 20th Street South | NULL | Birmingham | AL | 35205 | 933-1544 | Non-compliant | 20093066 |
| Full Moon Bar B Q | 525 25th St S | NULL | Birmingham | AL | 35233 | NULL | Compliant | 20150166 |
| Full Moon Bar-B-Que | 2000 Patton Chapel Rd | NULL | Hoover | AL | 35216 | 822-0300 | Compliant | 20151062 |
| Full Moon Bbq | 337 Valley Ave | NULL | Birmingham | AL | 35209 | 822-0300 | Compliant | 20151063 |
| Full Moon BBQ | P O Box 361137 | NULL | McCalla | AL | 35111 | NULL | Compliant | 20153088 |
| Full Moon BBQ | 1428 Walker Chapel Rd | | Fultondale | AL | 35068 | 790-6666 | Compliant | 20152922 |
| Fultondale Bakery | 1214 Decatur Hwy | NULL | Fultondale | AL | 35068 | 808-4431 | Compliant | EXEMPT |
| Fultondale Concession Stand - Athletic Complex | 951 Hubbard Lane | NULL | Fultondale | AL | 35068 | 841-4481 | Compliant | EXEMPT |
| Fultondale Concession Stand - Football | 951 Hubbard Lane | NULL | Fultondale | AL | 35068 | NULL | Compliant | EXEMPT |
| Fultondale Elementary School | 950 Central Avenue | NULL | Fultondale | AL | 35068 | 379-2129 | Compliant | 20150682 |
| Fultondale High School | 1450 Carson Road North | NULL | Birmingham | AL | 35217 | 379-2129 | Compliant | 20150683 |
| Funtime Skate Center | 3508 Decatur Hwy | NULL | Fultondale | AL | 35068 | NULL | Compliant | EXEMPT |
| G Cubed Sports Bar | 1621 Ashville Road | NULL | Leeds | AL | 35094 | 205-586-6660 | Non-compliant | 20143545 |
| Gabriels Spirited Cafe | 3706 Lorna Road | NULL | Birmingham | AL | 35216 | 985-0983 | Compliant | 20150343 |
| Galleria Woods Retirement Community | 3850 Galleria Woods Dr | NULL | Hoover | AL | 35244 | 985-7537 | Compliant | 20151380 |

| FSFNAME | FSFADDRESS | FSFADDRESS2 | FSFCITY | FSFSTATE | FSFZIP | FSFPHONE | STATUS | PERMITNO |
|---|---|---|---|---|---|---|---|---|
| Garage Cafe, Inc. | 2304 10th Terrace S | NULL | Birmingham | AL | 35205 | 322-3220 | Compliant | EXEMPT |
| Garcias Grill Inc | 4350 Pinson Valley Pky | NULL | Birmingham | AL | 35215 | NULL | Compliant | 20151368 |
| Garden Inn Birmingham | 7901 Crestwood Blvd | NULL | Irondale | AL | 35210 | 951-0700 | Compliant | EXEMPT |
| Gardendale Band Boosters | P O Box 185 | NULL | Gardendale | AL | 35071 | 379-3600 | Compliant | 20153210 |
| Gardendale Christian Academy | 1800 Decatur Hwy | NULL | Gardendale | AL | 35071 | 205-631-9465 | Compliant | 20151937 |
| Gardendale Elementary School | 860 Bauer Lane | NULL | Gardendale | AL | 35071 | 379-2129 | Compliant | 20150684 |
| Gardendale High School | 800 Main St | NULL | Gardendale | AL | 35071 | 379-2129 | Compliant | 20153190 |
| Gardendale Retail Building | 521 Fieldstown Road | NULL | Gardendale | AL | 35071 | NULL | Non-compliant | 20133480 |
| Gardendale Senior Citizen Cntr | 861 Main St | NULL | Gardendale | AL | 35071 | 631-7240 | Compliant | EXEMPT |
| Gateway | 5201 Airport Highway | NULL | Birmingham | AL | 35206 | 510-2600 | Compliant | 20153112 |
| Georges Lebanese Restaurant | 44 Greensprings Hwy | NULL | Homewood | AL | 35209 | 942-1962 | Compliant | 20150685 |
| Gia's Cakes, LLC | 73 Church Street | NULL | Birmingham | AL | 35213 | 205-790-4774 | Compliant | EXEMPT |
| Gianmarcos Restaurant | 721 Broadway St | NULL | Homewood | AL | 35209 | 871-9622 | Compliant | 20150686 |
| Gilchrist | 2805 Cahaba Rd | NULL | Mountain Brook | AL | 35223 | 871-2181 | Compliant | 20150326 |
| Giuseppes Cafe | 925 8th St S | NULL | Birmingham | AL | 35205 | 324-2626 | Compliant | 20152969 |
| Glen Iris Elementary School | 1115 11th St S | NULL | Birmingham | AL | 35205 | 231-7270 | Compliant | 20152551 |
| Glen Oaks School | 1301 Highland Dr | NULL | Fairfield | AL | 35064 | NULL | Compliant | 20152901 |
| Glory Bound Gyros | 101 20Th Street South | NULL | Birmingham | AL | 35233 | NULL | Non-compliant | Pending |
| Glorys Family Dining "CLOSED" | 6509 EJ Oliver Blvd | NULL | Fairfield | AL | 35064 | 786-6458 | In-Collection | 20070687 |
| Golden Bird Restaurant | 512 Abraham Woods Jr Blvd | NULL | Birmingham | AL | 35204 | 205-502-3606 | Non-compliant | 20143505 |
| Golden Corral #726 | 1185 Center Point Pky | NULL | Birmingham | AL | 35215 | 856-6170 | Compliant | 20150689 |
| Golden Corral #743 | 3117 Lorna Blvd | NULL | Hoover | AL | 35216 | 205-822-1314 | Compliant | 20153561 |
| Golden Dragon | 2227 Bessemer Rd | NULL | Birmingham | AL | 35208 | 788-8730 | Compliant | 20150114 |
| Golden Living - Trussville | 119 Watterson Pky | NULL | Trussville | AL | 35173 | 205-655-3226 | Compliant | 20153185 |
| Golden Living Center - Hueytown | 190 Brooklane Dr | NULL | Hueytown | AL | 35023 | 491-2905 | Compliant | 20151479 |
| Golden Living Center Riverchase | 2500 Riverhaven Dr | NULL | Hoover | AL | 35244 | 987-0901 | Compliant | 20151537 |
| Golden Living Center- Meadowood | 820 Golf Course Road | NULL | Bessemer | AL | 35022 | 425-5241 | Compliant | 20152923 |
| Golden Rule BBQ | 1571 Montgomery Hwy | NULL | Hoover | AL | 35216 | NULL | Compliant | 20150690 |
| Golden Rule BBQ | 120 Chalkville Rd S | NULL | Trussville | AL | 35173 | 655-4849 | Compliant | 20151468 |
| Golden Rule BBQ (CLOSED) | 744 29th St S | NULL | Birmingham | AL | 35233 | 327-5414 | In-Collection | 20070692 |
| Golden Rule BBQ of Irondale | 2505 Crestwood Blvd | NULL | Irondale | AL | 35210 | 956-2678 | Compliant | 20150352 |
| Golden Temple Cafe | 1901 11th Ave S | NULL | Birmingham | AL | 35205 | 933-6333 | Compliant | EXEMPT |
| Golden Wok | 1421 Forestdale Blvd | NULL | Birmingham | AL | 35214 | 798-7288 | Compliant | 20150412 |
| Goodfriends Chinese & Seafood | 1720 Dennison Ave | NULL | Birmingham | AL | 35211 | 923-5500 | Compliant | 20153623 |
| Gordos Market | 433 Valley Ave | NULL | Birmingham | AL | 35209 | 916-0707 | Compliant | 20150514 |
| Grace's Kitchen | 2831 9th  Avenue North | NULL | Bessemer | AL | 35020 | 205-902-4802 | Compliant | 20153396 |
| Grand Bohemian Hotel | 2655 Lane Park Road | NULL | Mountain Brook | AL | 35223 | NULL | New Const. | Pending |
| Grantswood Community School | 5110 Grantswood Rd | NULL | Birmingham | AL | 35210 | 379-2129 | Compliant | 20152986 |
| Grayson Valley Country Club | 2201 Grayson Valley Drive | NULL | Birmingham | AL | 35235 | 854-5420 | Compliant | 20150068 |
| Graysville Senior Citizen | 171 2nd St SW | NULL | Graysville | AL | 35073 | 674-0209 | Compliant | 20152991 |
| Great American Cookie Company | 741 Brookwood Vlg | NULL | Birmingham | AL | 35209 | 871-1333 | Compliant | EXEMPT |
| Great American Cookie Company | 2000 Riverchase Galleria | NULL | Hoover | AL | 35244 | 252-7474 | Compliant | EXEMPT |
| Great American Cookies | 5024 Pinnacle Sq | NULL | Trussville | AL | 35173 | 655-6807 | Compliant | EXEMPT |
| Great Wall Chinese Restaurant | 706 Valley Ave | NULL | Homewood | AL | 35209 | 945-1523 | Compliant | 20150696 |
| Great Wraps | 2000 Riverchase Galleria | NULL | Hoover | AL | 35244 | 985-0810 | Non-compliant | 20150697 |
| Greater Shiloh Missionary Baptist Church | 2135 Jefferson Avenue Sw | NULL | Birmingham | AL | 35211 | 205-925-5972 | Compliant | 20093055 |
| Green Acres | 8500 B 1st Ave N | NULL | Birmingham | AL | 35206 | 595-1903 | Compliant | 20153144 |
| Green Acres Cafe | 1705 4th Ave N | NULL | Birmingham | AL | 35203 | 251-3875 | Compliant | 20150295 |
| Green Acres Cafe (The Original) | 2724 29th Avenue North | NULL | Birmingham | AL | 35207 | 328-8099 | Compliant | 20151467 |
| Green Acres Cafe - Center  Point | 2405 Center Point Pkwy | NULL | Birmingham | NULL | 35215 | 815-0949 | Non-compliant | 20090698 |
| Green Acres Cafe Irondale | 1819 Crestwood Blvd | NULL | Irondale | AL | 35210 | 956-4648 | Compliant | 20150296 |
| Green Acres School | 1220 67th Street Ensley | NULL | Birmingham | AL | 35228 | 231-7270 | Compliant | 20153054 |
| Green Valley Drug | 1915 Hoover Court | NULL | Hoover | AL | 35226 | NULL | Compliant | EXEMPT |
| Green Valley Elementary | 3200 Old Columbiana Rd | NULL | Hoover | AL | 35226 | 229-5060 | Compliant | 20151003 |
| Green Valley Health & Rehabilitation, LLC | 575 Southland Drive | NULL | Hoover | AL | 35226 | 205-310-0521 | Compliant | 20153583 |
| Greenbriar At The Altamont | 2831 Highland Ave | NULL | Birmingham | AL | 35205 | 323-2724 | Compliant | 20152697 |
| Greenbriar on Hanover | 39 Hanover Circle | NULL | Birmingham | AL | 35205 | 205-714-3148 | Non-compliant | Pending |
| Greensprings Corp/ Mi Pueblo | 216 Greensprings Hwy | NULL | Birmingham | AL | 35209 | 205-685-1446 | Non-compliant | 20143559 |
| Greenwood Elementary  Child Nutrition Program | 5012 Roselyn Road | NULL | Bessemer | AL | 35020 | 432-3210 | Compliant | 20151364 |
| Gresham  School | 2650 Gresham Drive | NULL | Birmingham | AL | 35243 | 379-2129 | Compliant | 20150702 |
| Greyhound Lines, Food Service | 618 19th Street N | NULL | Birmingham | AL | 35203 | NULL | Compliant | EXEMPT |
| Grill On The Green | 8920 Roebuck Blvd | NULL | Birmingham | AL | 35206 | 836-7318 | Non-compliant | 20143276 |
| Grille 29 Restaurant | 719 Shades Creek Parkway | NULL | Homewood | AL | 35209 | 407-839-5070 | New Const. | Pending |
| Guadalajara | 1800 Ashville Road | NULL | Leeds | AL | 35094 | 702-4008 | Compliant | 20153146 |
| Gulf Seafood Market | 815 Greensprings Highway | NULL | Birmingham | AL | 35209 | 205-290-0002 | Compliant | 20153586 |
| Gus Hot Dogs | 71 Church Street | NULL | Mountain Brook | AL | 35213 | 871-3938 | Compliant | 20153493 |
| Gus Hot Dogs | 14 Rex Lane | NULL | Adamsville | AL | 35005 | 674-8911 | Compliant | 20153385 |
| Gus Hot Dogs | 1915 4th Ave N | NULL | Birmingham | AL | 35203 | 251-4540 | Compliant | 20150313 |
| Gus Hot Dogs | 224 Brooklane Dr | NULL | Hueytown | AL | 35023 | 491-8565 | Compliant | 20151200 |
| Guthries | 1801 4th Ave S | Ste 107 | Birmingham | AL | 35233 | 327-1241 | Compliant | 20150183 |
| Guthries | 1104 North Chalkville Road | NULL | Trussville | AL | 35173 | 256-328-5504 | Compliant | 20153619 |
| Gwens Catering | 20 3rd Ave S | NULL | Birmingham | AL | 35205 | 328-2255 | Compliant | EXEMPT |
| Gwin Elementary School | 1580 Patton Chapel Rd | NULL | Hoover | AL | 35226 | 229-5060 | Compliant | 20151002 |
| Gyros Cafe | 5614 Chalkville Mt Rd | NULL | Birmingham | AL | 35235 | 856-2424 | Compliant | 20150043 |
| Haagen-dazs | 2000 Riverchase Galleria | NULL | Hoover | AL | 35244 | 954-927-9132 | Compliant | EXEMPT |
| Habaneros Mexican Grill | 3048 Allison Bonnett Mem Dr | NULL | Hueytown | AL | 35023 | 491-9974 | Compliant | 20150488 |
| Habaneros Mexican Grill | 1477 Gadsden Hwy | NULL | Birmingham | AL | 35235 | 655-7380 | Compliant | 20150505 |
| Habaneros Mexican Grill | 835 Odum Rd | NULL | Gardendale | AL | 35071 | 608-2168 | Compliant | 20150501 |
| Habaneros Mexican Grill | 1601 Montgomery Hwy | NULL | Hoover | AL | 35216 | 979-7772 | Compliant | 20150487 |
| Habaneros Mexican Grill | 4863 Promenade Pkwy | suite 103 | Bessemer | AL | 35022 | 205-907-2750 | Compliant | 20152238 |
| Hacienda Mexican Grill | 1676 Montclair Road | Ste 1100 | Birmingham | AL | 35210 | 205-369-8570 | Compliant | 20151397 |
| Hacienda Mexican Grill of Gardendale, LLC | 961 Main Street | NULL | Gardendale | AL | 35071 | NULL | Compliant | 20153611 |
| Hall Kent Elementary School | 213 Hall Avenue | NULL | Homewood | AL | 35209 | 870-4203 | Compliant | 20150401 |
| Hamburger Heaven | 1301 Decatur Hwy | NULL | Gardendale | AL | 35071 | 531-8766 | Non-compliant | 20100419 |
| Hamburger Heaven | 2040 Pinson Valley Pkwy | NULL | Tarrant | AL | 35217 | 205-531-8766 | Non-compliant | 20103148 |
| Hamburger Heaven | 1703 Crestwood Blvd | NULL | Birmingham | AL | 35210 | 951-3570 | Compliant | 20150710 |
| Hamburger Heaven | 180 Oxmoor Blvd | NULL | Homewood | AL | 35209 | 941-1668 | Compliant | 20152677 |
| Hampton Inn | 4910 Civic Ln | NULL | Bessemer | AL | 35022 | 425-2010 | Compliant | EXEMPT |
| Hampton Inn | 1716 Fulton Road | NULL | Fultondale | AL | 35068 | 205-439-6700 | Non-compliant | Pending |
| Hampton Inn | 1940 Edwards Lake Road | NULL | Trussville | AL | 35235 | 655-9777 | Compliant | EXEMPT |
| Hampton Inn | 310 Rex Lake Road | NULL | Leeds | AL | 35094 | 205-702-4141 | Compliant | EXEMPT |
| Hampton Inn & Suites | 3930 Grantsmill Road | NULL | Irondale | AL | 35210 | 205-281-2424 | Compliant | EXEMPT |
| Hampton Inn & Suites | 4520 Galleria Blvd | NULL | Hoover | AL | 35244 | 380-3300 | Compliant | EXEMPT |
| Hampton Inn- Lakeshore | 30 State Farm Parkway | NULL | Homewood | AL | 35209 | 313-2060 | Compliant | EXEMPT |
| Handsome Brutes Social Club | 2020 Avenue D | NULL | Ensley | AL | 35208 | 205-902-7950 | Non-compliant | 20120335 |
| Hard Park - City of Bessemer | 2701 Carolina Terrace | NULL | Bessemer | AL | 35020 | NULL | Compliant | EXEMPT |
| Hardee's | 9400 Parkway East | NULL | Birmingham | AL | 35215 | NULL | Compliant | 20153589 |
| Hardee's of Vestavia #1392 | 1449 Montgomery Hwy | NULL | Vestavia Hills | AL | 35216 | 999-9681 | Compliant | 20153030 |
| Hardees #1374 | 228 Oxmoor Blvd | NULL | Homewood | AL | 35209 | 942-6095 | Compliant | 20151640 |
| Hardees Restaurants, LLC #1362 | 1824  Ashville Road | NULL | Leeds | AL | 35094 | 699-8110 | Compliant | 20153215 |

| FSFNAME | FSFADDRESS | FSFADDRESS2 | FSFCITY | FSFSTATE | FSFZIP | FSFPHONE | STATUS | PERMITNO |
|---|---|---|---|---|---|---|---|---|
| Hardees Restaurants, LLC #1373 | 611 Bessemer Super Hwy | NULL | Midfield | AL | 35228 | 925-7467 | Compliant | 20150718 |
| Hardees Restaurants, LLC #1376 | 111 Chalkville Rd S | NULL | Trussville | AL | 35173 | 655-4215 | Compliant | 20150711 |
| Hardees Restaurants, LLC #1402 | 5113 Airport Hwy | NULL | Birmingham | AL | 35212 | 592-6706 | Compliant | 20150719 |
| Hardees Restaurants, LLC #1447 | 6670 Highway 75 | NULL | Pinson | AL | 35126 | 681-1443 | Compliant | 20150720 |
| Hardees Restaurants, LLC #1469 | 2146 Sweeney Hollow Rd | NULL | Birmingham | AL | 35215 | 854-3320 | Non-compliant | 20150713 |
| Hardees Restaurants, LLC #1471 | 1616 Decatur Hwy | NULL | Fultondale | AL | 35068 | 849-1040 | Non-compliant | 20150721 |
| Hardees Restaurants, LLC #1473 | 280 Cane Creek Road | NULL | Warrior | AL | 35180 | 647-7372 | Compliant | 20152965 |
| Harry & Billies Lounge | 1203 9th Ave N | NULL | Bessemer | AL | 35020 | NULL | Compliant | EXEMPT |
| Hart & Soul Coffee Shop | 1014 Oxmoor Road | NULL | Birmingham | AL | 35209 | 871-4420 | Compliant | EXEMPT |
| Hawks Food & Beverage "CLOSED" | 118 First St S | NULL | Birmingham | AL | 35205 | 324-1413 | In-Collection | 20070722 |
| Hayes K-8 School | 505 43Rd Steet North | NULL | Birmingham | AL | 35222 | 231-7265 | Compliant | 20153375 |
| Healthsouth Lakeshore Rehab Hospital | 3800 Ridgeway Dr | NULL | Homewood | AL | 35209 | 868-2000 | Compliant | 20152966 |
| Healthy Connections, Inc. | 2409 Acton Road | Suite 161 | Vestavia Hills | AL | 35243 | 822-3266 | Compliant | 20150723 |
| Heavenly Child Day Care | 1289 Hueytown Road | NULL | Hueytown | AL | 35023 | NULL | New Const. | Pending |
| Hemphill School | 1240 Cotton Ave Sw | NULL | Birmingham | AL | 35211 | 231-7501 | Compliant | 20152517 |
| Hewitt Trussville High School | 6450 Husky Parkway | NULL | Trussville | AL | 35173 | 228-4142 | Compliant | 20151484 |
| Hewitt Trussville Middle School | 5275 Trussville Clay Road | NULL | Trussville | AL | 35173 | 205-228-3725 | Compliant | 20153261 |
| Hewitt Trussville Stadium | 6345 Husky Parkway | NULL | Trussville | AL | 35173 | 205-228-3062 | Compliant | 20153628 |
| Hickory Tavern | 595 Brookwood Village | NULL | Homewood | AL | 35209 | 508-878-2888 | Compliant | 20153624 |
| Highland Center for Nursing & Rehab | 2625 Laurel Oaks Road | NULL | Bessemer | AL | 35022 | 205-321-5373 | Compliant | 20153267 |
| Highland Park & Golf | 3300 Highland Ave S | NULL | Birmingham | AL | 35205 | 298-0001 | Compliant | 20153000 |
| Highlands Bar & Grill | 2011 11th Ave S | NULL | Birmingham | AL | 35205 | 939-1400 | Compliant | 20151109 |
| Hill Crest Hospital | 6869 5th Avenue South | Attn: Business Office | Birmingham | AL | 35212 | 833-9000 | Compliant | 20152960 |
| Hill Student Center | 1400 University Blvd | NULL | Birmingham | AL | 35294 | 470-8536 | Compliant | 20153609 |
| Hillview Elementary School | 1520 Cherry Avenue | NULL | Birmingham | AL | 35214 | 379-2129 | Non-compliant | 20140726 |
| Hilton Garden Inn | 3230 Edwards Lake Parkway | NULL | Trussville | AL | 35235 | 205-655-5222 | Compliant | 20153556 |
| Hilton Garden Inn | 520 Wildwood Circle | NULL | Homewood | AL | 35209 | 205-313-2060 | Non-compliant | 20143317 |
| Historic Rucker Place, LLC. | 1804 12th Avenue South | NULL | Birmingham | AL | 35205 | 558-2485 | Compliant | 20150734 |
| Holiday Bowl Fun Center Snacks | 4321 Bessemer Super Hwy | NULL | Bessemer | AL | 35020 | 428-8461 | Compliant | EXEMPT |
| Holiday Inn - Hoover | 2901 John Hawkins Pkwy | NULL | Hoover | AL | 35244 | 986-5141 | Compliant | 20153067 |
| Holiday Inn BHMLS | 492 Wildwood North Circle | NULL | Birmingham | AL | 35209 | 942-6070 | Non-compliant | 20143232 |
| Holiday Inn Express | 5001 Academy Lane | NULL | Bessemer | AL | 35022 | 424-2600 | Compliant | EXEMPT |
| Holiday Inn Express | 1733 Fulton Road | NULL | Fultondale | AL | 35068 | 205-439-6300 | Non-compliant | Pending |
| Holiday Inn Express | 5911 Valley Road | NULL | Trussville | AL | 35173 | 655-2700 | Compliant | EXEMPT |
| Holy Family Ele / High School | 1916 19th Street Ensley | | Birmingham | AL | 35218 | 780-5858 | Non-compliant | 20103207 |
| Home Plate Diner Inc. | 2780 Allison Bonnett Mem. Dr | NULL | Hueytown | AL | 35023 | 744-8855 | Compliant | 20150044 |
| Hometown Oriental Supermarket & Mr. Chen's | 808 Greenspings Hwy | Ste 140 | Homewood | AL | 35209 | 205-907-2750 | Non-compliant | Pending |
| Homewood Community Center | 1632 Oxmoor Road | NULL | Birmingham | AL | 35209 | 205-332-6705 | Compliant | 20153550 |
| Homewood Diner | 162 Oxmoor Road | NULL | Homewood | AL | 35209 | 941-9994 | Non-compliant | 20133138 |
| Homewood Gourmet | 1919 28th Ave South | NULL | Homewood | AL | 35209 | 871-1620 | Compliant | 20153234 |
| Homewood High Baseball | 1901 So Lakeshore Dr | NULL | Homewood | AL | 35209 | 871-9663 | Compliant | EXEMPT |
| Homewood High School | 1901 S. Lakeshore Drive | NULL | Homewood | AL | 35209 | 870-4203 | Compliant | 20150398 |
| Homewood High Softball | 1901 So Lakeshore Dr | NULL | Homewood | AL | 35209 | 871-9663 | Compliant | EXEMPT |
| Homewood Middle School | 395 Mecca Avenue | NULL | Homewood | AL | 35209 | 870-4203 | Compliant | 20150400 |
| Homewood Senior Center | 816 Oak Grove Rd | NULL | Homewood | AL | 35209 | 943-0018 | Compliant | EXEMPT |
| Homewood Soccer Park Phase II | 1800 South Lakeshore Drive | NULL | Homewood | AL | 35209 | 332-6700 | Compliant | EXEMPT |
| Homewood Suites- U. A. B. | 1016 20Th Street South | NULL | Birmingham | AL | 35205 | 205-533-1444 | New Const. | Pending |
| Honey Baked Ham Company | 7001 Crestwood Blvd | NULL | Birmingham | AL | 35210 | 591-0904 | Compliant | EXEMPT |
| Honey Baked Hams | 601 Montgomery Hwy | NULL | Vestavia | AL | 35216 | 823-4700 | Compliant | EXEMPT |
| Hong Kong City | 873 Dennison Ave Sw | # 119 | Birmingham | AL | 35211 | 324-1108 | Compliant | 20153334 |
| Hong Kong Restaurant | 1817 Pinson Valley Pkwy | NULL | Tarrant | AL | 35217 | 841-8800 | Compliant | 20151369 |
| Hong Kong Seafood | 1101 3rd Ave. West | NULL | Birmingham | AL | 35204 | 788-4280 | Compliant | 20151538 |
| Hooters of Homewood | 1278 Oak Grove Road | NULL | Homewood | AL | 35209 | 205-940-9145 | Compliant | 20150528 |
| Hooters of Trussville | 1917 Edwards Lake Rd | NULL | Birmingham | AL | 35235 | 205-655-9475 | Compliant | 20150333 |
| Hoover Christian School | 2113 Old Rocky Ridge Road | NULL | Hoover | AL | 35216 | 987-3376 | Compliant | EXEMPT |
| Hoover Country Club Grill | 3140 Club Dr | NULL | Hoover | AL | 35226 | 822-0647 | Compliant | 20150526 |
| Hoover High School | 1000 Buccaneer Dr | NULL | Hoover | AL | 35244 | 229-5060 | Compliant | 20151005 |
| Hoover HS Football-Home Stand | 1000 Buccaneer Dr | NULL | Hoover | AL | 35244 | NULL | Compliant | 20153126 |
| Hoover Met/ 5 Star Event Catering | 100 Ben Chapman Road | NULL | Hoover | AL | 35244 | 699-2783 | Non-compliant | Pending |
| Hoover Senior Center | 400 Municipal Drive | NULL | Hoover | AL | 35216 | 739-6700 | Compliant | EXEMPT |
| Hoover Softball Asso. Con | 3468 Chapel Ln | NULL | Hoover | AL | 35226 | 508-8103 | Compliant | 20153603 |
| Horario Lunes | 293 West Valley Avenue | NULL | Birmingham | AL | 35209 | NULL | Non-compliant | Pending |
| Host International/ Birmingham Airport | 5900 Messer Airport Hwy | NULL | Birmingham | AL | 35212 | 205-595-0533 | Compliant | 20153602 |
| Hot & Hot Fish Club | 2180 11th Ct S | NULL | Birmingham | AL | 35205 | NULL | Non-compliant | 20150069 |
| Hot Spot | 1143 Huffman Road | NULL | Birmingham | AL | 35215 | 404-429-9738 | Compliant | 20153612 |
| Huddle House | 405 Warrior Jasper Road | NULL | Warrior | AL | 35180 | 205-907-4613 | New Const. | Pending |
| Hudson K-8 School | 3300 Shuttlesworth Dr | NULL | Birmingham | AL | 35207 | 231-7270 | Compliant | 20152970 |
| Hueytown Elementary School | 112 Forest Road | NULL | Hueytown | AL | 35023 | 379-2129 | Compliant | 20150731 |
| Hueytown Middle School | 701 Sunrise Boulevard | NULL | Hueytown | AL | 35023 | 379-2129 | Compliant | 20150733 |
| Hueytown Pop N Snack | 3057 Allison Bonnet Memorial D | NULL | Hueytown | AL | 35023 | 497-4048 | Compliant | EXEMPT |
| Hueytown Senior Citizen Building | 2500 Brooklane Drive | NULL | Hueytown | AL | 35023 | 205-491-7052 | Compliant | EXEMPT |
| Huffman Academy | 1212 Cheyenne Blvd. | NULL | Birmingham | AL | 35215 | 231-7270 | Compliant | 20152588 |
| Huffman Baptist Church | 700 Huffman Road | NULL | Birmingham | AL | 35215 | 205-836-2294 | Compliant | 20143574 |
| Huffman High School | 950 Springville Road | NULL | Birmingham | AL | 35215 | 231-7270 | Compliant | 20152557 |
| Huffman Middle School | 517 Huffman Rd | NULL | Birmingham | AL | 35215 | 231-7270 | Compliant | 20150735 |
| Hunan Garden (PPS) | 1851 Montgomery Hwy S | NULL | Birmingham | AL | 35244 | 987-9599 | Compliant | 20150736 |
| Hunan Wok | 429 Green Springs Hwy | Ste 121 | Homewood | AL | 35209 | NULL | Compliant | 20150371 |
| Hungry Howie's Pizza & Subs | 1501 11th Avenue S | NULL | Birmingham, | AL | 35205 | 533-0307 | Compliant | EXEMPT |
| Hyatt Place- Hoover | 2980 John Hawkins Pky | NULL | Hoover | AL | 35244 | 988-8444 | Compliant | EXEMPT |
| Hyatt Regency Birmingham- The Wynfrey Hotel | 1000 Riverchase Galleria | NULL | Birmingham | AL | 35244 | 987-1600 | Compliant | 20150111 |
| I Love Juice Bar | 4745 Chace Circle | Ste 109 | Birmingham | AL | 35244 | 225-326-5016 | New Const. | Pending |
| Ichiban Japanese Restaurant | 620 Old Towne Rd | NULL | Vestavia | AL | 35216 | 822-4646 | Compliant | 20151599 |
| Icing on the Cookie, LLC | 2907 Central Avenue | Suite 101 | Homewood | AL | 35209 | 335-7085 | Non-compliant | 20143495 |
| Iguana Grill | 2085 Colonial Dr | NULL | Hoover | AL | 35216 | 987-8240 | Compliant | 20151597 |
| Ihop | 7748 Crestwood Blvd | NULL | Birmingham | AL | 35210 | 956-5502 | Compliant | 20150131 |
| Ihop #2125 | 2730 John Hawkins Pkwy | NULL | Hoover | AL | 35244 | 205-682-2822 | Compliant | 20153633 |
| Ihop #4418 | 221 State Farm Pky | NULL | Homewood | AL | 35209 | 290-0995 | Compliant | 20150416 |
| Imperial Catering, Inc. | 1941 Hoover Ct | NULL | Hoover | AL | 35226 | 978-5616 | Compliant | 20150174 |
| Inglenook School K-8 | 4120 Inglenook St | NULL | Birmingham | AL | 35217 | 231-7270 | Compliant | 20152558 |
| Insomnia Cookies | 1919 11Th Avenue South | Suite 200 | Birmingham | AL | 35205 | NULL | Non-compliant | 20143581 |
| Integrity Christian Academy | 216 Roebuck Drive | NULL | Birmingham | AL | 35206 | 833-4416 | Compliant | 20153110 |
| Iron City Live Inc. | 513 22Nd Street South | NULL | Birmingham | AL | 35233 | 413-464-5997 | Compliant | 20153424 |
| Iron Horse Cafe | 1694 Montgomery Hwy | NULL | Hoover | AL | 35216 | 978-5599 | Non-compliant | 20140067 |
| Irondale BP | 5400 Beacon Drive | NULL | Irondale | AL | 35210 | 957-5557 | Compliant | 20150739 |
| Irondale Cafe | 1906 1st Ave N | NULL | Irondale | AL | 35210 | 956-5258 | Compliant | 20150210 |
| Irondale Chevron | 1804 Crestwood Blvd | NULL | Birmingham | AL | 35210 | 956-7000 | Compliant | 20153538 |
| Irondale Community School | 225 16th St S | NULL | Birmingham | AL | 35210 | 379-4200 | Compliant | 20153124 |
| Irondale Middle School | 6200 Old Leeds Rd | NULL | Birmingham | AL | 35210 | 379-2129 | Compliant | 20150741 |
| Irondale MS Concess. | 6200 Old Leeds Road | NULL | Irondale | AL | 35210 | NULL | Compliant | EXEMPT |
| Irondale Senior Center | 5313 Beacon Drive | NULL | Irondale | AL | 35210 | 951-1418 | Compliant | EXEMPT |

| FSFNAME | FSFADDRESS | FSFADDRESS2 | FSFCITY | FSFSTATE | FSFZIP | FSFPHONE | STATUS | PERMITNO |
|---|---|---|---|---|---|---|---|---|
| Iz Cafe | 2037 Cahaba Road | NULL | Mountain Brook | AL | 35223 | 205-414-0080 | Compliant | 20153488 |
| J J BBQ | 4437 Pinson Valley Parkway | NULL | Birmingham | AL | 35215 | 205-520-0502 | Non-compliant | Pending |
| J J Wings | 900 Milstead Rd | NULL | Fairfield | AL | 35064 | 783-8610 | Compliant | 20153003 |
| J Wings | 1709 Decatur Highway | NULL | Fultondale | AL | 35068 | 381-8067 | Non-compliant | Pending |
| J. Alexanders | 3320 Galleria Cir | NULL | Hoover | AL | 35244 | 733-9995 | Compliant | 20151290 |
| Jacks | 425 Fieldstown Road | NULL | Gardendale | AL | 35071 | 205-945-8167 | New Const. | Pending |
| Jacks #1 | 2831 19th St S | NULL | Homewood | AL | 35209 | NULL | Compliant | 20150065 |
| Jacks #134 | 219 Louisa St | NULL | Warrior | AL | 35180 | 205-647-1625 | Compliant | 20150060 |
| Jacks #144 | 5701 Veterans Mem. Dr. | NULL | Adamsville | AL | 35005 | NULL | Compliant | 20150042 |
| Jacks #145 | 27 Park Rd | NULL | Pleasant Grove | AL | 35127 | NULL | Compliant | 20150061 |
| Jacks #146 | 201 Walker Chapel Rd | NULL | Fultondale | AL | 35068 | NULL | Compliant | 20150058 |
| Jacks #162 | 1800 19th St N | NULL | Bessemer | AL | 35020 | NULL | Compliant | 20150063 |
| Jacks #165 | 2890 Pinson Valley Pky | NULL | Birmingham | AL | 35217 | NULL | Compliant | 20150057 |
| Jacks #166 | 2429 Lorna Road | NULL | Birmingham | AL | 35216 | NULL | Compliant | 20150064 |
| Jacks #167 | 1460 Gadsden Hwy | NULL | Trussville | AL | 35235 | NULL | Compliant | 20150056 |
| Jacks #168 | 1724 Crestwood Blvd | NULL | Birmingham | AL | 35210 | NULL | Compliant | 20150059 |
| Jacks #174 | 4474 Centerpoint Rd | NULL | Pinson | AL | 35126 | NULL | Compliant | 20150055 |
| Jacks #210 | 2259 Mount Olive Road | NULL | Gardendale | AL | 35117 | NULL | Compliant | 20150062 |
| Jacks #218 | 2715 Allison Bonnett Mem. Dr. | NULL | Hueytown | AL | 35023 | 706-7547 | Compliant | 20150544 |
| Jacks #238 | 5711 Chalkville Road | NULL | Birmingham | AL | 35235 | 853-6808 | Compliant | 20153351 |
| Jacks Hamburgers (Corporate) | 124 West Oxmoor Road | NULL | Homewood | AL | 35209 | 945-8167 | Compliant | EXEMPT |
| Jackson Olin High School -Concession Stand | 1300 Avenue F | NULL | Birmingham | AL | 35218 | 231-6431 | Compliant | EXEMPT |
| Jackson-Olin High School | 1300 Avenue F | NULL | Birmingham | AL | 35218 | 231-7270 | Compliant | 20152560 |
| Jacksons Bar & Bistro | 1831 28th St S | NULL | Homewood | AL | 35209 | 870-9669 | Compliant | 20150053 |
| Jade Garden | 760 Academy Drive | Ste 112 | Bessemer | AL | 35022 | 205-428-5878 | Compliant | 20153359 |
| Jake's Cafe | 3075 John Hawkins Pkwy | Ste D & E | Hoover | AL | 35244 | NULL | New Const. | Pending |
| Jalisco Mexican Restaurant | 325 Walker Chapel Rd | NULL | Fultondale | AL | 35068 | 849-2137 | Compliant | 20150744 |
| Jasmine's Cafe | 134 Avenue U | Pratt City | Birmingham | AL | 35214 | 798-8735 | Compliant | 20152977 |
| Jasons Deli | 3032 John Hawkins Pky | NULL | Hoover | AL | 35244 | 987-8740 | Compliant | 20150745 |
| Jasons Deli | 583 Brookwood Village | NULL | Birmingham | AL | 35209 | 877-8477 | Compliant | 20151220 |
| Jasper House | 2112 Avenue H | NULL | Birmingham | AL | 35218 | 780-6018 | Compliant | 20150746 |
| JCCEO Fairmont | 4217 Lewis Road | NULL | Birmingham | AL | 35207 | 841-1307 | Compliant | 20153257 |
| JCCEO Festival Head Start | 6701 Crestwood Blvd | NULL | Birmingham | AL | 35210 | 599-6400 | Compliant | 20153214 |
| JCCEO Head Start - St Joseph's | 1105 30th Street Ensley | NULL | Birmingham | AL | 35218 | 785-8611 | Compliant | 20153090 |
| JCCEO Head Start- Arrington | 300 8th Avenue West | NULL | Birmingham | AL | 35204 | 327-7500 | Compliant | 20153078 |
| JCCEO Head Start- Calloway Center | 3417 34th Terrace North | NULL | Birmingham | AL | 35207 | 841-1880 | Compliant | 20153018 |
| JCCEO Head Start- Centerpoint | 2209 Centerpoint Parkway | NULL | Birmingham | AL | 35215 | 856-4045 | Compliant | 20152994 |
| JCCEO Head Start- Kingston Center | 801 46Th Street North | NULL | Birmingham | AL | 35212 | 205-327-7500 | Compliant | 20153319 |
| JCCEO Head Start- West Center | 1712 3rd Ave Sw | NULL | Birmingham | AL | 35211 | 458-2635 | Compliant | 20153223 |
| JCCEO- Sherman Heights | 2000 Pleasant Hill Rd | NULL | Birmingham | AL | 35224 | 787-2204 | Compliant | 20153016 |
| JCCLC East | 50 Long Street | NULL | Birmingham, | AL | 35217 | 379-2129 | Compliant | 20151092 |
| Jeff. County Youth Detention Center | 140 2nd Ct N | NULL | Birmingham | AL | 35204 | 325-5455 | Compliant | 20151505 |
| Jefferson Christian Academy | 1500 Heritage Place Dr | NULL | Irondale | AL | 35210 | 956-9111 | Compliant | 20152968 |
| Jefferson County Jail | 809 21st St No | NULL | Birmingham | AL | 35203 | 325-5213 | Compliant | 20153201 |
| Jefferson County Jail- Bessemer | 1801 3rd Ave N | NULL | Bessemer | AL | 35020 | 481-4282 | Compliant | 20153024 |
| Jennie's Sandwich Shop | 331 4th Ave N | NULL | Bessemer | AL | 35020 | 424-3663 | Compliant | 20150489 |
| Jersey Boy's Subs & Grub | 109 19Th Street North | NULL | Bessemer | AL | 35020 | 205-425-1674 | Compliant | 20153599 |
| Jersey Mike's Subs | 3050 Overton Road | NULL | Mountain Brook | AL | 35223 | 205-516-5325 | New Const. | Pending |
| Jersey Mikes | 1873 Gasden Highway | Suite 1873-B | Birmingham | AL | 35235 | 661-0771 | Compliant | 20150954 |
| Jersey Mikes Subs | 1851 Montgomery Hwy | Suite 113 | Hoover | AL | 35244 | 205-240-1084 | Non-compliant | 20123154 |
| Jesse's Steaks & Seafood | 150 Main Street | NULL | Hoover | AL | 35244 | 205-989-0053 | Compliant | 20153450 |
| Jessies Place of the Jimmie Hale Mission | 2305 5th Ave N | NULL | Birmingham | AL | 35203 | 323-0170 | Compliant | EXEMPT |
| Jets Pizza | 4730 Chace Circle | Ste 116 | Hoover | AL | 35244 | 989-859-3357 | New Const. | Pending |
| Jewels | 1918 3rd Ave N | NULL | Birmingham | AL | 35203 | 907-4825 | Compliant | EXEMPT |
| Jim Davenports' Pizza Palace | 2837 Cahaba Road | NULL | Birmingham | AL | 35223 | NULL | Compliant | EXEMPT |
| Jim N Nicks | 915 Odum Rd | NULL | Gardendale | AL | 35071 | NULL | Compliant | 20150841 |
| Jim N Nicks | 1908 11th Ave S | NULL | Birmingham | AL | 35205 | NULL | Compliant | 20150656 |
| Jim N Nicks | 1660 Gadsden Hwy | NULL | Trussville | AL | 35235 | NULL | Compliant | 20150749 |
| Jim N Nicks | 1810 Montgomery Hwy | NULL | Birmingham | AL | 35244 | NULL | Compliant | 20150750 |
| Jim N Nicks | 220 West Oxmoor Road | NULL | Homewood | AL | 35209 | 942-3336 | Compliant | 20151214 |
| Jimmie Hale Mission | 3420 2nd Ave. N | NULL | Birmingham | AL | 35222 | 966-3807 | Compliant | 20150418 |
| Jimmy John's (Corp Serg Enterprises Inc.) | 323 20Th Street North | NULL | Birmingham | AL | 35207 | 404-423-0865 | Compliant | EXEMPT |
| Jimmy John's Gourmet Sandwiches | 1919 11Th Avenue South | NULL | Birmingham | AL | 35205 | 933-2425 | Compliant | EXEMPT |
| Jimmy John's Gourmet Sandwiches | 4730 Chace Circle | NULL | Hoover | AL | 35244 | 770-490-5367 | Compliant | EXEMPT |
| Jimmy Johns | 5250 Medford Drive | Ste 102 | Hoover | AL | 35244 | 770-490-5767 | New Const. | Pending |
| Jimmy Johns | 1919 Kentucky Ave | Suite 121 | Birmingham | AL | 35216 | 770-490-5767 | New Const. | Pending |
| Jimmy Johns | 3411 Colonnade Parkway | Suite100 | Birmingham | AL | 35243 | 205-262-4788 | Compliant | EXEMPT |
| Jimmy's Hotdogs & Burgers | 3425 6Th Ave South | NULL | Birmingham | AL | 35222 | 205-328-6609 | Compliant | 20153510 |
| Jinsei | 1830 29th Ave S | NULL | Birmingham | AL | 35209 | 802-1440 | Compliant | 20150752 |
| Jo Jo's On Broadway | 903 Broadway Street | Ste 105 & 109 | Birmingham | AL | 35209 | 613-7379 | Non-compliant | Pending |
| Joels Restaurant | 312 Main Street | NULL | Trussville | AL | 35173 | 655-8248 | Compliant | 20150527 |
| John Carroll H S/ Christian Catering | 300 Lakeshore Parkway | NULL | Birmingham | AL | 35209 | 790-2053 | Compliant | 20153211 |
| John's Gus Hot Dogs, LLC | 5415 Beacon Dr | NULL | Irondale | AL | 35210 | NULL | Compliant | 20150023 |
| Johnny Rays BBQ- Colonnade | 3431 Colonnade Pkwy | NULL | Birmingham | AL | 35243 | 205-968-8002 | Compliant | 20153625 |
| Johnny Rockets | 3230 Galleria Cir | NULL | Hoover | AL | 35244 | 560-0600 | Compliant | 20150177 |
| Johnny Rockets | 331 Summit Blvd | NULL | Birmingham | AL | 35243 | 298-0700 | Compliant | 20150176 |
| Johnny's Restaurant | 2902 18Th Street North | NULL | Homewood | AL | 35209 | 601-462-3544 | Non-compliant | Pending |
| Johns City Diner | 112 Richard Arrington Blvd | NULL | Birmingham | AL | 35203 | 322-6014 | Compliant | 20150594 |
| Jones Valley K-8 School | 2000 31st Street SW | NULL | Birmingham | AL | 35221 | 205-231-4600 | Compliant | 20153315 |
| Jonesboro Elementary Child Nutrition Program | 125 Owen Avenue | NULL | Bessemer | AL | 35020 | 432-3410 | Compliant | 20151259 |
| Jubilee Joes Seafood Restaurant | 2341 John Hawkins Pky | NULL | Hoover | AL | 35244 | 982-7797 | Compliant | 20150757 |
| K-mart Little Caesars #3931 | 5980 Chalkville Mountain Rd | NULL | Birmingham | AL | 35235 | 655-5311 | Compliant | EXEMPT |
| Kamtek Cosma International | 1595 Sterilite Drive | NULL | Birmingham | AL | 35215 | 205-327-7000 | Compliant | EXEMPT |
| KaTanya's Cafe | 2900 27Th Ave No | NULL | Birmingham | AL | 35207 | NULL | Non-compliant | Pending |
| Kathy G & Co., Inc. | 11 West Park Cir | NULL | Birmingham | AL | 35211 | 942-4210 | Compliant | 20150070 |
| Kaylyn's | 306 18th Street North | NULL | Bessemer | AL | 35020 | 436-2600 | Non-compliant | 20103120 |
| Kelly's Cajun Grill | 2000 Riverchase Galleria | NULL | Birmingham | AL | 35244 | 205-985-3110 | Compliant | 20150561 |
| Kennedy Opportunity Academy | 125 63rd Street North | NULL | Birmingham | AL | 35212 | 205-231-8740 | Non-compliant | 20143352 |
| Kentucky Fried Chicken #03 | 1816 Ashville Road | NULL | Leeds | AL | 35094 | 699-2900 | Compliant | 20153006 |
| Kentucky Fried Chicken #730 | 1818 9th Ave N | NULL | Bessemer | AL | 35020 | NULL | Compliant | 20150761 |
| Kentucky Fried Chicken #731 | 1800 20th St Ensley | NULL | Birmingham | AL | 35218 | NULL | Compliant | 20150771 |
| Kentucky Fried Chicken #732 | 1928 Bessemer Rd | NULL | Birmingham | AL | 35208 | NULL | Compliant | 20150760 |
| Kentucky Fried Chicken #733 | 1217 Carraway Blvd | NULL | Birmingham | AL | 35234 | NULL | Compliant | 20150768 |
| Kentucky Fried Chicken #734 | 7909 Crestwood Blvd | NULL | Birmingham | AL | 35210 | 205-956-7177 | Compliant | 20150766 |
| Kentucky Fried Chicken #735 | 1653 Center Point Rd | NULL | Birmingham | AL | 35215 | NULL | Compliant | 20150767 |
| Kentucky Fried Chicken #737 | 7159 Aaron Aronov Dr | NULL | Fairfield | AL | 35064 | NULL | Compliant | 20150769 |
| Kentucky Fried Chicken #738 | 1229 Forestdale Blvd | NULL | Birmingham | AL | 35214 | NULL | Compliant | 20150764 |
| Kentucky Fried Chicken #739 | 531 Fieldstown Rd | NULL | Gardendale | AL | 35071 | NULL | Compliant | 20150762 |
| Kentucky Fried Chicken #740 | 828 Green Springs Hwy | NULL | Birmingham | AL | 35209 | NULL | Compliant | 20150770 |
| Kentucky Fried Chicken #741 | 3065 Allison Bonnett Dr. | NULL | Hueytown | AL | 35023 | 491-7041 | Compliant | 20150763 |

| FSFNAME | FSFADDRESS | FSFADDRESS2 | FSFCITY | FSFSTATE | FSFZIP | FSFPHONE | STATUS | PERMITNO |
|---|---|---|---|---|---|---|---|---|
| Kentucky Fried Chicken #752 | 1674 Gadsden Hwy | NULL | Birmingham | AL | 35235 | NULL | Compliant | 20150765 |
| Kesslers Pharmacy | 1152 East Lake Blvd | NULL | Tarrant | AL | 35217 | 841-6421 | Compliant | EXEMPT |
| Kinfolk Kitchen | 708 29Th Street South | Ste 102 | Birmingham | AL | 35205 | 205-563-8909 | New Const. | Pending |
| Kings Wings | 733 9th Avenue North | NULL | Bessemer | AL | 35020 | 541-3261 | Compliant | 20153107 |
| Klinglers European Bakery & Deli | 621 Montgomery Hwy | NULL | Vestavia Hills | AL | 35216 | 823-4560 | Compliant | EXEMPT |
| Knesseth Israel Congregation | 3100 Overton Road | NULL | Birmingham | AL | 35223 | 879-1664 | Compliant | EXEMPT |
| Konomi | 5870 Trussville Crossing Blvd | # 122 | Birmingham | AL | 35235 | NULL | Compliant | 20150026 |
| Kool Korner Sandwiches | 790 Montgomery Highway | Suite 134 | Vestavia Hills | AL | 35216 | 965-7129 | Non-compliant | 20143043 |
| Krispy Kreme | 96 Wiebel Dr | NULL | Midfield | AL | 35228 | NULL | Compliant | EXEMPT |
| Krispy Kreme | 8601 1st Ave N | NULL | Birmingham | AL | 35206 | NULL | Compliant | EXEMPT |
| Krispy Kreme Doughnut Co. | 1990 New Patton Chapel Road | NULL | Hoover | AL | 35226 | 542-3352 | Non-compliant | 20140299 |
| Krystal #01 | 1212 Pinson St | NULL | Tarrant | AL | 35217 | 849-7521 | Compliant | 20150317 |
| Krystal #02 | 1810 Crestwood Blvd | NULL | Irondale | AL | 35210 | 956-5988 | Compliant | 20150316 |
| Krystal #08 | 1576 Montgomery Hwy | NULL | Hoover | AL | 35216 | 979-6262 | Compliant | 20150321 |
| Krystal #09 | 1119 Main St | NULL | Gardendale | AL | 35071 | 631-9298 | Compliant | 20150320 |
| Krystal #12 | 2419 Acton Rd | NULL | Birmingham | AL | 35243 | 978-7266 | Compliant | 20150318 |
| Krystal Restaurant | 5975 Service Road | NULL | Birmingham | AL | 35235 | 205-661-3522 | Compliant | 20150422 |
| Krystal Restaurant | 219 Forest Road | NULL | Hueytown | AL | 35023 | 205-497-4079 | Compliant | 20150423 |
| Kudzoo Cafe | 2630 Cahaba Road | NULL | Birmingham | AL | 35223 | NULL | Compliant | 20150029 |
| La Brisa | 2341 John Hawkins Pky | NULL | Hoover | AL | 35244 | 403-8336 | Compliant | 20151285 |
| La Catrina | 5084 Pinnacle Square | Ste 112 | Trussville | AL | 35235 | 205-655-4110 | Non-compliant | Pending |
| La Catrina | 2409 Acton Road | Ste 127 | Vestavia | AL | 35243 | 205-979-3377 | Non-compliant | Pending |
| La Dolce Vita | 2301 Grand Avenue | Ste 109 | Hoover | AL | 35226 | NULL | New Const. | Pending |
| La Paz | 99 Euclid Ave | NULL | Birmingham | AL | 35213 | 879-2225 | Compliant | 20151240 |
| La Perla Nayarita | 5712 Chalkville Mountain Road | Ste 112 | Birmingham | AL | 35235 | 874-9472 | Compliant | 20153508 |
| La Perla Taqueria & Carniceria | 1516 9th Ave N | Suite 106 | Bessemer | AL | 35020 | 426-3975 | Compliant | 20150264 |
| La Sabrosita | 191 West Valley Ave | Ste 100 | Homewood | AL | 35209 | 205-747-9441 | Non-compliant | Pending |
| La Sabrosita | 3702 Lorna Road | NULL | Birmingham | AL | 35216 | 205-520-6871 | New Const. | Pending |
| Laborers In Christ | 2708 Temple Drive | NULL | Birmingham | AL | 35209 | NULL | Non-compliant | Pending |
| LaFiesta Mexican Restaurant of Bham, Inc. | 1941-A Hoover Court | NULL | Hoover | AL | 35226 | 979-7314 | Compliant | 20150655 |
| Lakeshore Foundation Dormitory | 3850 Ridgeway Drive | NULL | Homewood | AL | 35209 | 249-6556 | Compliant | 20151256 |
| Landrys Seafood House | 139 State Farm Pky | NULL | Homewood | AL | 35209 | 916-0777 | Compliant | 20151102 |
| Laneys Restaurant | 7601 Parkway Dr | NULL | Leeds | AL | 35094 | 699-7179 | Compliant | 20150325 |
| Lawson State Bessemer Campus-Kitchen | 1100 9th Ave Sw | NULL | Bessemer | AL | 35022 | 929-6356 | Compliant | 20151316 |
| Lawson State Comm College/ Culinary School | 3060 Wilson Road S W | NULL | Birmingham | AL | 35221 | 925-2515 | Non-compliant | 20143509 |
| Lawson State Leon Kennedy Center | 3060 Wilson Rd | NULL | Birmingham | AL | 35221 | 929-6356 | Compliant | 20151504 |
| Le Vian Grill & Bar | 2236 Magnolia Avenue South | NULL | Birmingham | AL | 35205 | 731-2225 | Non-compliant | Pending |
| Lee Garden | 1423 Gadsden Hwy | NULL | Birmingham | AL | 35235 | NULL | Compliant | 20150066 |
| Lee Seafood | 6805 1St Avenue North | NULL | Birmingham | AL | 35206 | 205-261-8986 | Compliant | 20153544 |
| Leeds Civic Center/ Nutrition Center | 1000 Park Dr | NULL | Leeds | AL | 35094 | 699-6131 | Compliant | EXEMPT |
| Leeds Elementary School | 950 Ashville Road | NULL | Leeds | AL | 35094 | NULL | Compliant | 20150345 |
| Leeds High School | 7160 Coosa Avenue | NULL | Leeds | AL | 35094 | 699-5437 | Compliant | 20150779 |
| Leeds High School Athletic Fld | 1771 Whitmire Street | NULL | Leeds | AL | 35094 |  | Compliant | 20153122 |
| Leeds Memorial Park Concessions | 590 Helen Street | NULL | Leeds | AL | 35094 | 205-699-2585 | Compliant | 20153441 |
| Leeds Middle School | 8404 Greenwave Drive | NULL | Leeds, | AL | 35094 | 699-5437 | Compliant | 20150780 |
| Leeds Primary School | 991 Park Drive | NULL | Leeds | AL | 35094 | 205-699-5437 | New Const. | Pending |
| Leeds Youth Sports Inc | 300 Parkway Dr | NULL | Leeds | AL | 35094 | NULL | Non-compliant | NONE |
| Legacy Health & Rehab at Pleasant Grove | 30 7th St | NULL | Pleasant Grove | AL | 35127 | 744-8226 | Compliant | 20152457 |
| Legion Field Stadium | 400 Graymont Avenue West | NULL | Birmingham | AL | 35204 | 205-458-8402 | Compliant | 20150781 |
| Leonards Bar-B-Que & Burger Hut | 104 6th Ave South | NULL | Birmingham | AL | 35205 | 252-6680 | In-Collection | 20080328 |
| Levite Jewish Community Center | 3960 Montclair Road | NULL | Birmingham | AL | 35213 | 879-0411 X 237 | Compliant | EXEMPT |
| Lewis Elementary School | 2015 26th Ave N | NULL | Birmingham | AL | 35234 | 231-7270 | Compliant | 20152564 |
| Life Time Fitness- Bistro | 3051 Healthy Way Drive | NULL | Vestavia Hills | AL | 35243 | NULL | Compliant | 20153439 |
| Life Time Fitness- Life Cafe | 3051 Healthy Way Drive | NULL | Vestavia Hills | AL | 35243 | NULL | Compliant | 20153440 |
| Lipscomb Elementary School | 5605 10th Street | NULL | Lipscomb | AL | 35020 | 379-2129 | Compliant | 20150785 |
| Lisa's Kitchen | 900 Decatur Hwy | NULL | Gardendale | AL | 35071 | 608-3868 | Compliant | 20150916 |
| Little Caesar #57 | 2060 Pinson Valley Pkwy | NULL | Tarrant | AL | 35217 | 205- | Compliant | 20153562 |
| Little Caesars | 313 Cane Creek Road | NULL | Warrior | AL | 35180 | 205-647-3277 | Compliant | EXEMPT |
| Little Caesars #01 | 439 Fieldstown Rd | NULL | Gardendale | AL | 35071 | 587-1841 | Compliant | EXEMPT |
| Little Caesars #02 | 760 Academy Dr | NULL | Bessemer | AL | 35022 | 426-0005 | Compliant | EXEMPT |
| Little Caesars #04 | 6662 Highway 75 | NULL | Pinson | AL | 35126 | 681-0005 | Compliant | 20153133 |
| Little Caesars #09 | 1189 Center Point Rd | NULL | Center Point | AL | 35215 | 887-1841 | Compliant | EXEMPT |
| Little Caesars #10 | 4608 E Ave W | NULL | Birmingham | AL | 35208 | NULL | Compliant | 20153370 |
| Little Caesars #11 | 7630 1st Ave N | NULL | Birmingham | AL | 35206 | 836-1745 | Compliant | 20153531 |
| Little Caesars #12 | 215 Forest Rd | NULL | Hueytown | AL | 35023 | 491-0511 | Compliant | EXEMPT |
| Little Caesars #13 | 3305 Lorna Rd | NULL | Hoover | AL | 35216 | 824-7710 | Compliant | EXEMPT |
| Little Caesars #17 | 1421 Forestdale Blvd | NULL | Birmingham | AL | 35214 | 791-6988 | Compliant | 20153297 |
| Little Caesars Pizza | 8901 Weaver Avenue | Ste 101 | Leeds | AL | 35094 | 702-4059 | Compliant | EXEMPT |
| Little Caesars/Taqueria Su Primo | 406 West Valley Avenue | NULL | Homewood | AL | 35209 | 870-4454 | Non-compliant | 20151223 |
| Little Savannah | 3811 Clairmont Avenue | NULL | Birmingham | AL | 35222 | 591-1119 | Compliant | 20150265 |
| Liv Parkside | 1701 1St Avenue South | NULL | Birminghanm | AL | 35205 | 205-484-2840 | New Const. | Pending |
| Logans Roadhouse #326 | 7724 Ludington Lane | NULL | Birmingham | AL | 35210 | 957-9775 | Compliant | 20150792 |
| Logans Roadhouse #397 | 2740 John Hawkins Pkwy | NULL | Hoover | AL | 35244 | 682-9530 | Compliant | 20150793 |
| Logans Roadhouse #423 | 5071 Pinnacle Square | NULL | Trussville | AL | 35173 | 615 370-1779 | Compliant | 20150359 |
| Logans Roadhouse #475 | 5000  Bond Blvd | NULL | Bessemer | AL | 35020 | 481-9588 | Compliant | 20153017 |
| Logans Roadhouse #479 | 3387 Lowery Parkway | New Construction | Fultondale | AL | 35068 | 615-885-9056 | Compliant | 20151677 |
| Lone Star Steakhouse & Saloon | 4720 Norrell Drive | NULL | Trussville | AL | 35173 | 661-9339 | Compliant | 20150267 |
| Los Amigos | 3324 Clairmont Ave | NULL | Birmingham | AL | 35222 | 324-5896 | Compliant | 20151160 |
| Los Arcos | 2531 Rocky Ridge Rd | NULL | Vestavia | AL | 35243 | 979-3200 | Compliant | 20150800 |
| Los Arcos | 9417 Parkway East | NULL | Birmingham | AL | 35215 | NULL | New Const. | Pending |
| Los Arcos Restaurant LLC | 7001 Crestwood Blvd |  | Birmingham | AL | 35210 | 592-0859 | Compliant | 20153506 |
| Los Compadres | 308 Oxmoor Rd | NULL | Homewood | AL | 35209 | 945-8002 | Compliant | 20150801 |
| Los Dos Hermanos | 604 9th Avenue SW | NULL | Bessemer | AL | 35020 | 205-914-9627 | Non-compliant | 20143333 |
| Los Juane's Mexican Restaurant | 401 19th Street South | NULL | Birmingham | AL | 35233 | 214-0964 | Compliant | 20150802 |
| Los Pedros | 3305 Lorna Road | Ste 7 | Hoover, AL | AL | 35216 | NULL | Non-compliant | Pending |
| Los Rancheros Mexican Grill | 2463 Palamino Lane | NULL | Adamsville | AL | 35214 | 798-8800 | Non-compliant | 20123425 |
| Los Reyes Mexican Grill LLC | 821 Allison Bonnett Drive | NULL | Hueytown | AL | 35023 | 205-490-6319 | New Const. | Pending |
| Los Sombreros | 5031 Ford Pky | NULL | Bessemer | AL | 35022 | 425-8887 | Non-compliant | 20130315 |
| Louis Pizitz Middle School | 2020 Pizitz Dr | NULL | Vestavia | AL | 35216 | 402-5350 | Compliant | 20151458 |
| Louises Cakes N Things, Inc | 1694 Montgomery Hwy Ste 150 | NULL | Hoover | AL | 35216 | 205-823-6799 | Compliant | EXEMPT |
| Love Lady Center | 7916 2nd Avenue South | NULL | Birmingham | AL | 35206 | 833-7410 | Compliant | 20153200 |
| Lucys Coffee & Tea | 2007 University Blvd | NULL | Birmingham | AL | 35233 | 328-2007 | Compliant | EXEMPT |
| M & M B B Q | 3921 1st Ave N | NULL | Birmingham | AL | 35203 | NULL | Compliant | 20150175 |
| Macs One Stop | 400 19th St S | NULL | Birmingham | AL | 35233 | 324-0019 | Compliant | 20151058 |
| Mafiaozas | 2 Dexter Avenue | NULL | Birmingham | AL | 35213 | 414-7878 | Compliant | 20152877 |
| Magic City Grill Fairfield II | 4610 Gary Ave | NULL | Fairfield | AL | 35064 | 205-783-9392 | Compliant | 20151758 |
| Magic City Grille | 2201 3rd Ave N | NULL | Birmingham | AL | 35203 | NULL | Compliant | 20150394 |
| Magic City Sweet Ice | 715 Oak Grove Road | NULL | Homewood | AL | 35209 | 205-907-2125 | Non-compliant | Pending |
| Magic Muffins | 3150 Overton Rd | NULL | Birmingham | AL | 35223 | 969-2113 | Compliant | 20150108 |
| Magic Wok | 401 19Th Street South | NULL | Birmingham | AL | 35233 | 205-327-5000 | Compliant | 20153282 |

| FSFNAME | FSFADDRESS | FSFADDRESS2 | FSFCITY | FSFSTATE | FSFZIP | FSFPHONE | STATUS | PERMITNO |
|---|---|---|---|---|---|---|---|---|
| Magnificent Cakes | 5117 Crowley Dr | NULL | Irondale | AL | 35210 | NULL | Compliant | EXEMPT |
| Magnolia BBQ & Fish | 1709 4Th Avenue North | NULL | Birmingham | AL | 35203 | 205-704-4378 | Non-compliant | Pending |
| Magnolia Cafe | 4704 Cahaba River Rd | NULL | Birmingham | AL | 35243 | 969-4855 | Compliant | 20150268 |
| Magnolia Place Elementary School | Hidden Way Lane | NULL | Trussville | AL | 35173 | NULL | New Const. | Pending |
| Magnolia Ridge | 420 Dean Dr | NULL | Gardendale | AL | 35071 | 631-8709 | Compliant | 20151217 |
| Main Moon Chinese Restaurant | 737 9th Ave N | NULL | Bessemer | AL | 35020 | 425-7277 | Compliant | 20151228 |
| Majestic Catering Services | 2420 Morgan Rd | NULL | Bessemer | AL | 35022 | 426-6500 | Compliant | 20150072 |
| Makarios Kabobs & Grill | 940 20th St S | NULL | Birmingham | AL | 35205 | 731-7414 | Compliant | 20151170 |
| Maki Fresh | 420 20Th Street North | NULL | Birmingham | AL | 35203 | 205-970-3242 | Compliant | 20153535 |
| Mama's Country Cooking | 25 West Oxmoor Road | NULL | Birmingham | AL | 35209 | 205-747-8725 | New Const. | Pending |
| Manchu Wok #2021 | 2000 Riverchase Galleria | NULL | Hoover | AL | 35244 | 985-3145 | Compliant | 20151344 |
| Mandarin House | 1550 Montgomery Hwy | NULL | Hoover | AL | 35216 | 822-1761 | Compliant | 20151342 |
| Mango Tango | 5850 Valley Road | Ste 150 | Trussville | AL | 35235 | 205-655-3699 | Non-compliant | Pending |
| Manor Catering | 8912 4th Ave South | NULL | Birmingham | AL | 35206 | NULL | Compliant | 20150027 |
| Marco's Pizza | 3419 Colonnade Pkwy | Ste 400 | Birmingham | AL | 35243 | 813-220-6859 | Compliant | 20153614 |
| Marco's Pizza | 1960 Braddock Drive | NULL | Hoover | AL | 35226 | 205-473-1248 | Compliant | 20153479 |
| Margaret & Bakery | 1421 Forestdale Blvd | NULL | Birmingham | AL | 35214 | 205-798-7400 | Compliant | EXEMPT |
| Marilyns Deli & Dogs | 715 18th St N | NULL | Birmingham | AL | 35203 | 324-3354 | Non-compliant | 20150112 |
| Marketplace Building #1 | 2301 Richard Arrington Blvd No | NULL | Birmingham | AL | 35203 | 205-458-8409 | Compliant | 20153404 |
| Marketplace Building #2 | 2311 Richard Arrington Blvd No | NULL | Birmingham | AL | 35203 | 458-8409 | Compliant | 20153405 |
| Martas Bakery | 3936 Crosshaven Dr | NULL | Birmingham | AL | 35243 | NULL | Compliant | 20152137 |
| Martha Gaskins Middle School | 200 Dalton Rd | NULL | Birmingham | AL | 35215 | 231-7270 | Compliant | 20152565 |
| Martys | 1813 10th Ct S | NULL | Birmingham | AL | 35205 | 939-0045 | Compliant | EXEMPT |
| Mary's Kitchen & Catering | 1200 Hall Avenue South | NULL | Bessemer | AL | 35020 | 205-436-2607 | Non-compliant | 20123274 |
| Matthew Bar & Grill | 2208 Morris Ave | NULL | Birmingham | AL | 35203 | 205-488-9191 | Compliant | 20153189 |
| Max's Deli | 3431 Colonnade Parkway | NULL | Birmingham | AL | 35243 | 835-2610 | Compliant | 20153001 |
| Mazin Inc | 2805 Dartmouth Avenue | NULL | Bessemer | AL | 35020 | 426-8333 | Compliant | 20153129 |
| McAdory Elementary School | 6251 Eastern Valley Road | NULL | Bessemer | AL | 35111 | 379-2129 | Compliant | 20150808 |
| McAdory High Culinary Arts Bldg | 4800 Mcadory School Road | NULL | McCalla | AL | 35111 | 205-379-4700 | Compliant | 20153192 |
| McAdory High School | 4800 McAdory School Road | NULL | McCalla | AL | 35111 | 379-2129 | Compliant | 20150809 |
| McAdory Middle School | 5450 Yellow Jacket Blvd | NULL | McCalla | AL | 35111 | NULL | Compliant | 20153171 |
| McAdory Middle School Concession | 5450 Yellow Jacket Blvd | NULL | Bessemer | AL | 35111 | 379-4730 | Compliant | EXEMPT |
| McAllisters Deli | 350 State Farm Pky | NULL | Homewood | AL | 35209 | NULL | Non-compliant | EXEMPT |
| McAllisters Deli | 4977 Promenade Parkway | Suite 121 | Bessemer | AL | 35022 | 205-426-0488 | Compliant | 20153131 |
| McDonalds | 765 Academy Drive | NULL | Bessemer | AL | 35022 | 205-966-5201 | Non-compliant | 20143592 |
| McDonalds | 5170 Medford Drive | NULL | Hoover | AL | 35226 | 404-312-3225 | Compliant | 20153582 |
| McDonalds | 1724 Ashville Road | NULL | Leeds | AL | 35094 | NULL | Non-compliant | Pending |
| McDonalds #03 | 3520 Avenue E | NULL | Birmingham | AL | 35218 | NULL | Compliant | 20150134 |
| McDonalds #10174 | 11 Phillips Drive | NULL | Midfield | AL | 35228 | 923-9802 | Compliant | 20153526 |
| McDonalds #10584 | 1111 Chalkville Rd | NULL | Trussville | AL | 35173 | NULL | Compliant | 20150150 |
| McDonalds #10666 | 2201 Bessemer Highway | NULL | Birmingham | AL | 35208 | 780-5841 | Compliant | 20153520 |
| McDonalds #11543 | 3633 Jaybird Rd | NULL | Brighton | AL | 35020 | 428-3837 | Compliant | 20151206 |
| McDonalds #11598 | 1700 Finley Blvd | NULL | Birmingham | AL | 35204 | 254-3646 | Compliant | 20153519 |
| McDonalds #11899 | 1195 Greenmor Dirve | NULL | Bessemer | AL | 35022 | 205-425-6200 | Non-compliant | 20143342 |
| McDonalds #12 | 3220 26th St N | NULL | Birmingham | AL | 35207 | NULL | Compliant | 20150139 |
| McDonalds #12085 | 2427 Acton Road | NULL | Vestavia | AL | 35243 | 979-8001 | Compliant | 20153514 |
| McDonalds #12105 | 801 Dennison Ave Sw | NULL | Birmingham | AL | 35211 | 323-5387 | Compliant | 20151205 |
| McDonalds #12617 | 734 Grants Mill Road | NULL | Birmingham | AL | 35210 | 956-3312 | Compliant | 20153524 |
| McDonalds #13688 | 2001 Richard Arrington Blvd | NULL | Birmingham | AL | 35209 | 930-9777 | Compliant | 20153528 |
| McDonalds #1388 | 911 9th Ave N | NULL | Bessemer | AL | 35020 | 428-9768 | Compliant | 20151204 |
| McDonalds #14 | 707 Montgomery Hwy | NULL | Vestavia | AL | 35216 | 979-1132 | Compliant | 20150994 |
| McDonalds #15347 | 6639 Hwy 151 | NULL | Pinson | AL | 35126 | 680-4100 | Compliant | 20151428 |
| McDonalds #15413 | 5721 Veterans Mem. Pky | NULL | Adamsville | AL | 35005 | 384-8049 | Compliant | 20150215 |
| McDonalds #15999 | 100 Cane Creek Rd | NULL | Warrior | AL | 35180 | NULL | Compliant | 20150216 |
| McDonalds #1756 | 1569 Montclair Road | NULL | Birmingham | AL | 35210 | 205-956-9666 | Compliant | 20153517 |
| McDonalds #19231 | 124 State Farm Pky | NULL | Homewood | AL | 35209 | 917-3700 | Compliant | 20151203 |
| McDonalds #1926 | 5904 1St Avenue North | NULL | Birmingham | AL | 35212 | 592-2671 | Compliant | 20153529 |
| McDonalds #1946 | 2733 8Th Avenue South | NULL | Birmingham | AL | 35233 | 324-5892 | Compliant | 20153516 |
| McDonalds #2090 | 732 Lomb Avenue | NULL | Birmingham | AL | 35211 | 787-6245 | Compliant | 20153525 |
| McDonalds #23 | 1309 Forestdale Blvd | NULL | Birmingham | AL | 35214 | NULL | Compliant | 20150144 |
| McDonalds #24 | 3069 Allison Bonnet Mem Dr | NULL | Hueytown | AL | 35023 | NULL | Compliant | 20150145 |
| McDonalds #25372 | 818 Greensprings Highway | NULL | Birmingham | AL | 35209 | 942-5681 | Compliant | 20153522 |
| McDonalds #27687 | 4746 Eastern Valley Rd | NULL | McCalla | AL | 35111 | NULL | Compliant | 20150217 |
| McDonalds #29636 | 2000 Riverchase Galleria | NULL | Hoover | AL | 35244 | 444-1405 | Compliant | 20150421 |
| McDonalds #30 | 2116 Pinson Valley Pky | NULL | Tarrant | AL | 35217 | NULL | Compliant | 20150149 |
| McDonalds #3040 | 1907 Centerpoint Road | NULL | Birmingham | AL | 35215 | 854-4362 | Compliant | 20153515 |
| McDonalds #31194 | 1501 5Th Avenue South | NULL | Birmingham | AL | 35233 | 933-1650 | Compliant | 20153518 |
| McDonalds #33062 | 227 Howell St | NULL | Fultondale | AL | 35068 | 841-0002 | Compliant | 20152317 |
| McDonalds #34 | 1731 Montgomery Highway | NULL | Birmingham | AL | 35244 | NULL | Compliant | 20150152 |
| McDonalds #3468 | 1547 Montgomery Highway | NULL | Hoover | AL | 35216 | 979-2386 | Compliant | 20153523 |
| McDonalds #7143 | 200 Gadsden Highway | NULL | Birmingham | AL | 35235 | 205-833-5149 | Compliant | 20153527 |
| McDonalds #7827 | 1017 Decatur Highway | NULL | Gardendale | AL | 35071 | 631-5459 | Compliant | 20153521 |
| McDonalds #8245 | 1960 Edwards Lake Rd | NULL | Trussville | AL | 35235 | NULL | Compliant | 20150158 |
| McDonalds Norwood | 3013 12th Ave N | NULL | Birmingham | AL | 35234 | NULL | Compliant | 20150157 |
| Mcwane Science Center | 200 19th St N | NULL | Birmingham | AL | 35203 | NULL | Compliant | 20150813 |
| Medical West | 995 9th Avenue SW | NULL | Bessemer | AL | 35022 | NULL | Compliant | 20150039 |
| Mellow Mushroom | 1200 20th St S | NULL | Birmingham | AL | 35205 | 214-729-4101 | Compliant | 20150815 |
| Melt Food Truck, LLC | 4105 4Th Avenue South | NULL | Birmingham | AL | 35222 | 205-948-3877 | Compliant | 20153555 |
| Merry Cheese Crisps | 3145 Pipeline Road | NULL | Birmingham | AL | 35243 | 205-516-8620 | New Const. | Pending |
| Mi Pueblo Supermarket | 216 Greensprings Hwy | | Homewood | AL | 35209 | 941-2771 | Non-compliant | 20143073 |
| Miceli's Italian Food | 445 Main Street | NULL | Trussville | AL | 35173 | 655-3794 | Non-compliant | 20133100 |
| Michael's Steaks and Seafood | 1903 29th Avenue South | NULL | Homewood | AL | 35209 | 871-9525 | Non-compliant | 20093106 |
| Microtel Inn & Suites | 500 Jackson Drive | NULL | Hoover | AL | 35216 | 205-240-5172 | Compliant | EXEMPT |
| Microtel Inn & Suites | 850 Odum Road | NULL | Birmingham | AL | 35071 | 205-631-6320 | Compliant | EXEMPT |
| Midfield Elementary School | 417 Parkwood Street | NULL | Midfield | AL | 35228 | 205-923-2262 | Compliant | 20150390 |
| Midfield High School | 1600 High School Drive | NULL | Midfield | AL | 35228 | 205-923-2262 | Compliant | 20150389 |
| Miles College Cafeteria | 5500 Myron Massey Blvd | NULL | Fairfield | AL | 35064 | 929-1439 | Compliant | 20150109 |
| Miles College Concession Stand | 5500 Myron Massey Blvd | NULL | Fairfield | AL | 35064 | NULL | Compliant | 20153226 |
| Millie Ray's Rolls | 2419 1St Avenue South | NULL | Irondale | AL | 35210 | 404-433-6698 | New Const. | Pending |
| Milos | 209 Gadsden Hwy | NULL | Birmingham | AL | 35235 | 833-6363 | Compliant | 20150077 |
| Milos | 208 State Farm Pky | NULL | Homewood | AL | 35209 | 945-8008 | Compliant | 20150081 |
| Milos | 604 Fieldstown Rd | NULL | Gardendale | AL | 35071 | 608-0050 | Compliant | 20150076 |
| Milos | 757 Academy Drive | NULL | Bessemer | AL | 35022 | NULL | Compliant | 20150079 |
| Milos | 6600 E J Oliver Blvd | NULL | Fairfield | AL | 35064 | 788-6456 | Compliant | 20150078 |
| Milos - Trussville | 5887 Trussville Crossings Pky | NULL | Trussville | AL | 35235 | 661-2100 | Compliant | 20150080 |
| Milos Hamburgers | 1530 Montclair Rd | NULL | Birmingham | AL | 35210 | 951-2889 | Compliant | 20150082 |
| Milos Hamburgers | 1455 Montgomery Hwy | NULL | Vestavia | AL | 35216 | NULL | Compliant | 20150084 |
| Milos Hamburgers | 1120 Forestdale Blvd | NULL | Birmingham | AL | 35214 | 798-6363 | Compliant | 20150411 |
| Milos Southside | 401 19th St S | NULL | Birmingham | AL | 35233 | 322-6456 | Compliant | 20150083 |
| Mings Garden | 1046 Main St | NULL | Gardendale | AL | 35071 | 631-7746 | Compliant | 20150820 |

| FSFNAME | FSFADDRESS | FSFADDRESS2 | FSFCITY | FSFSTATE | FSFZIP | FSFPHONE | STATUS | PERMITNO |
|---|---|---|---|---|---|---|---|---|
| Minit Man #101 Shell | 609 Allison-Bonnet Mem Dr | NULL | Dolomite | AL | 35061 | 744-6098 | Compliant | EXEMPT |
| Minitman #109 Deli | 2178 Eastern Valley Rd | NULL | Bessemer | AL | 35022 | 425-3678 | Compliant | EXEMPT |
| Minor Community School | 3006 Cora Ave | NULL | Birmingham | AL | 35224 | NULL | Compliant | 20153072 |
| Minor Elementary School | 2425 Avenue S | NULL | Birmingham | AL | 35218 | 231-7270 | Compliant | 20152566 |
| Minor High School | 2285 Minor Parkway | NULL | Adamsville | AL | 35005 | 379-2129 | Compliant | 20150822 |
| Minor High School Concession | 2285 Minor Parkway | Attn: Band Booster | Adamsville | AL | 35005 | 796-2263 | Non-compliant | 20102798 |
| Miss Myras Pit Bar-B-Que | 3278 Cahaba Heights Road | NULL | Birmingham | AL | 35243 | 967-6004 | Non-compliant | 20140515 |
| Mizu Japanese Steakhouse | 1483 Gadsden Highway | Ste 156 | Birmingham | AL | 35235 | 655-8077 | Compliant | 20153469 |
| Moe's Original BBQ | 731 29th Street South | NULL | Birmingham | AL | 35233 | 252-5888 | Compliant | 20150446 |
| Moe's Original BBQ "PERMIT INVALID" | 2520 Rocky Ridge Road | NULL | Birmingham | AL | 35243 | 205-381-4820 | Non-compliant | 20153540 |
| Moe's Original BBQ Trussville, LLC | 163 Main Street | NULL | Trussville | AL | 35173 | 508-5100 | Compliant | 20153530 |
| Moes Original BBQ | 181 Main Street | Ste 201 | Hoover | AL | 35244 | 205-985-8841 | Compliant | 20153558 |
| Moes Southwest Grill | 5870 Trussville Crossings Pky | NULL | Birmingham | AL | 35235 | NULL | Non-compliant | 20140524 |
| Moes Southwest Grill | 2737 Hwy 280 E | NULL | Mountain Brook | AL | 35223 | 445-0456 | Compliant | 20150638 |
| Moes Southwest Grill | 716 Montgomery Hwy | NULL | Vestavia | AL | 35216 | 824-7663 | Compliant | 20151378 |
| Moes Southwest Grill | 3670 Lorna Rd | NULL | Hoover | NULL | 35244 | 987-6163 | Compliant | 20151377 |
| Moes Southwest Grill | 231 State Farm Pky | NULL | Homewood | NULL | 35209 | 943-7942 | Compliant | 20151379 |
| Momma Goldberg's Deli | 2829 18Th Street South | NULL | Birmingham | AL | 35209 | 834-8871 | Compliant | EXEMPT |
| Momma Goldberg's Deli | 4170 Frank Street | NULL | Trussville | AL | 35173 | NULL | Compliant | EXEMPT |
| Moms Deli | 1101 4th Ave N | NULL | Bessemer | AL | 35020 | 424-6703 | Compliant | 20150116 |
| Montclair Early Learning Center, LLC | 1415 52Nd Street South | NULL | Birmingham | AL | 35213 | NULL | New Const. | Pending |
| Montgomery Grocery & Deli | 3148 33 Rd Terrace North | NULL | Birmingham | AL | 35207 | 205-849-7911 | Compliant | 20150387 |
| Moon Star | 191 W. Valley Avenue | Suite 108 | Birmingham | AL | 35209 | 940-7890 | Compliant | 20151103 |
| Mooyah Burgers & Fries | 3439 Colonnade Parkway | NULL | Birmingham | AL | 35243 | 205-655-3612 | Compliant | 20153391 |
| Mooyah Burgers, Fries, Shakes | 2112 7Th Ave South | NULL | Birmingham | AL | 35233 | NULL | Compliant | 20153554 |
| Morgan Road Cafe "INACTIVE" | 2508 Morgan Rd | NULL | Bessemer | AL | 35022 | 424-7500 | In-Collection | 20081289 |
| Mountain Brook Club | 19 Beechwood Rd | NULL | Mountain Brook | AL | 35213 | 871-2116 | Compliant | 20151073 |
| Mountain Brook Community Church | 3001 Hwy 280 E. | NULL | Birmingham | AL | 35243 | 205-802-7070 | Compliant | EXEMPT |
| Mountain Brook Creamery | 2715 Cahaba Rd | NULL | Mountain Brook | AL | 35223 | 870-0092 | Compliant | EXEMPT |
| Mountain Brook Elementary School | 3020 Cambridge Road | NULL | Mountain Brook | AL | 35223 | 871-4608 | Compliant | 20150825 |
| Mountain Brook Junior High School | 205 Overbrook Road | NULL | Mountain Brook | AL | 35213 | 871-4608 | Compliant | 20150827 |
| Mountain View Baptist Church/ School | 5568 Chalkville Mt. Rd | NULL | Birmingham | AL | 35235 | 854-2741 | Compliant | 20151222 |
| Mountaintop Community Life Center | 225 Centerview Drive | NULL | Vestavia | AL | 35216 | 776-8050 | Non-compliant | 20103052 |
| Mr. Chen Authentic Chinese Cooking | 1917 Hoover Court | NULL | Hoover | AL | 35226 | 907-2750 | Compliant | 20153009 |
| Mr. Hot Dog | 216 19th St N | NULL | Bessemer | AL | 35020 | NULL | Compliant | 20151235 |
| Mr. Sharks Fish & Chicken | 1837 Montgomery Hwy | Ste 103 | Hoover | AL | 35244 | 205-682-3211 | Compliant | 20153537 |
| Mr. Sharks Fish & Chicken | 254 Greensprings Hwy | NULL | Birmingham | AL | 35209 | 941-3331 | Compliant | 20153349 |
| Mr. Wangs Restaurant | 217 Lakeshore Parkway | NULL | Homewood | AL | 35209 | 945-9006 | Compliant | 20150106 |
| Mrs. B's Downtown, LLC | 328 16Th Street North | NULL | Birmingham | AL | 35203 | 801-5165 | Non-compliant | Pending |
| Mrs. Deannas Kindergarten Daycare | 3102 Allison Bonnet Memorial D | NULL | Birmingham | AL | 35023 | 205-306-5227 | Non-compliant | 20143594 |
| Mrs. Nadia's Cafe & Grill | 1806 Avenue V | NULL | Birmingham | AL | 35218 | 205-777-5411 | Non-compliant | 20133478 |
| Mrs. Winners/Sneaky Petes/Texaco | 1101 4th Avenue North | NULL | Birmingham, | AL | 35203 | 205-251-6663 | Non-compliant | 20130552 |
| Ms Bs On 4th Avenue "CLOSED" | 328 16th St N | NULL | Birmingham | AL | 35203 | NULL | In-Collection | NONE |
| Mt Royal Towers | 300 Royal Towers Dr | NULL | Birmingham | AL | 35209 | 870-5666 | Compliant | 20152817 |
| Mudtown Eat & Drink | 3144 Green Valley Road | NULL | Birmingham | AL | 35243 | 967-3300 | Non-compliant | 20110292 |
| Muffalettas Pizza And Pasta | 1810 9th Ave N | NULL | Bessemer | AL | 35020 | 424-9901 | Compliant | 20151095 |
| Mug Shots Grill & Bar | 1919 Kentucky Avenue | NULL | Vestavia Hills | AL | 35216 | 205-824-9030 | Compliant | 20153422 |
| Mundo Latino | 821 Graymont Avenue West | NULL | Birmingham | AL | 35204 | 205-788-5118 | Non-compliant | Pending |
| Munoz Mexican Grill | 7268 Gadsden Highway | Ste 116 | Trussville | AL | 35173 | 655-8224 | Compliant | 20153104 |
| Munoz Mexican Grill | 6662 Hwy 75 | NULL | Pinson | AL | 35126 | 681-6992 | Compliant | 20151421 |
| Murphy Oil USA Fueling Station (JCDH #21066 | Academy Drive | NULL | Bessemer | AL | 35022 | NULL | New Const. | Pending |
| N E Miles Jewish Day School | 4000 Montclair Road | NULL | Birmingham | AL | 35213 | 879-1068 | Compliant | 20151617 |
| Nabeels Imported Foods Deli | 1706 Oxmoor Rd | NULL | Homewood | AL | 35209 | 879-9292 | Compliant | 20150403 |
| Najis Restaurant | 166 West Valley Avenue | NULL | Birmingham | AL | 35209 | 945-7482 | Compliant | 20150529 |
| Nancys Diner | 412 Carson Rd N | NULL | Birmingham | AL | 35215 | 854-3979 | Compliant | 20150493 |
| National Guard/ 81st RSC Reset Project | 1900 Greensprings Hwy | NULL | Birmingham | AL | 35209 | NULL | Non-compliant | Pending |
| Negro Southern League Museum | 120 16Th Street South | NULL | Birmingham | AL | 35204 | NULL | New Const. | Pending |
| Nelson Bros. Cafe | 312 17th St N | NULL | Birmingham | AL | 35203 | 205-215-1701 | Compliant | 20150829 |
| New China | 27 Park Road | Ste 207 | Pleasant Grove | AL | 35127 | 785-2001 | Non-compliant | Pending |
| New China | 2142 Tyler Rd | NULL | Hoover | AL | 35226 | NULL | Compliant | 20150040 |
| New China Buffet #3 | 7307 Crestwood Blvd | NULL | Birmingham | AL | 35210 | 599-5558 | Compliant | 20152037 |
| New China One, Inc | 357 Walker Chapel Road | NULL | Fultondale | AL | 35068 | 205-849-9111 | Compliant | 20153377 |
| New China Way | 5220 Oporto Madrid Blvd | NULL | Birmingham | AL | 35210 | 595-5300 | Compliant | 20151482 |
| New Chinatown | 1020 20th Street S | NULL | Birmingham | AL | 35205 | 251-2373 | Compliant | 20150223 |
| New Hope Christian School | 1740 Cleburn Ave SW | NULL | Birmingham | AL | 35211 | 925-9393 | Non-compliant | 20142739 |
| New Merkle Senior Center | 4405 Dolly Ridge Rd | NULL | Birmingham | AL | 35243 | 967-5977 | Compliant | EXEMPT |
| New Pilgrim Pavilion | 708 Goldwire Place S W | NULL | Birmingham | AL | 35211 | 205-326-0923 | Non-compliant | 20133481 |
| New York Pizza | 1010 Oxmoor Rd | NULL | Homewood | AL | 35209 | NULL | Compliant | 20152996 |
| Newk's Eatery | 3780 Riverchase Village | Ste 1000 | Hoover | AL | 35244 | NULL | Compliant | 20153637 |
| Newks Express Cafe | 611 Richard Arrington Blvd. S. | NULL | Birmingham | AL | 35233 | NULL | Compliant | 20151034 |
| Newks Express Cafe - Vestavia Hills | 612 Montgomery Hwy #110 | NULL | Vestavia Hills | AL | 35216 | NULL | Compliant | 20153380 |
| Niki's Finley Avenue, Inc. | 233 Finley Avenue West | NULL | Birmingham | AL | 35204 | 252-5751 | Compliant | 20150471 |
| Nikis Seafood Restaurant | 1101 2nd Ave N | NULL | Birmingham | AL | 35203 | 251-1972 | Compliant | 20150831 |
| Nori Thai and Sushi | 4704 Cahaba River Road | NULL | Birmingham | AL | 35243 | 205-970-7570 | Compliant | 20153588 |
| North Highland Elementary | 2021 29th Avenue, North | NULL | Hueytown | AL | 35023 | 379-2129 | Compliant | 20150833 |
| North Hill Nursing & Rehab | 200 N Pine Hill Road | NULL | Birmingham | AL | 35217 | 849-2352 | Compliant | 20153532 |
| Northside Pool Room | 2719 29th Ave N | NULL | Birmingham | AL | 35207 | NULL | In-Collection | 20070842 |
| Northway Health & Rehab LLC | 1424 25th St N | NULL | Birmingham | AL | 35234 | 328-5870 | Compliant | 20151481 |
| Norwood Eloementary School | 3136 Norwood Blvd | NULL | Birmingham | AL | 35234 | NULL | New Const. | Pending |
| O' Charleys #305 | 1709 Fulton Rd | NULL | Fultondale | AL | 35068 | 849-6401 | Compliant | 20150844 |
| O' Charleys #506 | 109 Wildwood Pky | NULL | Homewood | AL | 35209 | 942-8001 | Non-compliant | 20150845 |
| O'Carrs Cahaba Heights | 3150 Cahaba Heights Village | NULL | Vestavia Hills | AL | 35243 | 967-4173 | Compliant | 20153167 |
| O'Carrs Deli | 2909 18th St S | NULL | Birmingham | AL | 35209 | 879-2196 | Compliant | 20153180 |
| O'Henry's Coffees | 569 Brookwood Village | Suite 101 | Birmingham | AL | 35209 | 945-8970 | Compliant | EXEMPT |
| O'Henry's Coffees | 2915 Highland Avenue | NULL | Birmingham | AL | 35205 | 205-945-8970 | New Const. | Pending |
| O'Henrys Coffees | 2831 18th Street S | NULL | Homewood | AL | 35209 | 870-1198 | Compliant | EXEMPT |
| Oak Hill Bar & Grill | 2835 18th Street S | NULL | Birmingham | AL | 35209 | 870-8277 | Compliant | 20150353 |
| Oak Knoll Health & Rehabilitation | 824 6th Ave West | NULL | Birmingham | AL | 35204 | 391-3600 | Compliant | 20151741 |
| Oak Trace Care & Rehab Center | 325 Selma Rd | NULL | Bessemer | AL | 35020 | 205-428-9383 | Compliant | 20151818 |
| Oaks On Parkwood | 2651 Laurel Oaks Drive | NULL | Bessemer | AL | 35022 | 497-4520 | Compliant | 20153023 |
| Oaks On Parkwood #2 The Orchard | 2575 Laurel Oak Drive | NULL | Bessemer | AL | 35022 | 205-497-4523 | Compliant | 20153587 |
| Ocean/26 | 1218 20th St S | NULL | Birmingham | AL | 35205 | 933-0999 | Compliant | 20150849 |
| Octane Coffee Bar | 2221 Richard Arrington Blvd No | NULL | Birmingham | AL | 35203 | 205-531-8162 | Compliant | EXEMPT |
| Oh Yes Wings | 1844 Bessemer Road | NULL | Birmingham | AL | 35208 | 205-929-0999 | Compliant | 20153313 |
| Okinawa Sushi & Hibachi Steakhouse | 148 Wildwood Parkway | NULL | Homewood | AL | 35209 | 205-917-1111 | Compliant | 20153336 |
| Old Smokey Barbecue, Inc. | 7323 Parkway Drive | NULL | Leeds | AL | 35094 | 699-7904 | Compliant | 20150364 |
| Olexas Cafe | 2838 Culver Road | NULL | Mountain Brook | AL | 35223 | NULL | Compliant | 20150392 |
| Oliver Elementary School | 6871 6th Ct South | NULL | Birmingham | AL | 35212 | 205-231-3852 | Compliant | 20153316 |
| Ollie Irene | 2713 Culver Road | NULL | Mountain Brook | AL | 35223 | 205-249-8722 | Compliant | 20153299 |
| On Tap Sports Cafe | 3440 Galleria Circle | NULL | Hoover | AL | 35244 | 988-3203 | Compliant | 20153166 |

| FSFNAME | FSFADDRESS | FSFADDRESS2 | FSFCITY | FSFSTATE | FSFZIP | FSFPHONE | STATUS | PERMITNO |
|---|---|---|---|---|---|---|---|---|
| On Tap Sports Cafe | 1600 Main Street | NULL | Fultondale | AL | 35068 | 205-745-4880 | Compliant | 20153387 |
| On Tap Sports Cafe-Lakeview | 737 29th St S | NULL | Birmingham | AL | 35233 | 320-1225 | Compliant | 20150714 |
| On The House Breakfast (The Tutwiler Hotel) | 2021 Park Pl N | NULL | Birmingham | AL | 35203 | 322-2100 | Compliant | EXEMPT |
| Open Door Cafe (CLOSED) | 1115 Dunston Ave | NULL | Birmingham | AL | 35213 | 334-300-0472 | In-Collection | 20070850 |
| Organic Harvest | 1580 Montgomery Hwy | Ste 12 | Hoover | AL | 35216 | 978-0318 | Compliant | EXEMPT |
| Oscar's At the Museum | 2000 8th Avenue North | NULL | Birmingham | AL | 35203 | 871-8494 | Compliant | 20153254 |
| Oscar's Quick Stop #2 | 3424 6Th Avenue South | NULL | Birmingham | AL | 35222 | 205-328-8778 | Non-compliant | 20133339 |
| Ossie Ware Mitchell School | 501 81st St S | NULL | Birmingham | AL | 35206 | 231-7270 | Compliant | 20152570 |
| Oteys | 224 Country Club Park | NULL | Mountain Brook | AL | 35213 | 871-8435 | Non-compliant | 20151067 |
| Our Lady Of Fatima | 630 1st St S | NULL | Birmingham | AL | 35205 | 251-8395 | Compliant | EXEMPT |
| Our Lady Of Sorrows School | 1720 Oxmoor Rd | NULL | Homewood | AL | 35209 | 879-3237 | Compliant | 20151099 |
| Our Place | 1218 Main St | NULL | Gardendale | AL | 35071 | 608-1030 | Compliant | 20151425 |
| Ousler Sandwiches | 2814 Cahaba Rd | NULL | Mountain Brook | AL | 35223 | 879-1115 | Compliant | EXEMPT |
| Outback Steak House #1256 | 1944 Hoover Ct | NULL | Hoover | AL | 35226 | 205-979-7585 | Compliant | 20150851 |
| Outback Steak House #1265 | 1725 Fulton Rd | NULL | Fultondale | AL | 35068 | 849-0155 | Compliant | 20151162 |
| Ovenbird Restaurant | 2810 3Rd Avenue South | NULL | Birmingham | AL | 35233 | NULL | New Const. | Pending |
| Overtime Bar | 100 Frankfurt Circle | Suite F & G | Birmingham | AL | 35211 | 329-5666 | Non-compliant | 20133156 |
| Oxmoor K-8 School | 3600 Sydney Drive | NULL | Birmingham | AL | 35211 | | Compliant | 20153418 |
| Oxmoor Mini Mart | 39 West Oxmoor | NULL | Birmingham | AL | 35209 | NULL | Compliant | EXEMPT |
| P F Changs | 233 Summit Blvd | NULL | Birmingham | AL | 35243 | 967-0040 | Compliant | 20150853 |
| P T's Pub & Grill | 1830 29Th Avenue South | Ste 160 | Birmingham | AL | 35209 | 205-746-6235 | Non-compliant | Pending |
| Pablo's Restaurant & Cantina | 3439 Colonnade Pky | NULL | Birmingham | AL | 35243 | NULL | Compliant | 20150856 |
| Pablo's Restaurant & Cantina | 2760 John Hawkins Pky | NULL | Hoover | AL | 35244 | 682-1211 | Compliant | 20151341 |
| Pacific Rim Sushi, LLC | 3076 John Hawkins Pkwy | NULL | Hoover | AL | 35244 | 256-525-1006 | Compliant | 20153191 |
| Pacific Seafood | 6021 1st Ave N | NULL | Birmingham | AL | 35212 | 591-1644 | Compliant | 20150857 |
| Paine Primary/Intermediate School | 7500 Gadsden Highway | NULL | Trussville | AL | 35173 | NULL | Compliant | 20151226 |
| Palace Chinese | 5899 Trussville Crossing Pky | #105 | Birmingham | AL | 35235 | NULL | Compliant | 20150354 |
| Paletas Lichita LLC | 277 West Valley Avenue | NULL | Birmingham | AL | 35209 | 205-540-4136 | New Const. | Pending |
| Panda Chinese Food | 6662 Highway 75 | NULL | Pinson | NULL | 35126 | 680-0920 | Compliant | 20150859 |
| Panda Express Restaurant | 3780 Lorna Road | Ste 1300 | Hoover | AL | 35244 | NULL | New Const. | Pending |
| Panera Bread #790 | 137 Summit Blvd | NULL | Birmingham | AL | 35243 | NULL | Compliant | EXEMPT |
| Panera Bread #804 | 161 Main St | NULL | Hoover | AL | 35244 | 402-0223 | Compliant | EXEMPT |
| Panera Bread #809 | 700 Montgomery Hwy | Ste 112 | Vestavia | AL | 35216 | 978-8910 | Compliant | EXEMPT |
| Papa John's #1268 | 266 Forest Road | NULL | Hueytown | AL | 35023 | 744-7272 | Compliant | EXEMPT |
| Papa John's #1498 | 1429 11th Avenue, S. | NULL | Birmingham | AL | 35205 | 933-6900 | Compliant | EXEMPT |
| Papa John's #1647 | 1118 N. Chalkville Road | NULL | Trussville | AL | 35173 | 661-9900 | Compliant | EXEMPT |
| Papa John's #1937 | 1615 Montgomery Hwy | NULL | Hoover | AL | 35216 | 8247272 | Compliant | EXEMPT |
| Papa John's #291 | 2505 Center Point Pkwy | NULL | Birmingham | AL | 35215 | 856-7272 | Compliant | EXEMPT |
| Papa John's #3419 | 2476 Palamino Lane | NULL | Adamsville | AL | 35005 | 856-7272 | Compliant | EXEMPT |
| Papa John's #368 | 736 Montgomery Highway | NULL | Vestavia | AL | 35216 | 978-7272 | Compliant | EXEMPT |
| Papa John's #542 | 9109 Parkway East | NULL | Birmingham | AL | 35206 | 833-7272 | Non-compliant | EXEMPT |
| Papa John's #591 | 4500 Montevallo Road | Ste A-108 | Birmingham | AL | 35210 | 951-7272 | Compliant | EXEMPT |
| Papa John's #787 | 6501 Aaron Aronov Dr. | NULL | Fairfield | AL | 35064 | 788-7272 | Compliant | EXEMPT |
| Papa John's #976 | 426 Decatur Highway | NULL | Gardendale | AL | 35071 | 608-7272 | Compliant | EXEMPT |
| Papa John's - Bessemer | 1201 Lake Drive S E | Ste 105 | Bessemer | AL | 35020 | NULL | New Const. | Pending |
| Papa Murphy's Take N Bake Pizza | 5250 Medford Drive | Ste 106 | Hoover | AL | 35244 | NULL | Non-compliant | Pending |
| Papa Murphys Take N Bake Pizza | 3014 Allison Bonnet Mem. Drive | Ste 108 | Hueytown | AL | 35023 | 491-7277 | Non-compliant | Pending |
| Papa Murphys Take N Bake Pizza | 1580 Montgomery Highway | Suite 6 | Hoover | AL | 35216 | 205-978-4832 | Compliant | EXEMPT |
| Papa Sal's | 6726 Old Springville Road | NULL | Pinson | AL | 35126 | 205-681-7257 | Non-compliant | Pending |
| Pappas Delicious Foods | 1066 Montgomery Hwy | NULL | Birmingham | AL | 35216 | 823-4458 | Non-compliant | EXEMPT |
| Paramount Bar | 200 North 20Th Street | NULL | Birmingham | AL | 35203 | 318-773-1267 | Compliant | 20153494 |
| Park Avenue Cafe | 571 Park Avenue | NULL | Hoover | AL | 35226 | 205-381-6195 | Non-compliant | Pending |
| Parker High School | 400 Abraham Woods Jr. Blvd | NULL | Birmingham | AL | 35204 | 231-7270 | Compliant | 20152571 |
| Parker High School Concession | 400 Abraham Woods Jr Blvd | NULL | Birmingham | AL | 35204 | 205-231-2370 | Non-compliant | EXEMPT |
| Parkside Cafe | 4036 5th Avenue South | NULL | Birmingham | AL | 35222 | 960-5885 | Compliant | EXEMPT |
| Parkwest Athletic Complex | 2277 Minor Pky | NULL | Adamsville | AL | 35005 | 368-6116 | In-Collection | NONE |
| Pasquales | 215 Fieldstown Rd | NULL | Gardendale | AL | 35071 | 631-5972 | Compliant | 20151343 |
| Pasquales | 5180 Old Springville Rd | NULL | Birmingham | AL | 35126 | 853-1004 | Compliant | 20150866 |
| Pastry Art Bake Shoppe | 1927 29th Ave S | NULL | Birmingham | AL | 35209 | 877-3852 | Compliant | EXEMPT |
| Patty's Lunch Box | 3979 Parkwood Road | Ste 103 | Bessemer | AL | 35022 | 205-436-2866 | Non-compliant | Pending |
| Pauls Hot Dogs & Grill | 5950 Chalkville Road | NULL | Birmingham | AL | 35235 | 655-8269 | Compliant | 20150542 |
| Paw Paw Patch | 410 Green Springs Hwy | NULL | Birmingham | AL | 35209 | 941-1117 | Compliant | 20150344 |
| Pazzo's Calzone Bakery | 1678 Montgomery Highway | Ste 101-A | Hoover | AL | 35244 | 205-383-3303 | Non-compliant | Pending |
| Peace Baptist Church - Riley | 3600 Jefferson Avenue Sw | NULL | Birmingham | AL | 35221 | 925-3763 | Compliant | EXEMPT |
| Peking Wok | 3421 South Shades Crest road | NULL | Hoover | AL | 35244 | 987-8788 | Compliant | 20151254 |
| Perry's Steakhouse & Grille | 3440 Highway 280 | NULL | Birmingham | AL | 35243 | NULL | Non-compliant | Pending |
| Peyton Place | 718 Graymont Ave N | NULL | Birmingham | AL | 35204 | 798-7189 | Compliant | 20151202 |
| Peyton Place Phase II (CLOSED) | 234 8th Ave W | NULL | Birmingham | AL | 35204 | 601-6987 | In-Collection | NONE |
| Phillips Academy School | 2316 7th Avenue N | NULL | Birmingham | AL | 35203 | 231-7270 | Compliant | 20150546 |
| Pho Pho Japanese & Sushi Bar | 1025 20Th Street South | NULL | Birmingham | AL | 35205 | 205- | Non-compliant | Pending |
| Pie Five Pizza Company | 4741 Chase Circle | Ste 117 | Hoover | AL | 35244 | 205-824-5060 | New Const. | Pending |
| Pieology Pizzeria | 325 Summit Blvd | NULL | Birmingham | AL | 35243 | 423-429-1107 | New Const. | Pending |
| Piggly Wiggly #211 | 3000 Montgomery Highway | NULL | Birmingham | AL | 35209 | NULL | Compliant | 20150252 |
| Piggly Wiggly Deli | 415 Caldwell Dr | NULL | Warrior | AL | 35180 | 647-3241 | Compliant | 20150869 |
| Piggly Wiggly Deli #260 | 3314 Clairmont Ave | NULL | Birmingham | AL | 35222 | 252-0684 | Compliant | 20151096 |
| Piggly Wiggly- Deli/Bakery #295 | 6730 Deerfoot Pky | NULL | Pinson | AL | 35173 | 681-3639 | Compliant | 20150870 |
| Pilot Travel Center #602 | 224 Daniel Payne Drive | NULL | Birmingham | AL | 35207 | 323-2177 | Compliant | 20153472 |
| Pinson Valley High School | 6895 North 75 Highway | NULL | Pinson | AL | 35126 | 379-2129 | Compliant | 20150872 |
| Pinson Valley Elementary School | 4200 School Dr | NULL | Pinson | AL | 35126 | 379-2129 | Compliant | 20150873 |
| Pinson Valley High School -Concess | 4200 School Drive | NULL | Pinson | AL | 35126 | NULL | Compliant | EXEMPT |
| Pinson Valley Hs Football | 6895 Highway 75 | NULL | Pinson | AL | 35126 | NULL | In-Collection | NONE |
| Pita Cafe/BNTI, Inc. | 2801 John Hawkins Pkwy | suite 137J | Birmingham | AL | 35244 | NULL | Compliant | 20150883 |
| Pita Loco, L.L.C. | 2000 Second Ave. N | NULL | Birmingham | AL | 35203 | 252-4899 | Compliant | 20150551 |
| Pita Stop Cafe | 1106 12th Street S | NULL | Birmingham | AL | 35205 | 328-2749 | Compliant | 20151429 |
| Pita Stop Express | 3908 Crosshaven Drive | NULL | Vestavia Hills | AL | 35243 | 969-7482 | Compliant | 20153238 |
| Pizitz Public Market | 1821 2Nd Avenue North | NULL | Birmingham | AL | 35203 | 205-939-3111 | New Const. | Pending |
| Pizza 120 | 2737 Hwy 280 | Ste 151 | Mountain Brook | AL | 35223 | 637-3103 | Compliant | 20153578 |
| Pizza Hut #1050 | 14 Greensprings Hwy | NULL | Homewood | AL | 35209 | 942-6535 | Non-compliant | EXEMPT |
| Pizza Hut #1051 | 873 Dennison Avenue Sw | Ste 121 | Birmingham | AL | 35211 | NULL | New Const. | Pending |
| Pizza Hut #1060 | 5388 Oporto Madrid Blvd | NULL | Birmingham | AL | 35210 | 592-7553 | Compliant | 20152777 |
| Pizza Hut #1080 | 829 North 8th Street | NULL | Bessemer | AL | 35020 | 205-426-1204 | Compliant | 20150885 |
| Pizza Hut #1090 | 1315 Forestdale Blvd | NULL | Birmingham | AL | 35214 | 798-6190 | Compliant | 20150887 |
| Pizza Hut #1101 | 3748 Lorna Rd | NULL | Hoover | AL | 35216 | 982-4811 | Compliant | 20150889 |
| Pizza Hut #1103 | 3044 Allison Bonnett Mem. Pkwy | NULL | Hueytown | AL | 35023 | 491-4889 | Compliant | 20150884 |
| Pizza Hut #1104 | 596 Fieldstown Rd | NULL | Gardendale | AL | 35071 | 631-3466 | Compliant | 20153028 |
| Pizza Hut #1107 | 1263 Greenmor Dr | NULL | Bessemer | AL | 35022 | 426-6006 | Compliant | 20150890 |
| Pizza Hut #1768 | 5950 Valley Rd | NULL | Trussville | AL | 35173 | 655-3676 | Compliant | 20151236 |
| Pizza Hut #1822 | 294 Cane Creek Rd | NULL | Warrior | AL | 35180 | 590-2215 | Compliant | 20150891 |
| Pizza Hut #4208 | 3173 Green Valley Rd | NULL | Vestavia | AL | 35243 | 978-8067 | Compliant | 20153498 |
| Pizza Hut #4213 | 431 20th St S | NULL | Birmingham | AL | 35233 | 323-1221 | Compliant | 20150893 |

| FSFNAME | FSFADDRESS | FSFADDRESS2 | FSFCITY | FSFSTATE | FSFZIP | FSFPHONE | STATUS | PERMITNO |
|---|---|---|---|---|---|---|---|---|
| Pizza Hut #4214 | 2312 John Hawkins Pky | NULL | Hoover | AL | 35244 | 403-9187 | Compliant | 20150355 |
| Pizza Hut Delivery #4202 | 2346 Centerpoint Pky | NULL | Birmingham | AL | 35215 | 205-856-5447 | Compliant | 20153457 |
| Pizza Hut Delivery #4203 | 9170 Parkway E | NULL | Birmingham | AL | 35206 | 205-836-4816 | Compliant | 20153458 |
| Pizza Hut Fairfield #1036 | 7100 Aaron Aronov Drive | NULL | Fairfield | AL | 35064 | 785-1722 | Compliant | 20150614 |
| Planet Smoothie | 2737 Hwy 280 | NULL | Mountain Brook | AL | 35223 | NULL | Non-compliant | 20070900 |
| Planet Smoothie | 2000 Riverchase Galleria | NULL | Hoover | AL | 35244 | 205-438-0784 | Compliant | EXEMPT |
| Platinum Of Birmingham Bar | 821 2nd Ave N | NULL | Birmingham | AL | 35203 | NULL | Non-compliant | 20070901 |
| Pleasant Grove Elementary School | 601 Park Road | NULL | Pleasant Grove | AL | 35127 | 379-2129 | Compliant | 20150902 |
| Pleasant Grove Middle School | 805 7th Ave | NULL | Pleasant Grove | AL | 35127 | 379-2129 | Compliant | 20150903 |
| Pleasant View Baptist Church | 9000 17Th Avenue North | NULL | Birmingham | AL | 35206 | 205-836-7570 | Non-compliant | 20123412 |
| Pollo Lucas | 3305 Lorna Road | Ste 11 | Hoover | AL | 35216 | 205-400-4006 | Non-compliant | Pending |
| Pollo Lucas "Inactive" | 3305 Lorna Rd | Ste 11 | Hoover | AL | 35216 | NULL | In-Collection | 20070904 |
| Pop Donuts | 1819 Centerpoint Pky | NULL | Center Point | AL | 35215 | 856-3980 | Compliant | 20153474 |
| Popeyes Chicken & Biscuit #13 | 4020 Airport Hwy | NULL | Birmingham | AL | 35222 | 591-1342 | Compliant | 20150905 |
| Popeyes Chicken & Biscuit #14 | 932 9th Ave | NULL | Bessemer | AL | 35020 | 426-0872 | Compliant | 20150906 |
| Popeyes Chicken & Biscuit #15 | 725 11th Ct W | NULL | Birmingham | AL | 35204 | 252-5761 | Compliant | 20150907 |
| Popeyes Chicken & Biscuit #16 | 2233 Bessemer Rd | NULL | Birmingham | AL | 35208 | 781-1785 | Compliant | 20150908 |
| Popeyes Chicken & Biscuit #53 | 361 Palisades Blvd | NULL | Birmingham | AL | 35209 | 802-7787 | Compliant | 20150909 |
| Popeyes Chicken & Biscuits #52 | 1717 Finley Blvd North | NULL | Birmingham | AL | 35204 | 714-8066 | Compliant | 20150910 |
| Popeyes Louisiana Kitchen | 1845 Centerpoint Pkwy | NULL | Birmingham | AL | 35215 | 205-637-5844 | Compliant | 20153309 |
| Pops 80 | 100 19Th Street North | NULL | Irondale | AL | 35210 | NULL | New Const. | Pending |
| Post Office Pies | 215 41St Street South | NULL | Birmingham | AL | 35222 | 205-223-5691 | Compliant | 20153534 |
| Pranzo Commissary | 3232 11Th Avenue North | NULL | Birmingham | AL | 35234 | 205-521-7200 | Non-compliant | Pending |
| Pranzo- Concord Center | 2100 3Rd Avenue North | Ste 100 | Birmingham | AL | 35205 | NULL | Non-compliant | Pending |
| Preschool Partners | 4447 Montevallo Road | NULL | Birmingham | AL | 35213 | 205-951-5151 | New Const. | Pending |
| Prince Of Peace School: Christian Catering Co. | 4650 Moss Creek Blvd | NULL | Hoover | AL | 35226 | 824-7886 | Compliant | 20151216 |
| Princeton Elementary School | 1425 2nd Ave W | NULL | Birmingham | AL | 35208 | 231-7270 | Compliant | 20152574 |
| PT's Pub & Grill/ Which Wich Superior Sandwiches | 1830 29th Avenue South | Suite #160 | Birmingham | AL | 35209 | 205-414-1000 | Non-compliant | 20133187 |
| Publix #165 | 411 Green Springs Hwy | NULL | Homewood | AL | 35209 | NULL | Compliant | 20150038 |
| Publix #839 | 2343 John Hawkins Pky | NULL | Hoover | AL | 35244 | NULL | Compliant | 20150034 |
| Publix #842 | 784 Montgomery Hwy | NULL | Vestavia | AL | 35216 | NULL | Compliant | 20150037 |
| Publix #1059 | 1325 Montclair Road | NULL | Birmingham | AL | 35210 | NULL | Compliant | 20150032 |
| Publix #1065 | 3014 Allison Bonnett Mem Dr | NULL | Hueytown | AL | 35023 | NULL | Compliant | 20150035 |
| Publix #1069 | 5150 Old Springville Road | NULL | Pinson | AL | 35126 | NULL | Compliant | 20150031 |
| Publix #1082 | 7272 Gadsden Hwy | NULL | Trussville | AL | 35173 | NULL | Compliant | 20150033 |
| Publix #1085 | 3141 Overton Rd | NULL | Mtn.Brook | AL | 35223 | NULL | Compliant | 20150036 |
| Publix #1200 | 4965 Colonial Promenade | NULL | Bessemer | AL | 35022 | NULL | Compliant | 20151485 |
| Publix #1206 | 655 Fieldstown Road | NULL | Gardendale | AL | 35071 | 205-608-4677 | Compliant | 20153595 |
| Publix #1207 | 1584 Montgomery Highway | NULL | Hoover | AL | 35226 | NULL | Compliant | 20152237 |
| Puerto Plata | 3641 Lorna Road | NULL | Hoover | AL | 35216 | 205-290-5339 | Non-compliant | Pending |
| Purple Onion | 479 Greensprings Hwy | NULL | Homewood | AL | 35209 | 941-9979 | Compliant | 20150911 |
| Purple Onion | 1551 Montgomery Hwy | NULL | Hoover | AL | 35216 | 822-7322 | Compliant | 20151383 |
| Purple Onion | 1717 10th Ave South | NULL | Birmingham | AL | 35205 | 933-2424 | Compliant | 20153040 |
| Putnam Middle School | 1757 Montclair Rd | NULL | Birmingham | AL | 35210 | 231-7270 | Compliant | 20152575 |
| Q U Bali, Inc dba Farmers Basket | 2000 Riverchase Galleria | NULL | Hoover | AL | 35244 | 988-3888 | Compliant | 20151315 |
| Quality Inn | 5021 Academy Lane | NULL | Bessemer | AL | 35022 | 205-428-3194 | Compliant | EXEMPT |
| Quality Inn | 4730 Norrell Drive | NULL | Trussville | AL | 35173 | 661-9323 | Compliant | EXEMPT |
| Quality Inn/Suites | 3910 Kilgore Memorial Drive | NULL | Birmingham | AL | 35210 | 281-2424 | Compliant | EXEMPT |
| Que Huong Vietnamese Resturant | 430 Greensprings Hwy | Ste 15 | Homewood | AL | 35209 | 942-5400 | Compliant | 20150918 |
| Quick Shop #20 | 1500 Lakeshore Pkwy | NULL | Birmingham | AL | 35211 | 205-703-9504 | Compliant | EXEMPT |
| Raceway #115 | 2460 Pinson Valley Parkway | NULL | Birmingham | AL | 35215 | 205-841-7171 | Compliant | EXEMPT |
| Raceway #6816 | 1823 19th Street North | NULL | Bessemer | AL | 35020 | 481-1603 | Compliant | 20153217 |
| Raceway #6823 | 802 Allison Bonnet Mem Dr | NULL | Heuytown | AL | 35023 | NULL | Non-compliant | Pending |
| Rafiki's Grill | 367 Valley Avenue | NULL | Birmingham | AL | 35209 | NULL | New Const. | Pending |
| Raggedy Anns Country Cafe | 1030 4th Ave N | NULL | Bessemer | AL | 35020 | 425-8415 | Compliant | 20150925 |
| Railroad Cafe | 1205 Lake Dr | NULL | Bessemer | AL | 35022 | 424-1073 | In-Collection | 20081144 |
| Railroad Park | 1600 1st Avenue South | NULL | Birmingham | AL | 35233 | 205-223-4013 | Compliant | EXEMPT |
| Rallys #4174 | 4030 1st Ave N | NULL | Birmingham | AL | 35222 | 592-8305 | Compliant | 20150276 |
| Rallys #4175 | 1420 31st St SW | NULL | Birmingham | AL | 35221 | 929-0570 | Compliant | 20150286 |
| Rallys #4176 | 2400 Centerpoint Pky | NULL | Center Point | AL | 35215 | 856-9011 | Compliant | 20150283 |
| Rallys #4183 | 636 Lomb Ave Sw | NULL | Birmingham | AL | 35211 | 785-1819 | Compliant | 20150278 |
| Rallys #4185 | 2520 12th Ave N | NULL | Birmingham | AL | 35234 | 323-0744 | Compliant | 20150284 |
| Rallys #4186 | 1601 9th Ave N | NULL | Bessemer | AL | 35020 | 424-3226 | Compliant | 20150285 |
| Rallys #4187 | 7736 1st Ave N | NULL | Birmingham | AL | 35206 | 836-3691 | Compliant | 20150291 |
| Rallys #4188 | 86 Wiebel Dr | NULL | Midfield | AL | 35228 | 925-9007 | Compliant | 20150287 |
| Ramsey High School | 1800 13th Ave S | NULL | Birmingham | AL | 35205 | 231-7270 | Compliant | 20152576 |
| Ranch House & Makarious Kabob & Grill, LLC | 2931 Columbiana Road | NULL | Birmingham | AL | 35216 | 205-979-6495 | Compliant | 20153607 |
| Ranellis Deli #2 | 1225 20th St S | NULL | Birmingham | AL | 35205 | 933-6983 | Compliant | EXEMPT |
| Rave Motion Pictures Patton Creek #15 | 4450 Creekside Ave | NULL | Hoover | AL | 35244 | 982-4770 | Compliant | EXEMPT |
| Rave Motion Pictures- Vestavia | 1911 Kentucky Ave | NULL | Vestavia | AL | 35216 | 978-3720 | Compliant | EXEMPT |
| Red Lantern | 311 Main St | NULL | Trussville | AL | 35173 | 655-0736 | Compliant | 20151470 |
| Red Lobster #0046 | 1030 Montgomery Highway | NULL | Vestavia Hills | AL | 35216 | 205-822-7240 | Compliant | 20153572 |
| Red Lobster #6376 | 3525 Roosevelt Boulevard | NULL | Birmingham | AL | 35235 | 205-661-1899 | Compliant | 20153573 |
| Red Mountain Coffee Roasters | 14 West Oxmoor Road | NULL | Birmingham | AL | 35209 | 945-8970 | Compliant | EXEMPT |
| Red Mountain Expresso | 2601 18Th Street | NULL | Birmingham | AL | 35209 | NULL | Non-compliant | Pending |
| Red Pearl Restaurant | 243 West Valley Ave | NULL | Homewood | AL | 35209 | NULL | Compliant | 20150269 |
| Red Robin Gourmet Burgers | 5029 Pinnacle Square | NULL | Trussville | AL | 35235 | NULL | Compliant | 20150420 |
| Red Rooster | 1620 Forestdale Blvd | NULL | Birmingham | AL | 35214 | 205-798-7878 | Non-compliant | Pending |
| Regency Retirement Village | 285 West Oxmoor | NULL | Birmingham | AL | 35209 | 942-3355 | Compliant | 20150115 |
| Regions Eurest Dining | 201 Milan Parkway | NULL | Birmingham | AL | 35211 | 420-5631 | Compliant | 20150288 |
| Regions Executive Dining Room | 1900 5th Avenue N | NULL | Birmingham | AL | 35203 | 326-5307 | Compliant | 20150244 |
| Regions Field | 1400 1St Avenue South | NULL | Birmingham | AL | 35233 | 205-987-8617 | Compliant | 20153453 |
| Regions Harbert Plaza | 1901 6th Ave. No. | Ste 1510 | Birmingham | AL | 35203 | 205-324-4711 | Compliant | 20153114 |
| Relish Cafe | 1561 Montgomery Hwy | NULL | Birmingham | AL | 35216 | 205-612-9135 | Compliant | 20153622 |
| Residence Inn | 2725 John Hawkins Parkway | NULL | Hoover | AL | 35244 | 864-706-3665 | Compliant | 20151720 |
| Residence Inn B'ham Downtown @ UAB | 821 20th Street South | NULL | Birmingham | AL | 35205 | 904-359-0045 | Compliant | 20153071 |
| Residence Inn By Marriott | 50 State Farm Parkway | NULL | Homewood | AL | 35209 | 943-0044 | Compliant | EXEMPT |
| Revelator Coffee Company | 1826 3Rd Avenue | Unit 101 | Birmingham | AL | 35203 | NULL | Compliant | 20153597 |
| Reyes Pizza Ice Cream & More | 5415 Beacon Drive | Ste 133 | Birmingham | AL | 35210 | 205-720-7908 | Compliant | EXEMPT |
| Rib-It-Up | 830 1st Ave N | NULL | Birmingham | AL | 35203 | 328-7427 | Non-compliant | 20070927 |
| Rickey Js Bakery | 6408 Old Springville Rd | NULL | Clay | AL | 35126 | 680-4999 | Compliant | EXEMPT |
| Rime Garden/Magnolia Grille | 5320 Beacon Drive | NULL | Birmingham | AL | 35210 | 951-1200 | Compliant | 20150246 |
| Rittenhouse Senior Living of Hoover | 570 Southland Drive | NULL | Birmingham | AL | 35226 | 823-2393 | Compliant | 20152978 |
| River Fish Market | 1928 Vanderbilt Road | NULL | Birmingham | AL | 35234 | 251-5064 | Compliant | 20153444 |
| Riverchase Village | 1851 Data Drive | NULL | Hoover | AL | 35226 | 982-7000 | Compliant | 20153070 |
| Roadside Bar-B-Que | 7303 1st Ave. N | NULL | Birmingham | AL | 35206 | 833-9616 | Compliant | 20150222 |
| Robbie's Miracle Christian Academy | 970 Forestdale Blvd | NULL | Birmingham | AL | 35214 | 205-862-2125 | Compliant | EXEMPT |
| Robert Waldrop Stadium | 266 Snow Drive | NULL | Homewood | AL | 35209 | 870-4203 | Compliant | 20150399 |
| Roberts Cuisine/Audreys | 10-A 6th Avenue S | NULL | Birmingham | AL | 35205 | 918-0356 | Non-compliant | 20141457 |
| Robinson Elementary School | 8400 1st Ave S | NULL | Birmingham | AL | 35206 | 231-7270 | Compliant | 20152578 |

| FSFNAME | FSFADDRESS | FSFADDRESS2 | FSFCITY | FSFSTATE | FSFZIP | FSFPHONE | STATUS | PERMITNO |
|---|---|---|---|---|---|---|---|---|
| Robinson School | 305 61st St | NULL | Fairfield | AL | 35064 | NULL | Compliant | 20152900 |
| Rock & Roll Sushi | 5078 Pinnacle Square | NULL | Birmingham | AL | 35173 | NULL | Non-compliant | Pending |
| Rocky Ridge Concession A | 2649 Old Rocky Ridge Rd | NULL | Hoover | AL | 35216 | 205-317-5587 | Compliant | 20153617 |
| Rocky Ridge Concession B | 2649 Old Rocky Ridge Rd | NULL | Hoover | AL | 35216 | 205-317-5587 | Compliant | 20153618 |
| Rocky Ridge Ele School | 2876 Old Rocky Ridge Rd | NULL | Birmingham | AL | 35243 | 229-5060 | Compliant | 20151001 |
| Rocky Ridge Retirement Residence | 3517 Lorna Rd | NULL | Birmingham | AL | 35216 | 989-6500 | Compliant | 20150929 |
| Rockys Pizza | 715 Richard Arrington Blvd | NULL | Birmingham | AL | 35233 | 252-8282 | Compliant | EXEMPT |
| Roebuck Chevron | 301 Robison Drive | NULL | Birmingham | AL | 35215 | NULL | New Const. | Pending |
| Roebuck Elks Lodge #2123 | 804 Gadsden Hwy | NULL | Birmingham | AL | 35235 | 833-1305 | Compliant | 20150930 |
| Rogue Tavern | 2312 2Nd Avenue North | NULL | Birmingham | AL | 35203 | 205-234-1755 | Non-compliant | Pending |
| Rojo | 2921 Highland Avenue | NULL | Birmingham | AL | 35205 | NULL | Compliant | 20150338 |
| Roller Coaster Pub & Grill | 2000 19th St South | NULL | Bessemer | AL | 35020 | NULL | In-Collection | 20070931 |
| Roller Motion Skate Center Inc | 2474 Morgan Rd | NULL | Bessemer | AL | 35022 | 424-7000 | Compliant | EXEMPT |
| Roly Poly | 2009 15th Ave S | NULL | Birmingham | AL | 35205 | NULL | Compliant | EXEMPT |
| Roly Poly | 180 Main St | NULL | Hoover | AL | 35244 | NULL | Compliant | EXEMPT |
| Roly Poly - Downtown | 313 20th St N | NULL | Birmingham | AL | 35203 | NULL | Compliant | EXEMPT |
| Romanos Macaroni Grill | 241 Summit Blvd | NULL | Birmingham | AL | 35243 | 205-298-7998 | Compliant | 20150933 |
| Romans Nightclub Bar & Grill | 700 Valley Avenue | Ste C | Birmingham | AL | 35209 | NULL | Non-compliant | Pending |
| Rosewood Hall By Michaels & More | 2850 19Th Street South | NULL | Homewood | AL | 35209 | 205-332-6119 | Non-compliant | Pending |
| Ross Bridge Resort | 4000 Grand Avenue | NULL | Hoover | AL | 35226 | 916-7677 | Compliant | 20150162 |
| Rowe's Service Station | 4100 4Th Avenue South | NULL | Birmingham | AL | 35222 | 205-410-6303 | Compliant | 20153631 |
| Royal India Cuisine & Grill | 1841 Montgomery Highway | NULL | Hoover | AL | 35244 | 703-8336 | Non-compliant | Pending |
| Ruby Tuesday #2615 | 2000 Riverchase Galleria | NULL | Hoover | AL | 35244 | 985-0218 | Compliant | 20150378 |
| Ruby Tuesday #3651 | 5957 Chalkville Mtn Rd | NULL | Trussville | AL | 35235 | 655-8284 | Compliant | 20150376 |
| Ruby Tuesday #4912 | 808 Academy Dr | NULL | Bessemer | AL | 35022 | 425-3152 | Compliant | 20150381 |
| Ruby's Cafe | 7763 2nd Avenue South | NULL | Birmingham | AL | 35206 | 205-833-0022 | Non-compliant | Pending |
| Rudd Middle School | 4526 Rudd School Drive | NULL | Pinson | AL | 35126 | 379-2129 | Compliant | 20150935 |
| Ruffner Ball Park / Irondale Concession Stand | 301 Ruffner Rd | NULL | Irondale | AL | 35210 | 223-8707 | Compliant | EXEMPT |
| Rusty's Barbeque | 7484 Parkway Drive | NULL | Leeds | AL | 35094 | 699-4766 | Compliant | 20152997 |
| Ruths Cafe | 4012 24th Street North | NULL | Birmingham | AL | 35207 | 205-983-7932 | Compliant | 20153547 |
| Ruths Chris Steakhouse | 2300 Woodcrest Pl | NULL | Birmingham | AL | 35209 | 879-9995 | Compliant | 20151175 |
| Rutledge Middle School | 1221 8th Street | NULL | Midfield | AL | 35228 | 923-2262 | Compliant | 20150388 |
| RX Catering | 2120 Columbiana Road | NULL | Birmingham | AL | 35216 | 999-2692 | Compliant | 20150001 |
| Ryan's #2462 | 838 Odum Rd | NULL | Gardendale | AL | 35071 | 608-0194 | Compliant | 20153170 |
| Sabor Latino | 112 Greensprings Hwy | NULL | Homewood | AL | 35209 | 942-9480 | Compliant | 20150936 |
| Safari Cafe | 2630 Cahaba Road | NULL | Birmingham | AL | 35223 | 879-0409 | Compliant | 20150030 |
| Saint Mark United Methodist Church | 2901 Columbiana Road | NULL | Birmingham | AL | 35216 | 205-822-5980 | Compliant | EXEMPT |
| Salem's Diner | 2913 18th St S | NULL | Birmingham | NULL | 35209 | 877-8797 | Compliant | 20152999 |
| Salvation Army | 1401 Shuttlesworth Drive | NULL | Birmingham | AL | 35234 | 252-8151 | Compliant | 20153002 |
| Salvation Army | 2130 11th Ave. N | NULL | Birmingham | AL | 35234 | 328-5656 | Compliant | 20150160 |
| Salvatores Pizza & Pasta | 2798 John Hawkins Parkway | Ste 108 | Hoover | AL | 35244 | 205-705-1854 | Non-compliant | Pending |
| Salvatores Pizza & Pasta | 1594 Montgomery Hwy | NULL | Hoover | AL | 35216 | 823-7206 | Compliant | 20151059 |
| Samford University Baseball Concession | 800 Lakeshore Drive | NULL | Birmingham | AL | 35209 | 256-399-5921 | Compliant | 20153569 |
| Samford University Beeson Ctr- Sodexo | 800 Lakeshore Drive | NULL | Birmingham | AL | 35209 | 256-399-5921 | Compliant | 20153566 |
| Samford University Field House | 869 Montague Drive | NULL | Birmingham | AL | 35209 | 726-4502 | Compliant | EXEMPT |
| Samford University Football Concession | 800 Lakeshore Drive | NULL | Birmingham | AL | 35209 | 256-399-5921 | Compliant | 20153568 |
| Samford University Sodexo Einstein's | 800 Lakeshore Drive | NULL | Birmingham | AL | 35209 | 205-726-2480 | Compliant | 20153629 |
| Samford University The Rotunda- Sodexo | 800 Lakeshore Drive | NULL | Birmingham | AL | 35209 | 256-399-5921 | Compliant | 20153567 |
| Sammys Hot Dogs | 7883 Crestwood Blvd | NULL | Birmingham | AL | 35210 | 956-4364 | Non-compliant | 20130409 |
| Sammys Sandwich Shop | 4921 Airport Hwy | NULL | Birmingham | AL | 35212 | 591-1462 | Compliant | 20152017 |
| Sams Cafe "CLOSED" | 1431 Old Finley Ave | NULL | Birmingham | AL | 35204 | 252-9326 | In-Collection | 20070939 |
| Sams Club #4724 | 3053 Hwy 150 | NULL | Hoover | AL | 35244 | 479-204-2324 | Compliant | 20150205 |
| Sams Club #4817 | 5940 Trussville Crossing Pky | NULL | Birmingham | AL | 35235 | 479 204-2324 | Compliant | 20150206 |
| Sams Club #8212 | 3900 Kilgore Memorial Pky | NULL | Irondale | AL | 35210 | 479-204-2324 | Compliant | 20150207 |
| Sams Club #8247 | 201 Lakeshore Pky | NULL | Homewood | AL | 35209 | 479-204-2324 | Compliant | 20150208 |
| Sams Deli & Grill | 932 Oxmoor Rd | NULL | Homewood | AL | 35209 | 871-0383 | In-Collection | 20070940 |
| Sams Super Sandwiches | 2812 18th St S | NULL | Birmingham | AL | 35209 | 871-0046 | Compliant | EXEMPT |
| San Antonio Grill | 4760 Eastern Valley Rd | NULL | Mccalla | AL | 35111 | 477-1110 | Compliant | 20151501 |
| San Miguel Mexican Restaurant | 201 Greensprings Hwy | NULL | Birmingham | AL | 35209 | 942-1740 | Non-compliant | 20140541 |
| Sanpeggios Pizza | 7270 Gadsden Hwy | NULL | Trussville | AL | 35173 | 205-655-3399 | Compliant | EXEMPT |
| Sanpeggios Pizza | 3435 South Shades Crest Road | NULL | Hoover | AL | 35244 | 403-0100 | Compliant | 20151258 |
| Sarris Restaurant | 600 31st St N | NULL | Birmingham | AL | 35203 | 252-7357 | Compliant | 20150191 |
| Satterfields Restaurant | 3161 Cahaba Heights Rd | NULL | Vestavia | AL | 35243 | 298-0371 | Compliant | 20150159 |
| Savages Bakery | 2916 18th St S | NULL | Birmingham | AL | 35209 | NULL | Compliant | EXEMPT |
| Save A Lot Food Stores | 873 Dennison Avenue | NULL | Birmingham | AL | 35211 | 205-581-1631 | Compliant | EXEMPT |
| Saw's BBQ Inc | 1008 Oxmoor Road | NULL | Birmingham | AL | 35209 | 879-1937 | Compliant | 20153159 |
| Saw's Juke Joint | 1115 Dunston Avenue | NULL | Birmingham | AL | 35213 | 205-745-3920 | Compliant | 20153373 |
| Saws Soul Food | 215 41St Street South | NULL | Birmingham | AL | 35222 | NULL | New Const. | Pending |
| Scott's Koney's | 2021 3rd Avenue South | NULL | Birmingham | AL | 35233 | 323-1783 | Compliant | 20151013 |
| Sea Land | 8236 Rugby Avenue | NULL | Birmingham | AL | 35206 | 836-9034 | Non-compliant | Pending |
| Seafood & Chicken Box | 5954 Chalkville Mountain Road | Suite 200 | Trussville | AL | 35235 | 853-7414 | Compliant | 20153128 |
| Seasons 52 #4525 | 245 Summit Blvd | NULL | Birmingham | AL | 35243 | 205-968-5152 | Compliant | 20153445 |
| Seattle Drip Coffee Company "CLOSED" | 2601 18th Street | NULL | Birmingham | AL | 35209 | 936-3301 | In-Collection | NONE |
| Sekisui Of Vestavia Hills LLC | 700 Montgomery Hwy | Suite 178 | Vestavia | AL | 35216 | 978-7775 | Compliant | 20150855 |
| Self Health Care & Rehab Center | 131 East Crest Road | NULL | Hueytown | AL | 35023 | 491-2411 | Compliant | 20151284 |
| Seoul | 430 Greensprings Hwy | NULL | Homewood | AL | 35209 | 945-8007 | Compliant | 20151371 |
| Shades Cahaba Elementary School | 3001 Independence Drive | NULL | Homewood | AL | 35209 | 870-4203 | Compliant | 20150397 |
| Shades Crest Shell/Sneaky Pete's | 3401 Shades Crest Road | NULL | Hoover | AL | 35244 | 601-2727 | Compliant | 20153251 |
| Shades Mountain Elem. School | 2250 Sumpter St | NULL | Hoover | AL | 35226 | 229-5060 | Compliant | 20150997 |
| Shades Mtn Ball Park (lower) | 1211 Al Seier Rd | NULL | Hoover | AL | 35226 | NULL | Compliant | 20153219 |
| Shades Mtn Ball Park (main) | 1211 Al Seier Rd | NULL | Hoover | AL | 35226 | 444-7876 | Compliant | 20153218 |
| Shades Mtn Independent Church/School | 2281 Old Tyler Rd | NULL | Hoover | AL | 35226 | 978-6000 | Compliant | 20153004 |
| Shades Valley Fball Soccer Con | 6100 Old Leeds Rd | Attn: Accounts Payable | Irondale | AL | 35210 | 379-5359 | Compliant | EXEMPT |
| Shades Valley High Baseball | 6100 Old Leeds Rd | Attn: Accounts Payable | Irondale | AL | 35210 | 379-5350 | Compliant | EXEMPT |
| Shades Valley High School | 6100 Old Leeds Road | NULL | Irondale | AL | 35210 | 379-2129 | Compliant | 20150944 |
| Shanghai Restaurant | 156 River Square Plaza | NULL | Hueytown | AL | 35023 | 205-491-4422 | Compliant | 20153503 |
| Shangri-La Restaurant | 4500 Montevallo Road | Ste 103 B | Birmingham | AL | 35210 | NULL | Compliant | 20150190 |
| Sharks Fish & Chicken | 7001 Crestwood Blvd | #1012 | Birmingham | AL | 35210 | 703-9555 | Non-compliant | Pending |
| Sharks Fish & Chicken | 7700 1st Ave N | NULL | Birmingham | AL | 35206 | 836-9999 | Non-compliant | 20153064 |
| Sharks Fish & Chicken | 1400 9Th Avenue North | Ste 136 | Bessemer | AL | 35020 | 205-887-3829 | Compliant | 20153497 |
| Sharks Fish & Chicken | 814 3Rd Avenue West | NULL | Birmingham | AL | 35204 | 786-2000 | Non-compliant | Pending |
| Shell Finley (CLOSED; NEW OWNER) | 1901 Finley Blvd | NULL | Birmingham | AL | 35234 | 205-387-2289 | In-Collection | 20070946 |
| Shepherd of the Valley Presbyterian Church | 5081 Eastern Valley Road | NULL | McCalla | AL | 35111 | 205-481-4964 | Non-compliant | 20143546 |
| Sheraton Bham Hotel/Casey's Sports/Ballroom | 2101 Richard Arrington Jr Blvd | NULL | Birmingham | AL | 35203 | 238-8506 | Compliant | 20150948 |
| Sherry's | 5800 Valley Road | Ste 110 | Birmingham | AL | 35235 | NULL | Compliant | 20153331 |
| Shipley Donuts | 2050 Greenvale Road | NULL | Hoover | AL | 35216 | 822-2142 | Compliant | 20153155 |
| Shonos Restaurant | 1843 Montgomery Hwy | Ste 107 | Hoover | AL | 35244 | 403-2742 ext 12 | Compliant | 20151148 |
| Shooters | 821 Allison Bon. Mem. Dr. | NULL | Hueytown | AL | 35023 | 744-2277 | Compliant | 20151150 |
| Shrimp Basket | 7756 Crestwood Blvd | NULL | Birmingham | AL | 35210 | 251-968-8639 | Non-compliant | Pending |
| Silver Coin India Grill | 3321 Lorna Road | Suite 13 | Hoover | AL | 35216 | 823-9070 | Compliant | 20150383 |

| FSFNAME | FSFADDRESS | FSFADDRESS2 | FSFCITY | FSFSTATE | FSFZIP | FSFPHONE | STATUS | PERMITNO |
|---|---|---|---|---|---|---|---|---|
| Silvertron Cafe | 3813 Clairmont Ave | NULL | Birmingham | AL | 35222 | 591-3707 | Compliant | 20151195 |
| Simmons Middle School | 1575 Patton Chapel Rd | NULL | Hoover | AL | 35226 | 229-5060 | Compliant | 20151000 |
| Sinbad Restaurant | 401 19th St S | NULL | Birmingham | NULL | 35233 | 714-9991 | Non-compliant | 20130949 |
| Sitar Indian Restaurant | 729 20th Street South | NULL | Birmingham | AL | 35233 | 323-6500 | Non-compliant | 20123348 |
| Skate Station Of Trussville | 411 Watterson Ln | NULL | Trussville | AL | 35173 | 655-1800 | Compliant | EXEMPT |
| Sleep Inn | 1259 Greenmor Drive | NULL | Bessemer | AL | 35022 | 424-0000 | Compliant | EXEMPT |
| Slice Pizzeria | 725 29th Street S | NULL | Birmingahm | AL | 35233 | 205-244-7657 | Non-compliant | 20113302 |
| Smith Middle School | 1124 Five Mile Rd | NULL | Birmingham | AL | 35215 | 231-7270 | Compliant | 20152579 |
| Smokehouse Restaurant | 348 Finley Ave | NULL | Birmingham | AL | 35204 | 323-6427 | Compliant | 20150297 |
| Smoothie King (Nola Nutrition, Inc.) | 1926 28th Avenue S | NULL | Birmingham | AL | 35209 | 870-9771 | Compliant | EXEMPT |
| Snack Shack | 1200 9th Ave N | NULL | Bessemer | NULL | 35020 | 205-426-4069 | Compliant | EXEMPT |
| Snapper Fish | 508 Jefferson Blvd | NULL | Birmingham | AL | 35217 | 205-582-9688 | Non-compliant | Pending |
| Snapper Grabbers Seafood Mkt | 521 Montgomery Hwy | NULL | Vestavia | AL | 35216 | NULL | Compliant | EXEMPT |
| Sneaky Pete's | 3505 6th Avenue South | NULL | Birmingham | AL | 35222 | 254-9762 | Compliant | 20150754 |
| Sneaky Pete's - Bessemer | 1901 2 nd Avenue North | NULL | Bessemer | AL | 35020 | 205-424-4036 | Compliant | 20153384 |
| Sneaky Pete's Fairfield | 7070 Aaron Aronov Drive | NULL | Fairfield | AL | 35064 | 786-7524 | Compliant | 20150554 |
| Sneaky Petes | 1570 Forestdale Blvd | NULL | Birmingham | AL | 35214 | 798-0610 | Compliant | 20151480 |
| Sneaky Petes | 439 Fieldstown Road | NULL | Gardendale | AL | 35071 | 631-2259 | Compliant | 20153435 |
| Sneaky Petes | 1905 Park Place | NULL | Birmingham | AL | 35203 | 326-3647 | Compliant | 20150952 |
| Sneaky Petes "PERMIT INVALID" | 7200 Gadsden Highway | NULL | Trussville | AL | 35173 | 913-8905 | Non-compliant | 20143163 |
| Sneaky Petes #12 ( CLOSED) | 3401 Shades Crest Rd S | NULL | Birmingham | AL | 35244 | NULL | In-Collection | 20070958 |
| Sneaky Petes #3 | 1550 Montgomery Hwy | NULL | Hoover | AL | 35216 | 979-9482 | Compliant | 20151370 |
| Sneaky Petes (Powderly) | 1500 31st St SW | NULL | Birmingham | AL | 35211 | 205-923-1800 | Compliant | 20150694 |
| Sneaky Petes Hot Dogs | 240 Oxmoor Circle | #107 | Homewood | AL | 35209 | 942-7294 | Compliant | 20150187 |
| Sneaky Petes Hot Dogs | 2716 Culver Road | NULL | Mountain Brook | AL | 35223 | 879-8723 | Compliant | 20150185 |
| Sneaky Petes Hot Dogs | 70 Greensprings Hwy | NULL | Homewood | AL | 35209 | 945-1519 | Compliant | 20150186 |
| Social Security Admin. Ctr | 1200 8th Ave. N | NULL | Birmingham | AL | 35203 | 205-545-2020 | Compliant | 20151977 |
| Sol Azteca | 1360 Montgomery Hwy | NULL | Vestavia | AL | 35216 | 979-4902 | Non-compliant | 20150915 |
| Sol's Sandwich Shop and Deli | 2 20th Street N | Ste 120 | Birmingham | AL | 35203 | 320-1995 | Non-compliant | 20102257 |
| Sols Hot Dogs | 3002 12th Ave N | NULL | Birmingham | AL | 35234 | 254-9097 | Non-compliant | 20140961 |
| Something Sweet | 4913 5Th Avenue South | NULL | Birmingham | AL | 35222 | NULL | Non-compliant | Pending |
| Sonic Americas Drive-In | 313 Valley Ave | NULL | Birmingham | AL | 35209 | 945-9622 | Compliant | 20150124 |
| Sonic Drive In | 7701 Parkway Dr | NULL | Leeds | AL | 35094 | 699-5525 | Compliant | 20150125 |
| Sonic Drive In | 2408 Center Point Pky | NULL | Birmingham | AL | 35215 | 856-3183 | Compliant | 20150122 |
| Sonic Drive In | 1353 Montclair Road | NULL | Birmingham | AL | 35210 | 956-6061 | Compliant | 20150126 |
| Sonic Drive In of Adamsville | 143 Foust Court | NULL | Adamsville | AL | 35005 | 205-798-4477 | Compliant | 20153356 |
| Sonic Drive In of Bessemer | 732 Academy Drive | NULL | Bessemer | AL | 35022 | 205-428-2002 | Compliant | 20153354 |
| Sonic Drive In of Fairfield | 6625 Aaron Aronov Drive | NULL | Fairfield | AL | 35064 | 205-780-0330 | Compliant | 20153355 |
| Sonic Drive In of Gardendale | 1020 Decatur Highway | NULL | Gardendale | AL | 35071 | 205-608-0228 | Compliant | 20153358 |
| Sonic Drive In of Hueytown | 3040 Allison Bonnett Mem Drive | NULL | Hueytown | AL | 35023 | 205-497-1007 | Compliant | 20153357 |
| Sonic Drive-In | 9829 Parkway E | NULL | Birmingham | AL | 35215 | 853-0355 | Compliant | 20150123 |
| Sonic Drive-In | 308 Main St | NULL | Trussville | AL | 35173 | 655-5228 | Compliant | 20150127 |
| Soul 2 Soul Cafe | 1809 Jefferson Ave S W | NULL | Birmingham | AL | 35211 | 205-923-2434 | Non-compliant | Pending |
| South Hampton Elementary School | 565 Sheridian Rd | NULL | Birmingham | AL | 35214 | 231-7270 | Compliant | 20152580 |
| South Haven Health & Rehabilitation LLC | 3141 Old Columbiana Road | NULL | Hoover | AL | 35226 | 822-1580 | Compliant | 20152820 |
| South Health and Rehab | 1220 17th St S | NULL | Birmingham | AL | 35205 | 933-2180 | Compliant | 20152277 |
| South Shades Crest Elementary | 3770 South Shades Crest Rd | NULL | Hoover | AL | 35244 | 229-5060 | Compliant | 20150999 |
| Southeast Meat & Vegetable, Inc. | 1751 Pinson Valley Parkway | NULL | Tarrant | AL | 35217 | 808-9924 | Compliant | EXEMPT |
| Southern Caribbean | 1316 Bessemer Road | NULL | Birmingham | AL | 35208 | 923-0197 | Non-compliant | Pending |
| Southern Foodservice Mgmt | 15 20th Street South | @BBVA Compass Daniel | Birmingham | AL | 35233 | 297-7810 | Non-compliant | 20140189 |
| Southern Legacy BBQ & Brew | 2943 John Hawkins Pky | NULL | Hoover | AL | 35244 | 988-0744 | Compliant | 20151157 |
| Southern Progress | 2100 Lakeshore Drive | NULL | Birmingham | AL | 35209 | 445-6733 | Non-compliant | 20130003 |
| Southern Style Cafe | 400 Pinson Valley Parkway | NULL | Birmingham | AL | 35217 | 205-639-1751 | Non-compliant | Pending |
| Spare Time Entertainment | 3600 Roosevelt Blvd | NULL | Birmingham | AL | 35235 | 205-655-4500 | Non-compliant | Pending |
| Special Designs Productions Co | P O Box 13281 | NULL | Birmingham | AL | 35203 | NULL | New Const. | Pending |
| Speedys Mexican Foods | 275 Forest Rd | NULL | Hueytown | AL | 35023 | NULL | Compliant | 20150595 |
| Splash Adventure Candy Shop | 5150 Prince St | NULL | Bessemer | AL | 35022 | 481-4750 | Compliant | EXEMPT |
| Splash Adventure Chubbies BBQ | 5051 Prince St | NULL | Bessemer | AL | 35022 | 481-4750 | Compliant | 20153175 |
| Splash Adventure Dusty's Chicken | 5150 Prince St | NULL | Bessemer | AL | 35022 | 481-4750 | Compliant | 20152972 |
| Splash Adventure Funnel Cake House | 5150 Prince St | NULL | Bessemer | AL | 35022 | 481-4750 | Compliant | 20152976 |
| Splash Adventure Mama Lizetti's | 5150 Prince St | NULL | Bessemer | AL | 35022 | 481-4750 | Compliant | EXEMPT |
| Splash Adventure Pepsi Corner/ Soft Serve | 5150 Prince St | Attn John Patterson | Bessemer | AL | 35022 | 481-4750 | Compliant | EXEMPT |
| Splash Adventure Ricky's Backstage | 5150 Prince St | NULL | Bessemer | AL | 35022 | 481-4750 | Compliant | 20152975 |
| Splash Adventure Surfside Grill | 5150 Prince St | NULL | Bessemer | AL | 35022 | 481-4750 | Compliant | 20152973 |
| Splash Adventure The Tavern & Deli | 5150 Prince St | NULL | Bessemer | AL | 35022 | 481-4750 | Compliant | EXEMPT |
| Splash Adventure V I P Cafe | 5051 Prince St | NULL | Bessemer | AL | 35022 | 205-481-4750 | Compliant | 20153279 |
| Sportsters Bar & Grill | 242 Forest Road | NULL | Hueytown | AL | 35023 | 744-6292 | Compliant | 20153262 |
| Spring Gardens Nutrition Center | 201 Spring Gardens Road | NULL | Birmingham | AL | 35217 | 841-5032 ext 23 | Compliant | 20151678 |
| Springhill Suites | 3950 Colonnade Pkwy | NULL | Birmingham | AL | 35243 | 205-969-8099 | Compliant | EXEMPT |
| Springhill Suites (Marriott) | 2024 4Th Avenue South | NULL | Birmingham | AL | 35233 | 205-322-8600 | Non-compliant | Pending |
| Sprouts Farmers Market | 1031 Montgomery Hwy | Ste 101 | Vestavia Hills | AL | 35216 | NULL | New Const. | Pending |
| Sprouts Farmers Market | 5250 Medford Drive | Ste 120 | Hoover | AL | 35226 | NULL | Compliant | 20153634 |
| St Aloysius Catholic School | 751 Academy Dr | NULL | Bessemer | NULL | 35022 | 425-0045 | Compliant | 20152357 |
| St Vincents Hospital | 810 St Vincents Dr | | Birmingham | AL | 35205 | 205-939-7854 | Compliant | 20150975 |
| St Vincents Hospital East | 50 Medical Park Dr E | NULL | Birmingham | AL | 35235 | 838-3000 | Non-compliant | 20143063 |
| St. Barnabas School Lunch Program | 7901 1St Ave North | NULL | Birmingham | AL | 35206 | 836-5385 | Compliant | 20151817 |
| St. Francis Xavier School | 2 Xavier Cir | NULL | Birmingham | AL | 35213 | 871-1687 | Compliant | EXEMPT |
| St. Martins In The Pines Retir | 4941 Montevallo Rd | NULL | Birmingham | AL | 35210 | 314-4105 | Compliant | 20151419 |
| St. Martins In The Pines, Apts | 4941 Montevallo Rd | NULL | Birmingham | AL | 35210 | 314-4105 | Compliant | 20153083 |
| St. Paul United Meth Ch-Comm | 1500 6th Ave N | NULL | Birmingham | AL | 35203 | 252-3236 | Compliant | EXEMPT |
| Starbucks | 5180 Medford Dr | Ste 108 | Hoover | AL | 35244 | 205- | New Const. | Pending |
| Starbucks Building Shell | 659 Fieldstown Road | NULL | Gardendale | AL | 35071 | NULL | Compliant | EXEMPT |
| Starbucks Coffee | 231 State Farm Pky | NULL | Homewood | AL | 35209 | NULL | Compliant | EXEMPT |
| Starbucks Coffee | 1582 Montgomery Highway | NULL | Hoover | AL | 35226 | 206-318-1575 | Compliant | EXEMPT |
| Starbucks Coffee #13779 | 1658 Montclair Road | NULL | Birmingham | AL | 35210 | 870-4472 | Compliant | EXEMPT |
| Starbucks Coffee #3453 | 1420 Gadsden Hwy | NULL | Trussville | AL | 35235 | 661-3201 | Compliant | EXEMPT |
| Starbucks Coffee #6964 | 3032 John Hawkins Pky | NULL | Hoover | AL | 35244 | 985-0622 | Compliant | EXEMPT |
| Starbucks Coffee #8396- Munger Bldg | 1927 11th Ave S | NULL | Birmingham | AL | 35205 | NULL | Compliant | EXEMPT |
| Starbucks Coffee #8418 | 2738 Cahaba Rd | NULL | Mountain Brook | AL | 35223 | NULL | Compliant | EXEMPT |
| Starbucks Coffee #8488 | 3000 Riverchase Galleria | NULL | Hoover | AL | 35244 | NULL | Compliant | EXEMPT |
| Starbucks Coffee #8560 | 700 Montgomery Hwy | Suite 100 | Vestavia | AL | 35216 | 978-2892 | Compliant | EXEMPT |
| Starbucks Coffee #9587 | 3134 Cahaba Heights Rd | NULL | Vestavia | AL | 35243 | 298-7946 | Compliant | EXEMPT |
| Starz Karaoke Lounge | 710 Valley Ave | NULL | Birmingham | AL | 35209 | 944-0077 | Compliant | EXEMPT |
| State Farm Regional Office | 100 State Farm Parkway | NULL | Birmingham | AL | 35209 | 916-7050 | Compliant | 20150188 |
| Station 121 | 2000 2Nd Avenue South | NULL | Birmingham | AL | 35233 | 205-320-5277 | Non-compliant | Pending |
| Steak & Shake | 1817 Montgomery Hwy South | NULL | Birmingham | AL | 35216 | 982-5787 | Non-compliant | Pending |
| Steak Out | 1717 28th Ave. S | NULL | Birmingham | AL | 35209 | 586-2929 | Compliant | 20150408 |
| Steel City Bar & Grill- Airport | 5000 Richard Arrington Blvd No | NULL | Birmingham | AL | 35212 | 205-313-2853 | Non-compliant | 20143553 |
| Steppers & Walkers Lounge "CLOSED" | 2223 4th Ave N | NULL | Birmingham | AL | 35203 | NULL | In-Collection | NONE |
| Stix Restaurant | 3250 Galleria Circle | NULL | Hoover | AL | 35244 | 205-982-3070 | Compliant | 20153560 |

| FSFNAME | FSFADDRESS | FSFADDRESS2 | FSFCITY | FSFSTATE | FSFZIP | FSFPHONE | STATUS | PERMITNO |
|---|---|---|---|---|---|---|---|---|
| Stix Restaurant | 3405 Lowery Parkway | NULL | Fultondale | AL | 35068 | 205-621-7988 | Compliant | 20151578 |
| Stoisor Realties, LLC | 1820 Gadsden Highway | NULL | Trussville | AL | 35235 | 205-423-5467 | Compliant | 20153417 |
| Stop N Shop Square Deli | 1200 14th St Ensley | NULL | Birmingham | AL | 35218 | 788-4411 | In-Collection | 20082857 |
| Su's Brunch | 2 Metroplex Dr | Suite 101 | Birmingham | AL | 35209 | 871-8279 | Non-compliant | 20153008 |
| Subway | 6662 Hwy 75 S | NULL | Pinson | AL | 35126 | NULL | Compliant | EXEMPT |
| Subway | 1205 Lake Dr | Ste 105 | Bessemer | AL | 35022 | 426-9191 | Compliant | EXEMPT |
| Subway | 4643 Camp Coleman Road | NULL | Trussville | AL | 35173 | 205-907-4821 | Compliant | EXEMPT |
| Subway | 1518 9th Ave N | Suite 120 | Bessemer | AL | 35020 | 425-7827 | Compliant | EXEMPT |
| Subway | 4024 Veterans Memorial Drive | NULL | Adamsville | AL | 35005 | NULL | Compliant | EXEMPT |
| Subway | 841 Odum Rd | NULL | Gardendale | AL | 35071 | 631-1176 | Compliant | EXEMPT |
| Subway | 1628 Crestwood Blvd | NULL | Birmingham | AL | 35210 | 205-999-2304 | Compliant | EXEMPT |
| Subway #10981 | 849 Dennison Ave Sw | NULL | Birmingham | AL | 35211 | 488-3024 | Compliant | EXEMPT |
| Subway #11377 | 678 Montgomery Hwy | NULL | Vestavia | AL | 35216 | 823-9114 | Compliant | EXEMPT |
| Subway #12859 | 401 19th St S | NULL | Birmingham | AL | 35205 | 252-8221 | Compliant | EXEMPT |
| Subway #17582 | 2213 Bessemer Rd | NULL | Birmingham | AL | 35208 | 788-6782 | Compliant | EXEMPT |
| Subway #1835 | 423 Valley Ave | NULL | Birmingham | AL | 35209 | 942-7631 | Compliant | EXEMPT |
| Subway #2018 | 433 Huffman Rd | NULL | Birmingham | AL | 35215 | NULL | Compliant | EXEMPT |
| Subway #21102 | 701 Princeton Ave | NULL | Birmingham | AL | 35211 | 783-3565 | Compliant | EXEMPT |
| Subway #22980 | 133 Bessemer Super Hwy | NULL | Midfield | AL | 35228 | 929-4007 | Compliant | EXEMPT |
| Subway #25644 | 5184 Old Springville Rd | NULL | Clay | AL | 35126 | NULL | Compliant | EXEMPT |
| Subway #27114 | 1321 10th Ave S | NULL | Birmingham | AL | 35205 | 205-939-3100 | Compliant | EXEMPT |
| Subway #2793 | 3305 Lorna Rd | NULL | Hoover | NULL | 35216 | 822-0707 | Compliant | EXEMPT |
| Subway #28531 | 4760 Eastern Valley Rd | NULL | Bessemer | AL | 35111 | 477-8484 | Compliant | EXEMPT |
| Subway #29147 | 2972 Columbiana Rd | NULL | Vestavia | AL | 35216 | 978-0098 | Compliant | EXEMPT |
| Subway #29169 | 290 Cane Creek Rd | NULL | Warrior | AL | 35180 | 647-7829 | Compliant | EXEMPT |
| Subway #30798 | 1329 Walker Chapel Rd | NULL | Fultondale | AL | 35068 | 841-3411 | Compliant | EXEMPT |
| Subway #32512 | 6723 Deerfoot Pky | NULL | Clay | AL | 35126 | NULL | Compliant | EXEMPT |
| Subway #32941 | 2105 Richard Arrington Blvd No | NULL | Birmingham | AL | 35203 | 397-7827 | Compliant | EXEMPT |
| Subway #34716 | 100 Frankfurt Cir | NULL | Birmingham | NULL | 35211 | 942-6500 | Compliant | EXEMPT |
| Subway #3483 | 810 Allison Bonnett Memorial D | NULL | Hueytown | AL | 35023 | 744-0314 | Compliant | EXEMPT |
| Subway #36014 | 2510 19th St N | NULL | Hueytown | AL | 35023 | 481-0330 | Compliant | EXEMPT |
| Subway #3648 | 2103 Centerpoint Rd | NULL | Birmingham | AL | 35215 | NULL | Compliant | EXEMPT |
| Subway #3814 | 2803 Pinson Valley Pkwy | NULL | Birmingham | AL | 35217 | 205-849-8817 | Compliant | EXEMPT |
| Subway #3820 | 7701 1st Ave North | NULL | Birmingham | AL | 35206 | 205-836-8408 | Compliant | EXEMPT |
| Subway #38652 | 803 20 St S | NULL | Birmingham | NULL | 35205 | 205-254-7300 | Compliant | EXEMPT |
| Subway #43050 | 1600 Montclair Rd | NULL | Birmingham | AL | 35210 | 956-1166 | Compliant | EXEMPT |
| Subway #48483 | 1101 Higrove Parkway | Suite 101 | Leeds | AL | 35094 | 960-5674 | Compliant | EXEMPT |
| Subway #4873 | 4500 Montevallo Rd | Ste A 107 | Birmingham | AL | 35210 | 334 663-1307 | Compliant | EXEMPT |
| Subway #5538 | 5506 Crestwood Blvd | NULL | Birmingham | AL | 35212 | 591-7171 | Compliant | EXEMPT |
| Subway #5635 | 1919 28th Ave S | NULL | Homewood | AL | 35209 | 871-7782 | Compliant | EXEMPT |
| Subway #5901 | 3049 John Hawkins Parkway | Suite 118 | Hoover | AL | 35244 | 733-0020 | Compliant | EXEMPT |
| Subway #6252 | 1930 Edwards Lake Rd | NULL | Trussville | AL | 35235 | NULL | Compliant | EXEMPT |
| Subway #6507 | 1505 Pinson Valley Pky | NULL | Tarrant | AL | 35217 | 841-1126 | Compliant | EXEMPT |
| Subway #6918 | 3624 Parkway Avenue | NULL | Fairfield | AL | 35064 | 781-1782 | Compliant | EXEMPT |
| Subway #7649 | 1145 Forestdale Blvd | NULL | Birmingham | AL | 35214 | 798-4931 | Compliant | EXEMPT |
| Subway #7797 | 221 Lakeshore Pkwy | Suite 105 | Birmingham | AL | 35209 | 942-4455 | Compliant | EXEMPT |
| Subway #7964 | 1594 Montgomery Hwy | NULL | Hoover | NULL | 35216 | 823-0304 | Compliant | EXEMPT |
| Subway (Cowboys) | 1700 Tallapoosa St | NULL | Birmingham | AL | 35234 | 849-4445 | Compliant | EXEMPT |
| Subway - Brookwood Mall | 740 Brookwood Village | Space 238 | Birmingham | AL | 35209 | 256-414-7802 | Compliant | EXEMPT |
| Subway - Hoover | 2304 John Hawkins Pky Ste 106B | NULL | Hoover | AL | 35244 | 987-0777 | Compliant | EXEMPT |
| Subway @Cowboys #4282 | 1200 Bankhead Highway | NULL | Birmingham | AL | 35234 | 985-649-2566 | Compliant | EXEMPT |
| Subway Pleasant Grove | 27 Park Rd | NULL | Pleasant Grove | AL | 35127 | NULL | Compliant | EXEMPT |
| Subway Sandwiches & Salads | 3155 Green Valley Rd | NULL | Birmingham | AL | 35243 | 969-3782 | Compliant | EXEMPT |
| Subway Sandwiches & Salads | 3382 Morgan Dr | NULL | Vestavia | AL | 35243 | 205-979-5782 | Compliant | EXEMPT |
| Subway- (Shell #10) Store | 1120 Chalkville Mountain Rd | NULL | Trussville | AL | 35173 | 655-7827 | Compliant | EXEMPT |
| Suki Hana | 3000 Riverchase Galleria | Ste 158 | Hoover | AL | 35244 | NULL | Compliant | 20153455 |
| Summers Landing/ Magnolia Village | 424 Dean Ln | NULL | Gardendale | AL | 35071 | 631-9155 | Compliant | 20151218 |
| Summit Club | 1901 6th Ave N | Suite 3100 | Birmingham | AL | 35203 | 205-252-0088 | Compliant | 20150695 |
| Summit Retail Center II | 250 Summit Blvd | NULL | Birmingham | AL | 35243 | 205-970-3001 | Compliant | 20153304 |
| Summit Retail Center III | 105 Summit Blvd | NULL | Birmingham | AL | 35243 | 205-967-0111 | Compliant | 20153305 |
| Summit Retail Center VI/Flip Burger Boutique | 220 Summit Blvd | | Birmingham | AL | 35243 | 967-0111 | Compliant | 20152920 |
| Sumo Japanese Steakhouse & Sushi Bar | 151 Main St | NULL | Hoover | AL | 35244 | 444-1515 | Compliant | 20150983 |
| Sun Valley Elementary School | 1010 18th Ave Nw | NULL | Birmingham | AL | 35215 | 231-7270 | Compliant | 20152581 |
| Sunrise Ridge of AL, LLC | 7868 Gasden Highway | NULL | Trussville | AL | 35173 | 661-9940 | Compliant | 20152917 |
| Super Bowl Restaurant | 4416 Pinson Valley Pky | NULL | Birmingham | AL | 35215 | 854-9777 | Compliant | 20150129 |
| Supreme East Buffett | 1770 Ashville Road | NULL | Birmingham | AL | 35094 | 205-699-1688 | Non-compliant | Pending |
| Sur La Table - The Summit | 115 Summit Blvd | Ste A-5 | Birmingham | AL | 35243 | NULL | Compliant | 20153415 |
| Surin Of Thailand | 64 Church St | NULL | Mountain Brook | AL | 35213 | 871-4531 | Compliant | 20150248 |
| Surin West | 1918 11th Ave S | NULL | Birmingham | AL | 35205 | 324-1928 | Compliant | 20150795 |
| Sushi USA | 2500 Rocky Ridge Road | NULL | Birmingham | AL | 35243 | 205-886-4326 | Compliant | EXEMPT |
| Sushi Village | 7001 Crestwood Blvd | | Birmingham | AL | 35210 | 205-591-0081 | Compliant | 20153399 |
| Swanson's | 1109 1St Street Pratt City | NULL | Birmingham | AL | 35214 | 205-798-1641 | Non-compliant | Pending |
| Sweet Cherry Yogurt | 2000 Riverchase Galleria | | Hoover | AL | 35244 | 205-370-3922 | Compliant | EXEMPT |
| Sweet Tea Kitchen | 2207 3rd Avenue South | NULL | Birmingham | AL | 35233 | 205-306-1336 | Compliant | 20153287 |
| Sweet Tooth Bakery | 7070 Aaron Aronov Drive | Ste 8105- N | Fairfield | AL | 35064 | 874-6998 | New Const. | Pending |
| T & J Food Mart | 345 6th Avenue Sw | NULL | Birmingham | AL | 35211 | 205-563-3415 | Non-compliant | 20143346 |
| T K's Chicken | 1516 9Th Avenue North | NULL | Bessemer | AL | 35020 | 205-901-7787 | Compliant | 20153596 |
| T-Bones Steaks | 1204 Centerpoint Pky | NULL | Birmingham | AL | 35215 | 205-815-1414 | Non-compliant | 20070986 |
| T-Mobile Call Center | 820 Tom Martin Drive | NULL | Birmingham | AL | 35211 | 205-243-3576 | Compliant | 20153584 |
| T. Finleys Cafe | 2801 Hwy 280 | NULL | Birmingham | NULL | 35223 | 268-3477 | Compliant | 20150987 |
| Taco Bell | 1801 Ashville Road | NULL | Leeds | AL | 35094 | 205-443-9609 | Non-compliant | Pending |
| Taco Bell #029110 | 9509 Parkway E | NULL | Birmingham | AL | 35215 | NULL | Compliant | 20150089 |
| Taco Bell #029111 | 1101 Forestdale Blvd | NULL | Birmingham | AL | 35214 | NULL | Compliant | 20150086 |
| Taco Bell #029112 | 381 Palisades Blvd | NULL | Birmingham | AL | 35209 | NULL | Compliant | 20150103 |
| Taco Bell #029114 | 1801 Pinson Valley Pky | NULL | Tarrant | AL | 35217 | NULL | Compliant | 20150095 |
| Taco Bell #029121 | 213 Lakeshore Pky | NULL | Birmingham | AL | 35209 | NULL | Compliant | 20150099 |
| Taco Bell #029123 | 1835 Centerpoint Pky | NULL | Birmingham | AL | 35215 | NULL | Compliant | 20150090 |
| Taco Bell #029127 | 260 Cane Creek Rd | NULL | Warrior | AL | 35180 | 590-0133 | Compliant | 20150093 |
| Taco Bell #029130 | 6651 Hwy 75 | NULL | Pinson | AL | 35126 | NULL | Compliant | 20150096 |
| Taco Bell #029135 | 2300 Bessemer Super Hwy | NULL | Birmingham | AL | 35208 | NULL | Compliant | 20150088 |
| Taco Bell #029140 | 523 Fieldstown Rd | NULL | Gardendale | AL | 35071 | NULL | Compliant | 20150085 |
| Taco Bell #029141 | 3064 Allison Bonnett Mem Dr | NULL | Hueytown | AL | 35023 | NULL | Compliant | 20150097 |
| Taco Bell #029142 | 1106 North Chalkville Mtn Road | NULL | Trussville | AL | 35173 | NULL | Compliant | 20150094 |
| Taco Bell #029153 | 1821 Montgomery Hwy | NULL | Hoover | AL | 35244 | NULL | Compliant | 20150098 |
| Taco Bell #029154 | 710 9th Ave N | NULL | Bessemer | AL | 35020 | NULL | Compliant | 20150092 |
| Taco Bell #029166 | 5050 Bond Blvd | NULL | Bessemer | AL | 35022 | 443-9600 | Compliant | 20153294 |
| Taco Bell #029168 | 1541 Montclair Road | NULL | Birmingham | AL | 35210 | 205-956-1182 | Compliant | 20153260 |
| Taco Bell #030296 | 1611 Morris Avenue | NULL | Fultondale | AL | 35068 | 205-563-6398 | Compliant | 20153620 |
| Taco Bell #030297 | 2124 7 th Avenue South | NULL | Birmingham | AL | 35233 | 205-224-5767 | Compliant | 20153613 |
| Taco Casa | 125 Wildwood Pky | NULL | Homewood | AL | 35209 | 940-1196 | Compliant | 20150341 |

| FSFNAME | FSFADDRESS | FSFADDRESS2 | FSFCITY | FSFSTATE | FSFZIP | FSFPHONE | STATUS | PERMITNO |
|---|---|---|---|---|---|---|---|---|
| Taco Mama | 63 Church Street | NULL | Mountain Brook | AL | 35223 | 414-9314 | Compliant | 20153496 |
| Taipei 101 Sushi & Asian Bistro | 471 Greensprings Hwy | NULL | Homewood | AL | 35209 | 912-7037 | Compliant | 20153139 |
| Taj India Restaurant | 2226 Highland Ave | NULL | Birmingham | AL | 35205 | 939-3805 | Compliant | 20150989 |
| Takoyaki Restaurant, LLC | 4774 Eastern Valley Road | Ste 101 | McCalla | AL | 35111 | 205-477-6400 | Compliant | 20153482 |
| Taqueria Mexicana La Herradura | 348 Finley Avenue | NULL | Birmingham | AL | 35204 | 205-254-8844 | Compliant | 20153426 |
| Taqueria Mexico | 3724 Lorna Rd | NULL | Hoover | AL | 35216 | 989-5559 | Compliant | 20150991 |
| Taqueria Tafoya | 9917 Parkway East | Ste B | Birmingham | AL | 35215 | 205-520-1061 | Compliant | 20153296 |
| Target Store T-1773 | 1654 Gadsden Hwy | NULL | Birmingham | AL | 35235 | 655-6950 | Compliant | 20150993 |
| Target Store T-2355 | 3489 Lowery Parkway | | Fultondale | AL | 35068 | NULL | Compliant | 20151014 |
| Target Store T-2375 | 4889 Promenade Parkway | NULL | Bessemer | AL | 35020 | 1-800-587-2228 | Compliant | 20150992 |
| Target Store T-2796 | 531 Brookwood Village | NULL | Birmingham | AL | 35209 | 994-7531 | Compliant | 20153410 |
| Target StoreT-2503 | 5561 Grove Blvd | NULL | Hoover | AL | 35226 | 988-0665 | Compliant | 20153049 |
| Tarrant Elementary School | 1269 Portland Street | NULL | Tarrant | AL | 35217 | NULL | Compliant | 20151039 |
| Tarrant Intermediate School | #1 Wildcat Drive | NULL | Tarrant | AL | 35217 | 849-3700 | Compliant | 20151038 |
| Tarrant Middle/High School | 91 Black Creek Road | NULL | Tarrant | AL | 35217 | 849-3700 | Compliant | 20153069 |
| Tarrant Senior Center | 1232 Faye Dr | NULL | Tarrant | AL | 35217 | 849-2828 | Compliant | EXEMPT |
| Taste Of China #1 | 1805 Centerpoint Pky | NULL | Birmingham | AL | 35215 | 853-1098 | Compliant | 20151023 |
| Taste Of Thailand | 3321 Lorna Rd | NULL | Hoover | AL | 35216 | 978-6863 | Compliant | 20151024 |
| Tasty Jamaica Express "CLOSED" | 4407 Gary Ave | NULL | Fairfield | AL | 35064 | NULL | In-Collection | 20071025 |
| Taziki's Inc. | 2737 Highway 280 | NULL | Mountain Brook | AL | 35223 | 451-1868 x515 | Compliant | 20151027 |
| Taziki's Inc. | 3439 Colonnade Pkwy | suite 1500 | Birmingham | AL | 35243 | 451-1868 x515 | Compliant | 20150545 |
| Taziki's Restaurant | 301 18Th Street South | NULL | Birmingham | AL | 35233 | 451-1868 x515 | Compliant | 20152998 |
| TCBY | 1919 28th St S | NULL | Birmingham | AL | 35209 | NULL | Compliant | EXEMPT |
| Tecate Bar & Grill | 612 Montgomery Hwy | Ste 100 | Birmigham | AL | 35216 | 205-823-2399 | Compliant | 20153378 |
| Ted's Garage | 2309 5Th Ave South | NULL | Birmingham | AL | 35233 | 205-323-5556 | Compliant | EXEMPT |
| Teds Old Hickory Restaurant | 328 12th St S | NULL | Birmingham | AL | 35233 | 324-2911 | Compliant | 20151030 |
| Temple of Truth Apostolic Church | 505 15Th Place S W | NULL | Birmingham | AL | 35211 | 205-369-5030 | Non-compliant | 20123371 |
| Teriyaki Express | 780 Brookwood Village | Space #236 | Homewood | AL | 35209 | 205-643-6411 | Compliant | 20153235 |
| Terrace Oaks Care & Rehab Cntr | 4201 Bessemer Hwy | NULL | Bessemer | AL | 35020 | 428-3249 | Non-compliant | 20142967 |
| The Abbey Coffee Shop | 131 41St Street South | Ste A | Birmingham | AL | 35222 | 205-902-8221 | New Const. | Pending |
| The Altamont School | 4801 Altamont Rd | NULL | Birmingham | AL | 35222 | 445-1235 | Compliant | 20151837 |
| The Asian Restaurant | 22 Greensprings Hwy | NULL | Homewood | AL | 35209 | 205-941-1009 | Compliant | 20151166 |
| The Attic-BSC | 900 Arkadelphia Road | NULL | Birmingham | AL | 35254 | 226-4630 | Compliant | EXEMPT |
| The Barking Kudu | 2929 7th Avenue South | NULL | Birmingham | AL | 35233 | 205-328-1748 | Compliant | EXEMPT |
| The Baskits | 801 Greensprings Hwy | NULL | Homewood | AL | 35209 | 916-0401 | Compliant | 20151898 |
| The Boot at the Preserve | 616 Preserve Parkway | NULL | Hoover | AL | 35226 | 205-978-8988 | Non-compliant | Pending |
| The Break Restaurant/Billiards | 1001 20th St S | NULL | Birmingham | AL | 35205 | 252-3779 | Compliant | 20150239 |
| The Cajun Cleaver | 2341 John Hawkins Pkwy | NULL | Hoover | AL | 35244 | 999-5100 | Compliant | 20153053 |
| The Cakerie | 972 Montclair Road | NULL | Birmingham | AL | 35213 | 205-533-4881 | Compliant | 20153635 |
| The Cheesecake Factory | 236 Summit Blvd | NULL | Birmingham | AL | 35243 | 262-1800 | Compliant | 20151032 |
| The Clarion Hotel | 5216 Messer Airport Highway | NULL | Birmingham | AL | 35212 | 205-591-7900 | Non-compliant | 20143430 |
| The Club | #1 Robert S. Smith Drive | NULL | Birmingham | AL | 35209 | NULL | Compliant | 20150213 |
| The Colorful Hotdog | 4610 Gary Avenue | NULL | Fairfield | AL | 35064 | NULL | New Const. | Pending |
| The Court @ BSC | 900 Arkadelphia Road | NULL | Birmingham | AL | 35254 | 226-4630 | Compliant | 20150212 |
| The Crestwood Tavern | 5500 Crestwood Blvd | NULL | Birmingham | AL | 35212 | NULL | Compliant | EXEMPT |
| The Edge 12 | 7001 Crestwood Blvd | Suite 1100 | Birmingham | AL | 35210 | 595-8900 | Compliant | EXEMPT |
| The Edgewood Catering Co. | 2900 Crescent Avenue | NULL | Birmingham | AL | 35209 | 936-6750 | Compliant | 20150657 |
| The Egg & I Restaurant | 700 Montgomery Hwy | Ste 188 | Vestavia Hills | AL | 35216 | 205-979-6827 | Compliant | 20153549 |
| The Filling Station | 5524 Crestwood Blvd | NULL | Birmingham | AL | 35212 | 205-234-1755 | New Const. | Pending |
| The Fish Hook | 1205 Lake Drive SE | Ste 101 | Bessemer | AL | 35022 | 205-424-6611 | Compliant | 20153571 |
| The Fish Market | 1681 Montgomery Hwy | NULL | Hoover | AL | 35216 | 823-3474 | Compliant | 20150173 |
| The Foundry | 608 18th Street N | NULL | Bessemer | AL | 35020 | 424-6247 | Compliant | 20153084 |
| The Fresh Market | 549 Brookwood Village | NULL | Birmingham | AL | 35209 | 205-414-0017 | Compliant | 20153513 |
| The Furnace | 309 28th St N | NULL | Birmingham | AL | 35203 | 251-5551 | Compliant | 20150415 |
| The Go 2 Grill | 2798 Hwy 150 | Ste 118 | Hoover | AL | 35244 | 205-444-2014 | Non-compliant | Pending |
| The Grill In Midfield | 1429 Woodward Road | NULL | Midfield | AL | 35228 | 205-903-0506 | Compliant | 20153604 |
| The Grove Shopping Center (Bldg A) | 5619 Grove Blvd | NULL | Hoover | AL | 35226 | 630-437-6633 | New Const. | 20103058 |
| The Grove Shopping Center (Bldg D) | 5519 Grove Blvd | NULL | Hoover | AL | 35226 | 630-437-6633 | Compliant | 20153059 |
| The Happy Catering Company | 225 Oxmoor Cir | suite #802 | Birmingham | AL | 35209 | 251-8925 | Compliant | 20151345 |
| The Harbert Center | 2019 4th Ave. N | NULL | Birmingham | AL | 35203 | NULL | Compliant | 20150024 |
| The Heavenly Donut Co | 4911 Cahaba River Road | Ste 105 | Birmingham | AL | 35243 | 205-329-1940 | Compliant | 20153446 |
| The Hollywood, LLC/ Over Easy | 400 Hollywood Blvd | NULL | Birmingham | AL | 35223 | 205-997-9797 | Compliant | 20153237 |
| The Hotel Highland | 1023 20th St S | NULL | Birmingham | AL | 35205 | 933-9555 | Compliant | EXEMPT |
| The J Clyde | 1312 Cobb Ln | NULL | Birmingham | AL | 35205 | 939-1312 | Non-compliant | 20143172 |
| The Lunch Box Express | 1719 27th Ter S | NULL | Homewood | AL | 35209 | 871-7901 | Compliant | EXEMPT |
| The New York Butcher Shoppe | 3158 Cahaba Heights Village Rd | NULL | Birmingham | AL | 35243 | 637-7500 | Compliant | EXEMPT |
| The Olive Branch | 3236 Cahaba Heights Rd | NULL | Vestavia | AL | 35243 | 967-4600 | Compliant | 20151047 |
| The Olive Garden #1123 | 7701 Crestwood Blvd | NULL | Birmingham | AL | 35210 | NULL | Compliant | 20150272 |
| The Olive Garden #1879 | 3555 Roosevelt Blvd | NULL | Birmingham | AL | 35235 | 655-4313 | Compliant | 20153270 |
| The Olive Garden Restaurant #1050 | 3450 Galleria Cir | NULL | Hoover | AL | 35244 | 205-985-4696 | Compliant | 20151286 |
| The Original Pancake House | 1931 11th Ave S | NULL | Birmingham | AL | 35205 | 933-8837 | Compliant | 20150435 |
| The Parish Seafood & Oyster House | 1911 Gadsden Highway | NULL | Trussville | AL | 35173 | 205-914-9573 | Non-compliant | Pending |
| The Pit BBQ, Inc. | 2820 R. Arrington Jr. Blvd N. | NULL | Birmingham | AL | 35203 | 328-1515 | Compliant | 20151048 |
| The Rare Martini Bar | 2839 7th Ave S | NULL | Birmingham | AL | 35222 | 323-0008 | Compliant | 20153011 |
| The Red Cat | 2901 2Nd Avenue South | Ste 120 | Birmingham | AL | 35233 | 205-616-8450 | New Const. | Pending |
| The Redmont Hotel | 2101 5th Ave. N. | NULL | Birmingham | AL | 35203 | 324-2101 | Non-compliant | 20110107 |
| The Ridge Eat & Drink | 3325 Rocky Ridge Plaza | Ste 201 | Birmingham | AL | 35243 | 917-5080 | Non-compliant | Pending |
| The Saturn | 200 41St Street South | NULL | Birmingham | AL | 35222 | 360-920-8495 | Compliant | EXEMPT |
| The Shack Bar & Grill | 5961 Chalkville Mountain Lane | NULL | Birmingham | AL | 35235 | 205-508-5232 | Non-compliant | Pending |
| The Shops of Grand River | 6200 Grand River Blvd | NULL | Leeds | AL | 35094 | 205-443-4500 | Compliant | 20153233 |
| The Three Eared Rabbit | 209 Main Street | Suite 101 | Trussville | AL | 35173 | 655-2000 | Compliant | EXEMPT |
| The Venue at the Bridge | 100 Lexington Avenue | NULL | Birmingham | AL | 35224 | NULL | Non-compliant | Pending |
| The Village | 507 Whitmore Drive | Attn Jonette Moore | Birmingham | AL | 35221 | 205-868-3751 | Compliant | 20153423 |
| The Village Tavern, Inc. | 101 Summit Blvd | NULL | Birmingham | AL | 35243 | NULL | Compliant | 20150362 |
| The Villaggio Restaurant | 2301 Grand Avenue | Ste 109 | Hoover | AL | 35226 | 290-4343 | Non-compliant | Pending |
| The Whole Scoop | 3421 South Shades Crest Rd | Ste 121 | Hoover | AL | 35244 | 205-213-3617 | Compliant | EXEMPT |
| The Wine Loft | 2200 1st Ave N | NULL | Birmingham | AL | 35203 | 205-323-8228 | Compliant | EXEMPT |
| The Wing Cafe | 7521 Parkway Drive | NULL | Leeds | AL | 35094 | 205-702-4025 | Compliant | 20153473 |
| Three Oaks Deli | 4500 Montevallo Road | Ste E105 | Birmingham | AL | 35210 | 205- | Non-compliant | 20133471 |
| Tide & Tiger | 409 Graymont Avenue West | NULL | Birmingham | AL | 35204 | 205-503-3880 | Non-compliant | 20143386 |
| Tienda Carneceria Fiesta | 1575 Center Point Parkway | NULL | Center Point | AL | 35215 | 422-3304 | Compliant | 20151518 |
| Tillman Levenson Food Service Factory Buildout | 113 12Th Street North | NULL | Birmingham | AL | 35203 | 205-233-1032 | New Const. | Pending |
| Tin Roof | 2709 7Th Ave South | NULL | Birmingham | AL | 35233 | 205-323-4356 | Non-compliant | Pending |
| Tomek's | 2320 2nd Avenue North | NULL | Birmingham | AL | 35203 | 222-1164 | Non-compliant | 20153199 |
| Tooters Catering | 2513 5th Ave S | NULL | Birmingham | AL | 35233 | 322-3463 | Compliant | 20150289 |
| Top Notch Catering | 8101 Parkway Dr | NULL | Leeds | AL | 35094 | 702-4903 | Compliant | 20151050 |
| Top That Grille II | 1371 Bessemer Rd | NULL | Birmingham | AL | 35208 | 923-2422 | In-Collection | 20071051 |
| Tortugas, Inc. | 2801 John Hawkins Pkwy | Suite 169-R | Hoover | AL | 35244 | 403-9800 | Compliant | 20150245 |
| Town Village Vestavia Hills | 2385 Dolly Ridge Rd | NULL | Birmingham | AL | 35243 | 979-2702 | Compliant | 20151071 |
| Towne Place Suites | 500 Wildwood Circle | NULL | Homewood | AL | 35209 | 205-943-0114 | New Const. | Pending |

| FSFNAME | FSFADDRESS | FSFADDRESS2 | FSFCITY | FSFSTATE | FSFZIP | FSFPHONE | STATUS | PERMITNO |
|---|---|---|---|---|---|---|---|---|
| Trace Crossing Elementary | 5454 Learning Ln | NULL | Birmingham | AL | 35244 | 229-5060 | Compliant | 20150998 |
| Tracys | 75 Church St | NULL | Mountain Brook | AL | 35213 | 803-3005 | Compliant | 20151361 |
| Trader Joe's #737 | 205 Summit Blvd | Ste 100 | Birmingham | AL | 35243 | NULL | New Const. | Pending |
| Trinity Medical Center | 800 Montclair Rd | NULL | Birmingham | AL | 35213 | 592-1320 | Compliant | 20151076 |
| Trio's | 5880 Trussville Crossings Blvd | NULL | Birmingham | AL | 35235 | 655-6650 | Non-compliant | Pending |
| Trio's Train Stop | 5407 Beacon Drive | NULL | Birmingham | AL | 35210 | NULL | Non-compliant | Pending |
| Tropical Grill | 2149 Bessemer Road | NULL | Birmingham | AL | 35208 | 205-785-3396 | Non-compliant | Pending |
| Trussville Baseball | 421 Pumphouse Road | NULL | Trussville | AL | 35173 | 937-2088 | Compliant | 20152177 |
| Trussville Civic Center | 5381 Trussville-Clay Road | NULL | Trussville | AL | 35173 | 655-2503 | Compliant | 20151078 |
| Trussville Girls Softball | 201 Pumphouse Rd | NULL | Trussville | AL | 35173 | 205-288-6824 | Compliant | 20152178 |
| Trussville Grill | 199 B Beechnut St. | NULL | Trussville | AL | 35173 | 205-655-5833 | New Const. | Pending |
| Trussville Senior Citizen Ctr | 504 Cherokee Dr | NULL | Trussville | AL | 35173 | 661-1714 | Compliant | EXEMPT |
| Trussville Stadium 16 | 5895 Trussville Crossings Pkwy | NULL | Trussville | AL | 35235 | 655-2875 | Compliant | EXEMPT |
| Trussville United Soccer | 11 Palm Street | NULL | Trussville | AL | 35173 | 661-3777 | Non-compliant | 20152179 |
| Trussville Youth Football Conc | P O Box 391 | NULL | Trussville | AL | 35173 | 661-3777 | Compliant | 20152180 |
| Tuggle Hill K-5 School | 412 12th Ct N | NULL | Birmingham | AL | 35204 | TBD | Compliant | 20152582 |
| Twin Peaks | 4330 Creekside Ave | NULL | Hoover | AL | 35244 | 205-203-9461 | Non-compliant | Pending |
| Two Fish & Five Loaves | 5031 Ford Parkway | NULL | Bessemer | AL | 35022 | 205-520-8985 | Non-compliant | Pending |
| U China Buffet (AL) Inc. | 328 Palisades Blvd | NULL | Birmingham | AL | 35209 | 879-2288 | Compliant | 20150410 |
| UAB Abroms Engel Inst. for the Visual Arts | 1221 10th Avenue So | NULL | Birmingham | AL | 35294 | 934-5644 | Compliant | 20153507 |
| UAB Bartow Arena #221 | 617 13th St S | NULL | Birmingham | NULL | 35294 | 934-7585 | Compliant | EXEMPT |
| UAB Commons | 900 16th St South | NULL | Birmingham | NULL | 35294 | 996-6570 | Compliant | 20150625 |
| UAB Einstein's | 1714 9th Ave S | NULL | Birmingham | AL | 35294 | 996-6571 | Compliant | EXEMPT |
| UAB Highlands | 1201 11th Avenue South | NULL | Birmingham | AL | 35205 | 930-7100 | Compliant | 20151010 |
| UAB Hospital / West Pav/ Jeff Towers | 619 18th St S | NULL | Birmingham | AL | 35294 | 205-934-4718 | Compliant | 20151081 |
| UAB Lister Hill Food Service | 1700 University Blvd | NULL | Birmingham | AL | 35294 | NULL | New Const. | Pending |
| UAB National Alumni Society Building | 1301 10th Ave S | NULL | Birmingham | AL | 35294 | 934-3555 | Compliant | EXEMPT |
| UAB North Pavilion Food Court | 1802 6Th Avenue South | NULL | Birmingham | AL | 35294 | 205-934-3432 | Compliant | 20153565 |
| UAB School of Nursing | 1701 University Blvd | NULL | Birmingham | AL | 35294 | 205-934-2591 | Compliant | EXEMPT |
| UAB Sterne Library Starbuck's | 917 13th Street South | NULL | Birmingham | AL | 35209 | 996-6571 | Compliant | EXEMPT |
| UAB Zebi | 1075 13Th Street South | NULL | Birmingham | AL | 35294 | 996-6571 | New Const. | Pending |
| UAB- Starbucks | 1400 University Blvd | NULL | Birmingham | AL | 35233 | NULL | New Const. | Pending |
| Uncle Sam's BBQ (SWH Inc.) | 3043 Allison Bonnet Mem. Dr. | NULL | Hueytown | AL | 35023 | NULL | Compliant | 20151169 |
| University Taco's | 2009 University Blvd | NULL | Birmingham | AL | 35233 | 205-538-5568 | Non-compliant | Pending |
| Upper Deck | 449 Valley Avenue | NULL | Birmingham | AL | 35209 | 822-5144 | Compliant | 20150254 |
| Urban Cookhouse | 2846 18th St S | NULL | Homewood | AL | 35209 | 205-405-8881 | Compliant | 20153204 |
| Urban Cookhouse Crestline | 212 Country Club Park | NULL | Mountainbrook | AL | 35213 | 879-0883 | Compliant | 20153489 |
| Urban Ministry, Inc. | 1229 Cotton Ave Sw | NULL | Birmingham | AL | 35211 | 781-0517 | Compliant | 20151603 |
| Urban Pops | 2760 John Hawkins Pkwy | Ste 100 | Hoover | AL | 35244 | 205-447-3402 | Compliant | EXEMPT |
| V A Hospital | 700 19th Street S | Attn Safety Office (00S) | Birmingham | AL | 35233 | 933-8101 x5544 | Compliant | 20153259 |
| V I P | 1232 Erie St | NULL | Birmingham | AL | 35224 | 786-5191 | Compliant | 20151146 |
| Valley Mart Mexican Restaurant | 5118 Pinson Valley Pky | NULL | Birmingham | AL | 35215 | 681-1245 | Compliant | 20153091 |
| Vecchio Pizzaria and Marcato | 610 Preserve Parkway | Ste 100 | Hoover | AL | 35226 | 205-420-2964 | Compliant | EXEMPT |
| Veranda On Highland | 2220 Highland Ave South | NULL | Birmingham | AL | 35205 | 939-5551 | Non-compliant | 20141742 |
| Vestavia Bowl Snack Bar | 1429 Montgomery Hwy | NULL | Vestavia | AL | 35216 | 979-4420 | Compliant | 20150494 |
| Vestavia Country Club-Banquet | 400 Beaumont Dr | NULL | Vestavia | AL | 35216 | NULL | Compliant | 20150535 |
| Vestavia Elementary-East | 2109 Tyson Dr | NULL | Vestavia | AL | 35216 | 402-5210 | Compliant | 20151459 |
| Vestavia Elementary-West | 1965 Merryvale Rd | NULL | Vestavia | AL | 35216 | 402-5151 | Compliant | 20151084 |
| Vestavia Hills Elem.-Central | 1289 Montgomery Highway | NULL | Vestavia | AL | 35216 | 402-5300 | Compliant | 20151462 |
| Vestavia Hills Elementary Cahaba Heights | 4401 Dolly Ridge Rd | NULL | Birmingham | AL | 35243 | 402-5480 | Compliant | 20151461 |
| Vestavia Hills High School | 2235 Limerock Road | NULL | Vestavia | AL | 35216 | 402-5250 | Compliant | 20151460 |
| Villa Fiesta Mexican Restaurant | 7950 Crestwood Blvd | NULL | Irondale | AL | 35210 | 956-3607 | Non-compliant | 20141085 |
| Villa Italian Kitchen | 2000 Riverchase Galleria | NULL | Hoover | AL | 35244 | 205-290-5516 | Non-compliant | Pending |
| Vinny Vito's | 4764 Eastern Valley Road | NULL | McCalla | AL | 35111 | 205-477-8486 | Non-compliant | Pending |
| Vino | 1930 Cahaba Road | NULL | Mountain Brook | AL | 35223 | 205-243-6668 | Compliant | 20153329 |
| Vulcan Park Foundation | 1701 Valley View Drive | NULL | Birmingham | AL | 35209 | 933-1409 | Compliant | EXEMPT |
| W. J. Christian Elementary School | 725 Mountain Dr | NULL | Birmingham | AL | 35206 | 231-7270 | Compliant | 20152583 |
| W.T. Restaurant & Lounge | 820 9th St. N | NULL | Bessemer | AL | 35020 | 426-7742 | Compliant | 20150417 |
| Waffle House | 938 Allison Bonnet Mem Drive | NULL | Hueytown | AL | 35023 | NULL | Compliant | 20153627 |
| Waffle House #1033 | 1440 Gadsden Hwy | NULL | Birmingham | AL | 35235 | 770-326-7022 | Compliant | 20150228 |
| Waffle House #1093 | 1850 Ashville Road | NULL | Leeds | AL | 35094 | 699-5300 | Compliant | 20151087 |
| Waffle House #129 | 185 Oxmoor Rd | NULL | Homewood | AL | 35209 | 770-326-7022 | Compliant | 20150231 |
| Waffle House #1340 | 5010 Academy Ln | NULL | Bessemer | AL | 35022 | 770-326-7022 | Compliant | 20150235 |
| Waffle House #1443 | 1334 Walker Chapel Rd | NULL | Fultondale | AL | 35068 | 770-326-7022 | Compliant | 20150225 |
| Waffle House #1843 | 4688 Center Point Road | NULL | Pinson | AL | 35126 | 770-853-6583 | Compliant | 20153127 |
| Waffle House #1908 | 636 Bessemer Super Hwy | NULL | Fairfield | AL | 35064 | 923-1983 | Compliant | 20153298 |
| Waffle House #1939 - UAB Parking Deck | 1801 4th Avenue South | Ste 105 | Birmingham | AL | 35233 | 678-427-0567 | Compliant | 20153361 |
| Waffle House #1961 | 2208 Centerpoint Parkway | NULL | Birmingham | AL | 35215 | 854-2248 | Compliant | 20153368 |
| Waffle House #1970 | 931 9Th Avenue North | NULL | Bessemer | AL | 35020 | 428-6306 | Compliant | 20153397 |
| Waffle House #1985 | 1034 20Th Street South | NULL | Birmingham | AL | 35205 | 678-427-0567 | Compliant | 20153421 |
| Waffle House #208 | 1833 Crestwood Blvd | NULL | Irondale | AL | 35210 | 770-326-7022 | Compliant | 20150226 |
| Waffle House #406 | 1535 Montgomery Hwy | NULL | Birmingham | AL | 35216 | 770-326-722 | Compliant | 20150227 |
| Waffle House #664 | 3023 Columbiana Rd | NULL | Vestavia | AL | 35216 | 770-326-7022 | Compliant | 20150232 |
| Waffle House #724 | 9227 Parkway E | NULL | Birmingham | AL | 35206 | 770-326-7022 | Compliant | 20150229 |
| Waffle House #756 | 1128 North Chalkville Rd | NULL | Trussville | AL | 35173 | 770-326-7022 | Compliant | 20150230 |
| Waffle House #867 | 500 Fieldstown Rd | NULL | Gardendale | AL | 35071 | 770-326-7022 | Compliant | 20150233 |
| Waffle House #882 | 3998 Methodist Cir | NULL | Bessemer | AL | 35022 | 770-326-7022 | Compliant | 20150234 |
| Wagon Wheel | 1424 1St Ave North | NULL | Bessemer | AL | 35020 | 205-218-0969 | Compliant | 20153601 |
| Wal-Mart Neighborhood Market #3184 | 3320 Lorna Road | NULL | Hoover | AL | 35226 | 205-909-4306 | Compliant | 20153454 |
| Wal-Mart Store #1158 | 2473 Hackworth Rd | NULL | Adamsville | AL | 35005 | 479-204-2324 | Compliant | 20150196 |
| Wal-Mart Store #1201 | 890 Odum Road | NULL | Gardendale | AL | 35071 | 479-204-2324 | Compliant | 20150201 |
| Wal-Mart Store #1229 | 2780 John Hawkins Pky | NULL | Hoover | AL | 35244 | 479-204-2324 | Compliant | 20150203 |
| Wal-Mart Store #1481 | 209 Lakeshore Pky | NULL | Homewood | AL | 35209 | 479-204-2324 | Compliant | 20150202 |
| Wal-Mart Store #1711 | 1600 Montclair Road | NULL | Birmingham | AL | 35210 | NULL | Compliant | 20150674 |
| Wal-Mart Store #2713 | 5919 Trussville Pky | NULL | Trussville | AL | 35235 | 479-204-2324 | Compliant | 20150204 |
| Wal-Mart Store #4504 | 312 Palisades Blvd | NULL | Birmingham | AL | 35209 | 479-204-8582 | Compliant | 20150495 |
| Wal-Mart Store #4580 | 1300 Montgomery Highway | NULL | Vestavia Hills | AL | 35216 | 479-204-8582 | Compliant | 20150513 |
| Wal-Mart Store #5100 | 1916 Centerpoint Rd | NULL | Birmingham | AL | 35215 | 479-204-2324 | Compliant | 20150199 |
| Wal-Mart Store #762 | 9248 Parkway E | NULL | Birmingham | AL | 35206 | 479-204-2324 | Compliant | 20150198 |
| Wal-Mart Store #763 | 7201 Aaron Aronov Dr | NULL | Fairfield | AL | 35064 | 479-204-2324 | Compliant | 20150200 |
| Wal-Mart Store #764 | 750 Academy Dr | NULL | Bessemer | AL | 35022 | 479-204-2324 | Compliant | 20150197 |
| Wal-Mart Supercenter #4497 | 1007 Garywood Dr | NULL | Hueytown | AL | 35023 | NULL | Compliant | 20152757 |
| Wal-Mart Supercenter #562 | 8551 Whitfield Ave | NULL | Leeds | AL | 35094 | 479-273-4209 | Compliant | 20153026 |
| Wald Park Sports Complex | 1973 Merryvale Road | Atten: B. J. Dailey | Vestavia | AL | 35216 | 913-6506 | Compliant | 20152961 |
| Wall Street Deli #3 | 535 21st Street South | NULL | Birmingham | AL | 35233 | NULL | Compliant | 20150311 |
| Wall Street Deli #6/Sneaky Pete's | 701 Princeton Ave Sw | NULL | Birmingham | AL | 35211 | NULL | Compliant | 20150312 |
| Wallace Lounge | 308 19th St | NULL | Birmingham | AL | 35218 | 780-9451 | Compliant | 20150218 |
| WAS's Commissary / Saws Street Kitchen | 1000 28Th Street North | NULL | Birmingham | AL | 35203 | 205-532-0021 | Non-compliant | Pending |
| Washington K-8 School | 115 4th Ave S | NULL | Birmigham | AL | 35205 | NULL | Compliant | 20153095 |
| Water Shop Wellness Center | 8949 Roebuck Blvd | NULL | Birmingham | AL | 35206 | 836-0700 | Compliant | EXEMPT |

| FSFNAME | FSFADDRESS | FSFADDRESS2 | FSFCITY | FSFSTATE | FSFZIP | FSFPHONE | STATUS | PERMITNO |
|---|---|---|---|---|---|---|---|---|
| Wellingtons Bistro "CLOSED" | 1500 2nd Ave N | NULL | Birmingham | AL | 35203 | 324-2345 | In-Collection | 20071035 |
| Wendys | 345 Valley Ave | NULL | Birmingham | AL | 35209 | NULL | Compliant | 20150797 |
| Wendys | 213 State Farm Pky | NULL | Homewood | AL | 35209 | NULL | Non-compliant | 20150838 |
| Wendys | 2931 Morgan Rd | NULL | Bessemer | AL | 35022 | NULL | Compliant | 20150835 |
| Wendys | 2727 Hwy 280 | NULL | Mountain Brook | AL | 35223 | NULL | Compliant | 20150840 |
| Wendys | 1791 Montgomery Hwy | NULL | Hoover | AL | 35244 | NULL | Compliant | 20150834 |
| Wendys | 2327 7Th Avenue South | NULL | Birmingham | AL | 35233 | 205-978-4000 | Compliant | 20153552 |
| Wendys | 1009 Fulton Ave | NULL | Gardendale | AL | 35071 | NULL | Compliant | 20150363 |
| Wendys | 9870 Parkway East | NULL | Birmingham | AL | 35215 | NULL | Compliant | 20150798 |
| Wendys | 104 Bessemer Hwy | NULL | Midfield | AL | 35228 | NULL | Compliant | 20150837 |
| Wendys #1658 | 1101 Chalkville Rd N | NULL | Trussville | AL | 35173 | NULL | Compliant | 20150799 |
| Wendys #2516 | 3211 Edwards Lake Pky | NULL | Trussville | AL | 35235 | NULL | Compliant | 20150171 |
| Wendys #369 | 901 Bankhead Hwy West | NULL | Birmingham | AL | 35204 | 324-5272 | Non-compliant | 20141090 |
| Wendys Old Fashioned Hamburgers | 800 Academy Dr | NULL | Bessemer | AL | 35022 | NULL | Compliant | 20150839 |
| Wenonah H S Football Stadium | 2800 Wilson Road Sw | NULL | Birmingham | AL | 35221 | 231-1675 | Compliant | EXEMPT |
| Wenonah High School | 2800 Wilson Road SW | NULL | Birmingham | AL | 35221 | 231-7270 | Compliant | 20151068 |
| West End Academy | 1840 Pearson Avenue | NULL | Birmingham | AL | 35211 | NULL | Compliant | 20153194 |
| West Homewood Conc. #1 | 121 Oxmoor Road | NULL | Homewood | AL | 35209 | 965-0583 | Compliant | 20153012 |
| West Homewood Conc. #2 | 121 Oxmoor Road Bldg #600 | NULL | Homewood | AL | 35209 | 965-0583 | Compliant | 20153013 |
| Western Market | 2230 Highland Avenue | NULL | Birmingham | AL | 35205 | 879-3471 | Compliant | 20151557 |
| Western Supermarket | 2717 Culver Road | NULL | Birmingham | AL | 35223 | 879-3471 | Compliant | 20151559 |
| Western Supermarket #6-Deli | 3350 Morgan Dr | NULL | Vestavia | AL | 35216 | 879-3471 | Compliant | 20151558 |
| Westhills Elementary Child Nutrition Program | 710 Glenn Road | NULL | Bessemer | AL | 35020 | 432-3510 | Compliant | 20151260 |
| Westin Restaurant | 2221 Richard Arrington Blvd No | NULL | Birmingham | AL | 35203 | 205-458-8409 | Compliant | 20153403 |
| Whataburger #896 | 5931 Trussville Crossing Pky | NULL | Birmingham | AL | 35235 | 833-9405 | Non-compliant | 20140348 |
| Whataburger Fultondale #920 | 1603 Main St | NULL | Fultondale | AL | 35068 | 849-2933 | Non-compliant | 20140349 |
| Whitehouse Restaurant | 9830 Highway 31 | NULL | Warrior | AL | 35180 | 205-647-2448 | Compliant | 20153419 |
| Who Doesn't Like Cake | 2466 Old Springville Road | NULL | Birmingham | AL | 35215 | 856-5777 | Compliant | EXEMPT |
| Whole Food Market | 3100 Cahaba Village Plz | NULL | Birmingham | AL | 35243 | 912-8400 | Compliant | 20151224 |
| Wilkerson Middle School | 116 11th Court N | NULL | Birmingham | AL | 35204 | 231-7270 | Compliant | 20152586 |
| Williams Sonoma | 214 Summit Blvd | Ste 150 | Birmingham | AL | 35243 | 970-2100 | Compliant | EXEMPT |
| Wilson Florist & Gifts Wedding Chapel | 1328 Main St | NULL | Gardendale | AL | 35071 | 631-8754 | Compliant | EXEMPT |
| Wilson Hot & Sweet | 1401 15Th Street South | NULL | Birmingham | AL | 35205 | 205-587-3620 | Compliant | 20153300 |
| Wing A Fish LLC | 5116 Old Springville Road | NULL | Pinson | AL | 35126 | 205-499-2979 | New Const. | Pending |
| Wing It | 27 Western Hills Mall | NULL | Fairfield | AL | 35064 | 923-4364 | Compliant | 20150181 |
| Wing It | 1671 Centerpoint Pky | NULL | Center Point | AL | 35215 | 815-3264 | Compliant | 20150182 |
| Wing Out | 9201 Parkway East | NULL | Birmingham | AL | 35206 | NULL | Non-compliant | Pending |
| Wing Zone | 1694 Montgomery Hwy | NULL | Hoover | AL | 35216 | 276-7797 | Non-compliant | 20132057 |
| Wings & More Wings (CLOSED) | 3519 Huntsville Ave | NULL | Brighton | NULL | 35020 | 428-4002 | In-Collection | 20071119 |
| Wings & Rings | 301 Oporto Madrid Blvd | NULL | Birmingham | AL | 35206 | NULL | Compliant | 20150305 |
| Wings & Teriyaki | 734 Graymont Ave #C | NULL | Birmingham | AL | 35204 | 205-780-0264 | Compliant | 20153337 |
| Wings Heaven | 5605 E J Oliver Blvd | NULL | Birmingham | AL | 35064 | 637-6840 | Compliant | 20153542 |
| Wings Plus | 18 Phillips Drive | NULL | Midfield | AL | 35228 | 923-8180 | Compliant | 20151107 |
| Wings Plus #2 | 2231 Bessemer Rd | NULL | Birmingham | AL | 35208 | 785-7800 | Compliant | 20151121 |
| Wings Plus #4 | 1100 Forestdale Blvd | NULL | Birmingham | AL | 35214 | 791-0805 | Compliant | 20152989 |
| Wings Plus #5 | 755 Shades Mountain Plaza | NULL | Hoover | AL | 35226 | 822-9599 | Compliant | 20153216 |
| Wings Plus #6 | 1680 Montclair Road Ste 1100 | NULL | Birmingham | AL | 35210 | 951-9518 | Compliant | 20153202 |
| Wings R King | 3833 East Lake Blvd | NULL | Birmingham | AL | 35217 | 841-0303 | Compliant | 20153050 |
| Wings Sports Grill- Patton Creek | 4445 Creekside Ave | NULL | Hoover | AL | 35244 | 205-403-7474 | Compliant | 20153036 |
| Winn Dixie #405 | 2220 Bessemer Road | NULL | Birmingham | AL | 35208 | 788-6651 | Compliant | 20150433 |
| Winn Dixie #435 | 4476 Montevallo Rd | NULL | Birmingham | AL | 35210 | 951-6768 | Compliant | 20150431 |
| Winn Dixie #458 | 1721 Decatur Highway | NULL | Fultondale | AL | 35068 | 841-2420 | Compliant | 20150427 |
| Winn Dixie #461 | 465 Main St | NULL | Trussville | AL | 35173 | 661-0026 | Compliant | 20150434 |
| Winn Dixie #500 | 4701 Centerpoint Rd | NULL | Pinson | AL | 35126 | 680-2550 | Compliant | 20150430 |
| Winn Dixie #517 | 3925 Cross Haven Dr | NULL | Birmingham | AL | 35243 | 969-2307 | Compliant | 20150432 |
| Winn Dixie #595 | 2910 Morgan Rd | NULL | Bessemer | AL | 35022 | 425-2121 | Non-compliant | 20150428 |
| Wok Cuisine (PPS) | 3039 Allison Bonnet Dr | NULL | Hueytown | AL | 35023 | 491-1681 | Compliant | 20150117 |
| Wok Express | 3150 Overton Road | Suite 7 | Birmingham | AL | 35223 | 205-901-0331 | Compliant | 20153275 |
| Wooden Goat | 4100 3Rd Avenue South | NULL | Birmingham | AL | 35222 | 205-307-8891 | New Const. | Pending |
| Woodlawn High School | 5620 1st Ave N | NULL | Birmingham | AL | 35212 | 231-7270 | Compliant | 20152587 |
| Woodrow Hall | 5504 1st Avenue N | NULL | Birmingham | AL | 35212 | 243-4243 | Compliant | 20153074 |
| Woodward Shell Inc. | 5430 Woodward Road | NULL | Midfield | AL | 35228 | 205-428-9393 | Compliant | 20151123 |
| World of Beer | 1005 20Th Street South | NULL | Birmingham | AL | 35205 | 205-703-7203 | Compliant | 20153564 |
| World of Wings | 1000 14Th Street South | NULL | Birmingham | AL | 35205 | 996-6571 | Non-compliant | 20133490 |
| Wright Griddle House | 1291 Centerpoint Pkwy | NULL | Birmingham | AL | 35215 | 205-520-1314 | Non-compliant | Pending |
| Wylam K-8 School | 701 Erie Street | NULL | Wylam | AL | 35224 | 531-9721 | Compliant | 20153193 |
| Y Yogurt Lab | 633 Montgomery Highway | NULL | Birmingham | AL | 35216 | 205-445-1037 | Compliant | EXEMPT |
| Yabbalouz Sports Lounge (CLOSED) | 2905 27th St N | NULL | Birmingham | AL | 35207 | | In-Collection | 20071125 |
| Yehman Caribbean Restaurant | 1623 4th Ave. N | NULL | Birmingham | AL | 35203 | 323-3120 | Compliant | 20150270 |
| Yellow Bicycle Catering | 195 Vulcan Road | NULL | Homewood | AL | 35209 | 940-7234 | Compliant | 20153429 |
| Yemens Kabob House | 5005 Richard Arrington Blvd N | NULL | Birmingham | AL | 35212 | 591-8939 | Non-compliant | Pending |
| Yo' Mama's Restaurant | 2328 2nd Ave N | NULL | Birmingham | AL | 35203 | 205-910-2784 | Non-compliant | 20143570 |
| Yoe Express | 1919 28th Ave S | Suite 115 | Homewood | AL | 35209 | NULL | Compliant | 20151225 |
| Yogurt Mountain | 1644 Gadsden Highway | Ste 102 | Trussville | AL | 35235 | 655-0150 | Compliant | EXEMPT |
| Yogurt Mountain | 3000 Cahaba Village Plaza | Ste 120 | Mountain Brook | AL | 35243 | 970-7778 | Compliant | EXEMPT |
| Yogurt Mountain Gardendale | 521 Fieldstown Road | Ste 113 | Gardendale | AL | 35071 | 609-412-9682 | Compliant | EXEMPT |
| YoYo Donuts | 1919 28th Avenue South | Suite 119 | Homewood | AL | 35209 | 205-447-9737 | Compliant | 20153350 |
| Yu Ki Japanese Restaurant | 2760 John Hawkins Pky | Ste 108 | Hoover | AL | 35244 | 402-9888 | Compliant | 20151128 |
| Yu's Garden Chinese Restaurant | 7268 Gasden Hwy | Suite 108 | Trussville | AL | 35173 | 655-6005 | Compliant | 20153039 |
| YWCA Interfaith Shelter | 5916 1st Avenue South | NULL | Birmingham | AL | 35212 | 322-9922 | Compliant | 20153096 |
| Z N Mart | 1200 14 Street South | NULL | Bessemer | AL | 35020 | 205-426-5661 | Compliant | 20153433 |
| Z's Restaurant | 104 17Th Street North | NULL | Birmingham | AL | 35203 | 250-6288 | Non-compliant | EXEMPT |
| Za Za Trattoria | 207 A- 20th Street North | NULL | Birmingham | AL | 35205 | 440-773-5230 | Compliant | 20153062 |
| Zaxby's | 2735 John Hawkins Parkway | NULL | Birmingham | AL | 35244 | 862-0251 | Compliant | 20152397 |
| Zaxby's | 1304 Montgomery Highway | NULL | Vestavia | AL | 35216 | NULL | Compliant | 20153184 |
| Zaxby's | 3270 Morrow Road | NULL | Birmingham | AL | 35235 | NULL | Compliant | 20150512 |
| Zaxby's | 1548 Montclair Road | NULL | Birmingham | AL | 35210 | NULL | Compliant | 20153045 |
| Zaxby's Restaurant | 2880 Allison Bonnett Mem Dr | NULL | Hueytown | AL | 35023 | 744-9495 | Compliant | 20153086 |
| Zaxbys | 1725 Morris Avenue | NULL | Fultondale | AL | 35068 | 849-3800 | Compliant | 20150511 |
| Zaxbys | 885 Odum Rd | NULL | Gardendale | AL | 35071 | 631-0819 | Compliant | 20150105 |
| Zaxbys | 3201 Bearden Court | NULL | Vestavia | AL | 35243 | 205-437-0998 | New Const. | Pending |
| Zaxbys | 5881 Trussville Crossings Blvd | NULL | Birmingham | NULL | 35235 | 655-2220 | Compliant | 20151129 |
| Zaxbys | 804 Academy Dr | NULL | Bessemer | AL | 35022 | 426-2797 | Compliant | 20151130 |
| Zaxbys | 282 Palisades Blvd | NULL | Birmingham | AL | 35209 | NULL | Compliant | 20151721 |
| Zaxbys #676 | 4815 Bell Hill Rd | NULL | Bessemer | AL | 35022 | 404-433-0043 | Compliant | 20152197 |
| Zoes Kitchen #100 | 1819 5th Ave N | NULL | Birmingham | AL | 35203 | 252-5200 | Compliant | 20151133 |
| Zoes Kitchen #103 | 323 Summit Blvd | NULL | Birmingham | AL | 35243 | 967-5800 | Compliant | 20151131 |
| Zoes Kitchen #104 | 225 Country Club Park | NULL | Mountain Brook | AL | 35213 | 871-0060 | Compliant | 20151132 |
| Zoes Kitchen #106 | 180 Main St | NULL | Hoover | AL | 35244 | 999-5199 | Compliant | 20150543 |
| Zoes Kitchen #110 | 1830 29th Ave S | NULL | Homewood | NULL | 35209 | 870-1100 | Compliant | 20151176 |

| FSFNAME | FSFADDRESS | FSFADDRESS2 | FSFCITY | FSFSTATE | FSFZIP | FSFPHONE | STATUS | PERMITNO |
|---|---|---|---|---|---|---|---|---|
| Zoes Kitchen #135 | 700 Montgomery Highway | Ste 190 | Vestavia Hills | AL | 35216 | 205-414-9920 | Compliant | 20153379 |
| Zydeco | 2001 15th Ave S | NULL | Birmingham | AL | 35205 | 933-1032 | Compliant | EXEMPT |

## Appendix H High Frequency FOG-Related Line Maintenance Locations

# Jefferson County ESD High Frequency FOG-Related Line Maintenance Locations

| BASIN | SUBBASIN | ASSETID | USMH_ASSETID | DSMH_ASSETID | DIAMETER (IN) | MATERIAL | LENGTH (LF) |
|---|---|---|---|---|---|---|---|
| CAH | 4018 | GP004018-027652 | MH004018-068627-127 | MH004018-068676-126 | 8 | DUCTILE_IRON | 251.09 |
| CAH | 4018 | GP004018-027680 | MH004018-068923-172 | MH004018-069022-171 | 8 | DUCTILE_IRON | 213.71 |
| CAH | 4018 | GP004018-027776 | MH004018-069697-014 | MH004018-069749-013 | 10 | CLAY | 251.05 |
| CAH | 4018 | GP004018-027778 | MH004018-069743-021 | MH004018-069779-012 | 10 | CIP/DIP | 396.40 |
| CAH | 4018 | GP004018-340650 | MH004018-305672-0226 | MH004018-305671-0225 | 10 | DUCTILE_IRON | 117.00 |
| CAH | 4018 | GP004018-027693 | MH004018-069090-167 | MH004018-069133-163 | 8 | DUCTILE_IRON | 214.95 |
| CAH | 4018 | GP004018-036386 | MH004018-069850-009 | MH004018-069878-008 | 18 | CIP/DIP | 102.62 |
| CAH | 4018 | GP004018-027662 | MH004018-068680-175 | MH004018-068760-174 | 8 | CIP | 172.80 |
| CAH | 4018 | GP004018-027682 | MH004018-068973-169 | MH004018-069049-168 | 8 | DUCTILE_IRON | 216.99 |
| CAH | 4018 | GP004018-027655 | MH004018-068676-126 | MH004018-068707-125 | 8 | DUCTILE_IRON | 258.78 |
| CAH | 4018 | GP004018-036388 | MH004018-069908-003 | MH004018-070005-002 | 18 | CIP/DIP | 427.85 |
| CAH | 4018 | GP004018-027678 | MH004018-068876-122 | MH004018-068939-121 | 8 | DUCTILE_IRON | 114.50 |
| CAH | 4018 | GP004018-027784 | MH004018-069834-059 | MH004018-069815-058 | 10 | DUCTILE_IRON | 182.46 |
| CAH | 4018 | GP004018-365287 | MH004018-069815-058 | MH004018-305674-0227 | 8 | DUCTILE_IRON | 76.33 |
| CAH | 4018 | GP004018-027779 | MH004018-069749-013 | MH004018-069779-012 | 10 | IRON | 120.59 |
| CAH | 4018 | GP004018-027658 | MH004018-068577-099 | MH004018-068731-096 | 10 | IRON | 386.55 |
| CAH | 4018 | GP004018-027656 | MH004018-068606-129 | MH004018-068716-124 | 8 | DUCTILE_IRON | 280.83 |
| CAH | 4018 | GP004018-027666 | MH004018-068769-095 | MH004018-068803-094 | 8 | IRON | 71.38 |
| CAH | 4018 | GP004018-340647 | MH004018-305669-0223 | MH004018-069917-053 | 10 | DUCTILE_IRON | 251.99 |
| CAH | 4018 | GP004018-027664 | MH004018-068731-096 | MH004018-068769-095 | 8 | CLAY | 95.22 |
| CAH | 4018 | GP004018-027660 | MH004018-068732-098 | MH004018-068700-097 | 8 | CLAY | 90.11 |
| CAH | 4018 | GP004018-027657 | MH004018-068707-125 | MH004018-068716-124 | 8 | DUCTILE_IRON | 310.83 |
| CAH | 4018 | GP004018-027737 | MH004018-069478-040 | MH004018-069486-039 | 10 | DUCTILE_IRON | 108.51 |
| CAH | 4018 | GP004018-027740 | MH004018-069486-039 | MH004018-069501-038 | 10 | DUCTILE_IRON | 131.06 |
| CAH | 4018 | GP004018-340648 | MH004018-305670-0224 | MH004018-305669-0223 | 10 | DUCTILE_IRON | 293.34 |
| CAH | 4018 | GP004018-027677 | MH004018-068838-173 | MH004018-068923-172 | 8 | DUCTILE_IRON | 213.72 |
| CAH | 4018 | GP004018-027667 | MH004018-068716-124 | MH004018-068816-123 | 8 | DUCTILE_IRON | 202.44 |
| CAH | 4018 | GP004018-036366 | MH004018-069460-041 | MH004018-069478-040 | 8 | CLAY | 85.80 |
| CAH | 4018 | GP004018-340649 | MH004018-305671-0225 | MH004018-305670-0224 | 10 | DUCTILE_IRON | 306.20 |
| CAH | 4018 | GP004018-027647 | MH004018-068573-128 | MH004018-068627-127 | 8 | DUCTILE_IRON | 154.89 |
| CAH | 4018 | GP004018-027676 | MH004018-068803-094 | MH004018-068912-079 | 8 | IRON | 298.19 |
| CAH | 4018 | GP004018-027687 | MH004018-069067-170 | MH004018-069090-167 | 8 | CIP | 224.01 |
| CAH | 4018 | GP004018-027673 | MH004018-068816-123 | MH004018-068876-122 | 8 | DUCTILE_IRON | 159.06 |
| CAH | 4018 | GP004018-027675 | MH004018-068843-080 | MH004018-068912-079 | 8 | DUCTILE_IRON | 197.15 |
| CAH | 4018 | GP004018-027694 | MH004018-069117-077 | MH004018-069150-076 | 8 | IRON | 244.22 |
| CAH | 4018 | GP004018-027788 | MH004018-069812-011 | MH004018-069840-010A | 12 | CIP/DIP | 194.33 |
| CAH | 4018 | GP004018-028000 | MH004018-069917-053 | MH004018-069878-008 | 10 | DUCTILE_IRON | 271.45 |
| CAH | 4018 | GP004018-027690 | MH004018-069040-078 | MH004018-069117-077 | 8 | IRON | 331.19 |
| CAH | 4018 | GP004018-027782 | MH004018-069779-012 | MH004018-069812-011 | 12 | CIP/DIP | 170.42 |
| CAH | 4018 | GP004018-036381 | MH004018-069847-010 | MH004018-069850-009 | 18 | CIP/DIP | 21.51 |
| CAH | 4018 | GP004018-340651 | MH004018-305674-0227 | MH004018-305672-0226 | 10 | DUCTILE_IRON | 102.72 |
| CAH | 4018 | GP004018-027659 | MH004018-068700-097 | MH004018-068731-096 | 8 | CLAY | 308.75 |
| CAH | 4018 | GP004018-036387 | MH004018-069878-008 | MH004018-069908-003 | 18 | CIP/DIP | 125.49 |
| CAH | 4018 | GP004018-358248 | MH004018-323909-0233 | MH004018-305675-0228 | 10 | DUCTILE_IRON | 134.33 |
| CAH | 4018 | GP004018-027669 | MH004018-068760-174 | MH004018-068838-173 | 8 | CIP | 171.17 |
| CAH | 4018 | GP004018-027686 | MH004018-069049-168 | MH004018-069090-167 | 8 | DUCTILE_IRON | 160.79 |
| CAH | 4018 | GP004018-027684 | MH004018-069022-171 | MH004018-069067-170 | 8 | CIP | 237.98 |
| CAH | 4018 | GP004018-340652 | MH004018-305675-0228 | MH004018-305674-0227 | 10 | DUCTILE_IRON | 233.97 |
| CAH | 4018 | GP004018-036380 | MH004018-069840-010A | MH004018-069847-010 | 12 | CIP/DIP | 48.03 |
| CAH | 4018 | GP004018-438567 | MH004018-068939-121 | MH004018-324549-0252 | 8 | DUCTILE_IRON | 100.27 |
| CAH | 4018 | GP004018-355691 | MH004018-321355-0231 | MH004018-305677-0230 | 8 | IRON_PVC | 87.82 |
| CAH | 4018 | GP004018-340654 | MH004018-305676-0229 | MH004018-305670-0224 | 8 | IRON_PVC | 214.91 |
| CAH | 4018 | GP004018-340655 | MH004018-305677-0230 | MH004018-305676-0229 | 8 | IRON_PVC | 92.23 |
| CAH | 4018 | GP004018-027681 | MH004018-068912-079 | MH004018-427687-078A | 8 | IRON | 208.37 |
| CAH | 4018 | GP004018-475695 | MH004018-427687-078A | MH004018-069040-078 | 8 | IRON | 123.00 |
| CAH | 5006 | GP005006-029488 | MH005006-063892-080J | MH005006-063626-080B | 8 | CLAY | 379.73 |
| CAH | 5006 | GP005006-029469 | MH005006-062988-070 | MH005006-062993-069 | 8 | CIP | 82.10 |
| CAH | 5006 | GP005006-029470 | MH005006-062993-069 | MH005006-063027-068 | 8 | CIP | 57.85 |
| CAH | 5006 | GP005006-029490 | MH005006-063429-080 | MH005006-063402-076 | 8 | CIP | 39.30 |
| CAH | 5006 | GP005006-035270 | MH005006-063404-077 | MH005006-063402-076 | 8 | CLAY | 199.43 |
| CAH | 5006 | GP005006-029518 | MH005006-064342-080M | MH005006-064225-080K | 6 | CLAY | 359.03 |
| CAH | 5006 | GP005006-029489 | MH005006-063626-080B | MH005006-063498-080A | 8 | CLAY | 168.34 |
| CAH | 5006 | GP005006-029477 | MH005006-063402-076 | MH005006-063244-075 | 8 | CLAY | 221.58 |
| CAH | 5006 | GP005006-029276 | MH005006-062757-059 | MH005006-062682-058 | 8 | CIP | 222.34 |
| CAH | 5006 | GP005006-034759 | MH005006-063468-077B | MH005006-063404-077 | 4 | IRON | 203.93 |
| CAH | 5006 | GP005006-029471 | MH005006-063027-068 | MH005006-062934-067 | 8 | CIP | 213.15 |
| CAH | 5006 | GP005006-029472 | MH005006-062934-067 | MH005006-062827-066 | 8 | CIP | 221.81 |
| CAH | 5006 | GP005006-029512 | MH005006-064225-080K | MH005006-063892-080J | 8 | CLAY | 402.41 |
| CAH | 5006 | GP005006-035269 | MH005006-063498-080A | MH005006-063429-080 | 8 | CLAY | 189.60 |
| CAH | 5009 | GP005009-029291 | MH005009-064536-084 | MH005009-064332-083 | 8 | CIP/DIP | 365.60 |

| BASIN | SUBBASIN | ASSETID | USMH_ASSETID | DSMH_ASSETID | DIAMETER (IN) | MATERIAL | LENGTH (LF) |
|---|---|---|---|---|---|---|---|
| CAH | 5009 | GP005009-029290 | MH005009-064604-084A | MH005009-064536-084 | 8 | DUCTILE_IRON | 109.38 |
| FIV | 2002 | GP002002-207448 | MH002000-184958-1119 | MH002002-184957-0086 | 8 | DUCTILE_IRON | 360.26 |
| FIV | 2002 | GP002002-055271 | MH002002-013423-033 | MH002002-013421-032 | 8 | CLAY | 200.32 |
| FIV | 2002 | GP002002-055270 | MH002002-013427-033A | MH002002-013423-033 | 8 | CLAY | 244.57 |
| FIV | 2002 | GP002002-018417 | MH002002-013238-038 | MH002002-424386-036A | 8 | DIP/CLAY | 372.20 |
| FIV | 2002 | GP002002-018416 | MH002002-013094-040 | MH002002-013238-038 | 8 | CLAY | 332.68 |
| FIV | 2002 | GP002002-018160 | MH002002-012965-042 | MH002002-013094-040 | 8 | CLAY | 323.92 |
| FIV | 2002 | GP002002-018166 | MH002002-013095-041 | MH002002-013094-040 | 8 | DIP/CLAY | 386.59 |
| FIV | 2002 | GP002002-018163 | MH002002-012956-049 | MH002002-012965-042 | 8 | CLAY | 400.22 |
| FIV | 2002 | GP002002-018162 | MH002002-012964-050 | MH002002-012965-042 | 8 | CLAY | 399.79 |
| FIV | 2002 | GP002002-018151 | MH002002-013153-037 | MH002002-013247-036 | 8 | CLAY | 188.41 |
| FIV | 2002 | GP002002-473059 | MH002002-424386-036A | MH002002-013247-036 | 8 | CLAY | 77.03 |
| FIV | 2002 | GP002002-018415 | MH002002-013421-032 | MH002002-013458-021 | 8 | CLAY | 70.26 |
| FIV | 2002 | GP002002-207134 | MH002002-184650-0071 | MH002002-184651-0062 | 8 | DUCTILE_IRON | 135.53 |
| FIV | 2002 | GP002002-055753 | MH002002-013098-043 | MH002002-013094-040 | 8 | CLAY | 197.53 |
| FIV | 2002 | GP002002-055755 | MH002002-013101-044 | MH002002-013098-043 | 8 | CLAY | 266.62 |
| FIV | 2002 | GP002002-018165 | MH002002-013244-039 | MH002002-013238-038 | 8 | CLAY | 399.77 |
| FIV | 2002 | GP002002-018152 | MH002002-013429-034 | MH002002-013427-033A | 8 | CLAY | 176.80 |
| FIV | 2002 | GP002002-055272 | MH002002-013247-036 | MH002002-013340-035 | 8 | CLAY | 175.09 |
| FIV | 2002 | GP002002-055273 | MH002002-013340-035 | MH002002-013421-032 | 8 | DIP/CLAY | 151.99 |
| FIV | 2002 | GP002002-207456 | MH002002-184960-0082 | MH002002-184965-0081 | 8 | DUCTILE_IRON | 229.80 |
| FIV | 2002 | GP002002-207455 | MH002002-184965-0081 | MH002002-184961-0080 | 8 | DUCTILE_IRON | 237.56 |
| FIV | 2002 | GP002002-207454 | MH002002-184961-0080 | MH002002-184962-0070 | 8 | DUCTILE_IRON | 147.56 |
| FIV | 2002 | GP002002-207453 | MH002002-184962-0070 | MH002002-184963-0069 | 8 | DUCTILE_IRON | 181.15 |
| FIV | 2002 | GP002002-207452 | MH002002-184963-0069 | MH002002-184966-0068 | 8 | DUCTILE_IRON | 232.24 |
| FIV | 2002 | GP002002-207451 | MH002002-184966-0068 | MH002002-184964-0067 | 8 | DUCTILE_IRON | 232.41 |
| FIV | 2002 | GP002002-207450 | MH002002-184964-0067 | MH002002-184645-0057 | 8 | DUCTILE_IRON | 20.43 |
| FIV | 2002 | GP002002-207129 | MH002002-184646-0058 | MH002002-184645-0057 | 8 | DUCTILE_IRON | 324.71 |
| FIV | 2002 | GP002002-207130 | MH002002-184647-0059 | MH002002-184646-0058 | 8 | DUCTILE_IRON | 78.50 |
| FIV | 2002 | GP002002-207131 | MH002002-184644-0060 | MH002002-184647-0059 | 8 | DUCTILE_IRON | 247.83 |
| FIV | 2002 | GP002002-207132 | MH002002-184643-0061 | MH002002-184644-0060 | 8 | DUCTILE_IRON | 281.14 |
| FIV | 2002 | GP002002-207133 | MH002002-184651-0062 | MH002002-184643-0061 | 8 | DUCTILE_IRON | 164.00 |
| FIV | 2002 | GP002002-207446 | MH002002-184956-0085 | MH002002-184643-0061 | 8 | DUCTILE_IRON | 401.10 |
| FIV | 2002 | GP002002-207447 | MH002002-184957-0086 | MH002002-184956-0085 | 8 | DUCTILE_IRON | 191.36 |
| FIV | 2002 | GP002002-207144 | MH002002-184662-0063 | MH002002-184643-0061 | 8 | DUCTILE_IRON | 279.72 |
| FIV | 2002 | GP002002-207145 | MH002002-184661-0064 | MH002002-184662-0063 | 8 | DUCTILE_IRON | 104.38 |
| FIV | 2002 | GP002002-207146 | MH002002-184660-0065 | MH002002-184661-0064 | 8 | DUCTILE_IRON | 201.77 |
| FIV | 2002 | GP002002-207147 | MH002002-184659-0066 | MH002002-184660-0065 | 8 | DUCTILE_IRON | 130.87 |
| FIV | 2003 | GP002003-055310 | MH002003-429306-028A3 | MH002003-429305-028A2 | 8 | UNK | 290.00 |
| FIV | 2003 | GP002003-055304 | MH002003-012968-028A | MH002003-013076-028 | 8 | CIP | 291.68 |
| FIV | 2005 | GP002005-017901 | MH002005-012619-077Q | MH002005-012618-077P | 8 | DUCTILE_IRON | 289.81 |
| FIV | 2005 | GP002005-017902 | MH002005-012618-077P | MH002005-012571-077O | 8 | IRON | 243.23 |
| FIV | 2005 | GP002005-017903 | MH002005-012571-077O | MH002005-012552-077N | 8 | IRON | 61.20 |
| FIV | 2005 | GP002005-018428 | MH002005-012552-077N | MH002005-012553-077M | 8 | DUCTILE_IRON | 221.83 |
| FIV | 2005 | GP002005-018427 | MH002005-012554-077L | MH002005-012555-077K | 8 | DUCTILE_IRON | 30.28 |
| FIV | 2005 | GP002005-018429 | MH002005-012553-077M | MH002005-012554-077L | 8 | DUCTILE_IRON | 79.56 |
| FIV | 2018 | GP002018-016749 | MH002018-007248-052C | MH002018-007277-052B | 8 | CIP | 117.10 |
| FIV | 2018 | GP002018-016745 | MH002018-007016-052G | MH002018-007098-052F | 8 | CIP | 145.81 |
| FIV | 2018 | GP002018-016746 | MH002018-007098-052F | MH002018-007156-052E | 8 | CIP | 158.84 |
| FIV | 2018 | GP002018-055688 | MH002018-006373-052O | MH002018-006462-052N | 8 | CIP | 114.17 |
| FIV | 2018 | GP002018-016748 | MH002018-007196-052D | MH002018-007248-052C | 8 | CIP | 123.12 |
| FIV | 2018 | GP002018-055689 | MH002018-006462-052N | MH002018-006564-052M | 8 | CIP | 137.36 |
| FIV | 2018 | GP002018-055696 | MH002018-006896-052I | MH002018-007016-052G | 8 | CLAY | 280.81 |
| FIV | 2018 | GP002018-389928 | MH002018-352390-052I4 | MH002018-352389-052I3 | 6 | PVC | 336.04 |
| FIV | 2018 | GP002018-055687 | MH002018-006265-052P | MH002018-006373-052O | 8 | CIP | 180.58 |
| FIV | 2018 | GP002018-055695 | MH002018-006803-052K | MH002018-006896-052I | 8 | CIP | 240.63 |
| FIV | 2018 | GP002018-107723 | MH002018-098348-052I2 | MH002018-098347-052I1 | 8 | CIP | 94.13 |
| FIV | 2018 | GP002018-055694 | MH002018-006664-052T | MH002018-006803-052K | 8 | CIP | 274.66 |
| FIV | 2018 | GP002018-107722 | MH002018-006765-052J | MH002018-098348-052I2 | 8 | CIP | 151.39 |
| FIV | 2018 | GP002018-107724 | MH002018-006610-052L | MH002018-098350-052L1 | 8 | CIP | 186.10 |
| FIV | 2018 | GP002018-107721 | MH002018-098347-052I1 | MH002018-006896-052I | 8 | CLAY | 156.89 |
| FIV | 2018 | GP002018-107725 | MH002018-098350-052L1 | MH002018-006765-052J | 8 | CIP | 199.44 |
| FIV | 2018 | GP002018-055690 | MH002018-006564-052M | MH002018-006610-052L | 8 | CIP | 186.24 |
| FIV | 2018 | GP002018-389927 | MH002018-352389-052I3 | MH002018-098347-052I1 | 8 | CLAY | 176.00 |
| FIV | 2018 | GP002018-016747 | MH002018-007156-052E | MH002018-007196-052D | 8 | CIP | 83.69 |
| FIV | 2025 | GP002025-012760 | MH002025-007972-061 | MH002025-007966-060 | 8 | CLAY | 190.99 |
| FIV | 2025 | GP002025-012995 | MH002025-007964-063 | MH002025-007960-062 | 8 | CLAY | 311.30 |
| FIV | 2025 | GP002025-012996 | MH002025-007769-067 | MH002025-007964-063 | 8 | CLAY | 316.10 |
| FIV | 2025 | GP002025-012987 | MH002025-007777-069 | MH002025-007769-067 | 8 | CLAY | 173.73 |
| FIV | 2025 | GP002025-012758 | MH002025-007960-062 | MH002025-007966-060 | 8 | DUCTILE_IRON | 154.65 |

| BASIN | SUBBASIN | ASSETID | USMH_ASSETID | DSMH_ASSETID | DIAMETER (IN) | MATERIAL | LENGTH (LF) |
|---|---|---|---|---|---|---|---|
| FIV | 2025 | GP002025-012986 | MH002025-007730-068 | MH002025-007769-067 | 8 | CLAY | 71.23 |
| FIV | 2026 | GP002026-013084 | MH002026-005087-075 | MH002026-004983-074 | 8 | CLAY | 239.37 |
| FIV | 2026 | GP002026-013144 | MH002026-004807-094 | MH002026-004806-093 | 8 | CLAY | 322.49 |
| FIV | 2026 | GP002026-013085 | MH002026-005191-076 | MH002026-005087-075 | 8 | CLAY | 249.41 |
| FIV | 2026 | GP002026-013091 | FT002026-013559 | MH002026-005191-076 | 6 | CLAY | 238.67 |
| FIV | 2026 | GP002026-013165 | MH002026-004994-099 | MH002026-004943-098 | 8 | IRON | 142.47 |
| FIV | 2026 | GP002026-114755 | FT002026-013557 | MH002026-004983-074 | 8 | PVC | 61.68 |
| FIV | 2026 | GP002026-013166 | MH002026-005002-101 | MH002026-004994-099 | 8 | CLAY | 174.23 |
| FIV | 2026 | GP002026-013163 | MH002026-004943-098 | MH002026-004886-097 | 8 | CLAY | 150.64 |
| FIV | 2026 | GP002026-013236 | MH002026-004806-093 | MH002026-004629-092 | 8 | CLAY | 359.15 |
| FIV | 2026 | GP002026-013145 | MH002026-004935-094A | MH002026-004807-094 | 8 | CLAY | 365.34 |
| FIV | 2029 | GP002029-013803 | MH002036-384709-005A | MH002029-010449-298 | 8 | DUCTILE_IRON | 271.96 |
| FIV | 2029 | GP002029-427367 | MH002036-010387-005 | MH002036-384709-005A | 8 | CLAY | 57.00 |
| FIV | 2029 | GP002029-013723 | MH002029-012331-082 | MH002029-012516-081 | 8 | CLAY | 344.13 |
| FIV | 2029 | GP002029-013707 | MH002029-012115-084 | MH002029-012224-083 | 8 | CLAY | 193.22 |
| FIV | 2029 | GP002029-013696 | MH002029-011790-086 | MH002029-011891-085 | 8 | CLAY | 176.34 |
| FIV | 2029 | GP002029-013698 | MH002029-011837-101 | MH002029-011949-100 | 8 | CLAY | 245.38 |
| FIV | 2029 | GP002029-013802 | MH002029-010420-294 | MH002029-010428-293 | 8 | CIP | 222.99 |
| FIV | 2029 | GP002029-013463 | MH002029-010449-298 | MH002029-010541-291 | 8 | CIP | 365.93 |
| FIV | 2029 | GP002029-013699 | MH002029-011891-085 | MH002029-012115-084 | 8 | CIP | 401.48 |
| FIV | 2029 | GP002029-013522 | MH002029-012241-097 | MH002029-012338-096 | 8 | CLAY | 200.74 |
| FIV | 2029 | GP002029-013517 | MH002029-012177-098 | MH002029-012241-097 | 8 | CLAY | 88.40 |
| FIV | 2029 | GP002029-013515 | MH002029-012125-099 | MH002029-012177-098 | 8 | CLAY | 106.91 |
| FIV | 2029 | GP002029-013529 | MH002029-012624-088 | MH002029-012528-087 | 8 | CIP | 506.12 |
| FIV | 2029 | GP002029-016422 | MH002029-010501-297 | MH002029-010417-296 | 8 | CIP | 149.91 |
| FIV | 2029 | GP002029-016421 | MH002029-010417-296 | MH002029-010420-294 | 8 | CIP | 398.40 |
| FIV | 2029 | GP002029-013712 | MH002029-012224-083 | MH002029-012331-082 | 8 | CLAY | 197.85 |
| FIV | 2029 | GP002029-013801 | MH002029-010351-295 | MH002029-010420-294 | 8 | CLAY | 150.77 |
| FIV | 2029 | GP002029-013527 | MH002029-012528-087 | MH002029-012516-081 | 10 | CLAY | 191.09 |
| FIV | 2029 | GP002029-016423 | MH002036-010294-001 | MH002029-010417-296 | 8 | CIP | 411.45 |
| FIV | 2029 | GP002029-013701 | MH002029-011949-100 | MH002029-012125-099 | 8 | CLAY | 421.83 |
| FIV | 2030 | GP002030-013994 | MH002030-011556-017 | MH002030-011429-016 | 8 | CLAY | 217.84 |
| FIV | 2030 | GP002030-013919 | MH002030-011661-021 | MH002030-011469-020 | 8 | CLAY | 293.19 |
| FIV | 2030 | GP002030-014001 | MH002030-011699-018 | MH002030-011556-017 | 8 | CLAY | 258.55 |
| FIV | 2030 | GP002030-013915 | MH002030-011429-016 | MH002030-011438-010 | 8 | CLAY | 258.94 |
| FIV | 2030 | GP002030-013987 | MH002030-011290-011 | MH002030-011438-010 | 8 | CIP | 183.95 |
| FIV | 2030 | GP002030-094520 | FT002030-007479 | MH002030-011469-020 | 8 | PVC | 169.70 |
| FIV | 2030 | GP002030-013988 | MH002030-011474-023 | MH002030-011469-020 | 8 | CLAY | 221.38 |
| FIV | 2030 | GP002030-013918 | MH002030-011438-010 | MH002030-011478-008 | 8 | CIP | 221.04 |
| FIV | 2030 | GP002030-013991 | MH002030-011478-008 | MH002030-011530-007A | 8 | CIP | 213.19 |
| FIV | 2030 | GP002030-013993 | MH002030-011530-007A | MH002030-011549-007 | 8 | IRON | 30.40 |
| FIV | 2030 | GP002030-013998 | MH002030-011621-009 | MH002030-011478-008 | 8 | CLAY | 249.27 |
| FIV | 2030 | GP002030-013695 | FT002030-000198 | MH002029-011837-101 | 0 | UNK | 150.00 |
| FIV | 2030 | GP002030-014002 | MH002030-107907-009A | MH002030-011621-009 | 8 | CLAY | 144.32 |
| FIV | 2030 | GP002030-013920 | MH002030-011779-022 | MH002030-011661-021 | 8 | CLAY | 206.08 |
| FIV | 2030 | GP002030-013916 | MH002030-011449-019 | MH002030-011429-016 | 8 | CLAY | 279.68 |
| FIV | 2030 | GP002030-013917 | MH002030-011469-020 | MH002030-011449-019 | 8 | CLAY | 349.46 |
| FIV | 2031 | GP002031-038094 | MH002031-015113-169 | MH002031-015115-168 | 8 | CLAY | 93.95 |
| FIV | 2031 | GP002031-038093 | MH002031-015115-168 | MH002031-015153-167 | 8 | CLAY | 110.91 |
| FIV | 2031 | GP002031-021143 | MH002031-015166-167A | MH002031-015153-167 | 8 | CLAY | 163.79 |
| FIV | 2031 | GP002031-021142 | MH002031-015153-167 | MH002031-015179-166 | 8 | CLAY | 95.33 |
| FIV | 2034 | GP002034-014503 | MH002034-008714-050 | MH002034-008797-048 | 8 | CONCRETE | 140.11 |
| FIV | 2034 | GP002034-014496 | MH002034-008207-072 | MH002034-008439-070 | 8 | CIP | 413.41 |
| FIV | 2034 | GP002034-014542 | MH002034-008329-069A | MH002034-008437-069 | 8 | CIP | 166.27 |
| FIV | 2034 | GP002034-014544 | MH002034-008437-069 | MH002034-008441-068 | 8 | CONCRETE | 176.54 |
| FIV | 2034 | GP002034-014552 | MH002034-008783-049 | MH002034-008797-048 | 8 | CIP | 230.12 |
| FIV | 2034 | GP002034-014553 | MH002034-008797-048 | MH002034-008799-047 | 8 | CIP | 338.30 |
| FIV | 2034 | GP002034-014495 | MH002034-008439-070 | MH002034-008437-069 | 8 | CONCRETE | 159.45 |
| FIV | 2036 | GP002036-014875 | MH002036-010221-002 | MH002036-010294-001 | 8 | CIP | 388.97 |
| FIV | 2036 | GP002036-014872 | MH002036-010224-003 | MH002036-010221-002 | 8 | CIP | 213.39 |
| FIV | 2036 | GP002036-014884 | MH002036-010424-006 | MH002036-010387-005 | 8 | CLAY | 161.97 |
| FIV | 2042 | GP002042-006149 | MH002042-006262-089 | MH002042-006329-088 | 8 | CLAY | 146.19 |
| FIV | 2042 | GP002042-006146 | MH002042-006028-092 | MH002042-006082-091 | 8 | CLAY | 121.18 |
| FIV | 2042 | GP002042-006147 | MH002042-006082-091 | MH002042-006162-090 | 8 | CLAY | 139.93 |
| FIV | 2042 | GP002042-006148 | MH002042-006162-090 | MH002042-006262-089 | 8 | CLAY | 172.31 |
| FIV | 2042 | GP002042-006144 | MH002042-005959-095 | MH002042-005989-094 | 8 | CLAY | 75.52 |
| FIV | 2042 | GP002042-006145 | MH002042-005989-094 | MH002042-006028-092 | 8 | CLAY | 102.33 |
| FIV | 2042 | GP002042-006143 | MH002042-005889-096 | MH002042-005959-095 | 8 | CLAY | 254.64 |
| FIV | 2043 | GP002043-006509 | MH002043-003760-131 | MH002043-003796-130 | 8 | CLAY | 100.15 |
| FIV | 2043 | GP002043-006316 | MH002043-003973-139 | MH002043-003972-135 | 8 | CLAY | 143.34 |

| BASIN | SUBBASIN | ASSETID | USMH_ASSETID | DSMH_ASSETID | DIAMETER (IN) | MATERIAL | LENGTH (LF) |
|---|---|---|---|---|---|---|---|
| FIV | 2043 | GP002043-006516 | MH002043-003964-129 | MH002043-003974-128 | 8 | CLAY | 172.52 |
| FIV | 2043 | GP002043-026772 | MH002043-003762-132 | MH002043-003760-131 | 8 | CLAY | 222.80 |
| FIV | 2043 | GP002043-006515 | MH002043-003972-135 | MH002043-003974-128 | 8 | CLAY | 169.65 |
| FIV | 2043 | GP002043-006514 | MH002043-003971-140 | MH002043-003973-139 | 8 | CLAY | 348.61 |
| FIV | 2043 | GP002043-006511 | MH002043-003796-130 | MH002043-003964-129 | 8 | CLAY | 403.17 |
| FIV | 2044 | GP002044-006667 | MH002044-005759-008 | MH002044-005764-007 | 8 | CLAY | 265.20 |
| FIV | 2044 | GP002044-006666 | MH002044-005758-010 | MH002044-005759-008 | 8 | CLAY | 223.83 |
| FIV | 2044 | GP002044-075931 | MH002044-073511-006 | MH002044-005750-005 | 8 | CLAY | 31.71 |
| FIV | 2044 | GP002044-075930 | MH002044-005764-007 | MH002044-073511-006 | 8 | CLAY | 143.05 |
| FIV | 2044 | GP002044-006662 | MH002044-005702-015 | MH002044-005737-014 | 8 | CLAY | 68.15 |
| FIV | 2044 | GP002044-006663 | MH002044-005737-014 | MH002044-005750-005 | 8 | CLAY | 78.81 |
| FIV | 2044 | GP002044-006654 | MH002044-005527-016A | MH002044-430336-016A1 | 8 | CLAY | 246.43 |
| FIV | 2044 | GP002044-006661 | MH002044-005592-016 | MH002044-005702-015 | 8 | CLAY | 372.11 |
| PRU | 10001 | GP010001-010260 | MH010001-014221-104 | MH010001-014143-102 | 12 | DUCTILE_IRON | 299.26 |
| PRU | 10001 | GP010001-010261 | MH010001-014243-105 | MH010001-014221-104 | 12 | DUCTILE_IRON | 79.29 |
| PRU | 10001 | GP010001-010189 | MH010001-012291-079 | MH010001-012421-078 | 8 | CLAY | 315.06 |
| PRU | 10001 | GP010001-009590 | MH010001-012084-081 | MH010001-012158-080 | 8 | CLAY | 228.57 |
| PRU | 10001 | GP010001-009589 | MH010001-011996-082 | MH010001-012084-081 | 8 | CLAY | 233.71 |
| PRU | 10001 | GP010001-010190 | MH010001-012158-080 | MH010001-012291-079 | 8 | CLAY | 241.54 |
| PRU | 10001 | GP010001-009591 | MH010001-012421-078 | MH010001-012464-077 | 8 | CLAY | 224.47 |
| PRU | 10004 | GP010004-010147 | MH010004-017120-033A | MH010004-017085-032 | 8 | DUCTILE_IRON | 118.14 |
| PRU | 10004 | GP010004-010146 | MH010004-017158-033 | MH010004-017120-033A | 8 | CIP | 100.82 |
| PRU | 10004 | GP010004-009964 | MH010004-017147-034 | MH010004-017158-033 | 8 | CLAY | 70.05 |
| PRU | 10004 | GP010004-009963 | MH010004-017153-035 | MH010004-017147-034 | 8 | CIP | 214.86 |
| PRU | 10005 | GP010005-009848 | MH010005-008303-057A | MH010005-008304-057 | 8 | CLAY | 175.10 |
| PRU | 10005 | GP010005-009847 | MH010005-008432-058 | MH010005-008303-057A | 8 | CLAY | 234.26 |
| PRU | 10005 | GP010005-009850 | MH010005-008478-055 | MH010005-008433-054 | 8 | CLAY | 51.08 |
| PRU | 10005 | GP010005-009849 | MH010005-008304-057 | MH010005-008433-054 | 8 | CLAY | 205.57 |
| SHD | 9000 | GP009000-093464 | MH009000-086799-039 | MH009000-086798-038 | 8 | DUCTILE_IRON | 58.40 |
| SHD | 9000 | GP009000-093465 | MH009000-086800-040 | MH009000-086799-039 | 8 | DUCTILE_IRON | 302.25 |
| SHD | 9003 | GP009003-407527 | FT009003-088150 | MH009003-080851-065 | 8 | CLAY | 6.00 |
| SHD | 9003 | GP009003-085504 | MH009003-081027-051B | MH009003-081007-051A | 8 | CLAY | 160.61 |
| SHD | 9003 | GP009003-111979 | MH009003-080972-082 | MH009003-101880-081A | 8 | IRON | 124.83 |
| SHD | 9003 | GP009003-111978 | MH009003-101879-080A | MH009003-080847-080 | 8 | DUCTILE_IRON | 333.11 |
| SHD | 9003 | GP009003-078877 | MH009003-101878-079A | MH009003-080930-079 | 8 | DUCTILE_IRON | 186.79 |
| SHD | 9003 | GP009003-086184 | MH009003-081056-011 | MH009003-081053-010 | 8 | CLAY | 265.19 |
| SHD | 9003 | GP009003-078822 | MH009003-080800-059 | MH009003-080797-058 | 8 | CLAY | 12.54 |
| SHD | 9003 | GP009003-085505 | FT009003-006322 | MH009003-081027-051B | 8 | CLAY | 168.07 |
| SHD | 9003 | GP009003-090206 | MH009003-080847-080 | MH009003-080845-075 | 8 | DUCTILE_IRON | 320.10 |
| SHD | 9003 | GP009003-078878 | FT009003-006317 | MH009003-080955-096 | 0 | UNK | 106.68 |
| SHD | 9003 | GP009003-078870 | MH009003-080916-049 | MH009003-080867-048 | 8 | CLAY | 299.28 |
| SHD | 9003 | GP009003-111980 | MH009003-101880-081A | MH009003-080965-081 | 8 | DUCTILE_IRON | 216.82 |
| SHD | 9003 | GP009003-078823 | MH009003-080797-058 | MH009003-080790-055 | 8 | CLAY | 169.43 |
| SHD | 9003 | GP009003-078813 | MH009003-080954-094 | MH009003-080946-092 | 8 | CLAY | 105.12 |
| SHD | 9003 | GP009003-090208 | MH009003-080982-083 | MH009003-080972-082 | 8 | IRON | 46.91 |
| SHD | 9003 | GP009003-078855 | MH009003-080844-064 | MH009003-080829-062 | 8 | CLAY | 104.26 |
| SHD | 9003 | GP009003-085503 | MH009003-081007-051A | MH009003-080999-051 | 8 | CLAY | 204.59 |
| SHD | 9003 | GP009003-078872 | MH009003-080782-056 | MH009003-080790-055 | 8 | IRON | 33.14 |
| SHD | 9003 | GP009003-078818 | MH009003-080896-087 | MH009003-080901-086 | 8 | DUCTILE_IRON | 98.10 |
| SHD | 9003 | GP009003-078817 | MH009003-080894-088 | MH009003-080896-087 | 8 | CLAY | 126.98 |
| SHD | 9003 | GP009003-078821 | MH009003-080868-077 | MH009003-080846-076 | 8 | DUCTILE_IRON | 182.72 |
| SHD | 9003 | GP009003-078857 | MH009003-080874-066 | MH009003-080844-064 | 8 | CLAY | 225.60 |
| SHD | 9003 | GP009003-111977 | MH009003-080965-081 | MH009003-101879-080A | 8 | DUCTILE_IRON | 181.67 |
| SHD | 9003 | GP009003-078853 | MH009003-080829-062 | MH009003-080816-061 | 8 | CLAY | 192.37 |
| SHD | 9003 | GP009003-078815 | MH009003-080918-090 | MH009003-080888-089 | 8 | CLAY | 172.89 |
| SHD | 9003 | GP009003-078856 | MH009003-080851-065 | MH009003-080844-064 | 8 | CLAY | 184.19 |
| SHD | 9003 | GP009003-078850 | MH009003-080930-079 | MH009003-080900-078 | 8 | DUCTILE_IRON | 176.43 |
| SHD | 9003 | GP009003-078852 | MH009003-080816-061 | MH009003-080804-060 | 8 | CLAY | 196.91 |
| SHD | 9003 | GP009003-280817 | MH009003-248394-084A | MH009003-080905-084 | 8 | DUCTILE_IRON | 34.60 |
| SHD | 9003 | GP009003-090209 | MH009003-080905-084 | MH009003-080900-078 | 8 | DUCTILE_IRON | 176.72 |
| SHD | 9003 | GP009003-078814 | MH009003-080935-091 | MH009003-080918-090 | 8 | CLAY | 128.74 |
| SHD | 9003 | GP009003-078816 | MH009003-080888-089 | MH009003-080894-088 | 8 | CLAY | 399.32 |
| SHD | 9003 | GP009003-078819 | MH009003-080901-086 | MH009003-080900-078 | 8 | DUCTILE_IRON | 23.26 |
| SHD | 9003 | GP009003-078831 | MH009003-080999-051 | MH009003-080970-050 | 8 | CLAY | 141.75 |
| SHD | 9003 | GP009003-078851 | MH009003-080804-060 | MH009003-080800-059 | 8 | CLAY | 231.74 |
| SHD | 9003 | GP009003-078868 | MH009003-080855-047 | MH009003-080838-046 | 8 | CLAY | 112.27 |
| SHD | 9003 | GP009003-078873 | MH009003-080743-057 | MH009003-080782-056 | 8 | CLAY | 164.43 |
| SHD | 9003 | GP009003-088241 | MH009003-081101-015 | MH009003-081098-014 | 8 | DUCTILE_IRON | 9.30 |
| SHD | 9003 | GP009003-090204 | MH009003-080846-076 | MH009003-080833-074 | 8 | DUCTILE_IRON | 162.55 |
| SHD | 9003 | GP009003-086185 | MH009003-081098-014 | MH009003-081057-012 | 8 | CLAY | 244.54 |

| BASIN | SUBBASIN | ASSETID | USMH_ASSETID | DSMH_ASSETID | DIAMETER (IN) | MATERIAL | LENGTH (LF) |
|---|---|---|---|---|---|---|---|
| SHD | 9003 | GP009003-086186 | MH009003-081057-012 | MH009003-081056-011 | 8 | CLAY | 231.33 |
| SHD | 9003 | GP009003-078812 | MH009003-080979-095 | MH009003-080954-094 | 8 | CLAY | 187.00 |
| SHD | 9003 | GP009003-088240 | MH009003-081160-015A | MH009003-081101-015 | 8 | DUCTILE_IRON | 313.01 |
| SHD | 9003 | GP009003-078811 | MH009003-080955-096 | MH009003-080979-095 | 8 | CLAY | 316.74 |
| SHD | 9003 | GP009003-090203 | MH009003-080845-075 | MH009003-080833-074 | 8 | DUCTILE_IRON | 236.79 |
| SHD | 9003 | GP009003-078874 | MH009003-080677-057A | MH009003-080743-057 | 8 | CLAY | 412.47 |
| SHD | 9003 | GP009003-078871 | MH009003-080970-050 | MH009003-080916-049 | 8 | CLAY | 381.11 |
| SHD | 9003 | GP009003-078849 | MH009003-080946-092 | MH009003-080894-088 | 8 | CLAY | 299.36 |
| SHD | 9003 | GP009003-078869 | MH009003-080867-048 | MH009003-080855-047 | 8 | CLAY | 111.64 |
| SHD | 9003 | GP009003-078854 | MH009003-080822-063 | MH009003-080829-062 | 8 | CLAY | 100.25 |
| SHD | 9003 | GP009003-078820 | MH009003-080900-078 | MH009003-080868-077 | 8 | DUCTILE_IRON | 190.68 |
| SHD | 9003 | GP009003-078848 | MH009003-080944-093 | MH009003-080946-092 | 8 | CLAY | 211.58 |
| SHD | 9004 | GP009004-078881 | MH009004-080761-001B | MH009004-080785-001A | 12 | CLAY | 178.29 |
| SHD | 9004 | GP009004-078880 | MH009004-080785-001A | MH009004-080836-001 | 12 | CLAY | 379.43 |
| SHD | 9005 | GP009005-078949 | MH009005-079953-088 | MH009005-080020-087 | 8 | CLAY | 354.09 |
| SHD | 9005 | GP009005-078989 | MH009005-080705-004 | MH009005-080687-003 | 8 | CLAY | 156.21 |
| SHD | 9005 | GP009005-079049 | MH009005-101882-019A | MH009005-080689-019 | 8 | CLAY | 123.78 |
| SHD | 9005 | GP009005-078927 | MH009005-080795-024 | MH009005-366152-022A1 | 8 | CIP/DIP | 198.00 |
| SHD | 9005 | GP009005-078961 | MH009005-080054-086 | MH009005-080125-085 | 8 | CLAY | 233.78 |
| SHD | 9005 | GP009005-078929 | MH009005-080681-018 | MH009005-080675-016 | 8 | CLAY | 395.63 |
| SHD | 9005 | GP009005-078948 | MH009005-080020-087 | MH009005-080054-086 | 8 | CLAY | 163.14 |
| SHD | 9005 | GP009005-078950 | MH009005-079880-091 | MH009005-079917-090 | 8 | CLAY | 146.74 |
| SHD | 9005 | GP009005-079046 | MH009005-080727-005A | MH009005-080722-005 | 8 | CIP | 153.03 |
| SHD | 9005 | GP009005-078925 | MH009005-080843-026 | MH009005-080817-025 | 8 | IRON | 197.06 |
| SHD | 9005 | GP009005-079043 | FT009005-006301 | MH009005-080705-004 | 8 | CLAY | 115.00 |
| SHD | 9005 | GP009005-078959 | MH009005-079937-089 | MH009005-079953-088 | 8 | IRON | 51.27 |
| SHD | 9005 | GP009005-078923 | MH009005-080895-029 | MH009005-080872-027 | 8 | CLAY | 155.51 |
| SHD | 9005 | GP009005-078951 | MH009005-079833-091A | MH009005-079880-091 | 8 | CLAY | 159.01 |
| SHD | 9005 | GP009005-085744 | MH009005-080927-029B | MH009005-080902-029A | 8 | DUCTILE_IRON | 177.68 |
| SHD | 9005 | GP009005-404971 | MH009005-366152-022A1 | MH009005-285189-022A | 8 | CIP/DIP | 127.63 |
| SHD | 9005 | GP009005-085746 | MH009005-080928-029D | MH009005-080927-029B | 8 | IRON_PVC | 177.38 |
| SHD | 9005 | GP009005-079045 | FT009005-006310 | MH009005-080767-002 | 8 | CLAY | 172.99 |
| SHD | 9005 | GP009005-085743 | MH009005-080902-029A | MH009005-080895-029 | 8 | DUCTILE_IRON | 173.36 |
| SHD | 9005 | GP009005-078917 | MH009005-080694-020 | MH009005-080689-019 | 8 | CLAY | 47.45 |
| SHD | 9005 | GP009005-078943 | MH009005-079917-090 | MH009005-079937-089 | 8 | IRON | 29.91 |
| SHD | 9005 | GP009005-078960 | FT009005-006213 | MH009005-079953-088 | 0 | UNK | 227.88 |
| SHD | 9005 | GP009005-078988 | MH009005-080767-002 | MH009005-080720-001 | 8 | CLAY | 338.20 |
| SHD | 9005 | GP009005-078991 | MH009005-080665-006 | MH009005-080687-003 | 8 | CLAY | 163.73 |
| SHD | 9005 | GP009005-078999 | MH009005-080675-016 | MH009005-080647-015 | 8 | CIP | 260.60 |
| SHD | 9005 | GP009005-078940 | MH009005-426933-0138 | MH009005-080694-020 | 8 | CLAY | 38.47 |
| SHD | 9005 | GP009005-079002 | MH009005-080737-005B | MH009005-080727-005A | 8 | CLAY | 236.33 |
| SHD | 9005 | GP009005-078928 | MH009005-080748-022 | MH009005-426933-0138 | 8 | CLAY | 280.01 |
| SHD | 9005 | GP009005-079001 | MH009005-080768-023 | MH009005-080748-022 | 8 | CLAY | 170.00 |
| SHD | 9005 | GP009005-079044 | FT009005-006305 | MH009005-080705-004 | 8 | CLAY | 131.34 |
| SHD | 9005 | GP009005-085745 | MH009005-080943-029C | MH009005-080927-029B | 8 | DUCTILE_IRON | 75.97 |
| SHD | 9005 | GP009005-078924 | MH009005-080872-027 | MH009005-080843-026 | 8 | DUCTILE_IRON | 198.42 |
| SHD | 9005 | GP009005-078942 | MH009005-080689-019 | MH009005-080681-018 | 8 | CLAY | 174.55 |
| SHD | 9005 | GP009005-078990 | MH009005-080722-005 | MH009005-080705-004 | 8 | CIP | 313.09 |
| SHD | 9005 | GP009005-079047 | FT009005-006308 | MH009005-080722-005 | 8 | CLAY | 183.91 |
| SHD | 9005 | GP009005-085747 | MH009005-080951-029E | MH009005-080928-029D | 8 | PVC | 201.33 |
| SHD | 9005 | GP009005-078992 | MH009005-080627-007 | MH009005-080665-006 | 8 | CLAY | 408.23 |
| SHD | 9005 | GP009005-320487 | MH009005-285189-022A | MH009005-080748-022 | 8 | CIP/DIP | 115.00 |
| SHD | 9005 | GP009005-078926 | MH009005-080817-025 | MH009005-080795-024 | 8 | IRON | 108.25 |
| SHD | 9006 | GP009006-090558 | MH009006-080059-080 | MH009006-080128-079 | 12 | CLAY | 200.25 |
| SHD | 9006 | GP009006-090559 | MH009006-080058-081 | MH009006-080059-080 | 12 | CLAY | 72.86 |
| SHD | 9006 | GP009006-079113 | MH009006-080193-070 | MH009006-080210-066 | 12 | CLAY | 167.06 |
| SHD | 9006 | GP009006-090557 | MH009006-080128-079 | MH009006-080154-078 | 12 | CLAY | 110.23 |
| SHD | 9006 | GP009006-079118 | MH009006-080210-066 | MH009006-080244-062 | 12 | IRON | 329.64 |
| SHD | 9006 | GP009006-090556 | MH009006-080154-078 | MH009006-080193-070 | 12 | CIP | 218.56 |
| SHD | 9006 | GP009006-087676 | MH009006-080057-072 | MH009006-080193-070 | 8 | CLAY | 355.09 |
| SHD | 9008 | GP009008-079416 | MH009008-080962-051 | MH009008-080961-050 | 8 | CLAY | 106.42 |
| SHD | 9008 | GP009008-079377 | MH009008-081208-004C | MH009008-081220-004B | 8 | DUCTILE_IRON | 284.53 |
| SHD | 9008 | GP009008-261923 | MH009008-232690-486 | MH009008-081151-485 | 8 | CIP/DIP | 19.39 |
| SHD | 9008 | GP009008-090083 | MH009008-080914-030A | MH009008-080922-030 | 10 | DUCTILE_IRON | 64.23 |
| SHD | 9008 | GP009008-090082 | MH009008-080885-035B | MH009008-080877-035 | 8 | DUCTILE_IRON | 70.79 |
| SHD | 9008 | GP009008-090241 | MH009008-080882-039 | MH009008-080892-038 | 8 | CIP | 65.70 |
| SHD | 9008 | GP009008-079376 | MH009008-081220-004B | MH009008-365511-004A1 | 8 | DUCTILE_IRON | 320.00 |
| SHD | 9008 | GP009008-079422 | FT009008-006316 | MH009008-080961-050 | 0 | UNK | 111.26 |
| SHD | 9008 | GP009008-086793 | MH009008-081087-485DD | MH009008-081118-485CC | 8 | DUCTILE_IRON | 291.06 |
| SHD | 9008 | GP009008-079378 | MH009008-081205-012 | MH009008-081214-010 | 8 | DUCTILE_IRON | 141.25 |

| BASIN | SUBBASIN | ASSETID | USMH_ASSETID | DSMH_ASSETID | DIAMETER (IN) | MATERIAL | LENGTH (LF) |
|---|---|---|---|---|---|---|---|
| SHD | 9008 | GP009008-079397 | MH009008-080873-034 | MH009008-080889-033 | 8 | CIP/DIP | 93.28 |
| SHD | 9008 | GP009008-112343 | MH009008-081297-003 | MH009008-102640-002A | 10 | DUCTILE_IRON | 54.62 |
| SHD | 9008 | GP009008-079373 | MH009008-081242-005A | MH009008-081253-005 | 8 | DUCTILE_IRON | 144.20 |
| SHD | 9008 | GP009008-079694 | MH009008-081000-485H | MH009008-080950-485G | 8 | DUCTILE_IRON | 351.24 |
| SHD | 9008 | GP009008-079695 | MH009008-080950-485G | MH009008-080952-485F | 8 | CIP/DIP | 29.47 |
| SHD | 9008 | GP009008-079372 | MH009008-081253-005 | MH009008-081281-004 | 8 | DUCTILE_IRON | 360.37 |
| SHD | 9008 | GP009008-084265 | MH009008-081315-002 | FT009008-006417 | 8 | DUCTILE_IRON | 27.04 |
| SHD | 9008 | GP009008-079309 | MH009008-080992-052 | MH009008-080962-051 | 8 | CIP/DIP | 222.87 |
| SHD | 9008 | GP009008-090087 | MH009008-080898-032 | MH009008-080919-031 | 8 | DUCTILE_IRON | 183.99 |
| SHD | 9008 | GP009008-090088 | MH009008-080959-029 | MH009008-080938-028 | 8 | DUCTILE_IRON | 345.23 |
| SHD | 9008 | GP009008-090516 | MH009008-081167-487 | MH009008-232690-486 | 8 | OTH | 198.82 |
| SHD | 9008 | GP009008-079371 | MH009008-081281-004 | MH009008-081297-003 | 8 | DUCTILE_IRON | 101.09 |
| SHD | 9008 | GP009008-086763 | MH009008-081128-485AA | MH009008-081151-485 | 8 | DUCTILE_IRON | 134.82 |
| SHD | 9008 | GP009008-079379 | MH009008-081200-013 | MH009008-081205-012 | 8 | DUCTILE_IRON | 102.69 |
| SHD | 9008 | GP009008-079383 | MH009008-081161-482A | MH009008-081172-482 | 8 | IRON | 150.49 |
| SHD | 9008 | GP009008-079390 | MH009008-080808-042 | MH009008-080848-041 | 10 | CIP/DIP | 307.79 |
| SHD | 9008 | GP009008-079393 | MH009008-081015-485I | MH009008-081000-485H | 8 | DUCTILE_IRON | 348.36 |
| SHD | 9008 | GP009008-090080 | MH009008-080877-035 | MH009008-080914-030A | 10 | DUCTILE_IRON | 272.79 |
| SHD | 9008 | GP009008-079424 | MH009008-232689-050B | MH009008-080961-050 | 0 | UNK | 159.23 |
| SHD | 9008 | GP009008-079219 | MH009008-081095-485A1 | MH009008-081107-485A | 8 | DUCTILE_IRON | 155.38 |
| SHD | 9008 | GP009008-079696 | MH009008-080983-485E | MH009008-081019-485D | 8 | CIP/DIP | 135.93 |
| SHD | 9008 | GP009008-079221 | MH009008-081131-483 | MH009008-081172-482 | 8 | DUCTILE_IRON | 313.94 |
| SHD | 9008 | GP009008-079380 | MH009008-081175-013A | MH009008-081200-013 | 8 | DUCTILE_IRON | 212.83 |
| SHD | 9008 | GP009008-090085 | MH009008-080889-033 | MH009008-080898-032 | 8 | CIP/DIP | 103.60 |
| SHD | 9008 | GP009008-079367 | MH009008-081172-482 | MH009008-081202-012A | 8 | DUCTILE_IRON | 199.29 |
| SHD | 9008 | GP009008-079385 | MH009008-081072-482C | MH009008-081112-482B | 8 | IRON | 401.20 |
| SHD | 9008 | GP009008-079399 | MH009008-081202-012A | MH009008-081205-012 | 8 | DUCTILE_IRON | 136.59 |
| SHD | 9008 | GP009008-090239 | MH009008-080912-037 | MH009008-080924-036 | 8 | DUCTILE_IRON | 108.59 |
| SHD | 9008 | GP009008-079389 | MH009008-080848-041 | MH009008-080860-035A | 8 | CIP/DIP | 110.13 |
| SHD | 9008 | GP009008-086764 | MH009008-081107-485A | MH009008-081128-485AA | 8 | DUCTILE_IRON | 249.63 |
| SHD | 9008 | GP009008-079396 | MH009008-080886-485M | MH009008-080904-485L | 8 | CIP/DIP | 79.04 |
| SHD | 9008 | GP009008-079382 | MH009008-081111-015 | MH009008-081162-014 | 8 | DUCTILE_IRON | 403.52 |
| SHD | 9008 | GP009008-086310 | MH009008-081019-485D | MH009008-081029-485C | 8 | DUCTILE_IRON | 42.09 |
| SHD | 9008 | GP009008-079398 | MH009008-080952-485F | MH009008-080983-485E | 8 | CIP/DIP | 322.47 |
| SHD | 9008 | GP009008-079394 | MH009008-080926-485J | MH009008-080950-485G | 8 | CIP/DIP | 361.42 |
| SHD | 9008 | GP009008-404330 | MH009008-365511-004A1 | MH009008-081257-004A | 8 | DUCTILE_IRON | 99.60 |
| SHD | 9008 | GP009008-090081 | MH009008-080860-035A | MH009008-080877-035 | 8 | CIP/DIP | 147.31 |
| SHD | 9008 | GP009008-090511 | MH009008-081214-010 | FT009008-006424 | 8 | DUCTILE_IRON | 27.90 |
| SHD | 9008 | GP009008-079423 | MH009008-080961-050 | MH009008-080960-049 | 8 | CLAY | 115.89 |
| SHD | 9008 | GP009008-090238 | MH009008-080924-036 | MH009008-080885-035B | 8 | CIP | 342.53 |
| SHD | 9008 | GP009008-090084 | MH009008-080922-030 | MH009008-080938-028 | 10 | DUCTILE_IRON | 64.91 |
| SHD | 9008 | GP009008-079375 | MH009008-081257-004A | MH009008-081281-004 | 8 | DUCTILE_IRON | 152.29 |
| SHD | 9008 | GP009008-086794 | MH009008-081118-485CC | MH009008-081124-485BB | 8 | DUCTILE_IRON | 91.33 |
| SHD | 9008 | GP009008-079374 | MH009008-081228-006 | MH009008-081242-005A | 8 | DUCTILE_IRON | 220.09 |
| SHD | 9008 | GP009008-079420 | FT009008-006314 | MH009008-080962-051 | 0 | UNK | 99.53 |
| SHD | 9008 | GP009008-090240 | MH009008-080892-038 | MH009008-080912-037 | 8 | CIP | 102.44 |
| SHD | 9008 | GP009008-079395 | MH009008-080904-485L | MH009008-080926-485J | 8 | CIP/DIP | 210.43 |
| SHD | 9008 | GP009008-079384 | MH009008-081112-482B | MH009008-081161-482A | 8 | DUCTILE_IRON | 343.98 |
| SHD | 9008 | GP009008-112344 | MH009008-102640-002A | MH009008-081315-002 | 10 | DUCTILE_IRON | 289.82 |
| SHD | 9008 | GP009008-079381 | MH009008-081162-014 | MH009008-081175-013A | 8 | DUCTILE_IRON | 190.23 |
| SHD | 9008 | GP009008-090242 | MH009008-080862-040 | MH009008-080882-039 | 10 | CIP/DIP | 189.43 |
| SHD | 9008 | GP009008-090086 | MH009008-080919-031 | MH009008-080922-030 | 8 | DUCTILE_IRON | 28.65 |
| SHD | 9009 | GP009009-079786 | MH009009-079835-474 | MH009009-079922-473 | 8 | CLAY | 273.15 |
| SHD | 9009 | GP009009-079741 | MH009009-079859-480 | MH009009-079826-479 | 8 | CIP/DIP | 112.74 |
| SHD | 9009 | GP009009-080090 | MH009009-079467-485 | MH009009-079532-483 | 8 | CLAY | 197.66 |
| SHD | 9009 | GP009009-079752 | MH009009-079230-489 | MH009009-079287-488 | 8 | CLAY | 170.87 |
| SHD | 9009 | GP009009-463848 | MH009009-415750-480A1 | MH009009-079859-480 | 8 | IRON | 269.64 |
| SHD | 9009 | GP009009-090468 | MH009009-077780-295 | MH009009-077847-294 | 8 | CIP | 270.81 |
| SHD | 9009 | GP009009-087933 | MH009009-079032-492 | MH009009-079115-491 | 8 | CLAY | 199.67 |
| SHD | 9009 | GP009009-079959 | MH009009-080318-057 | MH009009-084777-056A | 8 | CLAY | 232.56 |
| SHD | 9009 | GP009009-085947 | MH009009-080094-471 | MH009009-080155-056 | 8 | CLAY | 199.05 |
| SHD | 9009 | GP009009-080088 | MH009009-079532-483 | MH009009-079603-482 | 8 | CIP | 274.14 |
| SHD | 9009 | GP009009-079787 | MH009009-079922-473 | MH009009-080006-472 | 8 | CLAY | 401.43 |
| SHD | 9009 | GP009009-087167 | MH009009-078063-279 | MH009009-078104-278 | 8 | CLAY | 105.72 |
| SHD | 9009 | GP009009-079744 | MH009009-079850-476 | MH009009-079835-474 | 8 | CIP/DIP | 96.87 |
| SHD | 9009 | GP009009-089827 | MH009009-077975-288 | MH009009-078013-282 | 8 | CLAY | 271.82 |
| SHD | 9009 | GP009009-090467 | MH009009-077847-294 | MH009009-077848-293 | 8 | CIP | 109.72 |
| SHD | 9009 | GP009009-089828 | MH009009-077953-289 | MH009009-077975-288 | 8 | CLAY | 104.51 |
| SHD | 9009 | GP009009-079751 | MH009009-079178-489A | MH009009-079230-489 | 8 | CLAY | 150.23 |
| SHD | 9009 | GP009009-079753 | MH009009-079287-488 | MH009009-079335-487 | 8 | CLAY | 204.37 |

| BASIN | SUBBASIN | ASSETID | USMH_ASSETID | DSMH_ASSETID | DIAMETER (IN) | MATERIAL | LENGTH (LF) |
|---|---|---|---|---|---|---|---|
| SHD | 9009 | GP009009-080086 | MH009009-079685-481 | MH009009-079780-478 | 8 | CLAY | 340.18 |
| SHD | 9009 | GP009009-087922 | MH009009-078044-280 | MH009009-078063-279 | 8 | CIP | 113.23 |
| SHD | 9009 | GP009009-087169 | MH009009-078013-282 | MH009009-078038-281 | 8 | DUCTILE_IRON | 87.99 |
| SHD | 9009 | GP009009-080089 | MH009009-079575-484 | MH009009-079532-483 | 8 | CLAY | 172.92 |
| SHD | 9009 | GP009009-100062 | FT009009-007962 | MH009009-079780-478 | 6 | PVC | 161.64 |
| SHD | 9009 | GP009009-090470 | MH009009-077769-299 | MH009009-077780-295 | 8 | CIP/DIP | 23.16 |
| SHD | 9009 | GP009009-087930 | MH009009-078831-514 | MH009009-078845-513 | 8 | CLAY | 68.34 |
| SHD | 9009 | GP009009-079969 | MH009009-077906-279B | MH009009-077924-279A | 8 | CIP | 69.15 |
| SHD | 9009 | GP009009-080087 | MH009009-079603-482 | MH009009-079685-481 | 8 | CIP | 349.53 |
| SHD | 9009 | GP009009-089833 | MH009009-077962-283 | MH009009-078013-282 | 8 | DIP/CLAY | 216.63 |
| SHD | 9009 | GP009009-087923 | MH009009-078038-281 | MH009009-078044-280 | 8 | CLAY | 51.71 |
| SHD | 9009 | GP009009-087945 | MH009009-078845-513 | MH009009-078913-493 | 8 | CLAY | 178.89 |
| SHD | 9009 | GP009009-087168 | MH009009-077924-279A | MH009009-078063-279 | 8 | CIP | 267.01 |
| SHD | 9009 | GP009009-079700 | MH009009-080006-472 | MH009009-080094-471 | 8 | CLAY | 351.17 |
| SHD | 9009 | GP009009-087934 | MH009009-079115-491 | MH009009-079178-489A | 8 | CLAY | 199.66 |
| SHD | 9009 | GP009009-079743 | MH009009-079827-477 | MH009009-079850-476 | 8 | CLAY | 29.46 |
| SHD | 9009 | GP009009-079755 | MH009009-079335-487 | MH009009-079445-486 | 8 | CLAY | 395.19 |
| SHD | 9009 | GP009009-080101 | MH009009-102013-480A | MH009009-415750-480A1 | 8 | CLAY | 354.00 |
| SHD | 9009 | GP009009-079707 | MH009009-079780-478 | MH009009-079827-477 | 8 | CLAY | 269.68 |
| SHD | 9009 | GP009009-087935 | MH009009-429404-492A1 | MH009009-079032-492 | 8 | CLAY | 259.03 |
| SHD | 9009 | GP009009-087944 | MH009009-078913-493 | MH009009-078928-492A | 8 | CLAY | 32.48 |
| SHD | 9009 | GP009009-089834 | MH009009-077913-285 | MH009009-077947-284 | 8 | CLAY | 104.11 |
| SHD | 9009 | GP009009-091422 | MH009009-084777-056A | MH009009-080155-056 | 8 | CLAY | 17.46 |
| SHD | 9009 | GP009009-079742 | MH009009-079826-479 | MH009009-079827-477 | 8 | CLAY | 149.15 |
| SHD | 9009 | GP009009-079754 | MH009009-079445-486 | MH009009-079467-485 | 8 | CLAY | 81.58 |
| SHD | 9009 | GP009009-079698 | MH009009-079521-484A | MH009009-079575-484 | 8 | CLAY | 227.08 |
| SHD | 9009 | GP009009-089835 | MH009009-077947-284 | MH009009-077962-283 | 8 | CLAY | 32.70 |
| SHD | 9009 | GP009009-087171 | MH009009-077918-286 | MH009009-077913-285 | 8 | CLAY | 42.27 |
| SHD | 9009 | GP009009-087170 | MH009009-077883-287 | MH009009-077918-286 | 8 | CIP | 146.42 |
| SHD | 9013 | GP009013-086998 | MH009013-077788-033B | MH009013-077808-033A | 8 | CIP | 199.71 |
| SHD | 9013 | GP009013-084748 | FT009013-005839 | MH009013-077751-035A | 8 | CONCRETE | 154.47 |
| SHD | 9013 | GP009013-080437 | MH009013-077968-102 | MH009013-077952-014 | 8 | CLAY | 209.67 |
| SHD | 9013 | GP009013-080448 | MH009013-077991-013A | MH009013-078100-013 | 8 | CLAY | 391.40 |
| SHD | 9013 | GP009013-080441 | MH009013-077952-014 | MH009013-077991-013A | 10 | CLAY | 147.98 |
| SHD | 9013 | GP009013-086989 | MH009013-077751-035A | MH009013-077774-033C | 8 | CIP | 211.33 |
| SHD | 9013 | GP009013-086990 | MH009013-077774-033C | MH009013-077788-033B | 8 | CIP | 136.90 |
| SHD | 9014 | GP009014-086433 | MH009014-077205-107 | MH009014-077218-106 | 8 | CLAY | 145.12 |
| SHD | 9014 | GP009014-080529 | MH009014-101959-034A | MH009014-077851-034 | 8 | CLAY | 285.35 |
| SHD | 9014 | GP009014-080486 | MH009014-077851-034 | MH009014-077856-033 | 8 | CLAY | 59.34 |
| SHD | 9014 | GP009014-080471 | MH009014-077367-096 | MH009014-077303-095 | 8 | CIP | 565.17 |
| SHD | 9014 | GP009014-080558 | MH009014-077357-102 | MH009014-077377-085A | 8 | CLAY | 124.34 |
| SHD | 9014 | GP009014-080560 | MH009014-077270-104 | MH009014-077305-103 | 8 | OTH | 163.45 |
| SHD | 9014 | GP009014-080559 | MH009014-077305-103 | MH009014-077357-102 | 8 | CLAY | 402.94 |
| SHD | 9014 | GP009014-080561 | MH009014-077243-105 | MH009014-077270-104 | 8 | CLAY | 148.12 |
| SHD | 9014 | GP009014-080567 | MH009014-077218-106 | MH009014-077243-105 | 8 | CLAY | 177.43 |
| SHD | 9014 | GP009014-086432 | MH009014-101931-107A | MH009014-077205-107 | 8 | CLAY | 177.20 |
| SHD | 9014 | GP009014-080485 | MH009014-077856-033 | MH009014-077860-031 | 8 | CIP | 398.60 |
| SHD | 9014 | GP009014-080568 | MH009014-077303-095 | MH009014-077189-092 | 8 | CLAY | 404.25 |
| SHD | 9028 | GP009028-081952 | MH009028-076568-013B | MH009028-076563-013A | 10 | OTH | 19.49 |
| SHD | 9028 | GP009028-081953 | MH009028-097826-013C | MH009028-076568-013B | 10 | OTH | 278.73 |
| SHD | 9028 | GP009028-081951 | MH009028-076563-013A | MH009028-076564-013 | 10 | OTH | 263.96 |
| SHD | 9028 | GP009028-081944 | MH009028-076540-017B | MH009028-076550-017A | 10 | CONCRETE | 200.20 |
| SHD | 9028 | GP009028-081948 | MH009028-076550-017A | MH009028-076563-013A | 10 | CONCRETE | 43.91 |
| SHD | 9041 | GP009041-087467 | MH009041-074889-046C | MH009041-074872-046B | 8 | CIP | 111.49 |
| SHD | 9041 | GP009041-087468 | MH009041-074943-046D | MH009041-074889-046C | 8 | CLAY | 190.10 |
| SHD | 9041 | GP009041-087466 | MH009041-074872-046B | MH009041-074855-046A | 8 | CIP | 211.29 |
| SHD | 9044 | GP009044-085675 | MH009044-073963-010C | MH009044-073939-010B | 8 | CLAY | 311.04 |
| SHD | 9044 | GP009044-085674 | MH009044-073992-010D | MH009044-073963-010C | 8 | CLAY | 235.06 |
| SHD | 9052 | GP009052-084294 | MH009052-082970-203 | MH009052-082969-202 | 10 | CLAY | 254.86 |
| SHD | 9052 | GP009052-084926 | MH009052-083146-150 | MH009052-083154-149 | 8 | CLAY | 316.02 |
| SHD | 9052 | GP009052-087252 | MH009052-083154-149 | MH009052-083155-148 | 8 | CLAY | 102.57 |
| SHD | 9052 | GP009052-084311 | MH009052-082966-208 | MH009052-082965-207 | 8 | CLAY | 226.70 |
| SHD | 9052 | GP009052-475511 | MH009052-427500-205A | MH009052-082968-205 | 8 | CLAY | 46.95 |
| SHD | 9052 | GP009052-084310 | MH009052-082967-209 | MH009052-082966-208 | 8 | CLAY | 362.08 |
| SHD | 9052 | GP009052-090788 | MH009052-083045-199 | MH009052-083043-198 | 8 | DUCTILE_IRON | 242.68 |
| SHD | 9052 | GP009052-090786 | MH009052-083043-198 | MH009052-083044-197 | 8 | CLAY | 145.92 |
| SHD | 9052 | GP009052-090787 | MH009052-083044-197 | MH009052-083027-195 | 8 | CLAY | 288.74 |
| SHD | 9052 | GP009052-084312 | MH009052-082965-207 | MH009052-082964-206 | 8 | CLAY | 189.06 |
| SHD | 9052 | GP009052-084313 | MH009052-082964-206 | MH009052-427500-205A | 8 | CLAY | 109.65 |
| SHD | 9052 | GP009052-084293 | MH009052-082972-204 | MH009052-082970-203 | 8 | CLAY | 413.76 |

| BASIN | SUBBASIN | ASSETID | USMH_ASSETID | DSMH_ASSETID | DIAMETER (IN) | MATERIAL | LENGTH (LF) |
|---|---|---|---|---|---|---|---|
| SHD | 9052 | GP009052-087091 | MH009052-083025-194 | MH009052-083024-193 | 8 | CLAY | 240.05 |
| SHD | 9052 | GP009052-087092 | MH009052-083027-195 | MH009052-083025-194 | 8 | CLAY | 109.56 |
| SHD | 9052 | GP009052-087090 | MH009052-083024-193 | MH009052-083023-192 | 8 | CLAY | 344.22 |
| SHD | 9052 | GP009052-087120 | FT009052-112169 | MH009052-083027-195 | 8 | CLAY | 365.00 |
| SHD | 9052 | GP009052-087275 | MH009052-083099-036 | MH009052-083109-033 | 8 | DUCTILE_IRON | 147.24 |
| SHD | 9052 | GP009052-087276 | MH009052-083100-037 | MH009052-083099-036 | 8 | DUCTILE_IRON | 42.79 |
| SHD | 9052 | GP009052-087277 | MH009052-083118-038 | MH009052-083100-037 | 8 | DUCTILE_IRON | 326.68 |
| SHD | 9052 | GP009052-086230 | MH009052-083117-034 | MH009052-083109-033 | 8 | TRUSS | 100.61 |
| SHD | 9052 | GP009052-086231 | MH009052-083114-035 | MH009052-083117-034 | 8 | TRUSS | 165.18 |
| SHD | 9052 | GP009052-085784 | MH009052-083164-070 | MH009052-083194-068 | 0 | UNK | 210.53 |
| SHD | 9052 | GP009052-085783 | MH009052-083196-069 | MH009052-083194-068 | 8 | DUCTILE_IRON | 234.23 |
| SHD | 9052 | GP009052-085782 | MH009052-083194-068 | MH009052-083209-067 | 0 | UNK | 78.59 |
| SHD | 9052 | GP009052-084928 | MH009052-083209-067 | MH009052-083283-066 | 0 | UNK | 331.47 |
| SHD | 9052 | GP009052-084927 | MH009052-083283-066 | MH009052-083293-065 | 0 | UNK | 97.54 |
| SHD | 9052 | GP009052-086988 | MH009052-083293-065 | MH009052-083306-064 | 0 | UNK | 30.63 |
| TRS | 6002 | GP006002-156689 | MH006002-140600-0421 | MH006002-140601-0420 | 8 | DUCTILE_IRON | 203.56 |
| TRS | 6002 | GP006002-156688 | MH006002-140601-0420 | MH006003-086753-064 | 8 | DUCTILE_IRON | 192.06 |
| TRS | 6003 | GP006003-194360 | MH006003-173113-0124 | MH006003-173114-0123 | 8 | DUCTILE_IRON | 330.52 |
| TRS | 6003 | GP006003-022627 | MH006003-013404-018L | MH006003-013478-018K | 10 | DUCTILE_IRON | 162.05 |
| TRS | 6003 | GP006003-021647 | MH006003-013834-018G | MH006003-013912-018F | 12 | DUCTILE_IRON | 363.44 |
| TRS | 6003 | GP006003-194363 | MH006003-173116-0121 | MH006003-173117-0120 | 8 | DUCTILE_IRON | 280.90 |
| TRS | 6003 | GP006003-194359 | MH006003-173112-0125 | MH006003-173113-0124 | 8 | DUCTILE_IRON | 156.23 |
| TRS | 6003 | GP006003-022860 | MH006003-013478-018K | MH006003-013524-018J | 10 | DUCTILE_IRON | 89.28 |
| TRS | 6003 | GP006003-194367 | MH006003-173119-0118 | MH006003-173120-0117 | 8 | DUCTILE_IRON | 251.03 |
| TRS | 6003 | GP006003-194620 | MH006003-173389-0105 | MH006003-173121-0104 | 8 | DUCTILE_IRON | 262.20 |
| TRS | 6003 | GP006003-194358 | MH006003-173111-0126 | MH006003-173112-0125 | 8 | DUCTILE_IRON | 170.31 |
| TRS | 6003 | GP006003-022474 | MH006003-013163-018N | MH006003-013236-018M | 10 | DUCTILE_IRON | 176.41 |
| TRS | 6003 | GP006003-022582 | MH006003-013021-018O | MH006003-013163-018N | 10 | DUCTILE_IRON | 384.74 |
| TRS | 6003 | GP006003-194362 | MH006003-173115-0122 | MH006003-173116-0121 | 8 | DUCTILE_IRON | 149.14 |
| TRS | 6003 | GP006003-194361 | MH006003-173114-0123 | MH006003-173115-0122 | 8 | DUCTILE_IRON | 180.07 |
| TRS | 6003 | GP006003-093681 | MH006003-086757-063 | MH006003-086760-062 | 8 | DUCTILE_IRON | 200.50 |
| TRS | 6003 | GP006003-021648 | MH006003-013912-018F | MH006003-013977-018E1 | 12 | DUCTILE_IRON | 384.46 |
| TRS | 6003 | GP006003-021645 | MH006003-013627-018I | MH006003-013722-018H | 12 | DUCTILE_IRON | 350.67 |
| TRS | 6003 | GP006003-093682 | MH006003-086753-064 | MH006003-086757-063 | 8 | DUCTILE_IRON | 176.69 |
| TRS | 6003 | GP006003-194364 | MH006003-173117-0120 | MH006003-173118-0119 | 8 | DUCTILE_IRON | 273.81 |
| TRS | 6003 | GP006003-093680 | MH006003-086760-062 | MH006003-013021-018O | 8 | DUCTILE_IRON | 130.32 |
| TRS | 6003 | GP006003-022859 | MH006003-013524-018J | MH006003-013627-018I | 12 | DUCTILE_IRON | 350.12 |
| TRS | 6003 | GP006003-194366 | MH006003-173120-0117 | MH006003-173121-0104 | 8 | DUCTILE_IRON | 63.91 |
| TRS | 6003 | GP006003-022628 | MH006003-013353-018P | MH006003-013404-018L | 8 | DUCTILE_IRON | 382.25 |
| TRS | 6003 | GP006003-194365 | MH006003-173118-0119 | MH006003-173119-0118 | 8 | DUCTILE_IRON | 250.36 |
| TRS | 6003 | GP006003-021646 | MH006003-013722-018H | MH006003-013834-018G | 12 | DUCTILE_IRON | 349.30 |
| TRS | 6003 | GP006003-022583 | MH006003-013236-018M | MH006003-013404-018L | 10 | DUCTILE_IRON | 368.98 |
| TUR | 7001 | GP007001-023130 | FT007001-000013 | MH007001-000875-038 | 8 | CLAY | 250.61 |
| TUR | 7001 | GP007001-100181 | MH007001-090699-133 | MH007001-090691-131 | 8 | DUCTILE_IRON | 44.00 |
| TUR | 7001 | GP007001-022994 | MH007001-000564-098 | MH007001-000565-096 | 8 | IRON | 292.17 |
| TUR | 7001 | GP007001-025171 | MH007001-000567-099O | MH007001-000550-099A | 8 | DUCTILE_IRON | 174.75 |
| TUR | 7001 | GP007001-037791 | MH007001-000543-099T | MH007001-000554-099R | 8 | DUCTILE_IRON | 174.57 |
| TUR | 7001 | GP007001-023058 | MH007001-000566-117 | MH007001-000570-116 | 8 | CLAY | 172.34 |
| TUR | 7001 | GP007001-023105 | MH007001-000689-127 | MH007001-000674-126 | 8 | TRUSS | 119.35 |
| TUR | 7001 | GP007001-023114 | MH007001-000715-129 | MH007001-000708-128 | 8 | TRUSS | 189.85 |
| TUR | 7001 | GP007001-037776 | MH007001-000507-099K | MH007001-000512-099J | 8 | DUCTILE_IRON | 152.95 |
| TUR | 7001 | GP007001-100170 | MH007001-090691-131 | MH007001-000566-117 | 8 | DUCTILE_IRON | 215.83 |
| TUR | 7001 | GP007001-023018 | MH007001-000692-121 | MH007001-000690-073 | 8 | TRUSS | 135.29 |
| TUR | 7001 | GP007001-037777 | MH007001-000529-099F | MH007001-000526-099E | 8 | DUCTILE_IRON | 121.11 |
| TUR | 7001 | GP007001-023022 | MH007001-000663-124 | MH007001-000702-123 | 8 | TRUSS | 312.64 |
| TUR | 7001 | GP007001-023003 | MH007001-000608-103 | MH007001-000604-102 | 8 | CLAY | 163.20 |
| TUR | 7001 | GP007001-037790 | MH007001-000505-119C | MH007001-000513-119B | 8 | PVC | 171.77 |
| TUR | 7001 | GP007001-037778 | MH007001-000522-099H | MH007001-000529-099F | 8 | PVC | 111.40 |
| TUR | 7001 | GP007001-037800 | MH007001-000516-099N | MH007001-000514-099M | 8 | DUCTILE_IRON | 67.71 |
| TUR | 7001 | GP007001-023050 | MH007001-000536-119 | MH007001-000563-118 | 8 | IRON | 401.70 |
| TUR | 7001 | GP007001-037787 | MH007001-000524-119D | MH007001-000523-119A | 8 | DUCTILE_IRON | 76.68 |
| TUR | 7001 | GP007001-023128 | MH007001-000856-037 | MH007001-000851-036 | 8 | CLAY | 103.35 |
| TUR | 7001 | GP007001-022999 | MH007001-000565-096 | MH007001-000583-093 | 8 | CLAY | 230.85 |
| TUR | 7001 | GP007001-023111 | MH007001-000708-128 | MH007001-000702-123 | 8 | DUCTILE_IRON | 262.99 |
| TUR | 7001 | GP007001-098212 | MH007001-090268-099Y | MH007001-090269-099X | 8 | DUCTILE_IRON | 139.42 |
| TUR | 7001 | GP007001-023008 | MH007001-000622-092 | MH007001-000649-074 | 8 | CLAY | 294.17 |
| TUR | 7001 | GP007001-023019 | MH007001-000694-122 | MH007001-000692-121 | 8 | DUCTILE_IRON | 97.19 |
| TUR | 7001 | GP007001-101046 | MH007001-090697-136 | MH007001-090696-135 | 8 | DUCTILE_IRON | 225.16 |
| TUR | 7001 | GP007001-023102 | MH007001-000674-126 | MH007001-000663-124 | 8 | TRUSS | 141.69 |
| TUR | 7001 | GP007001-023053 | MH007001-000636-125 | MH007001-000663-124 | 8 | TRUSS | 236.70 |

| BASIN | SUBBASIN | ASSETID | USMH_ASSETID | DSMH_ASSETID | DIAMETER (IN) | MATERIAL | LENGTH (LF) |
|---|---|---|---|---|---|---|---|
| TUR | 7001 | GP007001-022998 | MH007001-000577-115 | MH007001-000581-105 | 8 | DUCTILE_IRON | 121.45 |
| TUR | 7001 | GP007001-037780 | MH007001-000512-099J | MH007001-000515-099I | 8 | DUCTILE_IRON | 207.57 |
| TUR | 7001 | GP007001-037784 | MH007001-000538-099C | MH007001-000546-099B | 8 | DUCTILE_IRON | 146.33 |
| TUR | 7001 | GP007001-023129 | MH007001-000875-038 | MH007001-000856-037 | 8 | CLAY | 376.54 |
| TUR | 7001 | GP007001-037799 | MH007001-000514-099M | MH007001-000512-099J | 8 | DUCTILE_IRON | 93.10 |
| TUR | 7001 | GP007001-022997 | MH007001-000570-116 | MH007001-000577-115 | 8 | DUCTILE_IRON | 396.67 |
| TUR | 7001 | GP007001-023098 | MH007001-000644-076 | MH007001-000671-075 | 8 | CLAY | 231.07 |
| TUR | 7001 | GP007001-023066 | MH007001-000581-105 | MH007001-000593-104 | 8 | CLAY | 310.85 |
| TUR | 7001 | GP007001-037783 | MH007001-000542-099G | MH007001-000529-099F | 8 | PVC | 275.97 |
| TUR | 7001 | GP007001-023131 | MH007001-000879-039 | MH007001-000875-038 | 8 | CLAY | 73.84 |
| TUR | 7001 | GP007001-023014 | MH007001-000680-071 | MH007001-000666-070 | 8 | TRUSS | 110.90 |
| TUR | 7001 | GP007001-023016 | MH007001-000685-072 | MH007001-000680-071 | 8 | DUCTILE_IRON | 49.33 |
| TUR | 7001 | GP007001-023005 | MH007001-000583-093 | MH007001-000622-092 | 8 | CLAY | 323.82 |
| TUR | 7001 | GP007001-023007 | MH007001-000619-077 | MH007001-000644-076 | 8 | CLAY | 279.71 |
| TUR | 7001 | GP007001-023017 | MH007001-000690-073 | MH007001-000685-072 | 8 | TRUSS | 271.83 |
| TUR | 7001 | GP007001-023023 | MH007001-000702-123 | MH007001-000694-122 | 8 | TRUSS | 134.12 |
| TUR | 7001 | GP007001-023097 | MH007001-000649-074 | MH007001-000666-070 | 8 | CLAY | 172.92 |
| TUR | 7001 | GP007001-023099 | MH007001-000671-075 | MH007001-000649-074 | 8 | CLAY | 249.46 |
| TUR | 7001 | GP007001-037775 | MH007001-000502-099L | MH007001-000507-099K | 8 | DUCTILE_IRON | 145.26 |
| TUR | 7001 | GP007001-037785 | MH007001-000546-099B | MH007001-000550-099A | 8 | DUCTILE_IRON | 92.44 |
| TUR | 7001 | GP007001-037786 | MH007001-000523-119A | MH007001-000536-119 | 8 | PVC | 219.13 |
| TUR | 7001 | GP007001-037789 | MH007001-000513-119B | MH007001-000523-119A | 8 | PVC | 229.23 |
| TUR | 7001 | GP007001-098210 | MH007001-090269-099X | MH007001-090270-099W | 8 | DUCTILE_IRON | 239.29 |
| TUR | 7001 | GP007001-023071 | MH007001-000593-104 | MH007001-000608-103 | 8 | CLAY | 264.27 |
| TUR | 7001 | GP007001-023001 | MH007001-000595-101 | MH007001-000584-100 | 8 | CLAY | 161.20 |
| TUR | 7001 | GP007001-110481 | MH007001-101360-077A | MH007001-000619-077 | 8 | CLAY | 124.27 |
| TUR | 7001 | GP007001-023000 | MH007001-000584-100 | MH007001-000564-098 | 8 | CLAY | 248.00 |
| TUR | 7001 | GP007001-025175 | MH007001-000552-099S | MH007001-000554-099R | 8 | DUCTILE_IRON | 126.50 |
| TUR | 7001 | GP007001-023002 | MH007001-000604-102 | MH007001-000595-101 | 8 | CLAY | 165.78 |
| TUR | 7001 | GP007001-022995 | MH007001-000563-118 | MH007001-000570-116 | 8 | CLAY | 62.85 |
| TUR | 7001 | GP007001-037788 | MH007001-000525-119E | MH007001-000524-119D | 8 | PVC | 85.40 |
| TUR | 7001 | GP007001-098213 | MH007001-090266-099AA | MH007001-090267-099Z | 8 | DUCTILE_IRON | 304.83 |
| TUR | 7001 | GP007001-023054 | MH007001-000548-115B | MH007001-000547-115A | 8 | CLAY | 285.11 |
| TUR | 7001 | GP007001-101045 | MH007001-090698-134 | MH007001-090699-133 | 8 | DUCTILE_IRON | 299.02 |
| TUR | 7001 | GP007001-101047 | MH007001-090696-135 | MH007001-090698-134 | 8 | DUCTILE_IRON | 300.83 |
| TUR | 7001 | GP007001-098214 | MH007001-090267-099Z | MH007001-090268-099Y | 8 | DUCTILE_IRON | 150.84 |
| TUR | 7001 | GP007001-023132 | MH007001-000881-040 | MH007001-000879-039 | 8 | CLAY | 264.87 |
| TUR | 7001 | GP007001-025174 | MH007001-000554-099R | MH007001-000572-099Q | 8 | DUCTILE_IRON | 312.16 |
| TUR | 7003 | GP007003-094110 | MH007003-086486-059R1 | MH007003-086485-059R | 8 | DUCTILE_IRON | 190.94 |
| TUR | 7003 | GP007003-108038 | MH007003-098604-059V | MH007003-098603-059U | 8 | DUCTILE_IRON | 247.23 |
| TUR | 7003 | GP007003-094113 | MH007003-086497-059R4 | MH007003-086494-059R3 | 8 | DUCTILE_IRON | 62.84 |
| TUR | 7003 | GP007003-094111 | MH007003-086489-059R2 | MH007003-086486-059R1 | 8 | DUCTILE_IRON | 107.25 |
| TUR | 7003 | GP007003-094150 | MH007003-086505-059R5 | MH007003-086497-059R4 | 8 | DUCTILE_IRON | 274.71 |
| TUR | 7003 | GP007003-108043 | MH007003-098612-059K | MH007003-001853-059J | 8 | DUCTILE_IRON | 175.62 |
| TUR | 7003 | GP007003-094112 | MH007003-086494-059R3 | MH007003-086489-059R2 | 8 | DUCTILE_IRON | 144.45 |
| TUR | 7003 | GP007003-345456 | MH007003-309517-0291 | MH007003-309516-0290 | 8 | PVC | 283.99 |
| TUR | 7003 | GP007003-108039 | MH007003-098605-059W | MH007003-098604-059V | 8 | DUCTILE_IRON | 195.82 |
| TUR | 7003 | GP007003-094114 | MH007003-086499-059S | MH007003-086485-059R | 8 | DUCTILE_IRON | 298.54 |
| TUR | 7003 | GP007003-108046 | MH007003-098616-059M | MH007003-098613-059L | 8 | DUCTILE_IRON | 103.77 |
| TUR | 7003 | GP007003-037172 | MH007003-001825-059I | MH007003-001823-059D | 8 | DUCTILE_IRON | 265.85 |
| TUR | 7003 | GP007003-037278 | MH007003-001732-059P | MH007003-001745-059O | 8 | DUCTILE_IRON | 98.65 |
| TUR | 7003 | GP007003-037279 | MH007003-001745-059O | MH007003-001825-059I | 8 | DUCTILE_IRON | 399.62 |
| TUR | 7003 | GP007003-108037 | MH007003-098603-059U | MH007003-086508-059T | 8 | DUCTILE_IRON | 169.66 |
| TUR | 7003 | GP007003-023670 | MH007003-000983-020 | MH007003-000985-019 | 8 | CLAY | 244.74 |
| TUR | 7003 | GP007003-108045 | MH007003-098614-059N | MH007003-098613-059L | 8 | DUCTILE_IRON | 223.52 |
| TUR | 7003 | GP007003-023669 | MH007003-000973-021 | MH007003-000983-020 | 8 | CLAY | 113.73 |
| TUR | 7003 | GP007003-108041 | MH007003-098607-059Y | MH007003-098606-059X | 8 | DUCTILE_IRON | 71.90 |
| TUR | 7003 | GP007003-108044 | MH007003-098613-059L | MH007003-098612-059K | 8 | DUCTILE_IRON | 242.74 |
| TUR | 7003 | GP007003-094151 | MH007003-086508-059T | MH007003-086499-059S | 8 | DUCTILE_IRON | 314.22 |
| TUR | 7003 | GP007003-094109 | MH007003-086485-059R | MH007003-001722-059Q | 8 | DUCTILE_IRON | 98.59 |
| TUR | 7003 | GP007003-037173 | MH007003-001853-059J | MH007003-001825-059I | 8 | DUCTILE_IRON | 98.40 |
| TUR | 7003 | GP007003-037168 | MH007003-001722-059Q | MH007003-001732-059P | 8 | DUCTILE_IRON | 139.65 |
| TUR | 7003 | GP007003-023671 | MH007003-000985-019 | MH007003-000994-018 | 8 | CLAY | 232.55 |
| TUR | 7003 | GP007003-023666 | MH007003-000963-022 | MH007003-000973-021 | 8 | CLAY | 153.10 |
| TUR | 7003 | GP007003-108042 | MH007003-098608-059R6 | MH007003-086505-059R5 | 8 | DUCTILE_IRON | 324.08 |
| TUR | 7003 | GP007003-108040 | MH007003-098606-059X | MH007003-098605-059W | 8 | DUCTILE_IRON | 67.48 |
| TUR | 7003 | GP007003-345457 | MH007003-309518-0292 | MH007003-309517-0291 | 8 | PVC | 68.54 |
| TUR | 7003 | GP007003-037169 | MH007003-001849-059E | MH007003-001823-059D | 8 | DUCTILE_IRON | 97.29 |
| TUR | 7004 | GP007004-024042 | MH007004-002845-066 | MH007004-002796-065 | 8 | CLAY | 218.98 |
| TUR | 7004 | GP007004-024081 | MH007004-002987-071 | MH007004-002930-070 | 8 | IRON | 203.50 |

| BASIN | SUBBASIN | ASSETID | USMH_ASSETID | DSMH_ASSETID | DIAMETER (IN) | MATERIAL | LENGTH (LF) |
|---|---|---|---|---|---|---|---|
| TUR | 7004 | GP007004-024033 | MH007004-002796-065 | MH007004-002795-064 | 8 | CLAY | 95.85 |
| TUR | 7004 | GP007004-024064 | MH007004-002929-072 | MH007004-002930-070 | 8 | CLAY | 189.73 |
| TUR | 7004 | GP007004-024034 | MH007004-002794-075 | MH007004-002797-074 | 8 | CLAY | 170.44 |
| TUR | 7004 | GP007004-024054 | MH007004-002894-067 | MH007004-002845-066 | 8 | CLAY | 119.92 |
| TUR | 7004 | GP007004-024059 | MH007004-002910-069 | MH007004-002894-067 | 8 | CLAY | 75.23 |
| TUR | 7004 | GP007004-024065 | MH007004-002930-070 | MH007004-002910-069 | 8 | CLAY | 118.41 |
| TUR | 7004 | GP007004-024063 | MH007004-002866-073 | MH007004-002929-072 | 8 | CLAY | 187.40 |
| TUR | 7004 | GP007004-024060 | MH007004-002915-068 | MH007004-002894-067 | 8 | CLAY | 145.44 |
| TUR | 7004 | GP007004-024035 | MH007004-002797-074 | MH007004-002796-065 | 8 | CLAY | 201.97 |
| VAL | 1001 | GP001001-071868 | MH001001-071184-078 | MH001001-071168-076 | 8 | PVC | 158.56 |
| VAL | 1001 | GP001001-071869 | MH001001-071195-079 | MH001001-071184-078 | 8 | PVC | 214.17 |
| VAL | 1001 | GP001001-125629 | MH001001-114622-0103 | MH001001-114623-0102 | 8 | IRON_PVC | 163.25 |
| VAL | 1001 | GP001001-125630 | MH001001-114623-0102 | MH001001-114624-0098 | 8 | PVC | 177.15 |
| VAL | 1001 | GP001001-071873 | MH001001-071204-075 | MH001001-071185-074 | 8 | IRON | 86.28 |
| VAL | 1001 | GP001001-125948 | MH001001-114951-0112 | MH001001-114635-0110 | 8 | PVC | 261.51 |
| VAL | 1001 | GP001001-125958 | MH001001-115260-0121 | MH001001-115261-0120 | 8 | PVC | 97.08 |
| VAL | 1001 | GP001001-071870 | MH001001-071197-080 | MH001001-071195-079 | 8 | PVC | 123.87 |
| VAL | 1001 | GP001001-125314 | MH001001-114632-0096 | MH001001-114631-0095 | 8 | PVC | 224.59 |
| VAL | 1001 | GP001001-125627 | MH001001-114621-0104 | MH001001-114622-0103 | 8 | PVC | 162.16 |
| VAL | 1001 | GP001001-125633 | MH001001-114942-0107 | MH001001-114943-0106 | 8 | IRON_PVC | 211.97 |
| VAL | 1001 | GP001001-125945 | MH001001-114948-0115 | MH001001-114949-0114 | 8 | PVC | 287.69 |
| VAL | 1001 | GP001001-125959 | MH001001-115261-0120 | MH001001-115262-0119 | 8 | PVC | 137.43 |
| VAL | 1001 | GP001001-125947 | MH001001-114950-0113 | MH001001-114951-0112 | 8 | DUCTILE_IRON | 81.77 |
| VAL | 1001 | GP001001-126264 | MH001001-115289-091 | MH001001-115290-090 | 8 | DUCTILE_IRON | 86.80 |
| VAL | 1001 | GP001001-070494 | MH001001-071065-080C | MH001001-071048-080B | 8 | PVC | 137.84 |
| VAL | 1001 | GP001001-071860 | MH001001-071090-032L | MH001001-071096-032K | 8 | PVC | 62.37 |
| VAL | 1001 | GP001001-070498 | MH001001-071125-083 | MH001001-071099-082 | 8 | PVC | 394.13 |
| VAL | 1001 | GP001001-070495 | MH001001-071069-080D | MH001001-071065-080C | 8 | PVC | 33.68 |
| VAL | 1001 | GP001001-125636 | MH001001-114635-0110 | MH001001-114940-0109 | 8 | PVC | 126.82 |
| VAL | 1001 | GP001001-125960 | MH001001-115262-0119 | MH001001-114945-0118 | 8 | IRON_PVC | 180.75 |
| VAL | 1001 | GP001001-070458 | MH001001-071084-080E | MH001001-071069-080D | 8 | PVC | 152.12 |
| VAL | 1001 | GP001001-125946 | MH001001-114949-0114 | MH001001-114950-0113 | 8 | PVC | 150.62 |
| VAL | 1001 | GP001001-126263 | MH001001-115288-092 | MH001001-115289-091 | 8 | PVC | 85.98 |
| VAL | 1001 | GP001001-070493 | MH001001-071048-080B | MH001001-071043-080A | 8 | PVC | 42.74 |
| VAL | 1001 | GP001001-125312 | MH001001-114624-0098 | MH001001-114633-0097 | 8 | DUCTILE_IRON | 70.98 |
| VAL | 1001 | GP001001-125943 | MH001001-114946-0117 | MH001001-114947-0116 | 8 | IRON_PVC | 138.10 |
| VAL | 1001 | GP001001-071867 | MH001001-071168-076 | MH001001-071145-073 | 8 | IRON | 282.04 |
| VAL | 1001 | GP001001-125942 | MH001001-114945-0118 | MH001001-114946-0117 | 8 | PVC | 119.86 |
| VAL | 1001 | GP001001-125313 | MH001001-114633-0097 | MH001001-114632-0096 | 8 | PVC | 107.78 |
| VAL | 1001 | GP001001-125634 | MH001001-114941-0108 | MH001001-114942-0107 | 8 | IRON_PVC | 135.75 |
| VAL | 1001 | GP001001-125635 | MH001001-114940-0109 | MH001001-114941-0108 | 8 | PVC | 138.41 |
| VAL | 1001 | GP001001-071871 | MH001001-071194-077 | MH001001-071168-076 | 8 | PVC | 178.30 |
| VAL | 1001 | GP001001-125631 | MH001001-114944-0105 | MH001001-114630-0094 | 8 | IRON_PVC | 132.18 |
| VAL | 1001 | GP001001-071866 | MH001001-071145-073 | MH001001-071096-032K | 8 | PVC | 332.96 |
| VAL | 1001 | GP001001-071872 | MH001001-071185-074 | MH001001-071145-073 | 8 | PVC | 169.65 |
| VAL | 1001 | GP001001-070497 | MH001001-071099-082 | MH001001-071091-081 | 8 | PVC | 121.60 |
| VAL | 1001 | GP001001-126265 | MH001001-115290-090 | MH001001-115269-089 | 8 | PVC | 112.99 |
| VAL | 1001 | GP001001-125315 | MH001001-114631-0095 | MH001001-114630-0094 | 8 | PVC | 147.00 |
| VAL | 1001 | GP001001-125625 | MH001001-114626-0100 | MH001001-114625-0099 | 8 | PVC | 153.23 |
| VAL | 1001 | GP001001-125624 | MH001001-114627-0101 | MH001001-114626-0100 | 8 | PVC | 113.90 |
| VAL | 1001 | GP001001-125637 | MH001001-114634-0111 | MH001001-114635-0110 | 8 | PVC | 177.22 |
| VAL | 1001 | GP001001-125944 | MH001001-114947-0116 | MH001001-114948-0115 | 8 | IRON_PVC | 242.58 |
| VAL | 1001 | GP001001-070492 | MH001001-071043-080A | MH001002-071039-001 | 8 | CONCRETE | 68.01 |
| VAL | 1001 | GP001001-125626 | MH001001-114625-0099 | MH001001-114624-0098 | 8 | DUCTILE_IRON | 84.47 |
| VAL | 1001 | GP001001-125632 | MH001001-114943-0106 | MH001001-114944-0105 | 8 | IRON_PVC | 212.49 |
| VAL | 1001 | GP001001-070496 | MH001001-071091-081 | MH001001-071069-080D | 8 | PVC | 254.21 |
| VAL | 1002 | GP001002-072132 | CO001002-025641 | MH001002-070772-056 | 8 | IRON | 43.35 |
| VAL | 1002 | GP001002-063995 | MH001002-071051-023 | MH001002-071034-022 | 8 | UNK | 151.46 |
| VAL | 1002 | GP001002-063928 | MH001002-346630-046A | MH001002-070709-046 | 8 | CLAY | 400.01 |
| VAL | 1002 | GP001002-063998 | MH001002-071022-013 | MH001002-071029-012 | 8 | UNK | 94.89 |
| VAL | 1002 | GP001002-064001 | MH001002-070968-019 | MH001002-070981-018 | 8 | UNK | 125.10 |
| VAL | 1002 | GP001002-076345 | MH001002-070573-047D | MH001002-070583-047C | 8 | IRON | 143.68 |
| VAL | 1002 | GP001002-070526 | MH001002-070673-047A7 | MH001002-070670-047A6 | 8 | PVC | 300.28 |
| VAL | 1002 | GP001002-063990 | MH001002-071100-026 | MH001002-071089-025 | 8 | CIP | 183.57 |
| VAL | 1002 | GP001002-070374 | MH001002-070450-147 | MH001002-070537-146 | 8 | PVC | 442.56 |
| VAL | 1002 | GP001002-076344 | MH001002-070583-047C | MH001002-070600-047B | 8 | IRON | 124.24 |
| VAL | 1002 | GP001002-070373 | MH001002-070405-148 | MH001002-070450-147 | 8 | PVC | 244.87 |
| VAL | 1002 | GP001002-077168 | MH001002-070033-060V | MH001002-070055-060U | 8 | IRON | 208.35 |
| VAL | 1002 | GP001002-063993 | MH001002-071078-024A | MH001002-071064-024 | 8 | CIP | 351.98 |
| VAL | 1002 | GP001002-076343 | MH001002-070600-047B | MH001002-070623-047A | 8 | IRON | 222.81 |

| BASIN | SUBBASIN | ASSETID | USMH_ASSETID | DSMH_ASSETID | DIAMETER (IN) | MATERIAL | LENGTH (LF) |
|---|---|---|---|---|---|---|---|
| VAL | 1002 | GP001002-070520 | MH001002-070634-041A4 | MH001002-070667-041A3 | 8 | TRUSS | 227.91 |
| VAL | 1002 | GP001002-063949 | MH001002-070772-056 | MH001002-070794-055 | 8 | CLAY | 102.18 |
| VAL | 1002 | GP001002-064000 | MH001002-071000-020 | MH001002-070981-018 | 8 | UNK | 160.86 |
| VAL | 1002 | GP001002-063955 | MH001002-070906-052 | MH001002-070914-051 | 8 | UNK | 105.57 |
| VAL | 1002 | GP001002-070440 | MH001002-070224-060Q | MH001002-070294-060P | 8 | IRON | 352.10 |
| VAL | 1002 | GP001002-063996 | MH001002-071034-022 | MH001002-071014-010 | 8 | UNK | 126.78 |
| VAL | 1002 | GP001002-071977 | MH001002-070789-041A1 | MH001002-070799-041A | 8 | DUCTILE_IRON | 43.56 |
| VAL | 1002 | GP001002-063933 | MH001002-070797-041 | MH001002-070796-040 | 8 | CIP | 154.50 |
| VAL | 1002 | GP001002-063987 | MH001002-071014-010 | MH001002-071005-009 | 8 | UNK | 150.48 |
| VAL | 1002 | GP001002-070522 | MH001002-070654-047A3 | MH001002-070638-047A2 | 8 | PVC | 130.13 |
| VAL | 1002 | GP001002-070515 | MH001002-070479-060J | MH001002-070545-060I | 8 | TRUSS | 292.90 |
| VAL | 1002 | GP001002-099962 | MH001002-090505-151 | MH001002-090506-150 | 8 | DUCTILE_IRON | 153.43 |
| VAL | 1002 | GP001002-072130 | MH001002-070728-067 | MH001002-070777-066 | 8 | CLAY | 329.17 |
| VAL | 1002 | GP001002-063952 | MH001002-070849-065 | MH001002-070831-064 | 8 | CLAY | 206.57 |
| VAL | 1002 | GP001002-070457 | MH001002-071173-025B | MH001002-071120-025A | 8 | CIP | 226.79 |
| VAL | 1002 | GP001002-063994 | MH001002-071064-024 | MH001002-071051-023 | 8 | UNK | 254.93 |
| VAL | 1002 | GP001002-070507 | MH001002-070409-060M2 | MH001002-070412-060M1 | 8 | IRON | 301.06 |
| VAL | 1002 | GP001002-063947 | MH001002-070803-058 | MH001002-070794-055 | 8 | CIP | 172.30 |
| VAL | 1002 | GP001002-099964 | MH001002-090504-152 | MH001002-090505-151 | 8 | DUCTILE_IRON | 88.10 |
| VAL | 1002 | GP001002-099960 | MH001002-090506-150 | MH001002-070373-149 | 8 | DUCTILE_IRON | 41.62 |
| VAL | 1002 | GP001002-064004 | MH001002-070980-015 | MH001002-070996-011 | 8 | UNK | 219.41 |
| VAL | 1002 | GP001002-382568 | MH001002-070652-047 | MH001002-346630-046A | 8 | CLAY | 66.94 |
| VAL | 1002 | GP001002-063997 | MH001002-071016-014 | MH001002-071022-013 | 8 | UNK | 247.07 |
| VAL | 1002 | GP001002-070770 | MH001002-070549-047F | MH001002-070592-047E | 8 | PVC | 299.85 |
| VAL | 1002 | GP001002-070454 | MH001002-070799-041A | MH001002-070797-041 | 8 | TRUSS | 252.05 |
| VAL | 1002 | GP001002-070768 | MH001002-070615-047A1 | MH001002-070623-047A | 8 | PVC | 76.14 |
| VAL | 1002 | GP001002-073902 | MH001002-070055-060U | MH001002-070085-060T | 8 | IRON | 228.36 |
| VAL | 1002 | GP001002-070523 | MH001002-070678-047A4 | MH001002-070654-047A3 | 8 | PVC | 214.22 |
| VAL | 1002 | GP001002-070439 | MH001002-070294-060P | MH001002-070339-060O | 8 | IRON | 349.61 |
| VAL | 1002 | GP001002-099963 | MH001002-090502-153 | MH001002-090504-152 | 8 | DUCTILE_IRON | 124.43 |
| VAL | 1002 | GP001002-063932 | MH001002-070768-042 | MH001002-070796-040 | 8 | CLAY | 131.65 |
| VAL | 1002 | GP001002-070518 | MH001002-070726-041A2 | MH001002-070789-041A1 | 8 | TRUSS | 398.65 |
| VAL | 1002 | GP001002-070375 | MH001002-070537-146 | MH001002-070549-047F | 8 | PVC | 93.69 |
| VAL | 1002 | GP001002-063988 | MH001002-071005-009 | MH001002-070994-008 | 8 | UNK | 57.35 |
| VAL | 1002 | GP001002-063930 | MH001002-070727-045 | MH001002-070737-044 | 8 | CLAY | 93.95 |
| VAL | 1002 | GP001002-063999 | MH001002-070981-018 | MH001002-070967-017 | 8 | UNK | 120.54 |
| VAL | 1002 | GP001002-070443 | MH001002-070139-060S | MH001002-070173-060R | 8 | IRON | 152.75 |
| VAL | 1002 | GP001002-070441 | MH001002-070201-060R1 | MH001002-070224-060Q | 8 | IRON | 124.86 |
| VAL | 1002 | GP001002-063931 | MH001002-070737-044 | MH001002-070741-043 | 8 | CLAY | 170.45 |
| VAL | 1002 | GP001002-070519 | MH001002-070667-041A3 | MH001002-070726-041A2 | 8 | TRUSS | 400.39 |
| VAL | 1002 | GP001002-070438 | MH001002-070339-060O | MH001002-070365-060N | 8 | IRON | 355.96 |
| VAL | 1002 | GP001002-071857 | MH001002-071188-025C | MH001002-071173-025B | 8 | PVC | 61.48 |
| VAL | 1002 | GP001002-070521 | MH001002-070638-047A2 | MH001002-070615-047A1 | 8 | PVC | 176.91 |
| VAL | 1002 | GP001002-064006 | MH001002-071029-012 | MH001002-070996-011 | 8 | UNK | 312.60 |
| VAL | 1002 | GP001002-064005 | MH001002-070996-011 | MH001002-071014-010 | 8 | UNK | 177.23 |
| VAL | 1002 | GP001002-070516 | MH001002-070545-060I | MH001002-070587-060H | 8 | TRUSS | 294.90 |
| VAL | 1002 | GP001002-070503 | MH001002-070441-060K | MH001002-070479-060J | 8 | IRON | 229.36 |
| VAL | 1002 | GP001002-070442 | MH001002-070173-060R | MH001002-070201-060R1 | 8 | IRON | 124.00 |
| VAL | 1002 | GP001002-064003 | MH001002-070974-016 | MH001002-070980-015 | 8 | UNK | 349.58 |
| VAL | 1002 | GP001002-072131 | MH001002-070777-066 | MH001002-070831-064 | 8 | CLAY | 249.49 |
| VAL | 1002 | GP001002-064002 | MH001002-070967-017 | MH001002-070974-016 | 8 | UNK | 369.32 |
| VAL | 1002 | GP001002-070505 | MH001002-070411-060M | MH001002-070442-060L | 8 | IRON | 141.72 |
| VAL | 1002 | GP001002-063926 | MH001002-070724-048 | MH001002-070741-043 | 8 | CLAY | 177.06 |
| VAL | 1002 | GP001002-063925 | MH001002-070666-049 | MH001002-070724-048 | 8 | CLAY | 397.92 |
| VAL | 1002 | GP001002-070455 | MH001002-070805-041B | MH001002-070799-041A | 8 | TRUSS | 346.89 |
| VAL | 1002 | GP001002-063948 | MH001002-070794-055 | MH001002-070821-054 | 8 | CLAY | 147.63 |
| VAL | 1002 | GP001002-063956 | MH001002-070914-051 | MH001002-070944-050 | 8 | UNK | 137.73 |
| VAL | 1002 | GP001002-063954 | MH001002-070897-053 | MH001002-070906-052 | 8 | CLAY | 98.65 |
| VAL | 1002 | GP001002-063953 | MH001002-070821-054 | MH001002-070897-053 | 8 | CLAY | 377.18 |
| VAL | 1002 | GP001002-063929 | MH001002-070709-046 | MH001002-070727-045 | 8 | CLAY | 87.20 |
| VAL | 1002 | GP001002-072128 | MH001002-070412-060M1 | MH001002-070411-060M | 8 | IRON | 40.80 |
| VAL | 1002 | GP001002-063934 | MH001002-070796-040 | MH001002-070793-039 | 8 | CIP | 359.23 |
| VAL | 1002 | GP001002-063991 | MH001002-071120-025A | MH001002-071089-025 | 8 | CIP | 168.74 |
| VAL | 1002 | GP001002-073901 | MH001002-070085-060T | MH001002-070139-060S | 8 | IRON | 283.00 |
| VAL | 1002 | GP001002-070504 | MH001002-070442-060L | MH001002-070441-060K | 8 | IRON | 120.21 |
| VAL | 1002 | GP001002-070525 | MH001002-070670-047A6 | MH001002-070677-047A5 | 8 | PVC | 72.52 |
| VAL | 1002 | GP001002-076342 | MH001002-070592-047E | MH001002-070573-047D | 8 | IRON | 335.71 |
| VAL | 1002 | GP001002-110153 | MH001002-346631-153A | MH001002-090502-153 | 8 | DUCTILE_IRON | 69.70 |
| VAL | 1002 | GP001002-070508 | MH001002-070368-060M3 | MH001002-070409-060M2 | 8 | DUCTILE_IRON | 284.99 |
| VAL | 1002 | GP001002-070506 | MH001002-070365-060N | MH001002-070412-060M1 | 8 | IRON | 216.16 |

| BASIN | SUBBASIN | ASSETID | USMH_ASSETID | DSMH_ASSETID | DIAMETER (IN) | MATERIAL | LENGTH (LF) |
|---|---|---|---|---|---|---|---|
| VAL | 1002 | GP001002-070524 | MH001002-070677-047A5 | MH001002-070678-047A4 | 8 | PVC | 100.47 |
| VAL | 1002 | GP001002-063927 | MH001002-070741-043 | MH001002-070768-042 | 8 | CLAY | 145.88 |
| VAL | 1002 | GP001002-063992 | MH001002-071089-025 | MH001002-071078-024A | 8 | CIP | 216.60 |
| VAL | 1002 | GP001002-064007 | MH001002-070831-064 | MH001002-070803-058 | 8 | CLAY | 400.29 |
| VAL | 1002 | GP001002-077221 | MH001002-071059-021 | MH001002-071000-020 | 8 | UNK | 405.19 |
| VAL | 1002 | GP001002-063989 | MH001002-071118-027 | MH001002-071100-026 | 8 | CLAY | 307.76 |
| VAL | 1002 | GP001002-076462 | MH001002-070373-149 | MH001002-070405-148 | 8 | DUCTILE_IRON | 229.38 |
| VAL | 1003 | GP001003-126267 | MH001003-115580-101 | MH001003-115581-100 | 8 | PVC | 94.52 |
| VAL | 1003 | GP001003-070392 | MH001003-072026-042A2 | MH001003-072048-042A1 | 8 | TRUSS | 119.58 |
| VAL | 1003 | GP001003-125968 | MH001003-115271-095 | MH001003-115272-094 | 8 | DUCTILE_IRON | 175.16 |
| VAL | 1003 | GP001003-070384 | MH001003-072162-042A12 | MH001003-072168-042A11 | 8 | TRUSS | 254.80 |
| VAL | 1003 | GP001003-070395 | MH001003-072092-042A14 | MH001003-072106-042A13 | 8 | PVC | 74.88 |
| VAL | 1003 | GP001003-125966 | MH001001-115269-089 | MH001003-115270-096 | 8 | DUCTILE_IRON | 124.72 |
| VAL | 1003 | GP001003-126268 | MH001003-115581-100 | MH001003-115582-098 | 8 | DUCTILE_IRON | 320.02 |
| VAL | 1003 | GP001003-073027 | MH001003-072048-042A1 | MH001003-072050-042A | 8 | IRON | 156.60 |
| VAL | 1003 | GP001003-070391 | MH001003-072005-042A3 | MH001003-072026-042A2 | 8 | TRUSS | 271.55 |
| VAL | 1003 | GP001003-125973 | MH001003-115276-090 | MH001003-115263-089 | 8 | DUCTILE_IRON | 158.77 |
| VAL | 1003 | GP001003-125970 | MH001003-115273-093 | MH001003-115274-092 | 8 | DUCTILE_IRON | 120.86 |
| VAL | 1003 | GP001003-126269 | MH001003-115583-099 | MH001003-115582-098 | 8 | PVC | 203.87 |
| VAL | 1003 | GP001003-125972 | MH001003-115275-091 | MH001003-115276-090 | 8 | DUCTILE_IRON | 89.15 |
| VAL | 1003 | GP001003-126271 | MH001003-115584-097 | MH001003-115276-090 | 8 | DUCTILE_IRON | 81.79 |
| VAL | 1003 | GP001003-070394 | MH001003-072101-042A8 | MH001003-072110-042A7 | 8 | TRUSS | 111.25 |
| VAL | 1003 | GP001003-125971 | MH001003-115274-092 | MH001003-115275-091 | 8 | DUCTILE_IRON | 130.90 |
| VAL | 1003 | GP001003-070383 | MH001003-072165-042A15 | MH001003-072162-042A12 | 8 | PVC | 180.08 |
| VAL | 1003 | GP001003-126270 | MH001003-115582-098 | MH001003-115584-097 | 8 | PVC | 170.79 |
| VAL | 1003 | GP001003-070386 | MH001003-072161-042A10 | MH001003-072110-042A7 | 8 | TRUSS | 218.61 |
| VAL | 1003 | GP001003-070389 | MH001003-072074-042A5 | MH001003-072012-042A4 | 8 | PVC | 405.47 |
| VAL | 1003 | GP001003-070393 | MH001003-072097-042A9 | MH001003-072101-042A8 | 8 | TRUSS | 228.18 |
| VAL | 1003 | GP001003-125967 | MH001003-115270-096 | MH001003-115271-095 | 8 | DUCTILE_IRON | 162.15 |
| VAL | 1003 | GP001003-070388 | MH001003-072098-042A6 | MH001003-072048-042A1 | 8 | TRUSS | 331.39 |
| VAL | 1003 | GP001003-125969 | MH001003-115272-094 | MH001003-115273-093 | 8 | DUCTILE_IRON | 174.28 |
| VAL | 1003 | GP001003-070387 | MH001003-072110-042A7 | MH001003-072098-042A6 | 8 | TRUSS | 99.50 |
| VAL | 1003 | GP001003-070382 | MH001003-072147-042A16 | MH001003-072165-042A15 | 8 | PVC | 99.69 |
| VAL | 1003 | GP001003-070385 | MH001003-072168-042A11 | MH001003-072161-042A10 | 8 | IRON | 94.01 |
| VAL | 1003 | GP001003-070390 | MH001003-072012-042A4 | MH001003-072005-042A3 | 8 | PVC | 120.95 |
| VAL | 1003 | GP001003-070396 | MH001003-072106-042A13 | MH001003-072162-042A12 | 8 | PVC | 190.75 |
| VAL | 1004 | GP001004-130455 | MH001004-346633-006A1A | MH001004-071170-006 | 8 | PVC | 106.84 |
| VAL | 1004 | GP001004-077299 | MH001004-070983-006A17 | MH001004-071020-006A15 | 8 | TRUSS | 300.27 |
| VAL | 1004 | GP001004-071322 | MH001004-071142-015 | MH001004-071097-014 | 8 | IRON | 260.23 |
| VAL | 1004 | GP001004-077296 | MH001004-071020-006A15 | MH001004-071063-006A13 | 8 | TRUSS | 299.28 |
| VAL | 1004 | GP001004-077289 | MH001004-071036-006A5 | MH001004-071066-006A4 | 8 | TRUSS | 248.21 |
| VAL | 1004 | GP001004-064076 | MH001004-071170-006 | MH001004-071172-003A | 8 | CLAY | 58.18 |
| VAL | 1004 | GP001004-064073 | MH001004-071220-008 | MH001004-071138-007 | 8 | CLAY | 400.20 |
| VAL | 1004 | GP001004-064075 | MH001004-071138-007 | MH001004-071152-006A | 8 | CLAY | 159.79 |
| VAL | 1004 | GP001004-077302 | MH001004-070907-006A21 | MH001004-070947-006A20 | 8 | TRUSS | 301.62 |
| VAL | 1004 | GP001004-074214 | MH001004-070898-006A22 | MH001004-070907-006A21 | 8 | IRON | 124.78 |
| VAL | 1004 | GP001004-064070 | MH001004-071245-011 | MH001004-071241-010 | 8 | CLAY | 122.37 |
| VAL | 1004 | GP001004-077287 | MH001004-071074-006A3 | MH001004-071098-006A2 | 8 | IRON | 160.33 |
| VAL | 1004 | GP001004-126262 | MH001004-115287-099 | MH001001-115288-092 | 8 | PVC | 137.97 |
| VAL | 1004 | GP001004-064068 | MH001004-071308-013 | MH001004-071260-012 | 8 | CLAY | 308.93 |
| VAL | 1004 | GP001004-071323 | MH001004-071162-016 | MH001004-071142-015 | 8 | CLAY | 167.57 |
| VAL | 1004 | GP001004-077301 | MH001004-070947-006A20 | MH001004-070983-006A17 | 8 | TRUSS | 299.75 |
| VAL | 1004 | GP001004-071324 | MH001004-071182-017 | MH001004-071162-016 | 8 | CLAY | 148.38 |
| VAL | 1004 | GP001004-382570 | MH001004-071152-006A | MH001004-346633-006A1A | 8 | PVC | 20.53 |
| VAL | 1004 | GP001004-380330 | MH001004-344390-099A | MH001004-115287-099 | 8 | PVC | 46.83 |
| VAL | 1004 | GP001004-064071 | MH001004-071241-010 | MH001004-071240-009 | 8 | IRON | 100.91 |
| VAL | 1004 | GP001004-070753 | MH001004-070880-006A11 | MH001004-070904-006A10 | 8 | TRUSS | 301.19 |
| VAL | 1004 | GP001004-074213 | MH001004-070950-006A19 | MH001004-070960-006A18 | 8 | TRUSS | 130.34 |
| VAL | 1004 | GP001004-077294 | MH001004-070951-006A9 | MH001004-070939-006A8 | 8 | TRUSS | 62.05 |
| VAL | 1004 | GP001004-077300 | MH001004-070960-006A18 | MH001004-070983-006A17 | 8 | TRUSS | 303.09 |
| VAL | 1004 | GP001004-130456 | MH001004-346632-006A1B | MH001004-346633-006A1A | 8 | PVC | 132.83 |
| VAL | 1004 | GP001004-077288 | MH001004-071066-006A4 | MH001004-071074-006A3 | 8 | IRON | 205.67 |
| VAL | 1004 | GP001004-071321 | MH001004-071276-019 | MH001004-071215-018 | 8 | CLAY | 365.68 |
| VAL | 1004 | GP001004-064072 | MH001004-071240-009 | MH001004-071220-008 | 8 | CLAY | 131.71 |
| VAL | 1004 | GP001004-077295 | MH001004-070995-006A16 | MH001004-071020-006A15 | 8 | TRUSS | 322.18 |
| VAL | 1004 | GP001004-077303 | MH001004-070934-006A23 | MH001004-070947-006A20 | 8 | TRUSS | 60.88 |
| VAL | 1004 | GP001004-077291 | MH001004-070972-006A7 | MH001004-071004-006A6 | 8 | TRUSS | 246.03 |
| VAL | 1004 | GP001004-077298 | MH001004-071033-006A14 | MH001004-071063-006A13 | 8 | TRUSS | 299.10 |
| VAL | 1004 | GP001004-071325 | MH001004-071215-018 | MH001004-071182-017 | 8 | CLAY | 199.72 |
| VAL | 1004 | GP001004-077297 | MH001004-071063-006A13 | MH001004-071074-006A3 | 8 | IRON | 165.88 |

| BASIN | SUBBASIN | ASSETID | USMH_ASSETID | DSMH_ASSETID | DIAMETER (IN) | MATERIAL | LENGTH (LF) |
|---|---|---|---|---|---|---|---|
| VAL | 1004 | GP001004-077293 | MH001004-070904-006A10 | MH001004-070939-006A8 | 8 | TRUSS | 300.11 |
| VAL | 1004 | GP001004-077290 | MH001004-071004-006A6 | MH001004-071036-006A5 | 8 | TRUSS | 247.30 |
| VAL | 1004 | GP001004-077292 | MH001004-070939-006A8 | MH001004-070972-006A7 | 8 | TRUSS | 249.80 |
| VAL | 1004 | GP001004-070754 | MH001004-070869-006A12 | MH001004-070880-006A11 | 8 | TRUSS | 75.43 |
| VAL | 1004 | GP001004-073171 | MH001004-071098-006A2 | MH001004-071106-006A1 | 8 | IRON | 105.27 |
| VAL | 1004 | GP001004-064074 | MH001004-071097-014 | MH001004-071138-007 | 8 | CLAY | 319.98 |
| VAL | 1004 | GP001004-064069 | MH001004-071260-012 | MH001004-071245-011 | 8 | CLAY | 117.49 |
| VAL | 1004 | GP001004-382569 | MH001004-071106-006A1 | MH001004-346632-006A1B | 8 | PVC | 89.96 |
| VAL | 1004 | GP001004-126266 | MH001004-115291-100 | MH001003-115580-101 | 8 | PVC | 119.74 |
| VAL | 1006 | GP001006-075574 | MH001006-065908-188 | MH001006-065962-186 | 8 | CLAY | 114.33 |
| VAL | 1006 | GP001006-064296 | MH001006-066820-123E | MH001006-066736-123D | 8 | UNK | 252.77 |
| VAL | 1006 | GP001006-075571 | MH001006-066024-193 | MH001006-098788-192 | 8 | CLAY | 198.12 |
| VAL | 1006 | GP001006-064300 | MH001006-066476-124 | MH001006-066350-123 | 8 | CLAY | 349.24 |
| VAL | 1006 | GP001006-075572 | MH001006-066053-194 | MH001006-066024-193 | 8 | CLAY | 188.03 |
| VAL | 1006 | GP001006-107939 | MH001006-098789-184A | MH001006-066117-184 | 8 | PVC | 20.72 |
| VAL | 1006 | GP001006-064188 | MH001006-066736-123D | MH001006-066574-123C | 8 | UNK | 220.55 |
| VAL | 1006 | GP001006-064297 | MH001006-066590-125 | MH001006-066476-124 | 8 | CLAY | 302.83 |
| VAL | 1006 | GP001006-107937 | FT001007-011601 | MH001006-066002-114 | 8 | PVC | 157.50 |
| VAL | 1006 | GP001006-064243 | MH001006-066574-123C | MH001006-066478-123B | 8 | UNK | 174.22 |
| VAL | 1006 | GP001006-064308 | MH001006-066939-123F | MH001006-066820-123E | 8 | UNK | 265.96 |
| VAL | 1006 | GP001006-064302 | MH001006-066478-123B | MH001006-066390-123A | 8 | UNK | 376.56 |
| VAL | 1006 | GP001006-064301 | MH001006-066390-123A | MH001006-066350-123 | 8 | UNK | 169.62 |
| VAL | 1006 | GP001006-064298 | MH001006-066729-126 | MH001006-066590-125 | 8 | CLAY | 297.65 |
| VAL | 1006 | GP001006-107935 | MH001006-065962-186 | MH001006-065988-185 | 8 | PVC | 58.51 |
| VAL | 1006 | GP001006-075570 | MH001006-065988-185 | MH001006-066117-184 | 8 | CLAY | 400.94 |
| VAL | 1006 | GP001006-107938 | MH001006-098788-192 | MH001006-098789-184A | 8 | PVC | 392.14 |
| VAL | 1007 | GP001007-064425 | MH001007-067957-087 | MH001007-067903-081 | 8 | UNK | 194.44 |
| VAL | 1007 | GP001007-051334 | MH001007-059468-131 | MH001007-059557-130 | 8 | CIP | 159.46 |
| VAL | 1007 | GP001007-064432 | MH001007-067547-081A | MH001007-067903-081 | 8 | CIP | 488.55 |
| VAL | 1007 | GP001007-064426 | MH001007-068037-084 | MH001007-067903-081 | 8 | CIP | 343.59 |
| VAL | 1007 | GP001007-064419 | MH001007-068044-089 | MH001007-068003-088 | 8 | UNK | 172.18 |
| VAL | 1007 | GP001007-064423 | MH001007-068134-090 | MH001007-068003-088 | 8 | UNK | 342.84 |
| VAL | 1007 | GP001007-064431 | MH001007-067399-082 | MH001007-067547-081A | 8 | CIP | 477.36 |
| VAL | 1007 | GP001007-064424 | MH001007-068003-088 | MH001007-067957-087 | 8 | UNK | 183.68 |
| VAL | 1007 | GP001007-064402 | MH001007-068245-090A | MH001007-068134-090 | 8 | UNK | 321.41 |
| VAL | 1007 | GP001007-064403 | MH001007-068175-092 | MH001007-068134-090 | 8 | UNK | 162.48 |
| VAL | 1007 | GP001007-064393 | MH001007-067505-047 | MH001007-067301-043 | 8 | UNK | 464.49 |
| VAL | 1007 | GP001007-108000 | FT001007-011639 | MH001007-067221-083 | 8 | PVC | 92.37 |
| VAL | 1007 | GP001007-064421 | MH001007-068085-085 | MH001007-068037-084 | 8 | UNK | 170.84 |
| VAL | 1007 | GP001007-064394 | MH001007-067752-049 | MH001007-067505-047 | 8 | UNK | 490.26 |
| VAL | 1007 | GP001007-064430 | MH001007-067221-083 | MH001007-067399-082 | 8 | UNK | 371.33 |
| VAL | 1007 | GP001007-064428 | MH001007-067903-081 | MH001007-067752-049 | 8 | UNK | 394.92 |
| VAL | 1008 | GP001008-051482 | MH001008-059508-004 | MH001008-059497-002 | 8 | CLAY | 147.10 |
| VAL | 1008 | GP001008-051684 | MH001008-059371-007 | MH001008-059416-006 | 8 | CLAY | 160.27 |
| VAL | 1008 | GP001008-051481 | MH001008-059418-009 | MH001008-059497-002 | 8 | CIP | 318.43 |
| VAL | 1008 | GP001008-062872 | MH001008-059591-005 | MH001008-059508-004 | 8 | CLAY | 100.73 |
| VAL | 1008 | GP001008-051634 | MH001008-059820-084 | MH001008-059694-077 | 8 | CLAY | 409.65 |
| VAL | 1008 | GP001008-051682 | MH001008-059416-006 | MH001008-059497-002 | 8 | CLAY | 160.25 |
| VAL | 1008 | GP001008-051632 | MH001008-059694-077 | MH001008-059549-001 | 8 | DIP/CLAY | 380.37 |
| VAL | 1008 | GP001008-051589 | MH001008-059379-019 | MH001008-059389-014 | 8 | UNK | 111.64 |
| VAL | 1008 | GP001008-051590 | MH001008-059389-014 | MH001008-059418-009 | 8 | UNK | 6.35 |
| VAL | 1008 | GP001008-051685 | MH001008-059335-008 | MH001008-059371-007 | 8 | CLAY | 138.82 |
| VAL | 1008 | GP001008-051683 | MH001008-059497-002 | MH001008-059549-001 | 8 | CIP | 223.73 |
| VAL | 1009 | GP001009-064751 | MH001009-069666-073A | MH001009-069668-073 | 8 | UNK | 108.12 |
| VAL | 1009 | GP001009-064760 | MH001009-069674-071 | MH001009-069741-070 | 10 | CIP | 300.72 |
| VAL | 1009 | GP001009-064754 | MH001009-429420-071A1 | MH001009-069674-071 | 8 | UNK | 155.00 |
| VAL | 1009 | GP001009-064771 | MH001009-069783-089 | MH001009-069809-069 | 8 | CIP | 280.58 |
| VAL | 1009 | GP001009-064859 | MH001009-069757-090 | MH001009-069783-089 | 8 | CIP | 202.09 |
| VAL | 1009 | GP001009-107983 | MH001009-350470-089A | MH001009-069783-089 | 8 | PVC | 58.19 |
| VAL | 1009 | GP001009-064774 | MH001009-069833-092 | MH001009-069783-089 | 8 | UNK | 234.95 |
| VAL | 1009 | GP001009-064749 | MH001009-069635-107 | MH001009-069644-106 | 8 | IRON | 29.70 |
| VAL | 1009 | GP001009-064857 | MH001009-069711-091 | MH001009-069757-090 | 8 | CLAY | 227.86 |
| VAL | 1009 | GP001009-064735 | MH001009-069582-109 | MH001009-069605-108 | 8 | IRON | 239.01 |
| VAL | 1009 | GP001009-064759 | MH001009-069681-105 | MH001009-069702-104 | 8 | UNK | 166.76 |
| VAL | 1009 | GP001009-064757 | MH001009-069644-106 | MH001009-069681-105 | 8 | IRON | 207.44 |
| VAL | 1009 | GP001009-064729 | MH001009-069497-075 | MH001009-069544-074 | 10 | UNK | 205.77 |
| VAL | 1009 | GP001009-107986 | MH001009-098578-069A | MH001009-069809-069 | 8 | CLAY | 133.57 |
| VAL | 1009 | GP001009-064746 | MH001009-069605-108 | MH001009-069635-107 | 8 | IRON | 113.09 |
| VAL | 1009 | GP001009-107985 | FT001009-011630 | MH001009-098578-069A | 8 | CLAY | 108.00 |
| VAL | 1009 | GP001009-107961 | MH001009-387909-113A | MH001009-069479-113 | 8 | PVC | 187.00 |

| BASIN | SUBBASIN | ASSETID | USMH_ASSETID | DSMH_ASSETID | DIAMETER (IN) | MATERIAL | LENGTH (LF) |
|---|---|---|---|---|---|---|---|
| VAL | 1009 | GP001009-064858 | MH001009-069725-103 | MH001009-069776-102 | 8 | DUCTILE_IRON | 419.54 |
| VAL | 1009 | GP001009-071311 | MH001009-069776-102 | MH001009-350469-067A | 8 | DUCTILE_IRON | 296.77 |
| VAL | 1009 | GP001009-064767 | MH001009-069784-068 | MH001009-069795-067 | 8 | UNK | 62.85 |
| VAL | 1009 | GP001009-064768 | MH001009-069741-070 | MH001009-069795-067 | 10 | UNK | 216.86 |
| VAL | 1009 | GP001009-064770 | MH001009-350469-067A | MH001009-069795-067 | 8 | CLAY | 81.31 |
| VAL | 1009 | GP001009-064772 | MH001009-069795-067 | PS001009-000217 | 10 | UNK | 62.71 |
| VAL | 1009 | GP001009-387687 | MH001009-069809-069 | MH001009-069795-067 | 8 | CLAY | 132.66 |
| VAL | 1009 | GP001009-064731 | MH001009-069537-112 | MH001009-069582-109 | 8 | UNK | 195.42 |
| VAL | 1009 | GP001009-064727 | MH001009-069479-113 | MH001009-069537-112 | 8 | UNK | 194.03 |
| VAL | 1009 | GP001009-064775 | MH001009-069792-093 | MH001009-069833-092 | 8 | PVC | 298.43 |
| VAL | 1009 | GP001009-064736 | MH001009-069544-074 | MH001009-069610-071A | 8 | UNK | 195.06 |
| VAL | 1009 | GP001009-064752 | MH001009-069668-073 | MH001009-069671-072 | 10 | UNK | 48.46 |
| VAL | 1009 | GP001009-064762 | MH001009-069702-104 | MH001009-069725-103 | 8 | DUCTILE_IRON | 298.91 |
| VAL | 1009 | GP001009-064764 | MH001009-069765-111 | MH001009-069678-110 | 4 | IRON | 352.47 |
| VAL | 1009 | GP001009-073894 | MH001009-069734-095 | MH001009-069754-094 | 8 | PVC | 39.12 |
| VAL | 1009 | GP001009-064755 | MH001009-069671-072 | MH001009-069674-071 | 10 | UNK | 116.18 |
| VAL | 1009 | GP001009-064756 | MH001009-069678-110 | MH001009-069644-106 | 8 | IRON | 291.02 |
| VAL | 1009 | GP001009-064778 | MH001009-069927-097 | MH001009-069833-092 | 8 | UNK | 446.79 |
| VAL | 1009 | GP001009-064733 | MH001009-069595-074B | MH001009-069559-074A | 8 | UNK | 253.93 |
| VAL | 1009 | GP001009-073895 | MH001009-069754-094 | MH001009-069792-093 | 8 | PVC | 249.19 |
| VAL | 100S | GP00100S-100099 | MH00100S-091349-070 | MH00100S-091348-069 | 8 | DUCTILE_IRON | 396.43 |
| VAL | 100S | GP00100S-100133 | MH00100S-090656-083 | MH00100S-090647-064 | 8 | DUCTILE_IRON | 150.53 |
| VAL | 100S | GP00100S-100080 | MH00100S-090647-064 | MH00100S-091343-063 | 8 | DUCTILE_IRON | 100.09 |
| VAL | 100S | GP00100S-100081 | MH00100S-091343-063 | MH00100S-091341-062 | 8 | DUCTILE_IRON | 258.00 |
| VAL | 100S | GP00100S-100128 | MH00100S-090654-087 | MH00100S-090653-086 | 8 | DUCTILE_IRON | 165.41 |
| VAL | 100S | GP00100S-071315 | MH00100S-070255-009P | MH00100S-070219-009O | 8 | CLAY | 177.89 |
| VAL | 100S | GP00100S-070517 | MH00100S-070283-009R | MH00100S-070293-009Q | 8 | IRON | 169.87 |
| VAL | 100S | GP00100S-100077 | MH00100S-091340-061 | MH00100S-091339-060 | 8 | DUCTILE_IRON | 257.57 |
| VAL | 100S | GP00100S-112071 | MH00100S-070320-009S | MH00100S-090650-067 | 8 | DUCTILE_IRON | 259.61 |
| VAL | 100S | GP00100S-100113 | MH00100S-090648-065 | MH00100S-090647-064 | 8 | DUCTILE_IRON | 357.55 |
| VAL | 100S | GP00100S-111742 | MH00100S-102002-077 | MH00100S-102003-076 | 8 | DUCTILE_IRON | 256.93 |
| VAL | 100S | GP00100S-100070 | MH00100S-091337-058 | MH00100S-091327-057 | 8 | DUCTILE_IRON | 279.23 |
| VAL | 100S | GP00100S-100120 | MH00100S-090651-081 | MH00100S-091338-059 | 8 | DUCTILE_IRON | 200.12 |
| VAL | 100S | GP00100S-100075 | MH00100S-091339-060 | MH00100S-091338-059 | 8 | DUCTILE_IRON | 143.20 |
| VAL | 100S | GP00100S-100130 | MH00100S-090655-085 | MH00100S-090657-084 | 8 | DUCTILE_IRON | 379.38 |
| VAL | 100S | GP00100S-100140 | MH00100S-090659-089 | MH00100S-090658-088 | 8 | DUCTILE_IRON | 240.28 |
| VAL | 100S | GP00100S-100119 | MH00100S-090652-082 | MH00100S-090651-081 | 8 | DUCTILE_IRON | 202.36 |
| VAL | 100S | GP00100S-071316 | MH00100S-070293-009Q | MH00100S-070255-009P | 8 | IRON | 203.92 |
| VAL | 100S | GP00100S-100114 | MH00100S-090650-067 | MH00100S-090649-066 | 8 | DUCTILE_IRON | 196.82 |
| VAL | 100S | GP00100S-111741 | MH00100S-102001-078 | MH00100S-102002-077 | 8 | DUCTILE_IRON | 204.35 |
| VAL | 100S | GP00100S-100138 | MH00100S-090658-088 | MH00100S-091338-059 | 8 | DUCTILE_IRON | 286.91 |
| VAL | 100S | GP00100S-100079 | MH00100S-091341-062 | MH00100S-091340-061 | 8 | DUCTILE_IRON | 195.69 |
| VAL | 100S | GP00100S-100132 | MH00100S-090657-084 | MH00100S-090656-083 | 8 | DUCTILE_IRON | 400.13 |
| VAL | 100S | GP00100S-100115 | MH00100S-090649-066 | MH00100S-090648-065 | 8 | DUCTILE_IRON | 363.48 |
| VAL | 100S | GP00100S-111743 | MH00100S-102003-076 | MH00100S-091327-057 | 8 | DUCTILE_IRON | 126.46 |
| VAL | 100S | GP00100S-111739 | MH00100S-070219-009O | MH00100S-090660-090 | 8 | IRON | 376.88 |
| VAL | 100S | GP00100S-100139 | MH00100S-090660-090 | MH00100S-090659-089 | 8 | DUCTILE_IRON | 202.52 |
| VAL | 100S | GP00100S-100069 | MH00100S-091338-059 | MH00100S-091337-058 | 8 | DUCTILE_IRON | 315.11 |
| VAL | 100S | GP00100S-100097 | MH00100S-091348-069 | MH00100S-091327-057 | 8 | DUCTILE_IRON | 228.91 |
| VAL | 100S | GP00100S-100060 | MH00100S-091327-057 | MH00100S-091328-056 | 8 | DUCTILE_IRON | 267.99 |
| VAL | 100S | GP00100S-100106 | MH00100S-090645-079 | MH00100S-091343-063 | 8 | DUCTILE_IRON | 120.35 |
| VAL | 100S | GP00100S-100129 | MH00100S-090653-086 | MH00100S-090655-085 | 8 | DUCTILE_IRON | 330.95 |
| VAL | 100S | GP00100S-100105 | MH00100S-090646-080 | MH00100S-090645-079 | 8 | DUCTILE_IRON | 228.15 |
| VAL | 1012 | GP001012-065293 | MH001012-065648-142H | MH001012-065615-142G | 0 | UNK | 81.90 |
| VAL | 1012 | GP001012-065201 | MH001012-065578-158E | MH001012-065576-158A | 8 | UNK | 211.59 |
| VAL | 1012 | GP001012-065249 | MH001012-064754-048A | MH001012-064908-048 | 20 | UNK | 359.14 |
| VAL | 1012 | GP001012-065258 | MH001012-065411-142F | MH001012-196845-142A2 | 8 | UNK | 317.95 |
| VAL | 1012 | GP001012-065275 | MH001012-065750-158I | MH001012-065672-158H | 8 | CLAY | 167.41 |
| VAL | 1012 | GP001012-065277 | MH001012-065812-158M | MH001012-065846-158L | 8 | CLAY | 212.35 |
| VAL | 1012 | GP001012-069129 | MH001012-065608-175 | MH001012-065562-174 | 12 | CIP | 233.95 |
| VAL | 1012 | GP001012-071981 | FT001012-110874 | MH001012-065365-143C | 12 | CLAY | 235.00 |
| VAL | 1012 | GP001012-071980 | MH001012-065506-160 | MH001012-065441-159 | 16 | DUCTILE_IRON | 231.76 |
| VAL | 1012 | GP001012-065278 | MH001012-065866-158J | MH001012-065750-158I | 8 | CLAY | 378.29 |
| VAL | 1012 | GP001012-065300 | MH001012-065522-158B | MH001012-065576-158A | 8 | CLAY | 121.43 |
| VAL | 1012 | GP001012-065247 | MH001012-064528-084A | MH001012-064734-084 | 20 | UNK | 448.92 |
| VAL | 1012 | GP001012-210064 | MH001012-065615-142G | MH001012-187890-142F1 | 8 | UNK | 355.48 |
| VAL | 1012 | GP001012-065302 | MH001012-064734-084 | MH001012-064754-048A | 20 | UNK | 28.39 |
| VAL | 1012 | GP001012-065202 | MH001012-065577-158F | MH001012-065578-158E | 8 | UNK | 99.67 |
| VAL | 1012 | GP001012-065273 | MH001012-065672-158H | MH001012-065576-158A | 8 | CLAY | 233.27 |
| VAL | 1012 | GP001012-065279 | MH001012-065846-158L | MH001012-065869-158K | 8 | CLAY | 224.45 |

| BASIN | SUBBASIN | ASSETID | USMH_ASSETID | DSMH_ASSETID | DIAMETER (IN) | MATERIAL | LENGTH (LF) |
|---|---|---|---|---|---|---|---|
| VAL | 1012 | GP001012-065306 | MH001012-065869-158K | MH001012-065866-158J | 8 | CLAY | 18.16 |
| VAL | 1012 | GP001012-069118 | MH001012-065562-174 | MH001012-065506-160 | 12 | CIP | 248.40 |
| VAL | 1012 | GP001012-065204 | MH001012-065645-158G | MH001012-065577-158F | 8 | UNK | 203.18 |
| VAL | 1012 | GP001012-065276 | MH001012-065769-158N | MH001012-065812-158M | 8 | UNK | 89.80 |
| VAL | 1012 | GP001012-210065 | MH001012-187890-142F1 | MH001012-065411-142F | 8 | UNK | 217.00 |
| VAL | 1013 | GP001013-382887 | MH001013-064277-001A | MH001013-346949-001 | 8 | UNK | 62.35 |
| VAL | 1013 | GP001013-065485 | MH001013-063163-020 | MH001013-063066-019 | 18 | UNK | 218.48 |
| VAL | 1013 | GP001013-203255 | MH001013-180765-032A | MH001013-064554-032 | 8 | CIP | 431.22 |
| VAL | 1013 | GP001013-065502 | MH001013-424286-024A | MH001013-063464-024 | 8 | CLAY | 305.22 |
| VAL | 1013 | GP001013-472955 | MH001013-063795-025 | MH001013-424286-024A | 8 | CLAY | 280.00 |
| VAL | 1013 | GP001013-071270 | MH001013-346949-001 | MH001012-064528-084A | 8 | UNK | 478.29 |
| VAL | 1013 | GP001013-065508 | MH001013-063971-011 | MH001013-063997-001B | 18 | UNK | 46.13 |
| VAL | 1013 | GP001013-065529 | MH001013-064554-032 | MH001013-064426-030 | 10 | CLAY | 433.67 |
| VAL | 1013 | GP001013-065531 | MH001012-424410-032B2 | MH001013-064554-032 | 8 | CIP | 116.00 |
| VAL | 1013 | GP001013-473484 | MH001013-064680-033 | MH001012-424410-032B2 | 8 | UNK | 258.37 |
| VAL | 1013 | GP001013-071261 | MH001013-064254-029 | MH001013-063942-028 | 8 | UNK | 495.88 |
| VAL | 1013 | GP001013-065500 | MH001013-063511-013 | MH001013-063698-012 | 18 | UNK | 341.95 |
| VAL | 1013 | GP001013-065498 | MH001013-063637-027 | MH001013-063553-026 | 8 | CLAY | 240.27 |
| VAL | 1013 | GP001013-065532 | MH001013-064785-035 | MH001013-064680-033 | 8 | CIP | 382.44 |
| VAL | 1013 | GP001013-065337 | MH001013-063276-017 | MH001013-063511-013 | 18 | UNK | 390.57 |
| VAL | 1013 | GP001013-065486 | MH001013-063272-021 | MH001013-063163-020 | 8 | UNK | 261.10 |
| VAL | 1013 | GP001013-065535 | MH001013-064916-035A | MH001013-064785-035 | 8 | UNK | 379.69 |
| VAL | 1013 | GP001013-065516 | MH001013-063997-001B | MH001013-064277-001A | 18 | CLAY | 419.34 |
| VAL | 1013 | GP001013-065494 | MH001013-063443-016 | MH001013-063528-015 | 8 | UNK | 140.05 |
| VAL | 1013 | GP001013-065505 | MH001013-063942-028 | MH001013-063637-027 | 8 | UNK | 478.28 |
| VAL | 1013 | GP001013-065506 | MH001013-063698-012 | MH001013-063971-011 | 24 | CIP | 432.83 |
| VAL | 1013 | GP001013-071262 | MH001013-064426-030 | MH001013-064254-029 | 10 | CIP | 499.88 |
| VAL | 1013 | GP001013-065487 | MH001013-063066-019 | MH001013-063276-017 | 18 | UNK | 318.62 |
| VAL | 1013 | GP001013-065537 | MH001013-065001-036A | MH001013-064785-035 | 8 | CLAY | 399.02 |
| VAL | 1013 | GP001013-065503 | MH001013-063830-039 | MH001013-063637-027 | 8 | UNK | 479.60 |
| VAL | 1013 | GP001013-065521 | MH001013-064221-031 | MH001013-064426-030 | 8 | UNK | 470.11 |
| VAL | 1013 | GP001013-065496 | MH001013-063553-026 | MH001013-063464-024 | 8 | CLAY | 239.15 |
| VAL | 1013 | GP001013-065528 | MH001013-428151-032B1A | MH001013-064554-032 | 8 | CLAY | 291.00 |
| VAL | 1013 | GP001013-381928 | MH001013-064677-036 | MH001013-064785-035 | 8 | UNK | 310.30 |
| VAL | 1013 | GP001013-065495 | MH001013-063528-015 | MH001013-063511-013 | 8 | UNK | 60.17 |
| VAL | 1013 | GP001013-065544 | MH001013-064655-037 | MH001013-064677-036 | 0 | UNK | 58.82 |
| VAL | 1013 | GP001013-065509 | MH001013-064015-040 | MH001013-063830-039 | 8 | UNK | 429.69 |
| VAL | 1013 | GP001013-065491 | MH001013-063464-024 | MH001013-429351-021B | 8 | CIP | 312.09 |
| VAL | 1014 | GP001014-065712 | MH001014-064122-065 | MH001014-064082-064 | 8 | UNK | 81.82 |
| VAL | 1014 | GP001014-065711 | MH001014-064082-064 | MH001014-063804-063 | 8 | CLAY | 408.71 |
| VAL | 1014 | GP001014-065670 | MH001014-065035-041 | MH001014-064851-040 | 8 | CLAY | 429.71 |
| VAL | 1014 | GP001014-065706 | MH001014-063625-059 | MH001014-063529-058 | 8 | UNK | 239.95 |
| VAL | 1014 | GP001014-065698 | MH001014-064851-040 | MH001014-064829-039 | 8 | UNK | 50.63 |
| VAL | 1014 | GP001014-370736 | MH001014-335758-035B | MH001014-110465-035A | 8 | UNK | 63.10 |
| VAL | 1014 | GP001014-065697 | MH001014-064829-039 | MH001014-064624-038 | 8 | CIP | 480.23 |
| VAL | 1014 | GP001014-121473 | MH001014-110465-035A | MH001014-064234-035 | 8 | UNK | 173.82 |
| VAL | 1014 | GP001014-121472 | MH001014-064389-036 | MH001014-335758-035B | 8 | UNK | 235.60 |
| VAL | 1014 | GP001014-065707 | MH001014-063715-061 | MH001014-063625-059 | 8 | CLAY | 237.51 |
| VAL | 1014 | GP001014-065724 | MH001014-064894-042 | MH001014-064851-040 | 8 | UNK | 112.50 |
| VAL | 1014 | GP001014-065699 | MH001014-065034-043 | MH001014-064894-042 | 8 | UNK | 326.14 |
| VAL | 1014 | GP001014-065725 | MH001014-064122-065 | MH001014-064154-037 | 8 | UNK | 439.22 |
| VAL | 1014 | GP001014-065691 | MH001014-064180-028 | MH001014-064130-026 | 8 | UNK | 100.53 |
| VAL | 1014 | GP001014-077144 | MH001014-063400-071 | MH001014-063529-058 | 8 | UNK | 99.71 |
| VAL | 1014 | GP001014-065696 | MH001014-064624-038 | MH001014-064389-036 | 8 | UNK | 483.17 |
| VAL | 1014 | GP001014-065709 | MH001014-063804-063 | MH001014-063715-061 | 8 | CIP | 239.40 |
| VAL | 1014 | GP001014-065726 | MH001014-064154-037 | MH001014-064389-036 | 8 | UNK | 39.15 |
| VAL | 1014 | GP001014-065692 | MH001014-064234-035 | MH001014-335760-028A1 | 8 | UNK | 136.50 |
| VAL | 1014 | GP001014-065690 | MH001014-064130-026 | MH001014-064074-024 | 8 | UNK | 108.93 |
| VAL | 1014 | GP001014-370738 | MH001014-335760-028A1 | MH001014-064180-028 | 8 | UNK | 10.06 |
| VAL | 1015 | GP001015-065788 | MH001015-420876-021B | MH001015-065825-021 | 8 | UNK | 219.67 |
| VAL | 1015 | GP001015-469612 | MH001015-065931-023 | MH001015-420876-021B | 8 | UNK | 160.11 |
| VAL | 1015 | GP001015-065796 | MH001015-065874-036 | MH001015-066034-035 | 8 | UNK | 455.01 |
| VAL | 1015 | GP001015-065797 | MH001015-066034-035 | MH001015-065931-023 | 10 | UNK | 425.21 |
| VAL | 1015 | GP001015-205495 | MH001015-182684-035A | MH001015-066034-035 | 8 | UNK | 258.54 |
| VAL | 1015 | GP001015-436968 | MH001015-395270-035B | MH001015-182684-035A | 6 | CLAY | 401.68 |
| VAL | 1015 | GP001015-065800 | MH001015-066000-049 | MH001015-066146-048 | 8 | CIP | 454.77 |
| VAL | 1015 | GP001015-205494 | MH001015-066146-048 | MH001015-182684-035A | 8 | CIP | 225.38 |
| VAL | 1015 | GP001015-065803 | MH001015-066250-057 | MH001015-430119-048A | 8 | UNK | 237.98 |
| VAL | 1016 | GP001016-069044 | MH001016-066311-001 | MH001015-066250-057 | 8 | UNK | 259.30 |
| VAL | 1016 | GP001016-446255 | MH001016-402319-0104 | MH001016-402318-0102 | 8 | DUCTILE_IRON | 94.06 |

| BASIN | SUBBASIN | ASSETID | USMH_ASSETID | DSMH_ASSETID | DIAMETER (IN) | MATERIAL | LENGTH (LF) |
|---|---|---|---|---|---|---|---|
| VAL | 1016 | GP001016-446262 | MH001016-402324-0103 | MH001016-402318-0102 | 8 | DUCTILE_IRON | 167.07 |
| VAL | 1016 | GP001016-446254 | MH001016-402317-0097 | MH001016-402316-0096 | 8 | DUCTILE_IRON | 75.91 |
| VAL | 1016 | GP001016-446253 | MH001016-402316-0096 | MH001016-402315-0095 | 8 | DUCTILE_IRON | 121.46 |
| VAL | 1016 | GP001016-446252 | MH001016-402315-0095 | MH001016-402314-0094 | 8 | DUCTILE_IRON | 140.39 |
| VAL | 1016 | GP001016-446259 | MH001016-402322-0100 | MH001016-402321-0099 | 8 | DUCTILE_IRON | 47.39 |
| VAL | 1016 | GP001016-446251 | MH001016-402314-0094 | MH001016-402313-0093 | 8 | DUCTILE_IRON | 187.24 |
| VAL | 1016 | GP001016-446250 | MH001016-402313-0093 | MH001016-402312-0092 | 8 | DUCTILE_IRON | 71.03 |
| VAL | 1016 | GP001016-446249 | MH001016-402312-0092 | MH001016-402311-0091 | 8 | DUCTILE_IRON | 79.86 |
| VAL | 1016 | GP001016-446248 | MH001016-402311-0091 | MH001016-402310-0090 | 8 | DUCTILE_IRON | 132.12 |
| VAL | 1016 | GP001016-471528 | MH001016-422470-0105 | MH001016-402329-0082 | 8 | PVC | 135.93 |
| VAL | 1016 | GP001016-446570 | MH001016-402330-0083 | MH001016-402329-0082 | 8 | DUCTILE_IRON | 77.95 |
| VAL | 1016 | GP001016-446571 | MH001016-402331-0084 | MH001016-402330-0083 | 8 | DUCTILE_IRON | 161.17 |
| VAL | 1016 | GP001016-446260 | MH001016-402323-0101 | MH001016-402322-0100 | 8 | DUCTILE_IRON | 166.98 |
| VAL | 1016 | GP001016-446261 | MH001016-402318-0102 | MH001016-402323-0101 | 8 | DUCTILE_IRON | 116.14 |
| VAL | 1016 | GP001016-446572 | MH001016-402332-0085 | MH001016-402331-0084 | 8 | DUCTILE_IRON | 167.28 |
| VAL | 1016 | GP001016-446573 | MH001016-402333-0086 | MH001016-402332-0085 | 8 | DUCTILE_IRON | 154.60 |
| VAL | 1016 | GP001016-446574 | MH001016-402334-0087 | MH001016-402333-0086 | 8 | DUCTILE_IRON | 134.04 |
| VAL | 1016 | GP001016-446575 | MH001016-402335-0088 | MH001016-402334-0087 | 8 | DUCTILE_IRON | 300.77 |
| VAL | 1016 | GP001016-446257 | MH001016-402320-0098 | MH001016-402313-0093 | 8 | DUCTILE_IRON | 371.96 |
| VAL | 1016 | GP001016-446258 | MH001016-402321-0099 | MH001016-402320-0098 | 8 | DUCTILE_IRON | 200.96 |
| VAL | 1016 | GP001016-065842 | MH001016-402309-0089 | MH001016-067089-045 | 8 | UNK | 136.31 |
| VAL | 1016 | GP001016-446247 | MH001016-402310-0090 | MH001016-067020-046 | 8 | DUCTILE_IRON | 15.62 |
| VAL | 1016 | GP001016-065873 | MH001016-067089-045 | MH001016-335756-044A | 8 | UNK | 319.78 |
| VAL | 1016 | GP001016-228306 | MH001016-402326-0079 | MH001016-202615-043A | 8 | UNK | 274.92 |
| VAL | 1016 | GP001016-370734 | MH001016-335756-044A | MH001016-066752-044 | 8 | UNK | 194.03 |
| VAL | 1016 | GP001016-065840 | MH001016-066550-043 | MH001016-066393-042 | 8 | UNK | 502.93 |
| VAL | 1016 | GP001016-228307 | MH001016-202615-043A | MH001016-066550-043 | 8 | UNK | 146.27 |
| VAL | 1017 | GP001017-065875 | MH001017-422976-008A | MH001017-066348-008 | 8 | UNK | 83.60 |
| VAL | 1017 | GP001017-065884 | MH001017-066348-008 | MH001017-066540-007 | 8 | CLAY | 416.32 |
| VAL | 1017 | GP001017-065880 | MH001017-066474-004 | MH001017-066431-002 | 8 | UNK | 119.53 |
| VAL | 1017 | GP001017-065878 | MH001017-066431-002 | MH001017-066396-001 | 8 | UNK | 93.84 |
| VAL | 1017 | GP001017-069091 | MH001017-066396-001 | MH001012-066335-169C | 8 | UNK | 201.01 |
| VAL | 1017 | GP001017-065881 | MH001017-066492-001A | MH001017-066396-001 | 10 | UNK | 280.74 |
| VAL | 1017 | GP001017-065890 | MH001017-066754-013 | MH001017-066492-001A | 10 | UNK | 347.29 |
| VAL | 1017 | GP001017-065892 | MH001017-066862-014 | MH001017-066754-013 | 10 | UNK | 243.55 |
| VAL | 1017 | GP001017-065893 | MH001017-066884-015 | MH001017-066862-014 | 10 | UNK | 50.96 |
| VAL | 1017 | GP001017-065882 | MH001017-066503-005 | MH001017-066474-004 | 8 | UNK | 28.81 |
| VAL | 1017 | GP001017-065883 | MH001017-066540-007 | MH001017-066503-005 | 8 | UNK | 169.19 |
| VAL | 1017 | GP001017-065897 | MH001017-067085-014A | MH001017-066862-014 | 8 | UNK | 395.32 |
| VAL | 1017 | GP001017-065901 | FT001017-004744 | MH001017-429975-014B | 8 | UNK | 547.75 |
| VAL | 1017 | GP001017-065898 | MH001017-067164-016 | MH001017-066884-015 | 10 | UNK | 558.92 |
| VAL | 1017 | GP001017-065899 | MH001017-067206-017 | MH001017-067164-016 | 10 | UNK | 181.95 |
| VAL | 1017 | GP001017-065900 | MH001017-067245-018 | MH001017-067206-017 | 10 | UNK | 177.24 |
| VAL | 1018 | GP001018-065937 | MH001018-066757-029C | MH001018-066641-029B | 8 | CLAY | 328.00 |
| VAL | 1018 | GP001018-066013 | MH001018-066641-029B | MH001018-066534-029A | 8 | CLAY | 318.72 |
| VAL | 1018 | GP001018-066020 | MH001018-066697-029I | MH001018-066815-029F | 8 | CLAY | 243.00 |
| VAL | 1018 | GP001018-066028 | MH001018-066815-029F | MH001018-066936-029E | 8 | CLAY | 285.97 |
| VAL | 1018 | GP001018-386410 | MH001018-066845-086 | MH001018-066802-084 | 8 | CIP | 155.23 |
| VAL | 1018 | GP001018-065998 | MH001018-066454-082 | MH001018-066351-081 | 8 | CLAY | 399.01 |
| VAL | 1018 | GP001018-065980 | MH001018-343757-008B | MH001018-065964-008 | 8 | UNK | 497.49 |
| VAL | 1018 | GP001018-065993 | MH001018-066358-039 | MH001018-066385-037 | 8 | UNK | 146.04 |
| VAL | 1018 | GP001018-065933 | MH001018-066721-070A | MH001018-066693-070 | 8 | UNK | 86.46 |
| VAL | 1018 | GP001018-380007 | MH001018-066748-072 | MH001018-344072-070B | 8 | CLAY | 26.04 |
| VAL | 1018 | GP001018-065992 | MH001018-066384-028 | MH001018-066334-027 | 8 | UNK | 284.17 |
| VAL | 1018 | GP001018-066004 | MH001018-066493-038 | MH001018-066455-036 | 8 | UNK | 131.27 |
| VAL | 1018 | GP001018-066000 | MH001018-066385-037 | MH001018-066455-036 | 8 | UNK | 138.12 |
| VAL | 1018 | GP001018-065990 | MH001018-066325-041 | MH001018-066343-040 | 6 | UNK | 77.58 |
| VAL | 1018 | GP001018-379691 | MH001018-343755-006A1 | MH001018-065791-006 | 8 | IRON | 34.93 |
| VAL | 1018 | GP001018-066003 | FT001018-011610 | MH001018-066493-038 | 8 | UNK | 111.32 |
| VAL | 1018 | GP001018-066010 | MH001018-066458-076 | MH001018-066568-074 | 8 | CLAY | 173.93 |
| VAL | 1018 | GP001018-065923 | MH001018-066417-039A | MH001018-066358-039 | 8 | UNK | 92.30 |
| VAL | 1018 | GP001018-066021 | MH001018-066842-073 | MH001018-066748-072 | 8 | CLAY | 288.22 |
| VAL | 1018 | GP001018-071282 | MH001018-066728-069A | MH001018-066749-069 | 0 | UNK | 42.09 |
| VAL | 1018 | GP001018-069128 | MH001018-065701-001 | MH001012-065608-175 | 12 | CIP | 362.78 |
| VAL | 1018 | GP001018-066034 | MH001018-067025-029K | MH001018-066936-029E | 8 | UNK | 349.43 |
| VAL | 1018 | GP001018-412327 | MH001018-372869-045A | MH001018-066598-045 | 8 | CLAY | 157.00 |
| VAL | 1018 | GP001018-070828 | MH001018-066598-045 | MH001018-066559-044 | 8 | UNK | 189.40 |
| VAL | 1018 | GP001018-065942 | MH001018-066923-102 | MH001018-066749-069 | 8 | CIP | 329.23 |
| VAL | 1018 | GP001018-065967 | MH001018-066399-078 | MH001018-066446-077 | 8 | CLAY | 144.20 |
| VAL | 1018 | GP001018-065966 | MH001018-066179-005A | MH001018-066047-005 | 8 | UNK | 360.38 |

| BASIN | SUBBASIN | ASSETID | USMH_ASSETID | DSMH_ASSETID | DIAMETER (IN) | MATERIAL | LENGTH (LF) |
|---|---|---|---|---|---|---|---|
| VAL | 1018 | GP001018-066006 | MH001018-066514-080 | MH001018-066401-079 | 8 | CLAY | 362.99 |
| VAL | 1018 | GP001018-065924 | MH001018-066446-077 | MH001018-066458-076 | 8 | CLAY | 26.53 |
| VAL | 1018 | GP001018-065987 | FT001018-004714 | MH001018-066259-043 | 6 | UNK | 90.00 |
| VAL | 1018 | GP001018-075525 | MH001018-066513-049 | MH001018-066343-040 | 8 | CLAY | 469.66 |
| VAL | 1018 | GP001018-065988 | MH001018-066259-043 | MH001018-066278-042 | 6 | UNK | 91.36 |
| VAL | 1018 | GP001018-066016 | MH001018-066704-075 | MH001018-066568-074 | 8 | CLAY | 434.14 |
| VAL | 1018 | GP001018-065975 | MH001018-065719-002 | MH001018-065701-001 | 12 | CIP | 66.64 |
| VAL | 1018 | GP001018-065991 | MH001018-066343-040 | MH001018-066358-039 | 8 | UNK | 75.44 |
| VAL | 1018 | GP001018-066032 | MH001018-066949-092 | MH001018-066842-073 | 8 | CLAY | 265.86 |
| VAL | 1018 | GP001018-065976 | MH001018-065791-006 | MH001018-065719-002 | 12 | DUCTILE_IRON | 383.91 |
| VAL | 1018 | GP001018-066009 | MH001018-066559-044 | MH001018-066417-039A | 8 | UNK | 324.68 |
| VAL | 1018 | GP001018-066015 | MH001018-066518-096 | MH001018-066686-095 | 8 | CLAY | 391.08 |
| VAL | 1018 | GP001018-065914 | MH001018-065964-008 | MH001018-343756-006A | 12 | DUCTILE_IRON | 236.36 |
| VAL | 1018 | GP001018-065915 | MH001018-066047-005 | MH001018-065879-003 | 8 | UNK | 488.14 |
| VAL | 1018 | GP001018-065919 | MH001018-066216-047 | MH001018-066277-046 | 6 | UNK | 155.06 |
| VAL | 1018 | GP001018-065994 | MH001018-066351-081 | MH001018-066401-079 | 8 | CLAY | 120.19 |
| VAL | 1018 | GP001018-076286 | MH001018-066913-087 | MH001018-066845-086 | 8 | UNK | 78.83 |
| VAL | 1018 | GP001018-066040 | MH001018-066997-029J | MH001018-067087-029G | 8 | UNK | 267.97 |
| VAL | 1018 | GP001018-065977 | FT001018-004681 | MH001018-065701-001 | 6 | CLAY | 410.16 |
| VAL | 1018 | GP001018-066022 | MH001018-066686-095 | MH001018-066854-094 | 8 | CLAY | 301.98 |
| VAL | 1018 | GP001018-066002 | MH001018-066401-079 | MH001018-066458-076 | 8 | CLAY | 146.94 |
| VAL | 1018 | GP001018-066007 | MH001018-066534-029A | MH001018-066415-029 | 8 | CLAY | 338.57 |
| VAL | 1018 | GP001018-065936 | MH001018-344072-070B | MH001018-066721-070A | 8 | CLAY | 106.59 |
| VAL | 1018 | GP001018-379692 | MH001018-343756-006A | MH001018-343755-006A1 | 12 | DUCTILE_IRON | 208.70 |
| VAL | 1018 | GP001018-065926 | MH001018-066405-051 | MH001018-066486-050 | 8 | UNK | 336.01 |
| VAL | 1018 | GP001018-065943 | MH001018-066936-029E | MH001018-066757-029C | 8 | CIP | 329.36 |
| VAL | 1018 | GP001018-066001 | MH001018-066455-036 | MH001018-066384-028 | 8 | UNK | 144.81 |
| VAL | 1018 | GP001018-065997 | MH001018-066403-083 | MH001018-066454-082 | 8 | CLAY | 124.99 |
| VAL | 1018 | GP001018-075520 | MH001018-066749-069 | MH001018-066677-068 | 8 | UNK | 181.96 |
| VAL | 1018 | GP001018-065984 | FT001018-004709 | MH001018-066211-048 | 6 | UNK | 137.03 |
| VAL | 1018 | GP001018-065935 | MH001018-066568-074 | MH001018-066748-072 | 8 | CIP | 315.45 |
| VAL | 1018 | GP001018-076282 | MH001018-066794-071 | MH001018-066721-070A | 8 | UNK | 137.09 |
| VAL | 1018 | GP001018-075519 | MH001018-066693-070 | MH001018-066677-068 | 8 | UNK | 66.77 |
| VAL | 1018 | GP001018-065989 | MH001018-066278-042 | MH001018-066325-041 | 6 | UNK | 60.27 |
| VAL | 1018 | GP001018-065918 | MH001018-066211-048 | MH001018-066216-047 | 6 | UNK | 206.68 |
| VAL | 1018 | GP001018-071184 | MH001018-066305-052 | MH001018-066405-051 | 0 | UNK | 78.66 |
| VAL | 1018 | GP001018-066024 | MH001018-066866-029D | MH001018-066757-029C | 8 | CIP | 362.18 |
| VAL | 1018 | GP001018-076284 | MH001018-066802-084 | MH001018-066794-071 | 0 | UNK | 29.30 |
| VAL | 1018 | GP001018-065978 | MH001018-065879-003 | MH001018-065719-002 | 8 | UNK | 501.09 |
| VAL | 1018 | GP001018-065920 | MH001018-066277-046 | MH001018-066278-042 | 6 | UNK | 92.18 |
| VAL | 1019 | GP001019-066139 | MH001019-067219-001A | MH001019-067153-001 | 8 | CLAY | 295.86 |
| VAL | 1019 | GP001019-066138 | MH001019-067171-002 | MH001019-067153-001 | 10 | UNK | 68.44 |
| VAL | 1019 | GP001019-249756 | MH001019-207088-001C | MH001019-067219-001A | 8 | CLAY | 240.22 |
| VAL | 1019 | GP001019-070831 | MH001019-067496-048 | MH001019-338636-044A | 10 | CIP | 421.67 |
| VAL | 1019 | GP001019-374570 | MH001019-338636-044A | MH001019-067356-044 | 8 | UNK | 30.00 |
| VAL | 1019 | GP001019-069047 | MH001019-067153-001 | MH001018-067092-058A | 10 | UNK | 185.51 |
| VAL | 1019 | GP001019-249755 | MH001019-067356-044 | MH001019-207088-001C | 8 | CLAY | 245.53 |
| VAL | 1028 | GP001028-076240 | MH001031-053473-091 | MH001031-053497-067 | 8 | UNK | 302.31 |
| VAL | 1029 | GP001029-060945 | MH001029-044868-040G | MH001029-044916-040F | 8 | CLAY | 193.84 |
| VAL | 1029 | GP001029-089336 | MH001029-074894-0174 | MH001029-045278-037C | 8 | PVC | 147.59 |
| VAL | 1029 | GP001029-077365 | MH001030-074831-0083 | MH001029-074832-0179 | 8 | DUCTILE_IRON | 122.31 |
| VAL | 1029 | GP001029-067415 | MH001029-055159-062A | MH001029-055052-062 | 8 | CLAY | 182.82 |
| VAL | 1029 | GP001029-070159 | MH001029-053654-164 | MH001029-053815-163 | 8 | CLAY | 304.79 |
| VAL | 1029 | GP001029-394088 | FT001029-083991 | MH001029-357510-009L | 8 | PVC | 93.00 |
| VAL | 1029 | GP001029-077361 | MH001029-074838-0182 | MH001029-074837-0181 | 8 | DUCTILE_IRON | 83.63 |
| VAL | 1029 | GP001029-077364 | MH001029-074832-0179 | MH001029-074833-0178 | 8 | DUCTILE_IRON | 177.44 |
| VAL | 1029 | GP001029-060946 | MH001029-044875-040H | MH001029-044868-040G | 8 | CLAY | 34.36 |
| VAL | 1029 | GP001029-081903 | MH001029-087257-037E1 | MH001029-045150-037E | 8 | CLAY | 125.00 |
| VAL | 1029 | GP001029-062738 | MH001029-045272-037B | MH001029-045271-037A | 8 | CLAY | 167.87 |
| VAL | 1029 | GP001029-070158 | MH001029-053592-165 | MH001029-053654-164 | 8 | CLAY | 106.56 |
| VAL | 1029 | GP001029-070116 | MH001029-055098-009D | MH001029-055097-009C | 8 | CLAY | 204.07 |
| VAL | 1029 | GP001029-393767 | MH001029-357509-009K | MH001029-054768-009J | 8 | PVC | 122.00 |
| VAL | 1029 | GP001029-058461 | MH001029-045247-041 | MH001029-045201-040 | 8 | CLAY | 204.54 |
| VAL | 1029 | GP001029-076234 | MH001029-053902-162 | MH001029-054196-161 | 8 | CLAY | 396.94 |
| VAL | 1029 | GP001029-070112 | MH001029-054443-014B | MH001029-054452-014A | 8 | DUCTILE_IRON | 281.91 |
| VAL | 1029 | GP001029-070120 | MH001029-054767-009I | MH001029-054976-009F | 8 | CLAY | 298.92 |
| VAL | 1029 | GP001029-310903 | MH001029-053859-019B | MH001029-275605-019A1 | 8 | CLAY | 193.73 |
| VAL | 1029 | GP001029-067505 | MH001029-054900-064 | MH001029-055052-062 | 8 | CLAY | 174.62 |
| VAL | 1029 | GP001029-075442 | MH001029-054063-028 | MH001029-054295-027 | 8 | CIP | 290.51 |
| VAL | 1029 | GP001029-091613 | MH001029-087258-037E2 | MH001029-087257-037E1 | 8 | PVC | 125.00 |

| BASIN | SUBBASIN | ASSETID | USMH_ASSETID | DSMH_ASSETID | DIAMETER (IN) | MATERIAL | LENGTH (LF) |
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| VAL | 1029 | GP001029-076988 | MH001029-055095-009B | MH001029-055096-009A | 8 | CLAY | 249.63 |
| VAL | 1029 | GP001029-067431 | MH001029-055320-063 | MH001029-055159-062A | 8 | CLAY | 194.62 |
| VAL | 1029 | GP001029-070114 | MH001029-053908-019E | MH001029-053859-019B | 8 | CLAY | 257.06 |
| VAL | 1029 | GP001029-076236 | MH001029-053920-088 | MH001029-054135-087 | 8 | CLAY | 225.49 |
| VAL | 1029 | GP001029-067395 | MH001029-054533-026 | MH001029-054544-025 | 8 | CIP | 312.97 |
| VAL | 1029 | GP001029-067490 | MH001029-054452-014A | MH001029-429450-014A1 | 8 | DUCTILE_IRON | 100.00 |
| VAL | 1029 | GP001029-067404 | MH001029-054681-011 | MH001029-054837-010 | 8 | CLAY | 171.22 |
| VAL | 1029 | GP001029-067485 | MH001029-054387-057 | MH001029-054514-056 | 8 | CLAY | 194.36 |
| VAL | 1029 | GP001029-070111 | MH001029-054448-014C | MH001029-054452-014A | 8 | DUCTILE_IRON | 103.89 |
| VAL | 1029 | GP001029-070117 | MH001029-054963-009H | MH001029-054975-009G | 8 | CLAY | 253.13 |
| VAL | 1029 | GP001029-070115 | MH001029-055099-009E | MH001029-055098-009D | 8 | CLAY | 361.35 |
| VAL | 1029 | GP001029-310904 | MH001029-275605-019A1 | MH001029-053806-019A | 8 | CLAY | 173.38 |
| VAL | 1029 | GP001029-067500 | MH001029-054702-065 | MH001029-054900-064 | 8 | CLAY | 325.48 |
| VAL | 1029 | GP001029-077357 | MH001029-074839-0175 | MH001029-074894-0174 | 8 | DUCTILE_IRON | 235.71 |
| VAL | 1029 | GP001029-062737 | MH001029-045271-037A | MH001029-045283-037 | 8 | CLAY | 54.59 |
| VAL | 1029 | GP001029-076212 | MH001029-054434-016 | MH001029-054584-015 | 8 | CLAY | 203.37 |
| VAL | 1029 | GP001029-067425 | MH001029-053784-029 | MH001029-054063-028 | 8 | CIP | 385.95 |
| VAL | 1029 | GP001029-070118 | MH001029-054975-009G | MH001029-054976-009F | 8 | CLAY | 248.64 |
| VAL | 1029 | GP001029-090253 | MH001029-086006-037A1 | MH001029-045271-037A | 8 | PVC | 32.35 |
| VAL | 1029 | GP001029-060947 | MH001029-044834-040I | MH001029-044875-040H | 8 | CLAY | 263.39 |
| VAL | 1029 | GP001029-060938 | MH001029-045163-040A | MH001029-045201-040 | 8 | CLAY | 99.72 |
| VAL | 1029 | GP001029-067494 | MH001029-054563-054 | MH001029-054689-053 | 8 | CLAY | 143.95 |
| VAL | 1029 | GP001029-060941 | MH001029-045080-040C | MH001029-045120-040B | 8 | CLAY | 221.55 |
| VAL | 1029 | GP001029-067487 | MH001029-045977-030 | MH001029-054544-025 | 8 | CLAY | 75.03 |
| VAL | 1029 | GP001029-060948 | MH001029-044805-040J | MH001029-044834-040I | 8 | CLAY | 95.28 |
| VAL | 1029 | GP001029-070113 | MH001029-053907-019F | MH001029-053908-019E | 8 | CLAY | 157.94 |
| VAL | 1029 | GP001029-076214 | MH001029-054344-018 | MH001029-054435-017 | 8 | CLAY | 96.54 |
| VAL | 1029 | GP001029-076237 | MH001029-054135-087 | MH001029-054168-086 | 8 | CLAY | 108.78 |
| VAL | 1029 | GP001029-070842 | FT001029-004278 | MH001029-053859-019B | 8 | UNK | 166.15 |
| VAL | 1029 | GP001029-054358 | MH001029-045831-032 | MH001029-045832-031 | 8 | CLAY | 76.60 |
| VAL | 1029 | GP001029-091616 | FT001029-104151 | MH001029-086006-037A1 | 6 | UNK | 110.00 |
| VAL | 1029 | GP001029-060949 | MH001029-044890-040K | MH001029-044916-040F | 8 | DUCTILE_IRON | 58.14 |
| VAL | 1029 | GP001029-054233 | MH001029-045270-038 | MH001029-045283-037 | 8 | CLAY | 172.41 |
| VAL | 1029 | GP001029-054235 | MH001029-045283-037 | MH001029-045305-036 | 8 | CLAY | 87.55 |
| VAL | 1029 | GP001029-056619 | MH001029-045150-037E | MH001029-045266-037D1 | 8 | CLAY | 327.51 |
| VAL | 1029 | GP001029-067492 | MH001029-054572-014 | MH001029-406150-0184 | 8 | CLAY | 169.57 |
| VAL | 1029 | GP001029-076235 | MH001029-054196-161 | MH001029-054135-087 | 8 | CLAY | 180.96 |
| VAL | 1029 | GP001029-077359 | MH001029-074836-0180 | MH001029-074835-0176 | 8 | DUCTILE_IRON | 206.02 |
| VAL | 1029 | GP001029-076239 | MH001031-053497-067 | MH001031-053558-066 | 8 | UNK | 220.67 |
| VAL | 1029 | GP001029-058462 | MH001029-045413-042 | MH001029-045337-041A | 8 | CLAY | 218.40 |
| VAL | 1029 | GP001029-067489 | MH001029-054336-055 | MH001029-054563-054 | 8 | CLAY | 265.38 |
| VAL | 1029 | GP001029-076987 | MH001029-054837-010 | MH001029-055096-009A | 8 | CLAY | 377.17 |
| VAL | 1029 | GP001029-077360 | MH001029-074837-0181 | MH001029-074836-0180 | 8 | DUCTILE_IRON | 62.76 |
| VAL | 1029 | GP001029-062740 | MH001029-045266-037D1 | MH001029-045274-037D | 8 | PVC | 86.58 |
| VAL | 1029 | GP001029-077358 | MH001029-074835-0176 | MH001029-074839-0175 | 8 | DUCTILE_IRON | 72.33 |
| VAL | 1029 | GP001029-058463 | MH001029-045337-041A | MH001029-045247-041 | 8 | CLAY | 195.77 |
| VAL | 1029 | GP001029-070121 | MH001029-054976-009F | MH001029-055097-009C | 8 | CLAY | 181.75 |
| VAL | 1029 | GP001029-060939 | MH001029-045023-040B1 | MH001029-045120-040B | 8 | CLAY | 239.48 |
| VAL | 1029 | GP001029-076211 | MH001029-054437-016A | MH001029-054434-016 | 8 | CLAY | 238.73 |
| VAL | 1029 | GP001029-076989 | MH001029-055097-009C | MH001029-055095-009B | 8 | CLAY | 378.16 |
| VAL | 1029 | GP001029-067491 | MH001029-054584-015 | MH001029-054572-014 | 8 | CLAY | 463.15 |
| VAL | 1029 | GP001029-060940 | MH001029-045120-040B | MH001029-045163-040A | 8 | CLAY | 120.24 |
| VAL | 1029 | GP001029-067400 | MH001029-054544-025 | MH001029-054681-011 | 8 | CIP | 164.56 |
| VAL | 1029 | GP001029-060943 | MH001029-044956-040E | MH001029-045023-040B1 | 8 | CLAY | 215.10 |
| VAL | 1029 | GP001029-060944 | MH001029-044916-040F | MH001029-044956-040E | 8 | CLAY | 91.56 |
| VAL | 1029 | GP001029-077363 | MH001029-074833-0178 | MH001029-074834-0177 | 8 | DUCTILE_IRON | 200.44 |
| VAL | 1029 | GP001029-070160 | MH001029-053815-163 | MH001029-053902-162 | 8 | CLAY | 163.80 |
| VAL | 1029 | GP001029-067495 | MH001029-054514-056 | MH001029-054689-053 | 8 | CLAY | 388.79 |
| VAL | 1029 | GP001029-070119 | MH001029-054768-009J | MH001029-054767-009I | 8 | CLAY | 184.50 |
| VAL | 1029 | GP001029-067479 | MH001029-054282-018A | MH001029-054344-018 | 8 | CLAY | 73.94 |
| VAL | 1029 | GP001029-054232 | MH001029-045201-040 | MH001029-045270-038 | 8 | CLAY | 212.00 |
| VAL | 1029 | GP001029-067481 | MH001029-054356-058 | MH001029-054387-057 | 8 | IRON | 44.71 |
| VAL | 1029 | GP001029-060942 | MH001029-045007-040D | MH001029-045080-040C | 8 | CLAY | 362.73 |
| VAL | 1029 | GP001029-076213 | MH001029-054435-017 | MH001029-054434-016 | 8 | CLAY | 119.12 |
| VAL | 1029 | GP001029-062739 | MH001029-045278-037C | MH001029-045272-037B | 8 | CLAY | 284.30 |
| VAL | 1029 | GP001029-062736 | FT001029-104152 | MH001029-045271-037A | 6 | CLAY | 136.91 |
| VAL | 1029 | GP001029-067422 | MH001029-053813-089 | MH001029-053920-088 | 8 | CLAY | 168.86 |
| VAL | 1029 | GP001029-054363 | MH001029-045832-031 | MH001029-045977-030 | 8 | CLAY | 206.76 |
| VAL | 1029 | GP001029-394087 | MH001029-357510-009L | MH001029-357509-009K | 8 | PVC | 306.00 |
| VAL | 1029 | GP001029-077362 | MH001029-074834-0177 | MH001029-074835-0176 | 8 | DUCTILE_IRON | 219.66 |

| BASIN | SUBBASIN | ASSETID | USMH_ASSETID | DSMH_ASSETID | DIAMETER (IN) | MATERIAL | LENGTH (LF) |
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| VAL | 1029 | GP001029-067394 | MH001029-054295-027 | MH001029-054533-026 | 8 | CIP | 279.13 |
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| VAL | 1030 | GP001030-067571 | MH001030-052244-012 | MH001030-052414-011 | 8 | UNK | 250.11 |
| VAL | 1030 | GP001030-067578 | MH001030-052414-011 | MH001030-052607-010 | 8 | UNK | 345.99 |
| VAL | 1030 | GP001030-067584 | MH001030-052796-006 | MH001030-052983-005 | 8 | UNK | 255.09 |
| VAL | 1030 | GP001030-067580 | MH001030-052561-009 | MH001030-052683-008 | 8 | UNK | 249.71 |
| VAL | 1030 | GP001030-067581 | MH001030-052607-010 | MH001030-052784-007 | 8 | UNK | 253.03 |
| VAL | 1030 | GP001030-067582 | MH001030-052683-008 | MH001030-052784-007 | 8 | UNK | 221.60 |
| VAL | 1030 | GP001030-077366 | MH001030-074830-0084 | MH001030-074831-0083 | 8 | DUCTILE_IRON | 330.53 |
| VAL | 1030 | GP001030-067583 | MH001030-052784-007 | MH001030-052796-006 | 8 | UNK | 48.77 |
| VAL | 1031 | GP001031-074891 | MH001031-051705-020 | MH001031-051895-019 | 8 | UNK | 256.00 |
| VAL | 1031 | GP001031-067621 | MH001031-052657-007A | MH001031-052654-007 | 8 | UNK | 150.06 |
| VAL | 1031 | GP001031-074894 | MH001031-052145-018 | MH001031-052415-017 | 8 | UNK | 397.77 |
| VAL | 1031 | GP001031-067593 | MH001031-052667-016 | MH001031-052663-015 | 8 | UNK | 193.25 |
| VAL | 1031 | GP001031-076238 | MH001031-053488-060 | MH001031-053477-059 | 8 | CLAY | 363.90 |
| VAL | 1031 | GP001031-071756 | MH001031-051429-024B | MH001031-051715-024A | 8 | UNK | 387.92 |
| VAL | 1031 | GP001031-067590 | MH001031-051706-024 | MH001031-051705-020 | 8 | UNK | 64.62 |
| VAL | 1031 | GP001031-067605 | MH001031-053480-058 | MH001031-053485-055 | 8 | CLAY | 170.14 |
| VAL | 1031 | GP001031-067611 | MH001031-051686-022 | MH001031-051693-021 | 8 | UNK | 322.65 |
| VAL | 1031 | GP001031-067619 | MH001031-052577-008 | MH001031-052654-007 | 8 | CLAY | 109.30 |
| VAL | 1031 | GP001031-067592 | MH001031-052277-010 | MH001031-052451-009 | 8 | CLAY | 229.90 |
| VAL | 1031 | GP001031-109404 | MH001031-051693-021 | MH001031-099678-020A | 8 | UNK | 114.53 |
| VAL | 1031 | GP001031-067610 | MH001031-051678-023 | MH001031-051686-022 | 8 | UNK | 322.99 |
| VAL | 1031 | GP001031-074892 | MH001031-051895-019 | MH001031-052145-018 | 8 | UNK | 306.65 |
| VAL | 1031 | GP001031-067591 | MH001031-051715-024A | MH001031-051706-024 | 8 | UNK | 375.48 |
| VAL | 1031 | GP001031-070300 | MH001031-053716-055A | MH001031-053485-055 | 8 | UNK | 339.80 |
| VAL | 1031 | GP001031-067603 | MH001031-053477-059 | MH001031-053480-058 | 8 | CLAY | 327.68 |
| VAL | 1031 | GP001031-070157 | MH001031-053558-066 | MH001029-053592-165 | 8 | UNK | 81.85 |
| VAL | 1031 | GP001031-109405 | MH001031-099678-020A | MH001031-051705-020 | 8 | UNK | 234.67 |
| VAL | 1031 | GP001031-067622 | MH001031-052663-015 | MH001031-052657-007A | 8 | UNK | 234.00 |
| VAL | 1031 | GP001031-067616 | MH001031-052451-009 | MH001031-052577-008 | 8 | CLAY | 268.52 |
| VAL | 1031 | GP001031-067620 | MH001031-052654-007 | MH001031-052652-006 | 8 | CLAY | 66.01 |
| VAL | 1031 | GP001031-071755 | MH001031-051400-024C | MH001031-051706-024 | 8 | UNK | 409.16 |
| VAL | 1032 | GP001032-070982 | MH001032-052944-037A | MH001032-052921-037 | 8 | UNK | 27.19 |
| VAL | 1032 | GP001032-067722 | MH001032-052487-046 | MH001032-052492-045 | 8 | IRON | 319.75 |
| VAL | 1032 | GP001032-067664 | MH001032-052071-072 | MH001032-052314-071 | 8 | CLAY | 263.14 |
| VAL | 1032 | GP001032-067754 | MH001032-052009-055 | MH001032-052323-054 | 8 | UNK | 398.01 |
| VAL | 1032 | GP001032-067700 | MH001032-051859-067 | MH001032-051951-066 | 8 | UNK | 158.05 |
| VAL | 1032 | GP001032-067697 | MH001032-051825-062 | MH001032-051884-061 | 8 | UNK | 105.40 |
| VAL | 1032 | GP001032-067691 | MH001032-051735-076 | MH001032-051730-075 | 8 | UNK | 190.74 |
| VAL | 1032 | GP001032-067715 | MH001032-052352-058 | MH001032-052423-053 | 8 | UNK | 243.17 |
| VAL | 1032 | GP001032-067712 | MH001032-052335-063 | MH001032-052352-058 | 8 | UNK | 260.75 |
| VAL | 1032 | GP001032-067705 | MH001032-051936-051 | MH001032-052088-050 | 8 | UNK | 100.00 |
| VAL | 1032 | GP001032-067716 | MH001032-052323-054 | MH001032-052423-053 | 8 | UNK | 150.99 |
| VAL | 1032 | GP001032-067662 | MH001032-052184-049 | MH001032-052289-048 | 8 | UNK | 146.96 |
| VAL | 1032 | GP001032-067665 | MH001032-052314-071 | MH001032-052467-070 | 8 | IRON | 213.76 |
| VAL | 1032 | GP001032-067695 | MH001032-051750-074 | MH001032-051853-073 | 8 | CLAY | 224.47 |
| VAL | 1032 | GP001032-067709 | MH001032-052042-060 | MH001032-052213-059 | 8 | UNK | 198.26 |
| VAL | 1032 | GP001032-076203 | MH001032-052506-043 | MH001032-052540-042A | 8 | IRON | 86.81 |
| VAL | 1032 | GP001032-067692 | MH001032-051732-069 | MH001032-051749-068 | 8 | UNK | 180.41 |
| VAL | 1032 | GP001032-067727 | MH001032-052922-014B | MH001032-052929-014 | 10 | CLAY | 303.67 |
| VAL | 1032 | GP001032-067693 | MH001032-051730-075 | MH001032-051750-074 | 8 | CLAY | 201.13 |
| VAL | 1032 | GP001032-067721 | MH001032-052384-047 | MH001032-052487-046 | 8 | UNK | 151.44 |
| VAL | 1032 | GP001032-067661 | MH001032-052088-050 | MH001032-052184-049 | 8 | UNK | 151.14 |
| VAL | 1032 | GP001032-067677 | MH001032-051909-056 | MH001032-052009-055 | 8 | UNK | 149.29 |
| VAL | 1032 | GP001032-067696 | MH001032-051749-068 | MH001032-051859-067 | 8 | UNK | 262.85 |
| VAL | 1032 | GP001032-070980 | MH001032-052492-045 | MH001032-052502-044A | 8 | IRON | 231.96 |
| VAL | 1032 | GP001032-070983 | MH001032-052945-037B | MH001032-052944-037A | 10 | IRON | 161.04 |
| VAL | 1032 | GP001032-067725 | MH001032-052921-037 | MH001032-052922-014B | 10 | CLAY | 58.32 |
| VAL | 1032 | GP001032-067713 | MH001032-052213-059 | MH001032-052352-058 | 8 | UNK | 198.88 |
| VAL | 1032 | GP001032-067666 | MH001032-052467-070 | MH001032-052487-046 | 8 | IRON | 271.13 |
| VAL | 1032 | GP001032-076201 | MH001032-052502-044A | MH001032-052505-044 | 8 | IRON | 65.92 |
| VAL | 1032 | GP001032-067720 | MH001032-052423-053 | MH001032-052487-046 | 8 | UNK | 237.41 |
| VAL | 1032 | GP001032-067660 | MH001032-411604-072A | MH001032-052071-072 | 8 | CLAY | 100.00 |
| VAL | 1032 | GP001032-459700 | MH001032-051853-073 | MH001032-411604-072A | 8 | CLAY | 224.85 |
| VAL | 1032 | GP001032-108993 | MH001032-052163-064 | MH001032-099675-063A | 8 | UNK | 98.20 |
| VAL | 1032 | GP001032-108994 | MH001032-099675-063A | MH001032-052335-063 | 8 | UNK | 224.07 |
| VAL | 1032 | GP001032-067704 | MH001032-051884-061 | MH001032-052042-060 | 8 | UNK | 198.63 |
| VAL | 1032 | GP001032-067706 | MH001032-051951-066 | MH001032-052163-064 | 8 | UNK | 152.42 |

| BASIN | SUBBASIN | ASSETID | USMH_ASSETID | DSMH_ASSETID | DIAMETER (IN) | MATERIAL | LENGTH (LF) |
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| VAL | 1032 | GP001032-067699 | MH001032-051837-052 | MH001032-051936-051 | 8 | UNK | 146.89 |
| VAL | 1032 | GP001032-070984 | MH001032-052424-044B | MH001032-052502-044A | 8 | IRON | 145.35 |
| VAL | 1032 | GP001032-067714 | MH001032-052289-048 | MH001032-052384-047 | 8 | UNK | 199.83 |
| VAL | 1032 | GP001032-108991 | MH001032-052540-042A | MH001032-099674-042 | 8 | CLAY | 451.53 |
| VAL | 1032 | GP001032-076204 | MH001032-052505-044 | MH001032-052506-043 | 8 | IRON | 208.67 |
| VAL | 1032 | GP001032-067676 | MH001032-051822-057 | MH001032-051909-056 | 8 | UNK | 99.58 |
| VAL | 1042 | GP001042-059163 | MH001042-057673-027J | MH001042-328390-027I1 | 8 | UNK | 172.10 |
| VAL | 1042 | GP001042-059262 | MH001042-099657-027L1 | MH001042-057925-027L | 8 | CLAY | 355.41 |
| VAL | 1042 | GP001042-059161 | MH001042-057925-027L | MH001042-057674-027K | 8 | CLAY | 400.02 |
| VAL | 1042 | GP001042-059175 | MH001042-058132-027T | MH001042-058028-027S | 8 | CLAY | 224.26 |
| VAL | 1042 | GP001042-059264 | MH001042-328389-027P1 | MH001042-058024-027P | 8 | CLAY | 147.84 |
| VAL | 1042 | GP001042-059162 | MH001042-057674-027K | MH001042-057673-027J | 8 | CLAY | 158.77 |
| VAL | 1042 | GP001042-073821 | MH001042-058126-027V1 | MH001042-058127-027V | 8 | CLAY | 97.19 |
| VAL | 1042 | GP001042-077123 | MH001042-058028-027S | MH001042-000004-027R | 8 | CIP | 195.93 |
| VAL | 1042 | GP001042-059174 | MH001042-058127-027V | MH001042-058132-027T | 8 | CLAY | 109.86 |
| VAL | 1042 | GP001042-073822 | MH001042-058150-027V2 | MH001042-058126-027V1 | 8 | CLAY | 133.00 |
| VAL | 1042 | GP001042-059234 | MH001042-328391-027T2 | MH001042-058132-027T | 8 | CLAY | 174.78 |
| VAL | 1042 | GP001042-077358 | MH001042-000004-027R | MH001042-000005-027Q | 8 | CLAY | 22.33 |
| VAL | 1042 | GP001042-363687 | MH001042-328390-027I1 | MH001042-057558-027I | 8 | UNK | 26.58 |
| VAL | 1042 | GP001042-059178 | MH001042-057934-027O | MH001042-057924-027N | 8 | CLAY | 134.53 |
| VAL | 1042 | GP001042-059263 | MH001042-328720-027N1 | MH001042-057924-027N | 8 | CLAY | 316.22 |
| VAL | 1042 | GP001042-059170 | MH001042-057669-027M | MH001042-057673-027J | 8 | CLAY | 160.27 |
| VAL | 1042 | GP001042-059177 | MH001042-058024-027P | MH001042-057934-027O | 8 | CLAY | 229.16 |
| VAL | 1042 | GP001042-059169 | MH001042-057924-027N | MH001042-057669-027M | 8 | CLAY | 458.60 |
| VAL | 1042 | GP001042-059176 | MH001042-000005-027Q | MH001042-058024-027P | 8 | CLAY | 161.36 |
| VAL | 1042 | GP001042-059179 | MH001042-058151-027U | MH001042-058132-027T | 0 | UNK | 43.94 |
| VAL | 1043 | GP001043-059327 | MH001043-058386-092A | MH001043-058517-092 | 8 | UNK | 212.28 |
| VAL | 1043 | GP001043-059377 | MH001043-060087-029 | MH001043-060202-028 | 6 | UNK | 235.82 |
| VAL | 1043 | GP001043-109882 | MH001043-060024-023 | MH001043-099717-022A | 8 | UNK | 138.26 |
| VAL | 1043 | GP001043-059396 | MH001043-060148-025 | MH001043-060099-024 | 8 | UNK | 49.40 |
| VAL | 1043 | GP001043-059363 | FT001043-004476 | MH001043-060024-023 | 6 | UNK | 134.35 |
| VAL | 1043 | GP001043-109878 | MH001043-060200-027 | MH001043-099714-026B | 8 | CLAY | 71.01 |
| VAL | 1043 | GP001043-059340 | MH001043-058810-086 | MH001043-058802-085 | 8 | CLAY | 499.20 |
| VAL | 1043 | GP001043-059333 | MH001043-058522-091 | MH001043-058600-090 | 8 | UNK | 196.02 |
| VAL | 1043 | GP001043-059370 | MH001043-099715-034A | MH001043-060139-034 | 6 | UNK | 133.88 |
| VAL | 1043 | GP001043-109885 | MH001043-059799-021 | MH001043-099719-020A | 8 | UNK | 32.64 |
| VAL | 1043 | GP001043-059341 | MH001043-058802-085 | MH001043-058798-084A | 8 | CLAY | 501.85 |
| VAL | 1043 | GP001043-363690 | MH001042-328393-027T4 | MH001042-328392-027T3 | 8 | UNK | 163.30 |
| VAL | 1043 | GP001043-059395 | MH001043-060120-026 | MH001043-060099-024 | 8 | CLAY | 141.22 |
| VAL | 1043 | GP001043-059326 | MH001043-058637-093 | MH001043-058517-092 | 8 | CLAY | 188.80 |
| VAL | 1043 | GP001043-109879 | MH001043-099714-026B | MH001043-060120-026 | 8 | UNK | 118.44 |
| VAL | 1043 | GP001043-059365 | MH001043-059909-022 | MH001043-059799-021 | 6 | UNK | 355.95 |
| VAL | 1043 | GP001043-059309 | MH001043-058481-083I | MH001043-058392-083D | 8 | CIP | 373.23 |
| VAL | 1043 | GP001043-059342 | MH001043-058798-084A | MH001043-058799-084 | 8 | UNK | 79.14 |
| VAL | 1043 | GP001043-110208 | MH001043-100120-024A | MH001043-060099-024 | 8 | CLAY | 148.98 |
| VAL | 1043 | GP001043-059367 | MH001043-059673-020 | MH001043-059706-019 | 6 | UNK | 158.92 |
| VAL | 1043 | GP001043-059339 | MH001043-058756-086A | MH001043-058810-086 | 8 | UNK | 99.49 |
| VAL | 1043 | GP001043-059334 | MH001043-058600-090 | MH001043-058618-089 | 8 | UNK | 245.00 |
| VAL | 1043 | GP001043-059375 | MH001043-059999-031 | MH001043-060120-026 | 6 | UNK | 230.50 |
| VAL | 1043 | GP001043-059307 | MH001043-058100-083F | MH001043-058187-083E | 8 | CIP | 203.49 |
| VAL | 1043 | GP001043-059306 | MH001043-099654-083M | MH001043-058100-083F | 8 | CIP | 240.74 |
| VAL | 1043 | GP001043-363689 | MH001042-328392-027T3 | MH001042-328391-027T2 | 8 | UNK | 12.47 |
| VAL | 1043 | GP001043-059325 | MH001043-423848-093A | MH001043-058637-093 | 8 | UNK | 178.12 |
| VAL | 1043 | GP001043-059328 | MH001043-058517-092 | MH001043-058522-091 | 8 | UNK | 341.01 |
| VAL | 1043 | GP001043-059379 | MH001043-060202-028 | MH001043-060200-027 | 6 | UNK | 86.07 |
| VAL | 1043 | GP001043-109886 | MH001043-099719-020A | MH001043-059673-020 | 8 | UNK | 294.26 |
| VAL | 1043 | GP001043-109863 | MH001043-099656-083K | MH001043-058100-083F | 8 | CIP | 83.34 |
| VAL | 1043 | GP001043-109866 | MH001043-099658-083J1 | MH001043-058661-083 | 8 | CLAY | 209.94 |
| VAL | 1043 | GP001043-059330 | MH001043-058358-096 | MH001043-058360-095 | 8 | UNK | 382.01 |
| VAL | 1043 | GP001043-059324 | MH001043-058638-094 | MH001043-058637-093 | 8 | CLAY | 224.42 |
| VAL | 1043 | GP001043-109865 | MH001043-058791-083J | MH001043-099658-083J1 | 8 | CIP | 298.13 |
| VAL | 1043 | GP001043-059378 | MH001043-060205-030 | MH001043-060202-028 | 6 | UNK | 385.46 |
| VAL | 1043 | GP001043-059331 | MH001043-099653-095A | MH001043-058360-095 | 8 | CLAY | 278.21 |
| VAL | 1043 | GP001043-059329 | MH001043-328394-027T5 | MH001042-328393-027T4 | 8 | UNK | 401.44 |
| VAL | 1043 | GP001043-059308 | MH001043-058187-083E | MH001043-058392-083D | 8 | CIP | 406.22 |
| VAL | 1043 | GP001043-109883 | MH001043-099717-022A | MH001043-059909-022 | 8 | UNK | 215.25 |
| VAL | 1043 | GP001043-059335 | MH001043-058618-089 | MH001043-058606-088 | 8 | CLAY | 435.00 |
| VAL | 1043 | GP001043-059371 | MH001043-060139-034 | MH001043-059984-033 | 6 | CLAY | 396.08 |
| VAL | 1043 | GP001043-059332 | MH001043-058360-095 | MH001043-058522-091 | 8 | CLAY | 324.64 |

| BASIN | SUBBASIN | ASSETID | USMH_ASSETID | DSMH_ASSETID | DIAMETER (IN) | MATERIAL | LENGTH (LF) |
|---|---|---|---|---|---|---|---|
| VAL | 1043 | GP001043-059343 | MH001043-058799-084 | MH001043-058791-083J | 8 | CLAY | 241.49 |
| VAL | 1044 | GP001044-059479 | MH001044-059253-009A | MH001044-059250-009 | 8 | UNK | 64.62 |
| VAL | 1044 | GP001044-059456 | MH001044-059552-067 | MH001044-059514-066 | 8 | UNK | 123.71 |
| VAL | 1044 | GP001044-059490 | MH001044-059491-056 | MH001044-059493-055 | 8 | UNK | 76.80 |
| VAL | 1044 | GP001044-059511 | MH001044-059354-028 | MH001044-059291-027 | 8 | UNK | 126.67 |
| VAL | 1044 | GP001044-059482 | MH001044-059180-005 | MH001044-059179-004 | 8 | UNK | 118.22 |
| VAL | 1044 | GP001044-059487 | MH001044-059161-002 | MH001044-059129-001 | 8 | UNK | 106.87 |
| VAL | 1044 | GP001044-059519 | MH001044-059341-032 | MH001044-059372-031 | 8 | UNK | 162.55 |
| VAL | 1044 | GP001044-059515 | MH001044-059467-036 | MH001044-059482-035 | 8 | UNK | 164.10 |
| VAL | 1044 | GP001044-059495 | MH001044-059816-040 | MH001044-059660-039 | 8 | CLAY | 398.74 |
| VAL | 1044 | GP001044-059474 | MH001044-059447-043 | MH001044-059369-042 | 8 | UNK | 232.17 |
| VAL | 1044 | GP001044-059491 | MH001044-059493-055 | MH001044-059398-054 | 8 | UNK | 205.53 |
| VAL | 1044 | GP001044-059452 | MH001044-059514-066 | MH001044-059451-064 | 8 | UNK | 114.69 |
| VAL | 1044 | GP001044-059496 | MH001044-059850-063 | MH001044-059801-062 | 8 | UNK | 104.99 |
| VAL | 1044 | GP001044-059498 | MH001044-059645-060 | MH001044-059683-059 | 8 | UNK | 66.08 |
| VAL | 1044 | GP001044-059516 | MH001044-059482-035 | MH001044-059403-034 | 8 | UNK | 155.55 |
| VAL | 1044 | GP001044-059492 | MH001044-059398-054 | MH001044-059373-053 | 8 | CLAY | 136.44 |
| VAL | 1044 | GP001044-059494 | MH001044-059898-041 | MH001044-059816-040 | 8 | CLAY | 264.72 |
| VAL | 1044 | GP001044-059475 | MH001044-059369-042 | MH001044-059313-013 | 8 | UNK | 111.34 |
| VAL | 1044 | GP001044-059493 | MH001044-059373-053 | MH001044-059383-045 | 8 | UNK | 216.36 |
| VAL | 1044 | GP001044-059502 | MH001044-059721-061 | MH001044-059613-058 | 8 | CLAY | 197.10 |
| VAL | 1044 | GP001044-059480 | MH001044-059250-009 | MH001044-059181-008 | 8 | UNK | 156.06 |
| VAL | 1044 | GP001044-059497 | MH001044-059801-062 | MH001044-059721-061 | 8 | CLAY | 208.80 |
| VAL | 1044 | GP001044-059523 | MH001044-059331-026 | MH001044-059242-010 | 8 | UNK | 201.85 |
| VAL | 1044 | GP001044-059481 | MH001044-059181-008 | MH001044-059180-005 | 8 | UNK | 457.69 |
| VAL | 1044 | GP001044-059507 | MH001044-059526-047 | MH001044-059425-046 | 8 | UNK | 212.99 |
| VAL | 1044 | GP001044-059501 | MH001044-059443-057 | MH001044-059398-054 | 8 | CLAY | 227.59 |
| VAL | 1044 | GP001044-059522 | MH001044-059372-031 | MH001044-059308-012 | 8 | UNK | 194.59 |
| VAL | 1044 | GP001044-059499 | MH001044-059683-059 | MH001044-059613-058 | 8 | UNK | 182.82 |
| VAL | 1044 | GP001044-059518 | MH001044-059377-033 | MH001044-059341-032 | 8 | UNK | 72.31 |
| VAL | 1044 | GP001044-059478 | MH001044-059388-044 | MH001044-059369-042 | 8 | UNK | 80.14 |
| VAL | 1044 | GP001044-059513 | MH001044-059392-030 | MH001044-059354-028 | 8 | UNK | 137.54 |
| VAL | 1044 | GP001044-059488 | MH001044-059187-003 | MH001044-059161-002 | 8 | UNK | 61.93 |
| VAL | 1044 | GP001044-059505 | MH001044-059621-049 | MH001044-059575-048 | 8 | UNK | 85.28 |
| VAL | 1044 | GP001044-059453 | MH001044-059451-064 | MH001044-059400-022 | 8 | UNK | 181.24 |
| VAL | 1044 | GP001044-059486 | MH001044-059179-004 | MH001044-059161-002 | 8 | UNK | 62.72 |
| VAL | 1044 | GP001044-059514 | MH001044-059412-037 | MH001044-059467-036 | 8 | UNK | 203.86 |
| VAL | 1044 | GP001044-059520 | MH001044-059660-039 | MH001044-059530-038 | 8 | CLAY | 399.78 |
| VAL | 1044 | GP001044-059477 | MH001044-059383-045 | MH001044-059388-044 | 8 | UNK | 135.69 |
| VAL | 1044 | GP001044-059517 | MH001044-059403-034 | MH001044-059372-031 | 8 | UNK | 71.26 |
| VAL | 1044 | GP001044-059484 | MH001044-059229-006 | MH001044-059180-005 | 8 | UNK | 107.41 |
| VAL | 1044 | GP001044-059485 | MH001044-059224-014A | MH001044-059315-014 | 8 | UNK | 172.21 |
| VAL | 1044 | GP001044-059510 | MH001044-059328-029 | MH001044-059354-028 | 8 | UNK | 99.40 |
| VAL | 1044 | GP001044-059506 | MH001044-059575-048 | MH001044-059526-047 | 8 | UNK | 83.51 |
| VAL | 1044 | GP001044-059476 | MH001044-059425-046 | MH001044-059383-045 | 8 | UNK | 95.91 |
| VAL | 1044 | GP001044-059500 | MH001044-059613-058 | MH001044-059443-057 | 8 | CLAY | 346.26 |
| VAL | 1044 | GP001044-059483 | MH001044-059214-007 | MH001044-059229-006 | 8 | UNK | 76.46 |
| VAL | 1044 | GP001044-059521 | MH001044-059530-038 | MH001044-059482-035 | 8 | UNK | 88.07 |
| VAL | 1044 | GP001044-059509 | MH001044-059292-029A | MH001044-059328-029 | 8 | UNK | 122.63 |
| VAL | 1044 | GP001044-059512 | MH001044-059291-027 | MH001044-059331-026 | 8 | UNK | 106.67 |
| VAL | 1047 | GP001047-059793 | MH001047-054018-231 | MH001047-054022-230 | 8 | TRUSS | 200.83 |
| VAL | 1047 | GP001047-059789 | MH001047-053468-236 | MH001047-053423-235 | 8 | CIP | 105.03 |
| VAL | 1047 | GP001047-059829 | MH001047-054022-230 | MH001047-053870-228 | 8 | CIP | 166.15 |
| VAL | 1047 | GP001047-059828 | MH001047-053872-229 | MH001047-053870-228 | 8 | TRUSS | 417.87 |
| VAL | 1047 | GP001047-059832 | MH001047-053870-228 | MH001047-053648-227 | 8 | TRUSS | 351.82 |
| VAL | 1047 | GP001047-073763 | MH001047-053841-233B | MH001047-053682-233A | 8 | TRUSS | 297.71 |
| VAL | 1047 | GP001047-059792 | MH001047-054087-230A | MH001047-054022-230 | 8 | IRON | 133.97 |
| VAL | 1047 | GP001047-059790 | MH001047-053423-235 | MH001047-053651-234 | 8 | CIP | 368.76 |
| VAL | 1047 | GP001047-224135 | MH001047-200045-0279 | MH001047-200044-0278 | 8 | PVC | 107.30 |
| VAL | 1047 | GP001047-380648 | MH001047-344710-201B5 | FT001047-080150 | 4 | CLAY | 227.41 |
| VAL | 1047 | GP001047-073762 | MH001047-053682-233A | MH001047-053652-233 | 8 | IRON | 46.97 |
| VAL | 1047 | GP001047-073759 | MH001047-053651-234 | MH001047-053652-233 | 8 | CLAY | 357.88 |
| VAL | 1047 | GP001047-380649 | MH001047-344709-201B6 | MH001047-344710-201B5 | 4 | CLAY | 173.69 |
| VAL | 1047 | GP001047-224134 | MH001047-200046-0280 | MH001047-200045-0279 | 8 | PVC | 280.00 |
| VAL | 1047 | GP001047-059791 | MH001047-054019-232 | MH001047-054018-231 | 8 | TRUSS | 323.64 |
| VAL | 1053 | GP001053-060628 | MH001053-048325-018 | MH001053-048309-017 | 8 | CIP | 179.86 |
| VAL | 1053 | GP001053-060627 | MH001053-048155-019 | MH001053-048325-018 | 8 | CLAY | 254.48 |
| VAL | 1053 | GP001053-060625 | MH001053-048563-007D | MH001053-048531-007C | 8 | CLAY | 369.25 |
| VAL | 1053 | GP001053-060622 | MH001053-048588-007G | MH001053-048563-007D | 8 | CLAY | 248.50 |
| VAL | 1053 | GP001053-060621 | MH001053-048610-007H | MH001053-048588-007G | 8 | CLAY | 164.71 |

| BASIN | SUBBASIN | ASSETID | USMH_ASSETID | DSMH_ASSETID | DIAMETER (IN) | MATERIAL | LENGTH (LF) |
|---|---|---|---|---|---|---|---|
| VAL | 1053 | GP001053-060617 | MH001053-047945-020 | MH001053-048155-019 | 8 | CLAY | 292.36 |
| VAL | 1053 | GP001053-076148 | MH001053-047529-035A | MH001053-047540-035 | 8 | CLAY | 168.22 |
| VAL | 1059 | GP001059-061354 | MH001059-056236-107 | MH001059-056180-104A | 8 | CLAY | 241.83 |
| VAL | 1059 | GP001059-061344 | MH001059-056037-118 | MH001059-055958-117 | 8 | CONCRETE | 265.36 |
| VAL | 1059 | GP001059-073113 | MH001059-055574-144 | MH001059-055569-077 | 8 | CLAY | 291.60 |
| VAL | 1059 | GP001059-061378 | MH001059-055815-114 | MH001059-056051-103 | 8 | CONCRETE | 338.53 |
| VAL | 1059 | GP001059-061338 | MH001059-055289-076 | MH001059-055568-075 | 8 | CLAY | 349.62 |
| VAL | 1059 | GP001059-061359 | MH001059-056497-096 | MH001059-056506-095 | 8 | CONCRETE | 399.18 |
| VAL | 1059 | GP001059-061355 | MH001059-056180-104A | MH001059-056135-104 | 8 | CONCRETE | 223.66 |
| VAL | 1059 | GP001059-061333 | MH001059-055315-064 | MH001059-055578-063 | 8 | CLAY | 458.89 |
| VAL | 1059 | GP001059-061326 | MH001059-055578-063 | MH001059-055449-062 | 8 | CLAY | 208.13 |
| VAL | 1059 | GP001059-061320 | MH001059-055569-077 | MH001059-055568-075 | 8 | CLAY | 289.93 |
| VAL | 1059 | GP001059-061342 | MH001059-055830-120 | MH001059-055920-116 | 8 | IRON | 158.17 |
| VAL | 1059 | GP001059-061380 | MH001059-056135-104 | MH001059-056051-103 | 8 | CONCRETE | 411.62 |
| VAL | 1059 | GP001059-061339 | MH001059-055742-120C | MH001059-055726-120B | 8 | CLAY | 179.61 |
| VAL | 1059 | GP001059-061451 | MH001059-056220-110 | MH001059-056280-109 | 8 | CONCRETE | 91.54 |
| VAL | 1059 | GP001059-073280 | MH001059-056511-093A | MH001059-056518-093 | 8 | CONCRETE | 254.01 |
| VAL | 1059 | GP001059-061353 | MH001059-056280-109 | MH001059-056236-107 | 8 | CLAY | 197.56 |
| VAL | 1059 | GP001059-061340 | MH001059-055726-120B | MH001059-055854-120A1 | 8 | CIP/DIP | 223.96 |
| VAL | 1059 | GP001059-061319 | MH001059-055269-078 | MH001059-055569-077 | 8 | CLAY | 368.36 |
| VAL | 1059 | GP001059-061364 | MH001059-056506-095 | MH001059-056509-094 | 8 | CONCRETE | 139.80 |
| VAL | 1059 | GP001059-061377 | MH001059-055876-115 | MH001059-055815-114 | 8 | CONCRETE | 377.85 |
| VAL | 1059 | GP001059-061376 | MH001059-055920-116 | MH001059-055876-115 | 8 | CONCRETE | 222.26 |
| VAL | 1059 | GP001059-061325 | MH001059-055634-070 | MH001059-055578-063 | 8 | CLAY | 126.16 |
| VAL | 1059 | GP001059-061345 | MH001059-055958-117 | MH001059-055920-116 | 8 | CONCRETE | 180.75 |
| VAL | 1059 | GP001059-061365 | MH001059-056518-093 | MH001059-056517-090 | 8 | CONCRETE | 140.13 |
| VAL | 1059 | GP001059-061379 | MH001059-056051-103 | MH001059-056021-099 | 8 | CONCRETE | 148.85 |
| VAL | 1059 | GP001059-061321 | MH001059-055568-075 | MH001059-055571-072A | 8 | CLAY | 120.13 |
| VAL | 1059 | GP001059-061343 | MH001059-056122-119 | MH001059-056037-118 | 8 | CONCRETE | 116.33 |
| VAL | 1059 | GP001059-073279 | MH001059-056509-094 | MH001059-056511-093A | 8 | CONCRETE | 146.50 |
| VAL | 1060 | GP001060-061622 | MH001060-050246-014I | MH001060-050488-014G | 8 | CLAY | 382.01 |
| VAL | 1060 | GP001060-061604 | MH001060-050488-014G | MH001060-050593-014E | 8 | CLAY | 187.39 |
| VAL | 1060 | GP001060-061621 | MH001060-050020-014J | MH001060-050246-014I | 8 | CLAY | 457.99 |
| VAL | 1060 | GP001060-061605 | MH001060-050709-014F | MH001060-050593-014E | 8 | CLAY | 296.60 |
| VAL | 1063 | GP001063-061962 | MH001063-049896-005D | MH001063-049975-005C | 8 | CIP | 140.15 |
| VAL | 1063 | GP001063-061968 | MH001063-049663-006B | MH001063-049786-006A | 8 | PVC | 277.29 |
| VAL | 1063 | GP001063-132676 | MH001063-120713-005A2 | MH001063-120712-005A1 | 8 | CLAY | 290.72 |
| VAL | 1063 | GP001063-076755 | MH001063-049786-006A | MH001063-050063-006 | 8 | CLAY | 220.72 |
| VAL | 1063 | GP001063-061973 | MH001063-050264-005 | MH001063-050438-004 | 8 | CLAY | 255.36 |
| VAL | 1063 | GP001063-061954 | MH001063-049484-005I | MH001063-049701-005H | 8 | CLAY | 402.05 |
| VAL | 1063 | GP001063-132681 | MH001063-049509-006D | MH001063-120714-006C1 | 8 | PVC | 144.17 |
| VAL | 1063 | GP001063-132675 | MH001063-050063-006 | MH001063-120713-005A2 | 8 | CLAY | 80.87 |
| VAL | 1063 | GP001063-132674 | MH001063-120712-005A1 | MH001063-050264-005 | 8 | DUCTILE_IRON | 16.85 |
| VAL | 1063 | GP001063-132690 | MH001063-121027-001B | MH001063-050575-001 | 8 | DUCTILE_IRON | 146.25 |
| VAL | 1063 | GP001063-132680 | MH001063-120714-006C1 | MH001063-049559-006C | 8 | PVC | 89.93 |
| VAL | 1063 | GP001063-061958 | MH001063-049762-005G1 | MH001063-049821-005G | 8 | CLAY | 38.45 |
| VAL | 1063 | GP001063-061961 | MH001063-049797-005E | MH001063-049896-005D | 6 | CLAY | 96.22 |
| VAL | 1063 | GP001063-061971 | MH001063-121020-006A1 | MH001063-050063-006 | 8 | CLAY | 247.50 |
| VAL | 1063 | GP001063-061955 | MH001063-049701-005H | MH001063-429449-005G4 | 8 | CLAY | 75.65 |
| VAL | 1063 | GP001063-061963 | MH001063-049975-005C | MH001063-050264-005 | 8 | DIP/CLAY | 380.60 |
| VAL | 1063 | GP001063-061967 | MH001063-049559-006C | MH001063-049663-006B | 8 | PVC | 75.52 |
| VAL | 1063 | GP001063-061957 | MH001063-049707-005G2 | MH001063-049762-005G1 | 8 | PVC | 125.09 |
| VAL | 1063 | GP001063-061959 | MH001063-049821-005G | MH001063-049896-005D | 8 | CIP | 56.61 |
| VAL | 1063 | GP001063-061960 | MH001063-049740-005F | MH001063-049797-005E | 6 | CLAY | 52.08 |
| VAL | 1063 | GP001063-132689 | MH001063-050438-004 | MH001063-121027-001B | 8 | CLAY | 115.19 |
| VAL | 1063 | GP001063-061956 | MH001063-049748-005G3 | MH001063-049707-005G2 | 8 | PVC | 37.18 |
| VAL | 1063 | GP001063-076972 | MH001063-049280-005J | MH001063-049484-005I | 8 | CLAY | 353.37 |
| VAL | 1063 | GP001063-132682 | MH001063-120715-006D1 | MH001063-049509-006D | 8 | PVC | 148.52 |
| VAL | 1064 | GP001064-076060 | MH001064-051609-064 | MH001064-051453-063 | 12 | IRON | 324.37 |
| VAL | 1064 | GP001064-076058 | MH001064-051833-064A | MH001064-051609-064 | 8 | CLAY | 354.50 |
| VAL | 1064 | GP001064-076054 | MH001064-051826-066 | MH001064-051609-064 | 12 | CLAY | 365.19 |
| VAL | 1064 | GP001064-076055 | MH001064-051935-067 | MH001064-051826-066 | 12 | CLAY | 215.90 |
| VAL | 1064 | GP001064-076056 | MH001064-051862-068 | MH001064-051826-066 | 12 | CLAY | 107.27 |
| VAL | 1064 | GP001064-076061 | MH001064-051522-063A | MH001064-051453-063 | 10 | CLAY | 145.81 |
| VAL | 1065 | GP001065-062143 | MH001065-051811-007 | MH001065-051759-006 | 10 | CLAY | 149.60 |
| VAL | 1065 | GP001065-062154 | MH001065-092198-015A1 | MH001065-051842-015 | 8 | CLAY | 126.57 |
| VAL | 1065 | GP001065-062145 | MH001065-051665-005 | MH001065-051603-002 | 10 | CLAY | 140.17 |
| VAL | 1065 | GP001065-062162 | MH001065-051855-015B | MH001065-051847-015A | 8 | CLAY | 263.56 |
| VAL | 1065 | GP001065-062155 | MH001065-051842-015 | MH001065-051940-014 | 8 | CLAY | 182.98 |
| VAL | 1065 | GP001065-062153 | MH001065-051888-010 | MH001065-051811-007 | 10 | CLAY | 174.37 |

| BASIN | SUBBASIN | ASSETID | USMH_ASSETID | DSMH_ASSETID | DIAMETER (IN) | MATERIAL | LENGTH (LF) |
|---|---|---|---|---|---|---|---|
| VAL | 1065 | GP001065-062146 | MH001065-051603-002 | MH001065-051564-001 | 10 | CLAY | 121.59 |
| VAL | 1065 | GP001065-062163 | MH001065-051847-015A | MH001065-051842-015 | 8 | CLAY | 318.65 |
| VAL | 1065 | GP001065-062144 | MH001065-051759-006 | MH001065-051665-005 | 10 | CLAY | 90.89 |
| VAL | 1065 | GP001065-062156 | MH001065-051940-014 | MH001065-051888-010 | 10 | CLAY | 147.70 |
| VAL | 1065 | GP001065-076053 | MH001065-051564-001 | MH001064-051522-063A | 10 | CLAY | 54.75 |
| VAL | 1065 | GP001065-062161 | MH001065-051866-015C | MH001065-051855-015B | 8 | CIP | 384.32 |
| VAL | 1065 | GP001065-062158 | MH001065-051959-016 | MH001065-051940-014 | 10 | CLAY | 71.70 |
| VAL | 1070 | GP001070-074282 | MH001070-044115-015B | MH001070-044110-015A | 8 | CLAY | 89.12 |
| VAL | 1070 | GP001070-072841 | MH001070-044327-015F | MH001070-044110-015A | 8 | CLAY | 338.33 |
| VAL | 1070 | GP001070-074280 | MH001070-044060-015C1 | MH001070-044086-015C | 8 | CLAY | 62.44 |
| VAL | 1070 | GP001070-062605 | MH001070-044058-016 | MH001070-044110-015A | 8 | CLAY | 158.88 |
| VAL | 1070 | GP001070-074281 | MH001070-044086-015C | MH001070-044115-015B | 8 | CLAY | 171.60 |
| VAL | 1070 | GP001070-074278 | MH001070-044110-015A | MH001070-044168-015 | 8 | PVC | 10.47 |
| VAL | 1070 | GP001070-062607 | MH001070-044168-015 | MH001070-044268-014 | 8 | CLAY | 134.69 |
| VAL | 1076 | GP001076-072570 | MH001076-042098-005G1 | MH001076-042254-005G1A | 12 | CLAY | 324.46 |
| VAL | 1076 | GP001076-109512 | MH001076-042504-005E | MH001076-099445-005D1 | 8 | IRON | 270.77 |
| VAL | 1076 | GP001076-063328 | MH001076-042771-005C1 | MH001076-042897-005C | 16 | CLAY | 337.91 |
| VAL | 1076 | GP001076-109052 | MH001076-099393-005G3B | MH001076-041913-005G3 | 8 | CLAY | 264.25 |
| VAL | 1076 | GP001076-109045 | MH001076-041796-005G2 | MH001076-099389-005G1B | 8 | CLAY | 250.78 |
| VAL | 1076 | GP001076-063204 | MH001076-042349-005H | MH001076-042431-005G | 8 | CLAY | 176.72 |
| VAL | 1076 | GP001076-075227 | MH001076-042945-005B | MH001076-043086-005A | 16 | CLAY | 286.03 |
| VAL | 1076 | GP001076-072571 | MH001076-042254-005G1A | MH001076-042431-005G | 12 | CIP | 324.95 |
| VAL | 1076 | GP001076-109050 | MH001076-099391-005G3A1 | MH001076-041913-005G3 | 8 | CLAY | 242.58 |
| VAL | 1076 | GP001076-063212 | MH001076-090917-005I | MH001076-042349-005H | 8 | CLAY | 180.30 |
| VAL | 1076 | GP001076-075228 | MH001076-042897-005C | MH001076-042945-005B | 16 | CLAY | 25.28 |
| VAL | 1076 | GP001076-063188 | MH001076-041678-005G6 | MH001076-041722-005G5 | 0 | UNK | 78.18 |
| VAL | 1076 | GP001076-063329 | MH001076-042520-005F | MH001076-042771-005C1 | 16 | CLAY | 315.17 |
| VAL | 1076 | GP001076-109051 | MH001076-041596-005G7 | MH001076-099393-005G3B | 8 | CLAY | 247.96 |
| VAL | 1076 | GP001076-075229 | MH001076-099442-005B1 | MH001076-042945-005B | 8 | CLAY | 149.85 |
| VAL | 1076 | GP001076-063207 | MH001076-041722-005G5 | MH001076-041768-005G4 | 8 | CLAY | 14.08 |
| VAL | 1076 | GP001076-063246 | MH001076-041913-005G3 | MH001076-042098-005G1 | 12 | CLAY | 345.51 |
| VAL | 1076 | GP001076-063233 | MH001076-042817-005D | MH001076-042897-005C | 8 | CLAY | 168.15 |
| VAL | 1076 | GP001076-063278 | MH001076-041411-005G9 | MH001076-041722-005G5 | 8 | CLAY | 511.53 |
| VAL | 1076 | GP001076-063247 | MH001076-334792-005G3A | MH001076-041913-005G3 | 8 | UNK | 375.00 |
| VAL | 1076 | GP001076-063232 | MH001076-042431-005G | MH001076-042520-005F | 12 | CLAY | 167.58 |
| VAL | 1076 | GP001076-109049 | MH001076-041768-005G4 | MH001076-099391-005G3A1 | 8 | CLAY | 88.79 |
| VAL | 1076 | GP001076-109513 | MH001076-099445-005D1 | MH001076-042817-005D | 8 | CLAY | 265.87 |
| VAL | 1076 | GP001076-109046 | MH001076-099389-005G1B | MH001076-042098-005G1 | 8 | CIP | 262.29 |
| VAL | 1078 | GP001078-071643 | MH001078-036523-086B | MH001078-036520-086 | 8 | CLAY | 244.11 |
| VAL | 1078 | GP001078-071644 | FT001114-001889 | MH001078-036523-086B | 8 | CLAY | 40.62 |
| VAL | 1080 | GP001080-063624 | MH001080-043647-065 | MH001080-043720-064 | 8 | CLAY | 221.16 |
| VAL | 1080 | GP001080-063626 | MH001080-043837-063A | MH001080-043787-061 | 10 | CLAY | 72.84 |
| VAL | 1080 | GP001080-072691 | MH001080-042715-030 | MH001080-042546-029 | 10 | CLAY | 179.49 |
| VAL | 1080 | GP001080-063585 | MH001080-042286-027 | MH001080-042193-026 | 10 | CLAY | 227.33 |
| VAL | 1080 | GP001080-063628 | MH001080-043631-060 | MH001080-043554-059 | 10 | CLAY | 243.28 |
| VAL | 1080 | GP001080-095522 | MH001080-087829-030C | MH001080-042715-030 | 10 | CLAY | 307.51 |
| VAL | 1080 | GP001080-063627 | MH001080-043787-061 | MH001080-043631-060 | 10 | CLAY | 195.72 |
| VAL | 1080 | GP001080-063582 | MH001080-043092-034 | MH001080-043057-033 | 10 | CLAY | 55.91 |
| VAL | 1080 | GP001080-063581 | MH001080-043185-036 | MH001080-043092-034 | 10 | CIP | 176.25 |
| VAL | 1080 | GP001080-063633 | MH001080-043377-037 | MH001080-043185-036 | 10 | CIP | 350.00 |
| VAL | 1080 | GP001080-072684 | MH001080-043330-067A | MH001080-043371-067 | 8 | CLAY | 266.11 |
| VAL | 1080 | GP001080-075211 | MH001080-043057-033 | MH001080-042928-031 | 10 | CLAY | 138.99 |
| VAL | 1080 | GP001080-063630 | MH001080-043468-058 | MH001080-043377-037 | 10 | CLAY | 174.36 |
| VAL | 1080 | GP001080-063583 | MH001080-042546-029 | MH001080-042408-028 | 10 | CLAY | 154.49 |
| VAL | 1080 | GP001080-063614 | MH001080-043896-068 | MH001080-043837-063A | 10 | DIP/CLAY | 92.60 |
| VAL | 1080 | GP001080-063584 | MH001080-042408-028 | MH001080-042286-027 | 10 | CLAY | 170.29 |
| VAL | 1080 | GP001080-095560 | MH001080-043720-064 | MH001080-087851-063B | 8 | CLAY | 273.21 |
| VAL | 1080 | GP001080-063613 | MH001080-044010-068A | MH001080-043896-068 | 10 | CLAY | 137.30 |
| VAL | 1080 | GP001080-063629 | MH001080-043554-059 | MH001080-043468-058 | 10 | CLAY | 240.60 |
| VAL | 1080 | GP001080-095521 | MH001080-042928-031 | MH001080-087829-030C | 10 | CLAY | 14.75 |
| VAL | 1080 | GP001080-063623 | MH001080-043514-066 | MH001080-043647-065 | 8 | CLAY | 382.60 |
| VAL | 1080 | GP001080-063622 | MH001080-043371-067 | MH001080-043514-066 | 8 | DUCTILE_IRON | 404.05 |
| VAL | 1082 | GP001082-058622 | MH001082-036003-008A | MH001082-035984-008 | 8 | UNK | 297.53 |
| VAL | 1082 | GP001082-058623 | MH001082-288069-007B | MH001082-287764-007B1 | 8 | CLAY | 322.44 |
| VAL | 1082 | GP001082-323058 | MH001082-035984-008 | MH001082-288069-007B | 8 | CLAY | 101.28 |
| VAL | 1082 | GP001082-323057 | MH001082-287764-007B1 | MH001082-035972-007 | 8 | CLAY | 127.09 |
| VAL | 1082 | GP001082-058618 | MH001082-035571-009C | MH001082-035576-009A | 8 | CLAY | 533.94 |
| VAL | 1090 | GP001090-056425 | MH001090-036473-012A | MH001090-036739-012 | 12 | CLAY | 442.93 |
| VAL | 1090 | GP001090-073418 | MH001090-037506-051A | MH001090-037746-051 | 8 | CLAY | 439.83 |
| VAL | 1090 | GP001090-056436 | MH001090-037306-066 | MH001090-037424-065A | 8 | CLAY | 18.35 |

| BASIN | SUBBASIN | ASSETID | USMH_ASSETID | DSMH_ASSETID | DIAMETER (IN) | MATERIAL | LENGTH (LF) |
|---|---|---|---|---|---|---|---|
| VAL | 1090 | GP001090-078036 | MH001090-037772-067 | MH001090-037474-065 | 8 | UNK | 258.71 |
| VAL | 1090 | GP001090-103958 | MH001090-037424-065A | MH001090-037474-065 | 8 | CLAY | 30.28 |
| VAL | 1090 | GP001090-073419 | MH001090-037474-065 | MH001090-037506-051A | 8 | CLAY | 15.40 |
| VAL | 1091 | GP001091-100321 | MH001091-041305-019 | MH001091-091385-014A | 8 | CLAY | 242.82 |
| VAL | 1091 | GP001091-074035 | MH001091-041427-022 | MH001091-091388-020B | 8 | CLAY | 169.93 |
| VAL | 1091 | GP001091-100322 | MH001091-091385-014A | MH001091-041300-014 | 8 | CLAY | 107.54 |
| VAL | 1091 | GP001091-100325 | MH001091-041307-021 | MH001091-091388-020B | 6 | CLAY | 123.18 |
| VAL | 1091 | GP001091-106011 | MH001091-041300-014 | MH001091-096702-011A | 8 | CLAY | 175.07 |
| VAL | 1091 | GP001091-074034 | MH001091-041304-020 | MH001091-041305-019 | 8 | CLAY | 137.83 |
| VAL | 1091 | GP001091-106016 | MH001091-095898-011B | MH001091-096702-011A | 8 | CLAY | 33.02 |
| VAL | 1091 | GP001091-072343 | MH001091-041062-011 | MH001091-040816-008 | 8 | CLAY | 316.79 |
| VAL | 1091 | GP001091-056564 | MH001091-041494-024 | MH001091-041426-023 | 8 | CLAY | 103.62 |
| VAL | 1091 | GP001091-100326 | MH001091-091388-020B | MH001091-041304-020 | 8 | CLAY | 63.43 |
| VAL | 1091 | GP001091-106012 | MH001091-096702-011A | MH001091-041062-011 | 8 | CLAY | 165.46 |
| VAL | 1091 | GP001091-056565 | MH001091-041426-023 | MH001091-041427-022 | 8 | CLAY | 128.16 |
| VAL | 1091 | GP001091-056555 | MH001091-041495-026 | MH001091-041494-024 | 8 | CLAY | 171.92 |
| VAL | 1092 | GP001092-075334 | MH001092-041335-018 | MH001092-041158-017 | 8 | DUCTILE_IRON | 308.32 |
| VAL | 1092 | GP001092-071031 | MH001092-041507-036 | MH001092-041461-020 | 8 | IRON | 36.20 |
| VAL | 1092 | GP001092-056640 | MH001092-041460-021 | MH001092-041461-020 | 8 | CIP | 340.24 |
| VAL | 1092 | GP001092-078644 | MH001092-041378-018C | MH001092-041441-018B | 8 | CLAY | 297.20 |
| VAL | 1092 | GP001092-075337 | MH001092-041441-018B | MH001092-041355-018A | 8 | CLAY | 120.14 |
| VAL | 1092 | GP001092-075335 | MH001092-041463-019 | MH001092-041335-018 | 8 | DUCTILE_IRON | 124.72 |
| VAL | 1092 | GP001092-071030 | MH001092-041669-036A | MH001092-041507-036 | 8 | CLAY | 262.55 |
| VAL | 1092 | GP001092-078524 | MH001092-041092-055A | MH001092-041147-055 | 8 | CLAY | 178.96 |
| VAL | 1092 | GP001092-056641 | MH001092-041461-020 | MH001092-041463-019 | 8 | CIP | 163.45 |
| VAL | 1092 | GP001092-071034 | MH001092-041585-022 | MH001092-041463-019 | 8 | CLAY | 164.46 |
| VAL | 1092 | GP001092-056646 | MH001092-041054-016 | MH001092-040965-015 | 8 | CLAY | 127.56 |
| VAL | 1092 | GP001092-056645 | MH001092-041158-017 | MH001092-041054-016 | 8 | CLAY | 143.34 |
| VAL | 1092 | GP001092-056639 | MH001092-041322-021A | MH001092-041460-021 | 8 | DUCTILE_IRON | 239.56 |
| VAL | 1092 | GP001092-071037 | MH001092-041702-026 | MH001092-041585-022 | 8 | CIP | 148.18 |
| VAL | 1092 | GP001092-075336 | MH001092-041355-018A | MH001092-041335-018 | 8 | CLAY | 9.20 |
| VAL | 1092 | GP001092-078643 | MH001092-041349-018D | MH001092-041378-018C | 8 | CLAY | 55.18 |
| VAL | 1092 | GP001092-071033 | MH001092-041701-037 | MH001092-041669-036A | 8 | CIP | 52.31 |
| VAL | 1092 | GP001092-071035 | MH001092-041513-023 | MH001092-041585-022 | 8 | IRON | 263.77 |
| VAL | 1093 | GP001093-097809 | MH001093-089990-030A1 | MH001093-040891-030 | 8 | CLAY | 33.33 |
| VAL | 1093 | GP001093-303859 | MH001093-269520-028A | MH001093-040595-027 | 8 | CLAY | 348.90 |
| VAL | 1093 | GP001093-056671 | MH001093-040595-027 | MH001093-040439-026 | 8 | CLAY | 183.74 |
| VAL | 1093 | GP001093-097808 | MH001093-040804-030A | MH001093-089990-030A1 | 8 | CLAY | 178.08 |
| VAL | 1093 | GP001093-078380 | MH001093-040704-031 | MH001093-040804-030A | 8 | CLAY | 265.63 |
| VAL | 1093 | GP001093-303858 | MH001093-040891-030 | MH001093-269520-028A | 8 | CLAY | 55.71 |
| VAL | 1093 | GP001093-056672 | MH001093-040439-026 | MH001093-040309-024 | 8 | CLAY | 200.59 |
| VAL | 1095 | GP001095-056747 | MH001095-039379-040 | MH001095-039194-039 | 8 | CLAY | 170.11 |
| VAL | 1095 | GP001095-056726 | MH001095-038982-036 | MH001095-038711-035 | 8 | CLAY | 437.49 |
| VAL | 1095 | GP001095-078369 | MH001095-039030-034A | MH001095-038977-034 | 8 | CLAY | 248.55 |
| VAL | 1095 | GP001095-078367 | MH001095-039194-039 | MH001095-039148-034B | 8 | CLAY | 41.48 |
| VAL | 1095 | GP001095-056727 | MH001095-038711-035 | MH001095-038977-034 | 8 | CLAY | 220.46 |
| VAL | 1095 | GP001095-078368 | MH001095-039148-034B | MH001095-039030-034A | 8 | CLAY | 209.27 |
| VAL | 1096 | GP001096-105542 | MH001096-036660-019O | MH001096-096606-019M2 | 8 | DUCTILE_IRON | 136.89 |
| VAL | 1096 | GP001096-309927 | FT001096-057430 | MH001096-096607-019O1 | 8 | PVC | 124.51 |
| VAL | 1096 | GP001096-056848 | MH001096-096607-019O1 | MH001096-036660-019O | 8 | CLAY | 37.98 |
| VAL | 1096 | GP001096-056837 | MH001096-036570-019P | MH001096-036660-019O | 8 | CLAY | 190.32 |
| VAL | 1101 | GP001101-057333 | MH001101-040782-009E | MH001101-040745-009D | 8 | CLAY | 26.41 |
| VAL | 1101 | GP001101-057292 | MH001101-043405-098 | MH001101-043409-097A | 8 | CLAY | 246.10 |
| VAL | 1101 | GP001101-057288 | MH001101-100233-102A | MH001101-043838-102 | 8 | CIP | 353.00 |
| VAL | 1101 | GP001101-074526 | MH001101-041443-073 | MH001101-041442-009H3 | 8 | CIP | 267.07 |
| VAL | 1101 | GP001101-109975 | MH001101-100234-104A | MH001101-043977-104 | 8 | CIP | 242.33 |
| VAL | 1101 | GP001101-057332 | MH001101-040971-009F | MH001101-040782-009E | 8 | CLAY | 257.23 |
| VAL | 1101 | GP001101-074523 | MH001101-041446-072 | MH001101-041561-071 | 8 | CLAY | 155.11 |
| VAL | 1101 | GP001101-422887 | MH001101-380550-0256 | MH001101-400389-0254 | 8 | CIP | 251.28 |
| VAL | 1101 | GP001101-073285 | MH001101-044098-104B | MH001101-043977-104 | 8 | CLAY | 202.62 |
| VAL | 1101 | GP001101-057270 | MH001101-043505-099 | MH001101-043411-097 | 8 | CLAY | 161.10 |
| VAL | 1101 | GP001101-110290 | MH001101-040659-009C | MH001101-100162-009A1 | 8 | CLAY | 129.54 |
| VAL | 1101 | GP001101-057267 | MH001101-043977-104 | MH001101-043838-102 | 8 | CLAY | 150.67 |
| VAL | 1101 | GP001101-057329 | MH001101-041162-009H | MH001101-041145-009G1 | 8 | CLAY | 14.13 |
| VAL | 1101 | GP001101-057339 | MH001101-100192-009M1 | MH001101-041563-009M | 0 | UNK | 67.84 |
| VAL | 1101 | GP001101-057328 | MH001101-041191-009I | MH001101-041162-009H | 8 | CLAY | 116.28 |
| VAL | 1101 | GP001101-057342 | MH001101-041527-009J1 | MH001101-041265-009J | 6 | CLAY | 180.68 |
| VAL | 1101 | GP001101-057326 | MH001101-041369-009L | MH001101-041321-009K | 8 | CLAY | 132.97 |
| VAL | 1101 | GP001101-436651 | MH001101-380551-0252 | MH001101-041446-072 | 8 | CLAY | 100.00 |
| VAL | 1101 | GP001101-057327 | MH001101-041321-009K | MH001101-041191-009I | 10 | CLAY | 295.99 |

| BASIN | SUBBASIN | ASSETID | USMH_ASSETID | DSMH_ASSETID | DIAMETER (IN) | MATERIAL | LENGTH (LF) |
|---|---|---|---|---|---|---|---|
| VAL | 1101 | GP001101-422888 | MH001101-380549-0255 | MH001101-400389-0254 | 8 | CLAY | 206.66 |
| VAL | 1101 | GP001101-057293 | MH001101-043409-097A | MH001101-043411-097 | 8 | CLAY | 296.45 |
| VAL | 1101 | GP001101-057343 | MH001101-041265-009J | MH001101-041191-009I | 6 | CLAY | 323.82 |
| VAL | 1101 | GP001101-057331 | MH001101-041104-009G | MH001101-040971-009F | 8 | CLAY | 399.47 |
| VAL | 1101 | GP001101-057269 | MH001101-043727-100 | MH001101-043505-099 | 8 | CLAY | 336.62 |
| VAL | 1101 | GP001101-110291 | MH001101-100162-009A1 | MH001101-040227-009A | 8 | CLAY | 339.05 |
| VAL | 1101 | GP001101-057289 | MH001101-043730-101 | MH001101-043727-100 | 8 | CLAY | 198.79 |
| VAL | 1101 | GP001101-057330 | MH001101-041145-009G1 | MH001101-041104-009G | 8 | CLAY | 303.60 |
| VAL | 1101 | GP001101-444007 | MH001101-041442-009H3 | MH001101-400389-0254 | 8 | DUCTILE_IRON | 83.34 |
| VAL | 1101 | GP001101-057334 | MH001101-040745-009D | MH001101-040659-009C | 8 | CLAY | 163.36 |
| VAL | 1101 | GP001101-074525 | MH001101-041443-073 | MH001101-041446-072 | 8 | CLAY | 140.93 |
| VAL | 1101 | GP001101-057340 | MH001101-041563-009M | MH001101-041321-009K | 6 | CLAY | 382.30 |
| VAL | 1101 | GP001101-109974 | MH001101-043981-105 | MH001101-100234-104A | 8 | CIP | 278.82 |
| VAL | 1101 | GP001101-057268 | MH001101-043838-102 | MH001101-043727-100 | 8 | CLAY | 160.70 |
| VAL | 1102 | GP001102-073604 | MH001102-044030-061 | MH001102-044028-060 | 8 | CIP | 191.08 |
| VAL | 1102 | GP001102-073605 | MH001102-044028-060 | MH001102-044022-059 | 8 | CIP | 404.01 |
| VAL | 1102 | GP001102-320809 | MH001102-043741-047 | MH001102-285514-046A | 8 | CLAY | 257.17 |
| VAL | 1102 | GP001102-073639 | MH001102-044018-056 | MH001102-044012-055 | 8 | CLAY | 81.08 |
| VAL | 1102 | GP001102-073634 | MH001102-043749-048 | MH001102-043750-044 | 8 | CLAY | 122.08 |
| VAL | 1102 | GP001102-073609 | MH001102-044091-074 | MH001102-044008-075 | 8 | CLAY | 101.74 |
| VAL | 1102 | GP001102-073633 | MH001102-043744-045 | MH001102-043750-044 | 8 | CLAY | 39.91 |
| VAL | 1102 | GP001102-057529 | MH001102-285514-046A | MH001102-043745-046 | 8 | CLAY | 85.65 |
| VAL | 1102 | GP001102-073606 | MH001102-044022-059 | MH001102-044018-056 | 8 | CIP | 133.53 |
| VAL | 1102 | GP001102-057530 | MH001102-043745-046 | MH001102-043744-045 | 8 | CLAY | 45.48 |
| VAL | 1102 | GP001102-073638 | MH001102-044008-075 | MH001102-044012-055 | 8 | CIP | 176.88 |
| VAL | 1102 | GP001102-057531 | MH001102-043756-051 | MH001102-043755-050 | 8 | CLAY | 142.56 |
| VAL | 1102 | GP001102-073629 | MH001102-043751-049 | MH001102-043749-048 | 8 | CLAY | 112.16 |
| VAL | 1102 | GP001102-057532 | MH001102-043755-050 | MH001102-043751-049 | 8 | CLAY | 399.32 |
| VAL | 1107 | GP001107-058034 | MH001107-035234-024 | MH001107-035237-023 | 8 | CLAY | 297.46 |
| VAL | 1107 | GP001107-058069 | MH001107-035604-015 | MH001107-035804-014 | 12 | CLAY | 254.11 |
| VAL | 1107 | GP001107-058041 | MH001107-035602-015A | MH001107-035604-015 | 8 | CLAY | 33.92 |
| VAL | 1107 | GP001107-075022 | FT001107-001676 | MH001107-035232-025 | 8 | UNK | 144.99 |
| VAL | 1107 | GP001107-069165 | MH001107-036004-073 | MH001082-036003-008A | 8 | UNK | 246.05 |
| VAL | 1107 | GP001107-058040 | MH001107-035585-016 | MH001107-035602-015A | 8 | CLAY | 545.05 |
| VAL | 1107 | GP001107-058032 | MH001107-035232-025 | MH001107-035234-024 | 8 | CLAY | 182.58 |
| VAL | 1107 | GP001107-058037 | MH001107-035428-018 | MH001107-035604-015 | 12 | CLAY | 259.79 |
| VAL | 1112 | GP001112-133012 | MH001112-121351-017A | MH001112-031632-017 | 8 | DUCTILE_IRON | 40.83 |
| VAL | 1112 | GP001112-100441 | MH001112-030573-037 | MH001112-030794-036 | 12 | CLAY | 512.15 |
| VAL | 1112 | GP001112-058331 | MH001112-031332-030 | MH001112-031362-028 | 8 | PVC | 29.81 |
| VAL | 1112 | GP001112-072990 | MH001112-031258-029 | MH001112-031362-028 | 12 | CLAY | 177.22 |
| VAL | 1112 | GP001112-058330 | MH001112-031307-031 | MH001112-031332-030 | 8 | PVC | 179.64 |
| VAL | 1112 | GP001112-058329 | MH001112-031269-032 | MH001112-031307-031 | 8 | CIP | 109.23 |
| VAL | 1112 | GP001112-058328 | MH001112-031190-032A | MH001112-031269-032 | 8 | CIP | 130.49 |
| VAL | 1112 | GP001112-058327 | MH001112-031011-032B | MH001112-031190-032A | 8 | CIP | 489.16 |
| VAL | 1112 | GP001112-074160 | MH001112-031632-017 | MH001112-031556-016 | 8 | CLAY | 118.51 |
| VAL | 1112 | GP001112-100412 | MH001112-423861-0073 | MH001112-030967-035 | 12 | CLAY | 270.32 |
| VAL | 1112 | GP001112-475534 | MH001112-030794-036 | MH001112-423861-0073 | 12 | CLAY | 221.83 |
| VAL | 1114 | GP001114-058458 | MH001114-035917-051 | MH001114-036080-050 | 8 | CLAY | 173.02 |
| VAL | 1114 | GP001114-058449 | FT001114-001888 | MH001114-036521-040 | 8 | CLAY | 16.39 |
| VAL | 1114 | GP001114-058434 | FT001114-001698 | MH001114-035355-062 | 8 | CLAY | 159.32 |
| VAL | 1114 | GP001114-058429 | MH001114-035919-058 | MH001114-035917-051 | 8 | CLAY | 194.96 |
| VAL | 1114 | GP001114-058457 | MH001114-036080-050 | MH001114-036471-049 | 8 | CLAY | 355.55 |
| VAL | 1114 | GP001114-072946 | MH001114-036915-031 | MH001114-036912-030A | 8 | CLAY | 47.21 |
| VAL | 1114 | GP001114-058455 | MH001114-036913-030 | MH001114-036909-029 | 8 | CLAY | 25.28 |
| VAL | 1114 | GP001114-058428 | MH001114-036471-049 | MH001114-036686-048 | 8 | CLAY | 167.16 |
| VAL | 1114 | GP001114-058470 | MH001114-036920-032 | MH001114-036915-031 | 8 | CLAY | 143.46 |
| VAL | 1114 | GP001114-058430 | MH001114-035721-058A | MH001114-035919-058 | 8 | CLAY | 289.50 |
| VAL | 1114 | GP001114-058435 | MH001114-304727-062A | MH001114-035355-062 | 8 | CLAY | 161.41 |
| VAL | 1114 | GP001114-073235 | MH001114-036503-033 | MH001114-036915-031 | 8 | CLAY | 344.24 |
| VAL | 1114 | GP001114-058433 | MH001114-035355-062 | MH001114-035357-061 | 8 | CLAY | 550.69 |
| VAL | 1114 | GP001114-072945 | MH001114-036912-030A | MH001114-036913-030 | 8 | CLAY | 99.41 |
| VAL | 1116 | GP001116-077215 | MH001116-072607-131 | MH001116-072623-130 | 8 | IRON | 233.12 |
| VAL | 1116 | GP001116-077836 | MH001116-072638-112 | MH001116-072639-111 | 8 | IRON | 120.28 |
| VAL | 1116 | GP001116-077837 | MH001116-072639-111 | MH001116-072610-110 | 10 | DUCTILE_IRON | 179.20 |
| VAL | 1116 | GP001116-077828 | MH001116-072653-133 | MH001116-072677-132 | 8 | IRON | 158.15 |
| VAL | 1116 | GP001116-077811 | MH001116-072626-059 | MH001116-072620-058 | 8 | IRON | 94.91 |
| VAL | 1116 | GP001116-071019 | MH001116-072629-060 | MH001116-072626-059 | 8 | IRON | 89.70 |
| VAL | 1116 | GP001116-077832 | MH001116-072652-116 | MH001116-072648-115 | 10 | DUCTILE_IRON | 244.89 |
| VAL | 1116 | GP001116-077825 | MH001116-072677-132 | MH001116-072649-129 | 8 | DUCTILE_IRON | 294.59 |
| VAL | 1116 | GP001116-071050 | MH001116-072647-062 | MH001116-072635-061 | 8 | IRON | 219.19 |

| BASIN | SUBBASIN | ASSETID | USMH_ASSETID | DSMH_ASSETID | DIAMETER (IN) | MATERIAL | LENGTH (LF) |
|---|---|---|---|---|---|---|---|
| VAL | 1116 | GP001116-076308 | MH001116-072551-107 | MH001116-072502-004 | 10 | DUCTILE_IRON | 400.29 |
| VAL | 1116 | GP001116-077827 | MH001116-072623-130 | MH001116-072649-129 | 8 | IRON | 220.28 |
| VAL | 1116 | GP001116-077838 | MH001116-072648-115 | MH001116-072639-111 | 10 | DUCTILE_IRON | 100.64 |
| VAL | 1116 | GP001116-139389 | MH001116-126463-107A | MH001116-072551-107 | 10 | DUCTILE_IRON | 348.67 |
| VAL | 1116 | GP001116-077840 | MH001116-072575-114 | MH001116-072612-113 | 8 | IRON | 395.16 |
| VAL | 1116 | GP001116-077824 | MH001116-072701-134 | MH001116-072677-132 | 8 | DUCTILE_IRON | 292.40 |
| VAL | 1116 | GP001116-077831 | MH001116-072658-117 | MH001116-072652-116 | 8 | IRON | 37.15 |
| VAL | 1116 | GP001116-077833 | MH001116-072610-110 | MH001116-072584-108 | 10 | DUCTILE_IRON | 278.86 |
| VAL | 1116 | GP001116-139388 | MH001116-072584-108 | MH001116-126463-107A | 10 | DUCTILE_IRON | 119.42 |
| VAL | 1116 | GP001116-077216 | MH001116-072606-051 | MH001116-072590-050 | 8 | DUCTILE_IRON | 219.74 |
| VAL | 1116 | GP001116-077839 | MH001116-072612-113 | MH001116-072638-112 | 8 | IRON | 237.79 |
| VAL | 1116 | GP001116-077826 | MH001116-072649-129 | MH001116-072667-128 | 8 | IRON | 247.76 |
| VAL | 1116 | GP001116-071020 | MH001116-072635-061 | MH001116-072629-060 | 8 | IRON | 205.50 |
| VAL | 1128 | GP001128-070655 | MH001128-072905-068 | MH001128-072906-067 | 8 | DUCTILE_IRON | 77.21 |
| VAL | 1128 | GP001128-070658 | MH001128-072920-063 | MH001128-072923-062 | 8 | DUCTILE_IRON | 350.55 |
| VAL | 1128 | GP001128-073029 | MH001128-072926-016 | MH001128-072929-015 | 8 | DUCTILE_IRON | 301.92 |
| VAL | 1128 | GP001128-077701 | MH001128-072906-067 | MH001128-072907-066 | 8 | DUCTILE_IRON | 72.47 |
| VAL | 1128 | GP001128-070683 | MH001128-072916-020 | MH001128-072918-019 | 8 | DUCTILE_IRON | 109.12 |
| VAL | 1128 | GP001128-070659 | MH001128-072923-062 | MH001128-072928-061 | 8 | DUCTILE_IRON | 351.45 |
| VAL | 1128 | GP001128-073030 | MH001128-072921-017 | MH001128-072926-016 | 8 | DUCTILE_IRON | 366.14 |
| VAL | 1128 | GP001128-070657 | MH001128-072915-064 | MH001128-072920-063 | 8 | DUCTILE_IRON | 349.91 |
| VAL | 1128 | GP001128-070660 | MH001128-072928-061 | MH001128-072931-014 | 8 | DUCTILE_IRON | 131.74 |
| VAL | 1128 | GP001128-073031 | MH001128-072919-018 | MH001128-072921-017 | 8 | DUCTILE_IRON | 361.96 |
| VAL | 1128 | GP001128-070656 | MH001128-072912-065 | MH001128-072915-064 | 8 | DUCTILE_IRON | 349.32 |
| VAL | 1128 | GP001128-077702 | MH001128-072907-066 | MH001128-072912-065 | 8 | DUCTILE_IRON | 347.69 |
| VAL | 1128 | GP001128-073032 | MH001128-072918-019 | MH001128-072919-018 | 8 | DUCTILE_IRON | 364.36 |
| VAL | 1128 | GP001128-073028 | MH001128-072929-015 | MH001128-072931-014 | 8 | DUCTILE_IRON | 35.61 |
| VIL | 3001 | GP003001-047452 | MH003001-022251-059H | MH003001-022415-059G | 8 | CLAY | 205.68 |
| VIL | 3001 | GP003001-048014 | MH003001-024289-372 | MH003001-024221-360 | 8 | IRON | 253.26 |
| VIL | 3001 | GP003001-047454 | MH003001-022562-059F | MH003001-022747-059E | 8 | CLAY | 337.13 |
| VIL | 3001 | GP003001-048010 | MH003001-024194-359A | MH003001-023981-359 | 8 | IRON | 358.85 |
| VIL | 3001 | GP003001-047455 | MH003001-022747-059E | MH003001-022844-059D1 | 8 | IRON | 173.62 |
| VIL | 3001 | GP003001-047456 | MH003001-022844-059D1 | MH003001-022907-059D | 8 | CLAY | 135.83 |
| VIL | 3001 | GP003001-047453 | MH003001-022415-059G | MH003001-022562-059F | 8 | CLAY | 270.33 |
| VIL | 3001 | GP003001-048009 | MH003001-024221-360 | MH003001-024194-359A | 8 | IRON | 36.71 |
| VIL | 3001 | GP003001-048045 | MH003001-024342-361 | MH003001-024221-360 | 8 | CLAY | 173.62 |
| VIL | 3001 | GP003001-047451 | MH003001-022222-059I | MH003001-022251-059H | 8 | CLAY | 35.80 |
| VIL | 3002 | GP003002-054000 | MH003002-020739-025A | MH003002-020660-025 | 8 | CLAY | 160.24 |
| VIL | 3002 | GP003002-047435 | MH003002-019504-046B | MH003002-019457-046A | 8 | CLAY | 151.09 |
| VIL | 3002 | GP003002-047379 | MH003002-021783-003N | MH003002-021831-003M | 8 | CLAY | 99.19 |
| VIL | 3002 | GP003002-047212 | MH003002-020546-024 | MH003002-020370-022 | 8 | CLAY | 307.16 |
| VIL | 3002 | GP003002-091311 | MH003002-019409-046 | MH003002-019435-045A | 8 | CIP | 61.00 |
| VIL | 3002 | GP003002-096277 | MH003002-019457-046A | MH003002-019435-045A | 8 | PVC | 59.12 |
| VIL | 3002 | GP003002-047199 | MH003002-020267-023 | MH003002-020370-022 | 8 | IRON | 145.18 |
| VIL | 3002 | GP003002-047377 | MH003002-021496-003P | MH003002-021602-003O | 8 | CIP | 245.67 |
| VIL | 3002 | GP003002-053999 | MH003002-020767-026 | MH003002-020739-025A | 8 | CLAY | 74.22 |
| VIL | 3002 | GP003002-047378 | MH003002-021602-003O | MH003002-021783-003N | 8 | CIP | 278.32 |
| VIL | 3002 | GP003002-047209 | MH003002-020977-028 | MH003002-020821-027 | 8 | CLAY | 349.89 |
| VIL | 3002 | GP003002-047406 | MH003002-021684-009G | MH003002-021573-009F | 8 | CLAY | 244.85 |
| VIL | 3002 | GP003002-047450 | MH003002-022106-059J | MH003001-022222-059I | 8 | IRON | 191.55 |
| VIL | 3002 | GP003002-047405 | MH003002-021689-009H | MH003002-021684-009G | 8 | IRON | 79.18 |
| VIL | 3002 | GP003002-047429 | MH003002-019435-045A | MH003002-019478-045 | 8 | CIP | 183.58 |
| VIL | 3002 | GP003002-047407 | MH003002-021573-009F | MH003002-021430-009E | 8 | CLAY | 213.74 |
| VIL | 3002 | GP003002-047210 | MH003002-020821-027 | MH003002-020767-026 | 8 | CLAY | 107.60 |
| VIL | 3002 | GP003002-047409 | MH003002-021368-009D | MH003002-021263-009C | 8 | CLAY | 134.99 |
| VIL | 3002 | GP003002-047401 | FT003002-000587 | MH003002-021263-009C | 8 | UNK | 104.71 |
| VIL | 3002 | GP003002-047408 | MH003002-021430-009E | MH003002-021368-009D | 8 | CLAY | 94.83 |
| VIL | 3002 | GP003002-047402 | MH003002-021263-009C | MH003002-021260-009B | 8 | CLAY | 145.31 |
| VIL | 3002 | GP003002-047211 | MH003002-020660-025 | MH003002-020546-024 | 8 | CLAY | 187.92 |
| VIL | 3002 | GP003002-052926 | MH003002-019478-045 | MH003002-019593-039 | 8 | CLAY | 286.42 |
| VIL | 3002 | GP003002-047434 | FT003002-004883 | MH003002-019504-046B | 8 | CLAY | 237.82 |
| VIL | 3003 | GP003003-096342 | MH003003-088819-187A | MH003003-020713-187 | 8 | IRON | 106.72 |
| VIL | 3003 | GP003003-047208 | MH003003-020930-029 | MH003002-020977-028 | 8 | CLAY | 211.50 |
| VIL | 3003 | GP003003-047321 | MH003003-022600-019 | MH003003-022418-018 | 8 | CLAY | 254.69 |
| VIL | 3003 | GP003003-047330 | MH003003-022140-013 | MH003003-022297-010 | 8 | IRON | 323.35 |
| VIL | 3003 | GP003003-047333 | MH003003-022544-011 | MH003003-022297-010 | 8 | CLAY | 382.57 |
| VIL | 3003 | GP003003-047329 | MH003003-022030-014 | MH003003-022140-013 | 8 | CLAY | 230.50 |
| VIL | 3003 | GP003003-047323 | MH003003-022417-017 | MH003003-022289-016 | 8 | CLAY | 199.91 |
| VIL | 3003 | GP003003-047322 | MH003003-022418-018 | MH003003-022417-017 | 8 | CLAY | 330.01 |
| VIL | 3003 | GP003003-047213 | MH003003-020210-199 | MH003003-020416-198 | 8 | CLAY | 323.32 |

| BASIN | SUBBASIN | ASSETID | USMH_ASSETID | DSMH_ASSETID | DIAMETER (IN) | MATERIAL | LENGTH (LF) |
|---|---|---|---|---|---|---|---|
| VIL | 3003 | GP003003-047222 | MH003003-020713-187 | MH003003-020887-186 | 8 | CLAY | 328.60 |
| VIL | 3003 | GP003003-096341 | MH003003-020587-188 | MH003003-088819-187A | 8 | IRON | 89.75 |
| VIL | 3003 | GP003003-047214 | MH003003-020416-198 | MH003003-020587-188 | 8 | CLAY | 259.91 |
| VIL | 3004 | GP003004-047052 | MH003004-022563-034 | MH003004-022783-033 | 8 | CLAY | 417.37 |
| VIL | 3004 | GP003004-047056 | MH003004-022885-032 | MH003004-022920-031 | 8 | CLAY | 279.90 |
| VIL | 3004 | GP003004-047055 | MH003004-022783-033 | MH003004-022885-032 | 8 | CONCRETE | 397.46 |
| VIL | 3004 | GP003004-047050 | MH003004-022404-035 | MH003004-022563-034 | 8 | CLAY | 211.95 |
| VIL | 3004 | GP003004-047044 | MH003004-022474-033B | MH003004-022501-033A | 8 | CLAY | 332.77 |
| VIL | 3004 | GP003004-047053 | MH003004-022501-033A | MH003004-022783-033 | 8 | CLAY | 377.93 |
| VIL | 3004 | GP003004-047049 | MH003004-022527-045 | MH003004-022563-034 | 8 | CLAY | 252.32 |
| VIL | 3005 | GP003005-095060 | MH003005-088531-131 | MH003005-088537-130 | 8 | DUCTILE_IRON | 107.17 |
| VIL | 3005 | GP003005-095062 | MH003005-088533-133 | MH003005-088532-132 | 8 | DUCTILE_IRON | 265.44 |
| VIL | 3005 | GP003005-095061 | MH003005-088532-132 | MH003005-088531-131 | 8 | DUCTILE_IRON | 39.18 |
| VIL | 3005 | GP003005-104741 | MH003005-096203-140 | MH003005-096202-139 | 8 | DUCTILE_IRON | 247.86 |
| VIL | 3005 | GP003005-105935 | MH003005-096200-136 | MH003005-088531-131 | 8 | DUCTILE_IRON | 212.99 |
| VIL | 3005 | GP003005-095065 | MH003005-088538-129 | MH003005-088536-128 | 8 | DUCTILE_IRON | 69.84 |
| VIL | 3005 | GP003005-118269 | MH003005-096202-139 | MH003005-107904-138 | 8 | DUCTILE_IRON | 155.76 |
| VIL | 3005 | GP003005-095059 | MH003005-088537-130 | MH003005-088536-128 | 8 | DUCTILE_IRON | 46.22 |
| VIL | 3005 | GP003005-118270 | MH003005-107904-138 | MH003005-096201-137 | 8 | DUCTILE_IRON | 224.28 |
| VIL | 3005 | GP003005-094566 | MH003005-086233-127 | MH003005-086222-125 | 8 | DUCTILE_IRON | 213.75 |
| VIL | 3005 | GP003005-095050 | MH003005-088536-128 | MH003005-086233-127 | 8 | DUCTILE_IRON | 332.50 |
| VIL | 3005 | GP003005-104745 | MH003005-096201-137 | MH003005-096200-136 | 8 | DUCTILE_IRON | 44.54 |
| VIL | 300E | GP00300E-097261 | MH00300E-089632-018A | MH00300E-031316-018 | 8 | CIP | 198.66 |
| VIL | 300E | GP00300E-042554 | MH00300E-031280-019B | MH00300E-031287-019A | 8 | CLAY | 230.53 |
| VIL | 300E | GP00300E-097260 | MH00300E-031301-019 | MH00300E-089632-018A | 8 | CLAY | 371.59 |
| VIL | 300E | GP00300E-042555 | MH00300E-031287-019A | MH00300E-031301-019 | 8 | CLAY | 441.73 |
| VIL | 300S | GP00300S-049105 | MH00300S-032866-034 | MH00300S-032621-034A | 8 | CLAY | 259.98 |
| VIL | 300S | GP00300S-049094 | MH00300S-032892-035 | MH00300S-032866-034 | 12 | CLAY | 64.59 |
| VIL | 300S | GP00300S-049102 | MH00300S-032348-047A | MH00300S-032334-047A1 | 8 | CLAY | 226.46 |
| VIL | 300S | GP00300S-049103 | MH00300S-032334-047A1 | MH00300S-032328-047 | 8 | CLAY | 405.59 |
| VIL | 300S | GP00300S-049117 | MH00300S-032683-043 | MH00300S-032949-040 | 8 | CLAY | 344.13 |
| VIL | 300S | GP00300S-049115 | MH00300S-032954-040B | MH00300S-426443-0218 | 8 | CIP | 267.49 |
| VIL | 3013 | GP003013-054170 | MH003013-035188-029 | MH003013-034718-028 | 10 | CLAY | 603.93 |
| VIL | 3013 | GP003013-098298 | MH003013-035309-009B | MH003013-090097-009A2 | 8 | CLAY | 346.92 |
| VIL | 3013 | GP003013-098299 | MH003013-090097-009A2 | MH003013-034756-009A | 8 | CLAY | 347.97 |
| VIL | 3013 | GP003013-098302 | MH003013-035667-009C | MH003013-090099-009B1 | 8 | CLAY | 140.00 |
| VIL | 3013 | GP003013-041281 | MH003013-035272-030 | MH003013-035188-029 | 10 | CLAY | 122.50 |
| VIL | 3013 | GP003013-098303 | MH003013-090099-009B1 | MH003013-035309-009B | 8 | CLAY | 297.06 |
| VIL | 3015 | GP003015-049875 | MH003015-327439-PROPOSED | MH003015-034945-011D | 8 | CLAY | 223.42 |
| VIL | 3015 | GP003015-049876 | MH003015-034945-011D | MH003015-035008-011C | 8 | CLAY | 216.47 |
| VIL | 3016 | GP003016-052595 | MH003016-027949-094C | MH003016-027846-094B | 8 | CLAY | 243.05 |
| VIL | 3016 | GP003016-048521 | MH003016-027808-078 | MH003016-027736-066A1 | 8 | CLAY | 399.31 |
| VIL | 3016 | GP003016-048496 | MH003016-027392-096 | MH003016-099846-065A1 | 8 | CLAY | 350.91 |
| VIL | 3016 | GP003016-051771 | MH003016-027838-094E | MH003016-027840-094D | 8 | CIP/DIP | 148.25 |
| VIL | 3016 | GP003016-051767 | MH003016-027583-094F2 | MH003016-027649-094F1 | 8 | CLAY | 153.29 |
| VIL | 3016 | GP003016-048494 | MH003016-027348-098 | MH003016-027384-097 | 8 | CLAY | 104.82 |
| VIL | 3016 | GP003016-051768 | MH003016-027649-094F1 | MH003016-027746-094F | 8 | CLAY | 109.60 |
| VIL | 3016 | GP003016-048546 | MH003016-027882-078A | MH003016-027808-078 | 8 | CLAY | 243.15 |
| VIL | 3016 | GP003016-051772 | MH003016-027840-094D | MH003016-027949-094C | 8 | CLAY | 160.66 |
| VIL | 3016 | GP003016-053053 | MH003016-027902-079 | MH003016-027882-078A | 8 | CLAY | 101.34 |
| VIL | 3016 | GP003016-048493 | MH003016-027072-099 | MH003016-027348-098 | 8 | CLAY | 281.98 |
| VIL | 3016 | GP003016-048541 | MH003016-027846-094B | MH003016-027771-094 | 8 | CLAY | 98.38 |
| VIL | 3016 | GP003016-048548 | MH003016-027976-080 | MH003016-027902-079 | 8 | CLAY | 263.08 |
| VIL | 3016 | GP003016-051769 | MH003016-027746-094F | MH003016-027838-094E | 8 | CLAY | 199.91 |
| VIL | 3018 | GP003018-041106 | MH003018-029967-005S | MH003018-030050-005I | 8 | CLAY | 137.18 |
| VIL | 3018 | GP003018-041127 | MH003018-030330-005T | MH003018-030546-005K | 8 | CLAY | 190.85 |
| VIL | 3018 | GP003018-041109 | MH003018-030169-005G | MH003018-030225-005F | 8 | CLAY | 158.22 |
| VIL | 3018 | GP003018-041124 | MH003018-030361-005U | MH003018-030565-005M | 8 | CLAY | 362.20 |
| VIL | 3018 | GP003018-041126 | MH003018-030264-005Q | MH003018-030169-005G | 8 | CLAY | 242.26 |
| VIL | 3018 | GP003018-041120 | MH003018-030822-005N | MH003018-030854-005L | 8 | CIP | 256.36 |
| VIL | 3018 | GP003018-041140 | MH003018-030656-005X | MH003018-030945-005A | 0 | UNK | 348.16 |
| VIL | 3018 | GP003018-041119 | MH003018-030875-005V | MH003018-030822-005N | 8 | CLAY | 104.70 |
| VIL | 3018 | GP003018-041123 | MH003018-030295-005R | MH003018-030080-005H | 8 | CLAY | 154.12 |
| VIL | 3018 | GP003018-041117 | MH003018-030248-005W | MH003018-030549-005O | 8 | CIP | 474.00 |
| VIL | 3018 | GP003018-041129 | MH003018-030174-005P | MH003018-030244-005E | 8 | CLAY | 79.63 |
| VIL | 3018 | GP003018-041118 | MH003018-030549-005O | MH003018-030822-005N | 8 | CLAY | 335.97 |
| VIL | 3018 | GP003018-041113 | MH003018-030808-005C | MH003018-030947-005B | 8 | CLAY | 269.96 |
| VIL | 3018 | GP003018-041128 | MH003018-030546-005K | MH003018-030839-005J | 8 | CIP | 298.47 |
| VIL | 3018 | GP003018-041112 | MH003018-030627-005D | MH003018-030808-005C | 8 | CLAY | 212.28 |
| VIL | 3018 | GP003018-041108 | MH003018-030080-005H | MH003018-030169-005G | 8 | CLAY | 317.10 |

| BASIN | SUBBASIN | ASSETID | USMH_ASSETID | DSMH_ASSETID | DIAMETER (IN) | MATERIAL | LENGTH (LF) |
|---|---|---|---|---|---|---|---|
| VIL | 3018 | GP003018-041110 | MH003018-030225-005F | MH003018-030244-005E | 8 | CLAY | 114.57 |
| VIL | 3018 | GP003018-041122 | MH003018-030839-005J | MH003018-030808-005C | 8 | CIP | 259.27 |
| VIL | 3018 | GP003018-041125 | MH003018-030565-005M | MH003018-030854-005L | 8 | CLAY | 333.76 |
| VIL | 3018 | GP003018-041111 | MH003018-030244-005E | MH003018-030627-005D | 8 | CLAY | 434.54 |
| VIL | 3018 | GP003018-041121 | MH003018-030854-005L | MH003018-030839-005J | 8 | CIP | 292.16 |
| VIL | 3018 | GP003018-041107 | MH003018-030050-005I | MH003018-030080-005H | 8 | CLAY | 257.01 |
| VIL | 3020 | GP003020-048582 | MH003020-027436-056 | MH003020-027440-054 | 8 | CLAY | 197.63 |
| VIL | 3020 | GP003020-048580 | MH003020-027052-058 | MH003020-027222-057 | 8 | CLAY | 239.34 |
| VIL | 3020 | GP003020-048558 | MH003020-026535-062J | MH003020-026615-062I | 8 | CLAY | 144.49 |
| VIL | 3020 | GP003020-048856 | MH003020-026418-062M | MH003020-026450-062L | 8 | DUCTILE_IRON | 114.31 |
| VIL | 3020 | GP003020-048853 | MH003020-025742-062P | MH003020-025972-062O | 8 | CLAY | 348.84 |
| VIL | 3020 | GP003020-048557 | MH003020-025807-062S | MH003020-026121-062R | 8 | CLAY | 300.07 |
| VIL | 3020 | GP003020-048855 | MH003020-026287-062N | MH003020-026418-062M | 8 | CLAY | 113.19 |
| VIL | 3020 | GP003020-048581 | MH003020-027222-057 | MH003020-027436-056 | 8 | CLAY | 236.33 |
| VIL | 3020 | GP003020-048573 | MH003020-027098-063 | MH003020-027244-062 | 8 | CLAY | 240.85 |
| VIL | 3020 | GP003020-048584 | MH003020-027244-062 | MH003020-027470-061 | 8 | CLAY | 334.54 |
| VIL | 3020 | GP003020-048566 | MH003020-026653-062H | MH003020-026673-062G | 8 | CLAY | 93.95 |
| VIL | 3020 | GP003020-091435 | MH003020-026688-062F | MH003020-084787-062E1 | 8 | CLAY | 110.07 |
| VIL | 3020 | GP003020-048567 | MH003020-026673-062G | MH003020-428211-062F1 | 8 | CLAY | 179.47 |
| VIL | 3020 | GP003020-048858 | MH003020-026436-062K | MH003020-026535-062J | 8 | CLAY | 134.01 |
| VIL | 3020 | GP003020-048555 | MH003020-025512-062U | MH003020-025621-062T | 8 | CLAY | 109.85 |
| VIL | 3020 | GP003020-048586 | MH003020-027574-060 | MH003020-027576-059 | 8 | CLAY | 37.90 |
| VIL | 3020 | GP003020-048857 | MH003020-026450-062L | MH003020-026436-062K | 8 | CLAY | 97.13 |
| VIL | 3020 | GP003020-048852 | MH003020-025481-062Q | MH003020-025742-062P | 8 | CLAY | 239.38 |
| VIL | 3020 | GP003020-048583 | MH003020-027440-054 | MH003020-027566-053 | 8 | DIP/CLAY | 144.96 |
| VIL | 3020 | GP003020-048859 | MH003020-026121-062R | MH003020-026436-062K | 8 | CLAY | 273.62 |
| VIL | 3020 | GP003020-048579 | MH003020-027286-055 | MH003020-027440-054 | 8 | CLAY | 150.57 |
| VIL | 3020 | GP003020-048587 | MH003020-027576-059 | MH003020-027566-053 | 8 | CLAY | 189.44 |
| VIL | 3020 | GP003020-048854 | MH003020-025972-062O | MH003020-026287-062N | 8 | DUCTILE_IRON | 249.21 |
| VIL | 3020 | GP003020-048559 | MH003020-026615-062I | MH003020-026688-062F | 8 | CLAY | 236.07 |
| VIL | 3020 | GP003020-048564 | MH003020-027105-062B | MH003020-027182-062A | 8 | CLAY | 209.54 |
| VIL | 3020 | GP003020-091436 | MH003020-084787-062E1 | MH003020-026910-062E | 8 | CLAY | 94.84 |
| VIL | 3020 | GP003020-048556 | MH003020-025621-062T | MH003020-025807-062S | 8 | CLAY | 174.05 |
| VIL | 3022 | GP003022-096257 | MH003022-029478-015 | MH003022-088736-014A | 8 | CLAY | 233.89 |
| VIL | 3022 | GP003022-042930 | MH003022-030517-001 | MH00300E-030513-125G | 8 | CLAY | 180.27 |
| VIL | 3022 | GP003022-042759 | MH003022-088751-002A | MH003022-030358-002 | 8 | CLAY | 319.65 |
| VIL | 3022 | GP003022-325927 | MH003023-290629-003A3 | MH003022-088737-003A2 | 8 | DUCTILE_IRON | 359.47 |
| VIL | 3022 | GP003022-042757 | MH003022-030358-002 | MH003022-030517-001 | 8 | CLAY | 199.83 |
| VIL | 3022 | GP003022-096261 | MH003022-088737-003A2 | MH003022-088738-003A1 | 8 | CLAY | 211.37 |
| VIL | 3022 | GP003022-096259 | MH003022-029922-003A | MH003022-088737-003A2 | 8 | CLAY | 53.99 |
| VIL | 3022 | GP003022-096262 | MH003022-088738-003A1 | MH003022-030353-003 | 8 | CIP | 226.51 |
| VIL | 3022 | GP003022-042758 | MH003022-030353-003 | MH003022-030358-002 | 8 | CLAY | 177.86 |
| VIL | 3022 | GP003022-053738 | MH003022-029274-015B | MH003022-029382-015A | 8 | CLAY | 168.10 |
| VIL | 3022 | GP003022-042760 | MH003022-030346-004 | MH003022-030353-003 | 8 | CLAY | 376.05 |
| VIL | 3022 | GP003022-053737 | MH003022-029382-015A | MH003022-029478-015 | 8 | CLAY | 173.22 |
| VIL | 3022 | GP003022-096258 | MH003022-088736-014A | MH003022-029801-014 | 8 | CLAY | 226.79 |
| VIL | 3022 | GP003022-051809 | MH003022-029209-015C | MH003022-029274-015B | 8 | DUCTILE_IRON | 82.42 |
| VIL | 3022 | GP003022-042879 | MH003022-029917-009 | MH003022-029922-003A | 8 | CLAY | 278.47 |
| VIL | 3023 | GP003023-099056 | MH003023-028613-027 | MH003023-089823-026B | 8 | CLAY | 276.72 |
| VIL | 3023 | GP003023-042792 | MH003023-028756-026 | MH003023-028787-025 | 8 | CLAY | 42.48 |
| VIL | 3023 | GP003023-042533 | MH003023-028304-029 | MH003023-028439-028 | 8 | CLAY | 438.29 |
| VIL | 3023 | GP003023-133005 | MH003023-029842-004 | MH003023-121348-003 | 8 | CLAY | 48.80 |
| VIL | 3023 | GP003023-042842 | MH003023-029802-031 | MH003023-030167-030 | 8 | CLAY | 409.52 |
| VIL | 3023 | GP003023-042787 | MH003023-028439-028 | MH003026-028680-033 | 8 | UNK | 320.22 |
| VIL | 3023 | GP003023-473599 | MH003023-425077-005A | MH003023-029740-005 | 8 | CLAY | 56.50 |
| VIL | 3023 | GP003023-053729 | MH003023-029740-005 | MH003023-029842-004 | 8 | CLAY | 222.85 |
| VIL | 3023 | GP003023-042789 | MH003023-028439-028 | MH003023-028613-027 | 8 | CIP | 434.07 |
| VIL | 3023 | GP003023-053735 | MH003023-030001-002 | MH003023-030172-001 | 8 | CLAY | 328.64 |
| VIL | 3023 | GP003023-107931 | MH003023-121348-003 | MH003023-030001-002 | 8 | CIP | 325.32 |
| VIL | 3023 | GP003023-053734 | MH003023-030167-030 | MH003023-030172-001 | 8 | CIP | 44.31 |
| VIL | 3023 | GP003023-099057 | MH003023-089823-026B | MH003023-028756-026 | 8 | CLAY | 185.77 |
| VIL | 3023 | GP003023-042793 | MH003023-028787-025 | MH003023-028811-024 | 8 | CLAY | 65.46 |
| VIL | 3023 | GP003023-042791 | MH003023-089122-026A | MH003023-028756-026 | 8 | CLAY | 239.38 |
| VIL | 3023 | GP003023-042788 | MH003023-089123-028A | MH003023-028439-028 | 8 | CLAY | 239.80 |
| VIL | 3024 | GP003024-045394 | MH003024-026211-135 | MH003024-026364-134 | 12 | CLAY | 449.41 |
| VIL | 3024 | GP003024-045383 | MH003024-026091-138 | MH003024-026364-134 | 24 | CLAY | 279.19 |
| VIL | 3024 | GP003024-045387 | MH003024-026364-134 | MH003024-026770-131 | 24 | CLAY | 454.98 |
| VIL | 3024 | GP003024-112420 | MH003024-025867-137 | MH003024-102706-136A | 8 | CLAY | 440.16 |
| VIL | 3024 | GP003024-045388 | MH003024-026770-131 | MH003024-027104-130 | 18 | CONCRETE | 380.34 |
| VIL | 3053 | GP003053-095687 | MH003053-087959-070C | MH003053-034422-070B | 8 | CLAY | 26.50 |

| BASIN | SUBBASIN | ASSETID | USMH_ASSETID | DSMH_ASSETID | DIAMETER (IN) | MATERIAL | LENGTH (LF) |
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| VIL | 3053 | GP003053-045152 | MH003053-034515-069A1 | MH003053-034542-069 | 8 | CLAY | 22.94 |
| VIL | 3053 | GP003053-045151 | MH003053-034482-070 | MH003053-034515-069A1 | 8 | CLAY | 32.93 |
| VIL | 3053 | GP003053-095684 | MH003053-034037-070E | MH003053-087958-070D | 8 | CLAY | 247.04 |
| VIL | 3053 | GP003053-095686 | MH003053-087958-070D | MH003053-087959-070C | 8 | CLAY | 234.67 |
| VIL | 3053 | GP003053-095688 | MH003053-034422-070B | MH003053-087960-070A | 8 | CLAY | 168.36 |
| VIL | 3053 | GP003053-095689 | MH003053-087960-070A | MH003053-034482-070 | 8 | CLAY | 43.26 |
| VIL | 3065 | GP003065-290407 | MH003065-027435-050R | MH003065-256710-050Q1 | 8 | CLAY | 89.13 |
| VIL | 3065 | GP003065-053395 | MH003065-026964-050M | MH003065-027019-050L | 8 | CLAY | 73.35 |
| VIL | 3065 | GP003065-053406 | MH003065-027073-050K | MH003065-026925-050F | 8 | CLAY | 150.60 |
| VIL | 3065 | GP003065-053404 | MH003065-026755-050H | MH003065-026891-050G | 8 | CLAY | 304.11 |
| VIL | 3065 | GP003065-040858 | MH003065-027061-050N | MH003065-026964-050M | 8 | CLAY | 118.18 |
| VIL | 3065 | GP003065-053408 | MH003065-026891-050G | MH003065-026925-050F | 8 | CLAY | 46.50 |
| VIL | 3065 | GP003065-053407 | MH003065-027019-050L | MH003065-026925-050F | 8 | CLAY | 106.42 |
| VIL | 3065 | GP003065-290408 | MH003065-256710-050Q1 | MH003065-027262-050Q | 8 | CLAY | 82.89 |
| VIL | 3065 | GP003065-053397 | MH003065-027070-050P | MH003065-027019-050L | 8 | CLAY | 80.39 |
| VIL | 3069 | GP003069-039778 | MH003077-413512-0057 | MH003077-413513-0056 | 8 | DUCTILE_IRON | 331.08 |
| VIL | 3071 | GP003071-040402 | MH003071-020670-004B | MH003071-020846-004A | 6 | CLAY | 249.51 |
| VIL | 3071 | GP003071-040468 | MH003071-020846-004A | MH003071-020986-004 | 6 | CLAY | 333.74 |
| VIL | 3072 | GP003072-040188 | MH003072-020819-026A | MH003072-020820-026 | 8 | IRON | 15.56 |
| VIL | 3072 | GP003072-040215 | MH003072-020191-010 | MH003072-020037-008 | 8 | CLAY | 410.43 |
| VIL | 3072 | GP003072-040200 | MH003072-020371-022 | MH003072-020606-021 | 10 | CLAY | 399.75 |
| VIL | 3072 | GP003072-054115 | MH003071-253189-026C | MH003072-020820-026 | 8 | CIP | 486.50 |
| VIL | 3072 | GP003072-040189 | MH003072-020820-026 | MH003072-020680-023 | 8 | CIP | 314.89 |
| VIL | 3072 | GP003072-052507 | MH003071-088530-021B | MH003072-020819-026A | 8 | CIP | 421.60 |
| VIL | 3072 | GP003072-040204 | MH003072-020213-016 | MH003072-020191-010 | 8 | CLAY | 110.40 |
| VIL | 3072 | GP003072-040203 | MH003072-020237-017 | MH003072-020213-016 | 8 | CLAY | 104.40 |
| VIL | 3072 | GP003072-040221 | MH003072-020606-021 | MH003072-020548-019 | 12 | CIP | 203.97 |
| VIL | 3072 | GP003072-040474 | FT003072-000551 | MH003071-020670-004B | 6 | CLAY | 158.84 |
| VIL | 3072 | GP003072-040199 | MH003072-020146-022A | MH003072-020371-022 | 10 | CLAY | 383.73 |
| VIL | 3074 | GP003074-040020 | MH003074-019694-016 | MH003074-019794-015 | 10 | CLAY | 272.23 |
| VIL | 3074 | GP003074-040019 | MH003074-019660-016A | MH003074-019694-016 | 10 | CLAY | 178.28 |
| VIL | 3074 | GP003074-040015 | MH003074-019754-017B | MH003074-019678-017A | 8 | IRON | 213.28 |
| VIL | 3074 | GP003074-040018 | MH003074-019678-017A | MH003074-019660-016A | 8 | IRON | 33.26 |
| VIL | 3074 | GP003074-040016 | MH003074-019654-017 | MH003074-019660-016A | 10 | IRON | 48.05 |
| VIL | 3074 | GP003074-040021 | MH003074-019794-015 | MH003074-019738-012 | 18 | IRON | 379.60 |
| VIL | 3087 | GP003087-038831 | MH003087-016680-311 | MH003087-016636-304 | 8 | CLAY | 159.33 |
| VIL | 3087 | GP003087-038853 | MH003087-016464-292 | MH003087-016465-291 | 8 | CLAY | 161.32 |
| VIL | 3087 | GP003087-038835 | MH003087-016675-306A | MH003087-016637-306 | 8 | CLAY | 231.65 |
| VIL | 3087 | GP003087-038844 | MH003087-016525-303 | MH003087-016465-291 | 8 | CLAY | 163.31 |
| VIL | 3087 | GP003087-038852 | MH003087-016462-293 | MH003087-016464-292 | 8 | CLAY | 396.78 |
| VIL | 3087 | GP003087-038828 | MH003087-016874-312A | MH003087-016868-312 | 8 | CLAY | 32.36 |
| VIL | 3087 | GP003087-038851 | MH003087-016456-295 | MH003087-016462-293 | 8 | CLAY | 220.93 |
| VIL | 3087 | GP003087-038836 | MH003087-016799-307B | MH003087-016719-307A | 8 | CLAY | 206.84 |
| VIL | 3087 | GP003087-038850 | MH003087-016457-298 | MH003087-016456-295 | 8 | CIP | 196.88 |
| VIL | 3087 | GP003087-038842 | MH003087-016636-304 | MH003087-016536-303A | 8 | CLAY | 178.42 |
| VIL | 3087 | GP003087-038846 | MH003087-016563-299 | MH003087-016457-298 | 8 | CLAY | 260.36 |
| VIL | 3087 | GP003087-038843 | MH003087-016536-303A | MH003087-016525-303 | 8 | CLAY | 17.68 |
| VIL | 3087 | GP003087-038839 | MH003087-016671-307 | MH003087-016637-306 | 8 | CLAY | 149.41 |
| VIL | 3087 | GP003087-038849 | MH003087-016562-294 | MH003087-016462-293 | 8 | CLAY | 178.15 |
| VIL | 3087 | GP003087-038838 | MH003087-016719-307A | MH003087-016671-307 | 8 | CLAY | 170.07 |
| VIL | 3087 | GP003087-038830 | MH003087-016868-312 | MH003087-016680-311 | 8 | CLAY | 378.93 |
| VIL | 3087 | GP003087-038837 | MH003087-016614-307C | MH003087-016719-307A | 8 | CLAY | 321.52 |
| VIL | 3087 | GP003087-038829 | MH003087-016818-313 | MH003087-016868-312 | 8 | CLAY | 341.55 |
| VIL | 3087 | GP003087-038845 | MH003087-016465-291 | MH003087-016463-290 | 8 | CLAY | 196.73 |
| VIL | 3088 | GP003088-038201 | MH003088-014581-038 | MH003088-014675-037 | 8 | CIP | 381.44 |
| VIL | 3088 | GP003088-038205 | MH003088-014910-031 | MH003088-014916-028A | 8 | CLAY | 142.38 |
| VIL | 3088 | GP003088-038206 | MH003088-014916-028A | MH003088-014928-028 | 8 | CLAY | 398.40 |
| VIL | 3088 | GP003088-038253 | MH003088-014573-039 | MH003088-014675-037 | 8 | CLAY | 203.37 |
| VIL | 3088 | GP003088-038258 | MH003088-014518-039A | MH003088-014573-039 | 8 | CLAY | 97.62 |
| VIL | 3088 | GP003088-038250 | MH003088-014713-029 | MH003088-014928-028 | 8 | CLAY | 326.27 |
| VIL | 3088 | GP003088-038204 | MH003088-014859-034 | MH003088-014910-031 | 8 | CLAY | 257.58 |
| VIL | 3088 | GP003088-038255 | MH003088-014675-037 | MH003088-014859-034 | 8 | CLAY | 331.12 |
| VIL | 3088 | GP003088-038257 | MH003088-014469-043 | MH003088-014518-039A | 8 | CLAY | 108.82 |
| WAR | 11001 | GP011001-011287 | MH011001-000175-044C | MH011001-000183-044B | 8 | DUCTILE_IRON | 221.28 |
| WAR | 11001 | GP011001-011194 | MH011001-000203-073 | MH011001-000199-072 | 8 | CIP | 226.94 |
| WAR | 11001 | GP011001-011315 | MH011001-000223-047 | MH011001-000218-040 | 12 | DUCTILE_IRON | 194.24 |
| WAR | 11001 | GP011001-011186 | MH011001-000174-081 | MH011001-000176-080 | 8 | CIP | 349.17 |
| WAR | 11001 | GP011001-011214 | MH011002-000180-001 | MH011001-000181-086 | 10 | CIP | 246.92 |
| WAR | 11001 | GP011001-011321 | MH011001-000233-049 | MH011001-000223-047 | 12 | CLAY | 265.83 |
| WAR | 11001 | GP011001-011290 | MH011001-000183-044B | MH011001-000186-044 | 8 | DUCTILE_IRON | 29.69 |

| BASIN | SUBBASIN | ASSETID | USMH_ASSETID | DSMH_ASSETID | DIAMETER (IN) | MATERIAL | LENGTH (LF) |
|---|---|---|---|---|---|---|---|
| WAR | 11001 | GP011001-011166 | MH011001-000173-046 | MH011001-000182-045 | 8 | DUCTILE_IRON | 232.98 |
| WAR | 11001 | GP011001-011167 | MH011001-000182-045 | MH011001-000187-043 | 8 | DUCTILE_IRON | 43.62 |
| WAR | 11001 | GP011001-011289 | MH011001-000186-044 | MH011001-000187-043 | 8 | DUCTILE_IRON | 188.46 |
| WAR | 11001 | GP011001-011316 | MH011001-000218-040 | MH011001-000222-039 | 12 | DUCTILE_IRON | 171.28 |
| WAR | 11001 | GP011001-011277 | MH011001-000181-086 | MH011001-000191-084 | 10 | CIP | 373.68 |
| WAR | 11001 | GP011001-011195 | MH011001-000199-072 | MH011001-000196-071 | 8 | CIP | 204.27 |
| WAR | 11001 | GP011001-037538 | MH011001-000165-044D | MH011001-000170-PROPOSED | 8 | DUCTILE_IRON | 8.90 |
| WAR | 11001 | GP011001-011185 | MH011001-000172-082 | MH011001-000174-081 | 8 | CIP | 220.32 |
| WAR | 11001 | GP011001-037587 | MH011001-000161-044F | MH011001-000163-044E | 8 | DUCTILE_IRON | 300.03 |
| WAR | 11001 | GP011001-037537 | MH011001-000170-PROPOSED | MH011001-000175-044C | 8 | DUCTILE_IRON | 118.58 |
| WAR | 11001 | GP011001-037554 | MH011001-000163-044E | MH011001-000165-044D | 8 | DUCTILE_IRON | 12.26 |
| WAR | 11001 | GP011001-037588 | MH011001-000156-044G | MH011001-000161-044F | 8 | DUCTILE_IRON | 243.63 |
| WAR | 11002 | GP011002-011239 | MH011002-000104-049 | MH011002-000111-048 | 8 | CIP | 349.58 |
| WAR | 11002 | GP011002-011219 | MH011002-000129-034 | MH011002-000130-033 | 8 | CIP | 112.54 |
| WAR | 11002 | GP011002-011231 | MH011002-000108-045 | MH011002-000109-044 | 8 | DUCTILE_IRON | 127.78 |
| WAR | 11002 | GP011002-011227 | MH011002-000109-044 | MH011002-000114-043 | 12 | DUCTILE_IRON | 169.55 |
| WAR | 11002 | GP011002-011223 | MH011002-000120-031 | MH011002-000117-030 | 8 | DUCTILE_IRON | 86.71 |
| WAR | 11002 | GP011002-011224 | MH011002-000117-030 | MH011002-000115-029 | 8 | CIP | 103.09 |
| WAR | 11002 | GP011002-011229 | MH011002-000113-042 | MH011002-000116-040 | 12 | DUCTILE_IRON | 253.42 |
| WAR | 11002 | GP011002-011226 | MH011002-000116-040 | MH011002-000115-029 | 12 | DUCTILE_IRON | 34.93 |
| WAR | 11002 | GP011002-011243 | MH011002-000123-028 | MH011002-000124-027 | 12 | CIP | 143.30 |
| WAR | 11002 | GP011002-011278 | MH011002-000106-060 | MH011002-000109-044 | 8 | CIP | 201.90 |
| WAR | 11002 | GP011002-011385 | MH011002-000119-041 | MH011002-000118-041A | 8 | CIP | 92.29 |
| WAR | 11002 | GP011002-011241 | MH011002-000112-047 | MH011002-000110-046 | 12 | CIP | 135.54 |
| WAR | 11002 | GP011002-011236 | MH011002-000101-053 | MH011002-000103-051 | 8 | CIP | 228.28 |
| WAR | 11002 | GP011002-011232 | MH011002-000097-056 | MH011002-000098-055 | 8 | CIP | 194.94 |
| WAR | 11002 | GP011002-011233 | MH011002-000098-055 | MH011002-000099-054 | 8 | CIP | 165.20 |
| WAR | 11002 | GP011002-011238 | MH011002-000102-050 | MH011002-000104-049 | 8 | CIP | 97.02 |
| WAR | 11002 | GP011002-011270 | MH011002-000095-057 | MH011002-000096-057A | 8 | CIP | 38.87 |
| WAR | 11002 | GP011002-011276 | MH011002-000118-041A | MH011002-000116-040 | 12 | CIP | 38.86 |
| WAR | 11002 | GP011002-011217 | MH011002-000133-036 | MH011002-000132-035 | 8 | CIP | 91.59 |
| WAR | 11002 | GP011002-011218 | MH011002-000132-035 | MH011002-000129-034 | 8 | CIP | 74.47 |
| WAR | 11002 | GP011002-011213 | MH011002-000169-002 | MH011002-000180-001 | 10 | CIP | 222.06 |
| WAR | 11002 | GP011002-011228 | MH011002-000114-043 | MH011002-000113-042 | 12 | DUCTILE_IRON | 16.03 |
| WAR | 11002 | GP011002-011237 | MH011002-000103-051 | MH011002-000102-050 | 8 | CIP | 320.94 |
| WAR | 11002 | GP011002-011222 | MH011002-000122-038 | MH011002-000120-031 | 8 | CIP | 24.33 |
| WAR | 11002 | GP011002-094718 | MH011002-000099-054 | MH011002-087675-053B | 8 | CIP | 125.68 |
| WAR | 11002 | GP011002-011220 | MH011002-000130-033 | MH011002-000128-032 | 8 | CIP | 215.35 |
| WAR | 11002 | GP011002-011230 | MH011002-000128-032 | MH011002-000120-031 | 8 | CIP | 435.80 |
| WAR | 11002 | GP011002-011225 | MH011002-000115-029 | MH011002-000123-028 | 8 | CIP | 279.86 |
| WAR | 11002 | GP011002-011221 | MH011002-000121-039 | MH011002-000122-038 | 8 | CIP | 107.06 |
| WAR | 11002 | GP011002-011240 | MH011002-000111-048 | MH011002-000112-047 | 10 | CIP | 180.13 |
| WAR | 11002 | GP011002-011216 | MH011002-000134-037 | MH011002-000133-036 | 8 | CIP | 107.20 |
| WAR | 11002 | GP011002-011242 | MH011002-000110-046 | MH011002-000108-045 | 8 | DUCTILE_IRON | 106.66 |
| WAR | 11002 | GP011002-011271 | MH011002-000096-057A | MH011002-000097-056 | 8 | CIP | 144.11 |

## Appendix I Locations of Household Cooking Oil and Grease Recycling Centers

### Locations of Household Cooking Oil and Grease Recycling Centers

**Adamsville Pharmacy**
3633 Gray Avenue
Adamsville, AL 35005

**Birmingham Botanical Gardens**
2612 Lane Park Road
Birmingham, AL 35223

**Bessemer Fire Station # 3**
2316 Morgan Road
Bessemer, AL 35022

**Bessemer Fire Station #4**
495 Flint Hill Road
Bessemer, AL 35022

**Bessemer Recycling Center**
1205 15th Avenue North
Bessemer, AL 35020

**Centerpoint - The Pointe Apartments**
1814 Bond Circle
Birmingham, AL 35215

**Gardendale Fire Station #1**
1811 Decatur Hwy.
Gardendale, AL 35071

**Homewood City Works building:**
187 Citation Court
Homewood, AL 35209

**Hueytown City Hall**
1318 Hueytown Road
Hueytown, AL 35023

**Jefferson County re-fueling station**
2420 8th Avenue North
Birmingham, AL 35203

**Leeds Fire Station #2**
8475 1st Avenue SE
Leeds, AL 35094

**Midfield Fire Station**
704 Dr. Martin Luther King Jr. Dr.
Midfield, AL 35228

**North Smithfield Greenleaf Heights**
4635 North Smithfield Drive
Birmingham, AL 35207

**Pinson Rock School Recycling Center**
4509 Center Point Road
Pinson, AL 35126

**Tarrant City Hall**
1604 Pinson Valley Parkway
Tarrant, AL 35217

**Trussville Fire Station #1**
131 Main Street
Trussville, AL 35173

**Trussville Fire Station #2**
7317 Roper Road
Trussville, AL 35173

**Trussville Fire Station #3**
8160 Gadsden Highway
Trussville, AL 35173

**UAB Campus**
620 11th St. South
Birmingham, AL 35233

**Vestavia Hills**
3400 Chestnut Ridge Lane
Vestavia Hills, AL 35216

**Guidelines for household cooking oil and grease recycling:**

- Edible oil products ONLY (cooking oil or grease)
- Allow oil to cool before pouring into container
- Pick up one of our free containers (available at each location) or use your own with a sealed lid; NO GLASS please!
- No fuel or motor oil will be accepted
- Any questions about the recycling program, please call 205-238-3876

# Service Connection and Disconnection Program

**Final**

December 2016

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# Acronyms

| | |
|---|---|
| CMOM | Capacity, Management, Operations, and Maintenance |
| GIS | Geographic Information System |
| I/I | Infiltration and inflow |
| JCESD | Jefferson County Environmental Services Department |
| KPI | Key performance indicator |
| SSO | Sanitary sewer overflow |
| TVI | Television Inspection |

# Service Connection and Disconnection Program

## Program Overview

### Purpose and Goals

The purpose of Jefferson County Environmental Services Department's (JCESD) **Sewer Connection and Disconnection Program** is to:

- Maintain strict control over the introduction of sewage flow into the sewer system from new construction and repaired or replaced service lines.
- Enroll new customers into JCESD's billing system.
- Provide plan review, inspection, core-tapping, and private meter adjustments.

The goals of the **Sewer Connection and Disconnection Program** are to:

- Establish standards and ensure that these standards and other requirements for new services and service line construction, whether public or private, are met.
- Minimize the quantity of infiltration and inflow (I/I) entering the collection system.
- Review designs in a consistent manner and follow protocols for inspection, start-up, testing and approving new construction and repaired service connections.
- Provide core-tapping services for new connections into JCESD sanitary sewer mains.
- Monitor when services are disconnected from the sanitary sewer system and ensure disconnections are completed in compliance with all requirements.

### Program Components and Approach

Components of the **Service Connection and Disconnection Program** are related to the following:

- New Sanitary Sewer Connections
- Sanitary Sewer Service Line Repairs
- Sanitary Sewer Service Line Disconnections
- Sanitary Sewer Main Taps
- Lateral Locates
- Private Water Meter Adjustments

The **Service Connection and Disconnection Program** includes a comprehensive system of legal authority, administrative, management, and documentation activities. The following program elements are described in this program plan:

- A summary of the legal authority that provides the basis for JCESD's sewer connection and disconnection initiatives.
- A discussion of the requirements and work processes associated with each of the program elements.
- A description of the staffing requirements needed to implement each initiative.
- Key performance indicators (KPIs) for tracking and documenting the performance and effectiveness of the **Service Connection and Disconnection Program**.

Quality sanitary service line and sewer connection designs and construction keep the costs and issues associated with operations, maintenance, and construction to a minimum. Awareness of new customers and diligent review of disconnections will enable staff to ensure that the County is properly billing its customer base and receiving the funds necessary to sustain its assets and overall system performance.

# Program Resources

## Related CMOM Program Documents and Other References

Other CMOM Program plans that reference or are referenced in the **Service Connection and Disconnection Program** plan are as follows:

- CMOM Information Management Systems Program
- CMOM Program Organization
- Contingency Planning Program
- Customer Service Program
- Engineering Program (Capacity Assurance Plan)
- Financial Analysis Program
- Legal Support Program
- Line Locate Program

## Staffing

The Sewer Impact Division personnel, including a Chief Civil Engineer, Senior Engineering Inspectors, Sewer Service Inspectors, a Tap Operator, Accounting Assistants, and Administrative Assistants, perform the majority of the work associated with the service connection and disconnection permits, plan reviews, inspections, sewer main taps, and private meter adjustments (For more information, see the **CMOM Program Organization** plan).

Personnel from the Sewer Construction Administration and Line Maintenance Divisions are responsible for identifying and marking the locations of sewer mains in the field. The Television Inspection (TVI) Division is responsible for locating sewer connections in the field. For more information, refer to the **Line Locate Program**.

### Data Management

JCESD staff enters and maintains sewer connection-related information, tied to street addresses, into the Sewer Impact Database. JCESD personnel also use a geographic information system (GIS) based mapping and system inventory to access sewer line record plan information.

For more information on the Sewer Impact Database, see the **Engineering Program** plan. For more information on the computerized maintenance management system, see the **CMOM Information Management Systems Program.**

## Program Implementation

### Legal Authority

JCESD has the legal authority necessary to regulate and enforce the connections to its sanitary sewer system, including residential and commercial customers, satellite systems, and industrial users. The legal authority is described in the following:

- Jefferson County Sewer Use Administrative Ordinance
- Jefferson County Sewer Use Charge Ordinance
- Commercial and Residential Sanitary Sewer System Design and Construction Manual (current version)
- Capacity Assurance Plan (included in the Engineering Program)
- Commercial Project Checklist
- Contracts, service agreements, and other legally binding documents

See the **Engineering Program** plan for more information on the County's sanitary sewer design requirements, construction standards and specifications, and approved materials.

See the **Financial Analysis Program** and **Legal Support Program** plans for more information on permit and inspection fees and JCESD's sanitary sewer billing system.

### New Connections

JCESD's **Commercial and Residential Sanitary Sewer System Design and Construction Manual** (current version) describes the requirements for new sewer construction, including:

- Policies and procedures
- Sewer Impact Permit process
- Sanitary Sewer Connection Permit process and fee schedule
- Sanitary Sewer Tap Fees to Existing Sewers fee schedule
- Commercial development drawing requirements
- Construction specifications

- Material specifications
- Testing and inspection requirements
- Standard details

Sewer Impact and Sewer Connection Permits are required for connection to any portion of the County sanitary sewer system, whether the area served is incorporated or unincorporated, including all municipalities served by the County sanitary sewer system. The calculations associated with the permit fees are delineated in the **Jefferson County Sewer Use Charge Ordinance**. A copy of the Sewer Impact Permit application and an example Sewer Impact Permit are provided in **Appendix A** and **Appendix B**, respectively.

Typically, a licensed plumber or contractor submits a Sewer Impact Permit application and a site utility plan for new connections. Drawings are not required for residential developments. Once the Sewer Impact Division staff has reviewed and accepted the permit application and plans, a Sewer Impact Permit is issued.

A Sewer Connection Permit application and fee must be obtained by a licensed and bonded master plumber, and a Sewer Connection Permit must be issued by ESD before any excavation for the installation of a service line or connection begins. A copy of the Sanitary Sewer Connection Permit application and an example Sanitary Sewer Connection Permit are provided in **Appendix C** and **Appendix D**, respectively. Once the Sanitary Sewer Connection Permit is approved, excavation can begin, the service line installation starts, and an inspection of the connection is then scheduled.

Once the new connection has passed inspection, the Supervising Inspector closes the permits and coordinates with sewer billing to establish a new sewer billing account with the applicable local water company. See the **Financial Analysis Program** and **Legal Support Program** plans for more information on billing.

## Service Line Connection Repair or Replacement

JCESD's **Commercial and Residential Sanitary Sewer System Design and Construction Manual** (current version) describes the requirements for sewer connection repairs, including:

- Policies and procedures
- Sewer Impact Permit process (if required)
- Sanitary Sewer Repair Permit process and fee schedule
- Construction specifications
- Material specifications
- Testing and inspection requirements
- Standard details

Only a Sewer Impact Permit is required if the property is already connected to the sewer system and the work being performed is the addition of plumbing fixtures or restaurant equipment and/or seating and no work is required on the service line. The calculation associated with the Sewer Impact Permit fee is delineated in the **Jefferson County Sewer Use Charge Ordinance**.

A Sanitary Sewer Repair Permit application and fee must be obtained by a licensed and bonded master plumber, and a Sanitary Sewer Permit must be issued by ESD before any excavation for the repair of a service line or connection is started. A copy of the Sanitary Sewer Repair Permit application and an example Sanitary Sewer Repair Permit are provided in **Appendix C** and **Appendix E**, respectively. An inspection of the repair work is scheduled before the work is completed.

Once the sewer connection repair has passed inspection, the Supervising Inspector closes the permit(s) and enters all relevant information into the Sewer Impact Database.

## Service Line Disconnection

When a building is being demolished, JCESD requires the sewer service line to be disconnected before any work commences. If a building is being torn down, relocated, or other reason that would require the service line to be disconnected from the internal plumbing, the service line must be disconnected as close to the main sewer as possible.

JCESD's **Commercial and Residential Sanitary Sewer System Design and Construction Manual** (current version) includes a standard detail for disconnection at the main sewer; however, in some cases this is not feasible. If the main sewer is located under a roadway or sidewalk, the disconnection may occur outside the road or sidewalk, provided that no defects are left in the remaining portion of the service line. In such cases, the location of the disconnection will be determined by the Sewer Service Inspector on a case by case basis.

A Sanitary Sewer Disconnection Permit to disconnect and plug the sewer must be obtained by a licensed demolition contractor or licensed and bonded master plumber, and an inspection must be made by a County Sewer Service Inspector at the time of discontinuance. Copies of the Sanitary Sewer Disconnection Permit (Plug) application and an example permit are provided in **Appendix C** and **Appendix F**, respectively. The fee schedule is listed in the **Jefferson County Sewer Use Charge Ordinance** (current version).

If the demolition contractor damages the service line or main sewer, the contractor will be required to retain a licensed plumber or approved contractor to make the necessary repairs.

## Sewer Taps

As stated in JCESD's **Commercial and Residential Sanitary Sewer System Design and Construction Manual** (current version), Section 5.2.4:

> "All taps to manholes and pipes shall be machine-made taps. Work shall be performed by the ESD staff or by a contractor approved by the ESD."

The actual tapping and connection to the existing County-maintained sewer system is performed by the County's tapping crew, unless written approval for a County-approved contractor to perform the tap is obtained.

An excavation for a sewer tap is made by a plumbing contractor only after a Sanitary Sewer Tap Permit application and fees have been submitted and approved, and the County's tapping crew and inspector have been scheduled to be onsite. The excavation is required to be sufficiently large enough to give ample working room for the tapping crew. The plumbing contractor is solely responsible for safety and conformance with any applicable safety regulations. If the County's tapping crew or County Sewer Service Inspector feels the excavation is unsafe, the plumbing contractor must take the necessary measures to improve the trench conditions to the satisfaction of the County Sewer Service Inspector. The connection must be left visible for inspection after the tap is made, and no backfilling of the connection can be started until the connection has been inspected and approved by the Sewer Service Inspector.

Full requirements for sewer taps and the schedule for sewer tap fees are provided in the **Commercial and Residential Sanitary Sewer System Design and Construction Manual** (current version). Copies of the Sanitary Sewer Tap Permit application and an example permit are provided in **Appendix C** and **Appendix G**, respectively.

## Sewer Main and Service Line (Lateral) Locates

Providing sewer main and lateral location information is an important function of JCESD that ultimately protects the public from serious risk or injury and minimizes interruptions to the performance of its underground assets that may result in sanitary sewer overflows (SSOs). In many instances, JCESD is asked to aid licensed plumbers who are hired to repair service lines for private property owners and residents.

For more information on sewer main and service line locate requests, see the **Line Locate Program** plan.

## Private Meter Program

As shown in the screen capture in **Figure 1**, JCESD's Private Meter Program allows for the installation of a private meter on a water service line at a residence or business. Although primarily used for recording the amount of water used for irrigation, private meters may also measure water use for any fixtures, equipment, or systems that do not discharge wastewater to the sanitary system. Residences or business that install a private meter have an opportunity to have their sewer use fee reduced in proportion with the actual amount of water discharged to the wastewater system. Sewer fees are typically calculated based on water consumption only, which may be disproportionate when large volumes of water are used for irrigation, etc.

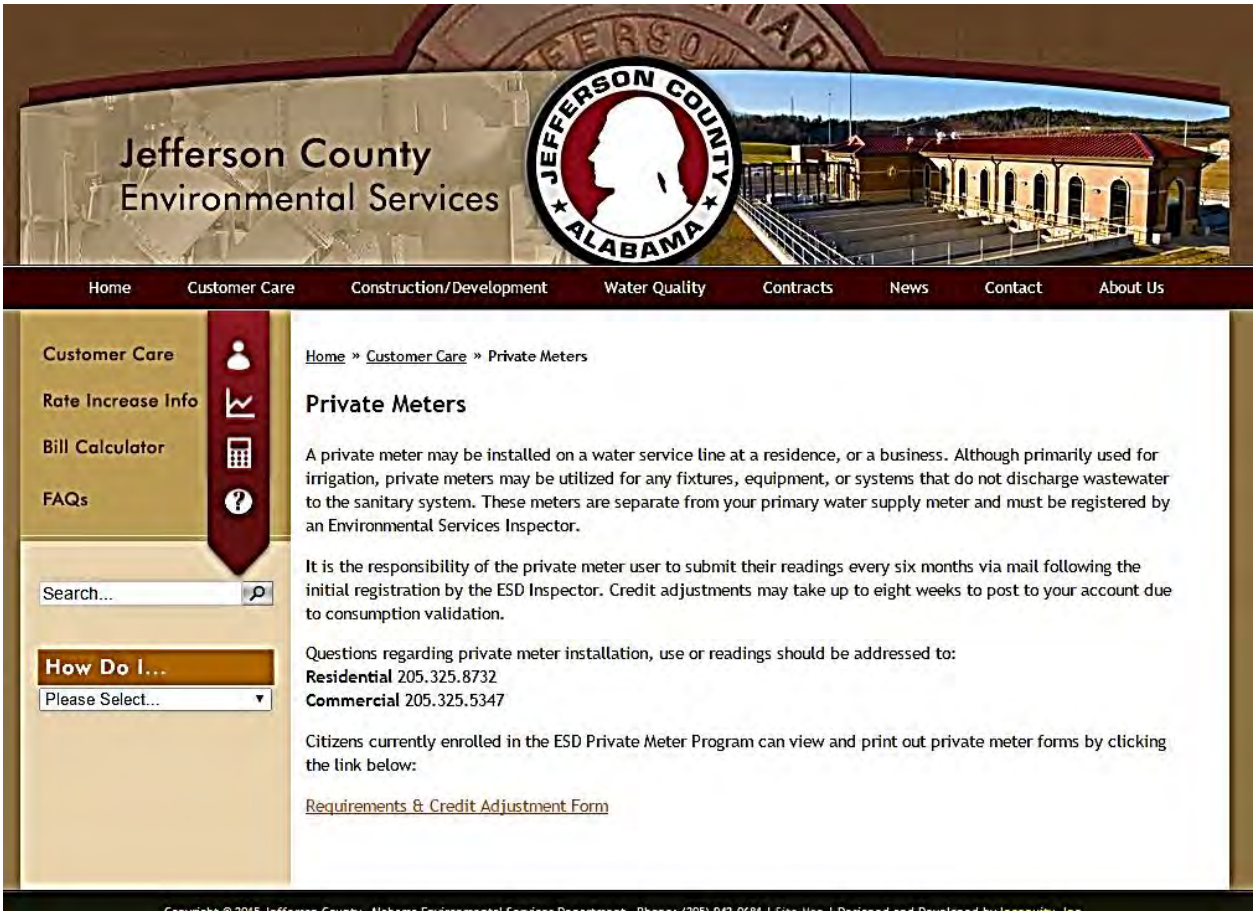


**Figure 1.JCESD Private Meter Webpage**

Private Meter Program requirements are provided in **Appendix H**. After installation, the customer must register the private meter with the JCESD Sewer Impact Office. It is the responsibility of the private meter user to submit their readings every six months via mail following the initial registration by the ESD Inspector. Credit adjustments with local water systems are coordinated by Sewer Impact Office staff, and may take 8 to 12 weeks to post to the customer's account.

For more information on the Private Meter Program and billing rate adjustment process, see the **Financial Analysis Program** and **Legal Support Program** plans**.**

# Program Performance Metrics

Performance measures are important management tools that allow for continuous measurement and evaluation of program activities. Performance measures are designed to collect information that enable JCESD to determine if established goals and level of service are being met and if not, what activities need to be adjusted to meet program goals.

The **Service Connection and Disconnection Program** performance measures established at JCESD are shown in **Table 1**.

**Table 1. Service Connection and Disconnection Program Performance Metrics**

| Performance Measure | Formula | Definition | Desired Result | Data Interval | JCESD Group |
|---|---|---|---|---|---|
| New Service Connections | Value | New sewer service request applications and installations | Value | Monthly/Annual | Impact |
| Sewer Disconnections | Value | Applications for sewer service termination | Value | Monthly/Annual | Impact |
| Sewer Taps | Value | Requests for new sewer taps to existing sewer system | Value | Monthly/Annual | Impact |
| Private Meter Requests | Value | Requests for private meter installation | Value | Monthly/Annual | Impact |

# APPENDIX

## Appendix A Sewer Impact Permit Application

**WORKSHEET FOR IMPACT FEES**
**JEFFERSON COUNTY ENVIRONMENTAL SERVICES**
**716 RICHARD ARRINGTON, JR. BLVD. NORTH SUITE A300**
**BIRMINGHAM, ALABAMA 35203 (205) 325-5138**
**THIS IS NOT A PERMIT**

DATE: __/__/_____ (MM/DD/YEAR)

MUNICIPALITY: _____ ZIP: _____

SITE ADDRESS: _____

_____

OWNER: _____

CONTRACTOR: _____

ADDRESS: _____

CITY/STATE/ZIP: _____

AREA CODE & PHONE #: _____

**LEGAL DESCRIPTION:**

LOT: _____ BLOCK: _____

SURVEY: _____

PARCEL I.D.: _____

SECTION: _____ TWSP: _____ RANGE: _____

**TYPE OF OCCUPANCY:** (Please Check All That Apply)

- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ NEW BUILDING
- ☐ BUILDING ADDITION
- ☐ REMODEL
- ☐ SEPTIC TANK CONVERSION

| FIXTURE TYPE | TOTAL # |
|---|---|
| WATER CLOSETS/TOILETS | |
| BATH TUBS | |
| SHOWERS | |
| LAVATORIES | |
| SINKS | |
| URINALS | |
| WASHING MACHINES | |
| DISHWASHERS | |
| GARBAGE GRINDERS | |
| RESTAURANTS: | |
| SEATS | |
| CONSUMPTIONS | |
| DUMPSTER | |
| OTHER | |
| _____ | |
| **FIXTURES 1/4 VALUE** | |
| FLOOR DRAINS | |
| DRINKING FOUNTAINS | |
| SUMPS-PUMPS-EJECTORS | |
| CONDENSATE DRAINS | |
| **TOTAL FIXTURES:** | |
| **LESS CREDITS** | |
| **IMPACT#/INSPECTOR** | |

**TOTAL FEE DUE:** $ _____

## Appendix B Example Sewer Impact Permit

716 Richard Arrington Jr. Blvd.
Suite A-300

**JEFFERSON COUNTY**
**ENVIRONMENTAL SERVICES**
**SEWER IMPACT PERMIT**

**Impact Permit No.** **108067**
Issued By: SW
Approved By: AA
Date: 11/09/2015

**Connection Address:** 1234 Test Street
**City:** Birmingham
**County:** Jefferson **Zip:** 35203

**Contractor:**
**Address:**
**City:**
**State:** **Zip:**

**Owner:** Jefferson County Commission
**Address:** 716 Richard Arrington Jr., Boulevard North
**City:** Birmingham
**State:** AL **Zip:** 35203

**Legal Description (List only the lot or lots on which the building is situtated)**
**Lot:**
**Block:**
**Survey:** Test Hills
**Qtr:**
**Section:**
**Township:**
**Range:**
**P.I.N.:**

**Type of Occupancy:** Residential
New Building

**ATTENTION! -- THIS IS NOT A SEWER CONNECTION PERMIT. A SEPARATE PERMIT (SEWER SERVICE LINE PERMIT) MUST BE OBTAINED TO INSTALL A SERVICE LINE OR MAKE CONNECTION TO A SANITARY SEWER. Upon installation of fixtures and /or stubouts for fixtures permitted hereby, the undersigned shall immediately notify the County (325-5138) and hereby authorizes the County to inspect the premises for conformity with this impact permit. Any installed fixtures and/or stubouts for fixtures including restaurant and bar seats in excess of those permitted hereby (or by additional permit(s) obtained before the inspection) shall each be assessed at double the standard fixture rate.**

**If failure to make payment hereunder results in legal action, the undersigned agrees to pay all costs and reasonable attorneys' fees of such legal action.**

**Comments and Conditions:**
Basin - Valley Creek
Paid with check # 1234.

**To obtain a full refund of this Impact Fee, you must surrender the Receipt and ALL copies of this Permit issued at time of purchase.**

| Fixture Description | # Fixtures |
|---|---|
| Water Closets | 2.00 |
| Bathtubs | |
| Shower Baths | 2.00 |
| Lavatories | 2.00 |
| Sinks | 1.00 |
| Urinals | |
| Dishwashers | 1.00 |
| Garbage Grinders | 1.00 |
| Washing Machines | 1.00 |
| Restaurants and Lounge Based on No. of Seats | |
| Based on Anticipated Volume | |
| Trailer Pad | |
| Floor Drains | |
| Drinking Fountains | |
| Sumps - Pumps - Ejectors | |
| Air Condition Condensate Drain | |
| Bidet | |
| Commercial Ice Machine | |
| Trench Drain (per 18" of length) | |
| Bradley Wash Sinks (per 18" of perimeter) | |
| Group Shower (per shower head) | |
| Dumpster Drain | |
| Photographic Developing Machine | |
| Autoclave | |
| Other | |
| Other 2 | |
| Other 3 | |
| Other 4 | |
| **Total Equivalent Fixtures:** | 10.00 |
| **Equivalent Fixture Removal Credit:** | 0.00 |
| **Total Fee:** | $2,619.00 |

**This permit covers the impact of additional sewer use at the wastewater treatment plant. This impact is measured using a fixture count; however, this is not a permit to install plumbing fixtures. A separate plumbing permit must be obtained from the proper jurisdiction.**

**Failure of the Permit to comply with any term or condition herein may result in the permittee being denied future permits.**

**I HEREBY CERTIFY AND AFFIRM THAT ALL INFORMATION GIVEN HEREIN IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.**

Signature of Owner or Contractor

WHITE -- County Copy, GREEN -- Field Copy, PINK -- City / County Copy, BLUE -- Owner Copy

## Appendix C Sanitary Sewer Connection, Repair, Tap, and Plug Permit Application

**JEFFERSON COUNTY ESD IMPACT DIVISION**
**716 RICHARD ARRINGTON BOULEVARD NORTH - SUITE A300**
**BIRMINGHAM, ALABAMA 35203**
**PHONE: (205) 325-5138**

**WORKSHEET FOR SEWER CONNECTION PERMITS**

**(PLUMBERS ARE REQUIRED TO SECURE EXCAVATION PERMITS FROM PROPER JURISDICTIONS WHEN ENTERING ROAD RIGHTS OF WAY! NOTE THAT LACK OF EXCAVATION PERMIT MAY VOID INSPECTION!)**

IMPACT # _____ APPROVED BY: _____ DATE: _____

ADDRESS: _____

CITY / STATE / ZIP: _____

SURVEY: _____

PARCEL ID NUMBER : _____

OWNER: _____

DEMOLITION CONTRACTOR: _____

PLUMBING CONTRACTOR: _____

MASTER PLUMBER'S NAME: _____

CONTRACTOR ADDRESS: _____

CITY / STATE / ZIP: _____

CONTRACTOR TELEPHONE: _____

**TYPE OF PERMIT NEEDED:**

Upon signature below, the plumbing company agent affirms acquisition of all municipal excavation and state right of way permits required on site.

_____

SEWER REPAIR _____

SEWER CONNECTION _____

SEWER TAP _____

SEWER PLUG _____

TOTAL PERMIT COST $_____

## Appendix D Example Sanitary Sewer Connection Permit

Approved By: AA
Date: 11/09/2015

**SEWER CONNECTIONS PERMIT**
Jefferson County, AL
Environmental Services Department
716 Richard Arrington Jr. Blvd.
Suite A-300

**Sewer Permit No.** 151774
**Impact Permit No.** 108067
Issued By: SW

**Connection Address:** 1234 Test Street Birmingham Jefferson **Zip Code:** 35203

**Legal Description**

**Lot:** **Block:** **Survey:** Test Hills
**Qtr:** **Section:** **Township:** **Range:**
**P.I.D.:**

**Plumber:**

**Name:** Stephen A. Hoolihan
**Company Name:** AAA Plumbing Company of Butler, AL
**Address:** 311 Desota Road
**City:** Butler **State:** AL **Zip Code:** 36904
**Phone:** (904) 864-4941
**Master Plumber's Card No.:** **Bonded:** YES

**Contractor/Owner:**

**Owner:** Jefferson County Commission
**Address:** 1234 Test Street
**City:** Birmingham **State:** AL **Zip Code:** 35203

**Contractor:**
**Address:**
**City:** **State:** **Zip Code:**
**Phone:**

**Sewer Connection Fees:**

| | |
|---|---|
| Sewer Connection Permit | $58.21 |
| **Total Amount Due:** | $58.21 |

**Comments:**
Basin - Valley Creek
Paid with check # 1234.

* *Note: If a sewer tap is required, contact Jefferson County Sewer Permitting and Inspections office 24 hours in advance.*
* *Excavation Permit required if digging in County Right-of-Way*
* *This permit authorizes the permittee to excavate, install, repair, or connect a single sewer service line from a new or existing building or home at the connection address stated herein directly to a sewer main located on an adjacent public sanitary sewer easement. This permit does not authorize the permittee or any other person to enter upon, disturb, or perform said work upon adjacent private property.*

**I HEREBY CERTIFY AND AFFIRM THAT ALL INFORMATION GIVEN HERIN IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.**

Signature of Plumber

WHITE Copies -- County

CANARY -- Plumber

## Appendix E Example Sanitary Sewer Repair Permit

Approved By: AA
Date: 11/09/2015

**SEWER CONNECTIONS PERMIT**
Jefferson County, AL
Environmental Services Department
716 Richard Arrington Jr. Blvd.
Suite A-300

**Sewer Permit No.** 151774
**Impact Permit No.** 108067
Issued By: SW

**Connection Address:** 1234 Test Street Birmingham Jefferson **Zip Code:** 35203

**Legal Description**

**Lot:** **Block:** **Survey:** Test Hills
**Qtr:** **Section:** **Township:** **Range:**
**P.I.D.:**

**Plumber:**

**Name:** Stephen A. Hoolihan
**Company Name:** AAA Plumbing Company of Butler, AL
**Address:** 311 Desota Road
**City:** Butler **State:** AL **Zip Code:** 36904
**Phone:** (904) 864-4941
**Master Plumber's Card No.:** **Bonded:** YES

**Contractor/Owner:**

**Owner:** Jefferson County Commission
**Address:** 1234 Test Street
**City:** Birmingham **State:** AL **Zip Code:** 35203

**Contractor:**
**Address:**
**City:** **State:** **Zip Code:**
**Phone:**

**Sewer Connection Fees:**

| | |
|---|---|
| Sewer Repair Permit | $58.21 |
| **Total Amount Due:** | $58.21 |

**Comments:**
Basin - Valley Creek
Paid with check # 1234.

* *Note: If a sewer tap is required, contact Jefferson County Sewer Permitting and Inspections office 24 hours in advance.*
* *Excavation Permit required if digging in County Right-of-Way*
* *This permit authorizes the permittee to excavate, install, repair, or connect a single sewer service line from a new or existing building or home at the connection address stated herein directly to a sewer main located on an adjacent public sanitary sewer easement. This permit does not authorize the permittee or any other person to enter upon, disturb, or perform said work upon adjacent private property.*

**I HEREBY CERTIFY AND AFFIRM THAT ALL INFORMATION GIVEN HERIN IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.**

Signature of Plumber

WHITE Copies -- County

CANARY -- Plumber

## Appendix F Example Sanitary Sewer Disconnection (Plug) Permit

Approved By: AA
Date: 11/09/2015

**SEWER CONNECTIONS PERMIT**
Jefferson County, AL
Environmental Services Department
716 Richard Arrington Jr. Blvd.
Suite A-300

**Sewer Permit No.** 151774
**Impact Permit No.** 108067
Issued By: SW

**Connection Address:** 1234 Test Street Birmingham Jefferson **Zip Code:** 35203

**Legal Description**

**Lot:** **Block:** **Survey:** Test Hills
**Qtr:** **Section:** **Township:** **Range:**
**P.I.D.:**

**Plumber:**

**Name:** Stephen A. Hoolihan
**Company Name:** AAA Plumbing Company of Butler, AL
**Address:** 311 Desota Road
**City:** Butler **State:** AL **Zip Code:** 36904
**Phone:** (904) 864-4941
**Master Plumber's Card No.:** **Bonded:** YES

**Contractor/Owner:**

**Owner:** Jefferson County Commission
**Address:** 1234 Test Street
**City:** Birmingham **State:** AL **Zip Code:** 35203

**Contractor:**
**Address:**
**City:** **State:** **Zip Code:**
**Phone:**

**Sewer Connection Fees:**

| | |
|---|---|
| Sewer Disconnection Permit (Plug) | $29.10 |
| **Total Amount Due:** | $29.10 |

**Comments:**
Basin - Valley Creek
Paid with check # 1234.

* *Note: If a sewer tap is required, contact Jefferson County Sewer Permitting and Inspections office 24 hours in advance.*
* *Excavation Permit required if digging in County Right-of-Way*
* *This permit authorizes the permittee to excavate, install, repair, or connect a single sewer service line from a new or existing building or home at the connection address stated herein directly to a sewer main located on an adjacent public sanitary sewer easement. This permit does not authorize the permittee or any other person to enter upon, disturb, or perform said work upon adjacent private property.*

**I HEREBY CERTIFY AND AFFIRM THAT ALL INFORMATION GIVEN HERIN IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.**

Signature of Plumber

WHITE Copies -- County CANARY -- Plumber

## Appendix G Example Sanitary Sewer Tap Permit

Approved By: AA
Date: 11/09/2015

**SEWER CONNECTIONS PERMIT**
Jefferson County, AL
Environmental Services Department
716 Richard Arrington Jr. Blvd.
Suite A-300

**Sewer Permit No.** 151774
**Impact Permit No.** 108067
Issued By: SW

**Connection Address:** 1234 Test Street Birmingham Jefferson **Zip Code:** 35203

**Legal Description**

**Lot:** **Block:** **Survey:** Test Hills
**Qtr:** **Section:** **Township:** **Range:**
**P.I.D.:**

**Plumber:**

**Name:** Stephen A. Hoolihan
**Company Name:** AAA Plumbing Company of Butler, AL
**Address:** 311 Desota Road
**City:** Butler **State:** AL **Zip Code:** 36904
**Phone:** (904) 864-4941
**Master Plumber's Card No.:** **Bonded:** YES

**Contractor/Owner:**

**Owner:** Jefferson County Commission
**Address:** 1234 Test Street
**City:** Birmingham **State:** AL **Zip Code:** 35203

**Contractor:**
**Address:**
**City:** **State:** **Zip Code:**
**Phone:**

**Sewer Connection Fees:**

| | |
|---|---|
| Sewer Tap Permit | $174.61 |
| **Total Amount Due:** | $174.61 |

**Comments:**
Basin - Valley Creek
Paid with check # 1234.

* *Note: If a sewer tap is required, contact Jefferson County Sewer Permitting and Inspections office 24 hours in advance.*
* *Excavation Permit required if digging in County Right-of-Way*
* *This permit authorizes the permittee to excavate, install, repair, or connect a single sewer service line from a new or existing building or home at the connection address stated herein directly to a sewer main located on an adjacent public sanitary sewer easement. This permit does not authorize the permittee or any other person to enter upon, disturb, or perform said work upon adjacent private property.*

**I HEREBY CERTIFY AND AFFIRM THAT ALL INFORMATION GIVEN HERIN IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.**

Signature of Plumber

WHITE Copies -- County CANARY -- Plumber

## Appendix H Private Meter Program Information

### Private Meter Requirements

Private meters are secondary water meters that are permanently installed on the water line by the customer, at the owners' expense, to measure non-sewer uses such as lawn irrigation systems, pools, etc. (Note: portable meters that screw onto the end of hose bib or faucet are not allowed.)

After installation, the meter must be registered by a Jefferson County Environmental Services Sewer Service Inspector. The meter credit will start from the initial reading of the meter at the time of inspection. Credit is not retroactive. It is the responsibility of the homeowner, or business owner to inform Jefferson County of a private meter installation and request an inspection on that meter.

It is the responsibility of the homeowner, or business owner to read the meter and submit the reading on the proper private meter form to the Jefferson County Environmental Services Department, located at 716 Richard Arrington, Jr. Boulevard North - Suite A-300, Birmingham, Alabama 35203.

The homeowner, or business owner, or person responsible for reading the meter must be present at the time of registration.

The applicable form that is to be submitted must be filled out completely in order to be processed properly. Failure to do so may result in the form being returned to you for completion. Readings should be submitted every 6 months, but not more frequently than every 6 months. A processing fee shall be administered at each submission. This processing fee will be deducted from credit issuance. Do not send cash or check for this fee. Please allow 12 weeks to credit your Water Works account.

Note: All residential (single family dwellings) are normally charged at 85% of their consumption. Those who choose to register a private meter will be charged at the 100 % rate, but will receive an adjustment for the amount of water use through the private meter at their respective intervals of submission. Also note: Each time service is transferred the private meter must be registered to receive credit.

Please call the Sewer Impact Office at 205-325-5801 for initial registration.

## Jefferson County Environmental Services Department

### Private Meter Reporting Form

Please complete form in its entirety and allow 12 weeks for your account credit

Mail To: Sewer Impact Office
716 Richard Arrington, Jr. Boulevard North
Suite A-300
Birmingham, Alabama 35203

(PLEASE DO NOT MAIL WITH WATER BILL)
Phone: 325-8732--Residential
Phone: 325-5347--Commercial

From:

NAME: _____ DAYTIME PHONE: _____

BUSINESS NAME: _____

ADDRESS: _____

CITY: _____ ZIP CODE: _____

NAME OF WATER PROVIDER: _____

WATER/SEWER BILL ACCOUNT # _____

PRIVATE METER # _____

PRESENT METER READING (GAL-CF) _____

PREVIOUS METER READING (GAL-CF) _____

NET (GAL-CF) _____

The above figures are for the period between the dates of:

_____ AND _____
Month / Day / Year Month / Day / Year

PLEASE SUBMIT A READING EVERY SIX MONTHS & BE SURE TO INCLUDE ALL NUMBERS EXACTLY AS INDICATED ON YOUR PRIVATE METER DIAL/FACEPLATE WITH RESPECT TO ANY FIXED ZEROS. CREDITS ARE LIMITED TO ONE RETROACTIVE YEAR PER THE JEFFERSON COUNTY SEWER USE ORDINANCE, AND PURSUANT TO ALABAMA STATE LAW.

# Line Locate Program

## Final

December 2016

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# Acronyms

| | |
|---|---|
| CCTV | Closed-circuit television |
| CMMS | Computerized maintenance management system |
| CMOM | Capacity, Management, Operations, and Maintenance |
| GIS | Geographic Information System |
| IMS | Information management system |
| JCESD | Jefferson County Environmental Services Department |
| KPI | Key performance indicator |
| SOP | Standard operating procedure |
| SSO | Sanitary sewer overflow |
| TVI | Television inspection |

# Line Locate Program

## Program Overview

### Purpose and Goals

The purpose of the **Line Locate Program** is to:

- Receive, record, and respond to sewer main and service connection location requests

The goals of the **Line Locate Program** are to:

- Provide information, as accurately as possible, on the location of the County's sanitary sewer mains for designers, contractors, plumbers, private property owners, and residents associated with related infrastructure work.
- Assist plumbers, contractors, and private property owners in identifying the locations of privately-owned sanitary sewer service lateral connections to the County's sewer mains.

### Program Components and Approach

The Jefferson County Environmental Services Department (JCESD) **Line Locate Program** primarily addresses the following types of requests:

- Planning-level location requests
- Sewer line location requests made prior to excavation
- Service line location requests made by plumbers, contractors, and private property owners

For more information on sanitary sewer planning and design requirements, see the **Engineering Program** plan. For more information on service connections, see the **Service Connection and Disconnection Program**.

The **Line Locate Program** includes a comprehensive system of administrative, management, and documentation activities. The following program components are described in this program plan:

- The ways in which requests for line locations are submitted to JCESD.
- Methods used by JCESD personnel to identify and provide information on the locations of sewer mains and connections.
- Key performance indicators (KPIs) for tracking and documenting the performance and effectiveness of the **Line Locate Program** initiatives.

Providing sewer main location information is a critical function of JCESD that ultimately protects the public from serious risk or injury, and minimizes interruptions to the performance of its underground assets that may result in sanitary sewer overflows (SSOs). JCESD is not a member of the Alabama 811 one-call utility locating service; however, JCESD provides sewer line locate services at no-charge. This

program provides a vital service to designers, utilities, contractors, plumbers, private property owners, and residents.

For more information on the services provided by JCESD Surveying personnel to locate, ground truth, and verify discrepancies in GIS attributes, see the **Engineering Program** plan.

# Program Resources

## Related CMOM Program Documents and Other References

JCESD developed standard operating procedures (SOPs) for various CMOM-related job duties. Copies of the internal inspection via closed-circuit television (CCTV) equipment-related SOPs are provided in the JCESD's **Standard Operation Procedures and Work Process Documentation for Field Operations.**

For more information on Safety Training Resources, see the **Safety Program** plan.

Other CMOM Program plans that reference or are referenced in the **Line Location Program** plan are as follows:

- CMOM Program Organization
- Customer Service Program
- Engineering Program
- CMOM Information Management Systems (IMS) Program
- Legal Support Program
- Safety Program
- Service Connection and Disconnection Program

## Staffing

Requests for sewer main locations that are faxed or emailed to JCESD are received and processed by the Office of Sewer Construction. Some plumbers and contractors email the Office of Sewer Construction or Sewer Impact Division staff directly. On occasion, request forms that are submitted at the Customer Service counter are processed by Construction Administration staff.

Requests for sewer mains to be marked in the field are processed by Construction Inspection Division inspectors (positions shown in the 7214 Inspection Division organization chart in the **CMOM Organization Program** plan).

Requests for the location of sewer laterals may be made in person at the Mapping Division Counter, through emails or phone calls, or through the JCESD website. Mapping Division personnel, who report to the Chief Civil Engineer overseeing the Mapping and Plans Review Division, will provide available as-built information where lateral stations are documented. If as-built information is not available, the Mapping Division will contact the Television Inspection (TVI) or Line Maintenance Divisions to locate and mark the sewer lateral connection to the main line in the field.

**Figure 1** shows the process flow diagram for receiving and addressing requests for sewer service lateral locations.

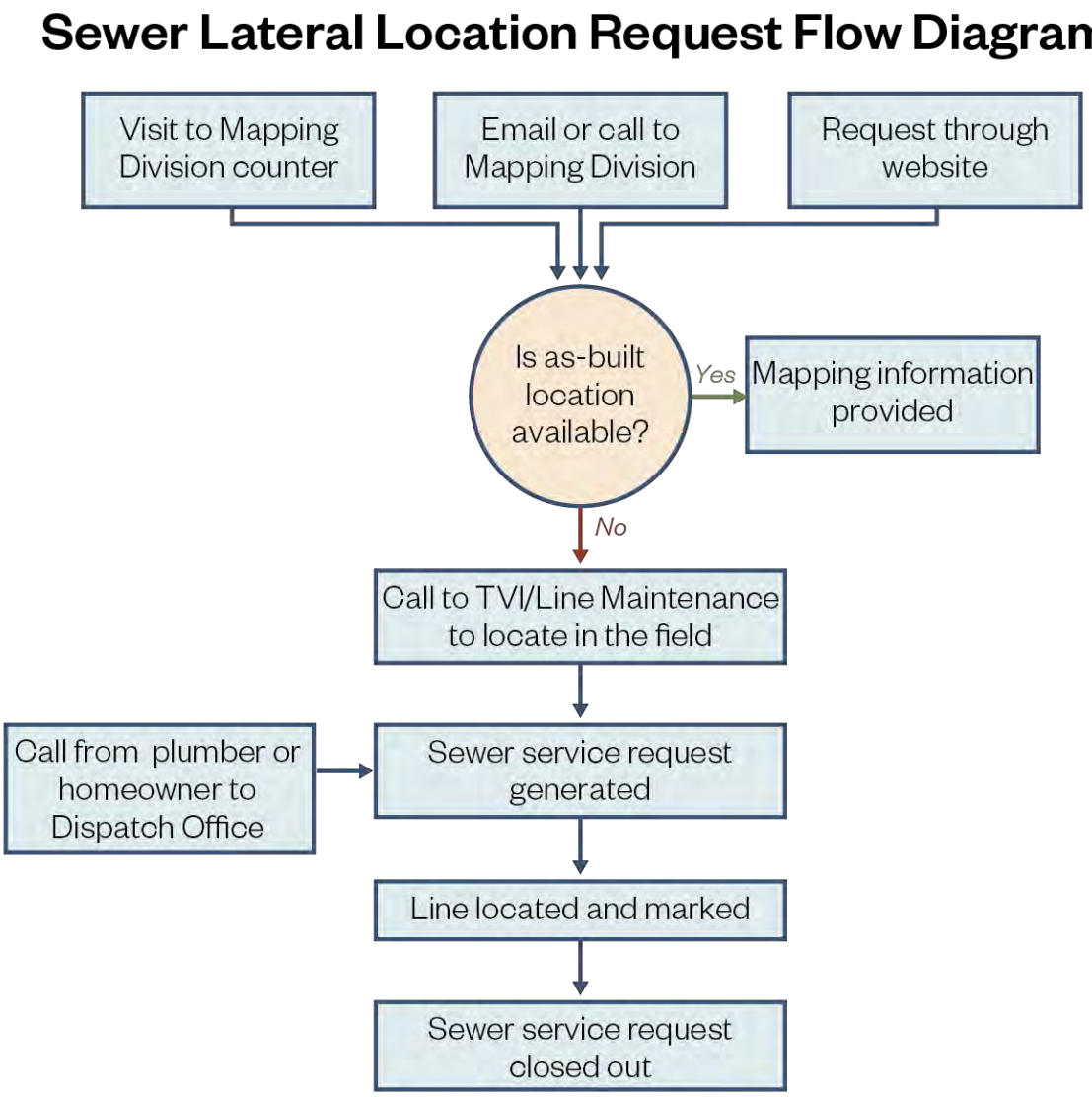



**Figure 1.Sewer Lateral Location Request Flow Diagram**

## Data Management

Sanitary Sewer Main Location Request Forms and verbal requests for lateral locations are not tracked.

Service requests to locate sewer mains and laterals in the field are entered into the Cityworks computerized maintenance management system (CMMS). Work orders are generated by field crews once the work associated with the line location work is completed (i.e., TVI inspection and any necessary line maintenance work to find a service connection).

For more information on Cityworks, see the **CMOM Information Management Systems Program** plan.

# Program Implementation

## Sewer Main Location Requests Prior to Excavation

As shown in **Figure 2**, JCESD's website provides information on Sewer Main Line Locate requests. The public can request that a sewer main be located prior to excavation by completing a Jefferson County Locate Request Form (see **Appendix A**) and faxing the form to (205) 325-5698, or emailing it to sewerlocate@jccal.org. All requests for this type of line locating, including calls to the 24-hour Emergency Contact telephone number, are routed to the Office of Sewer Construction Administration.

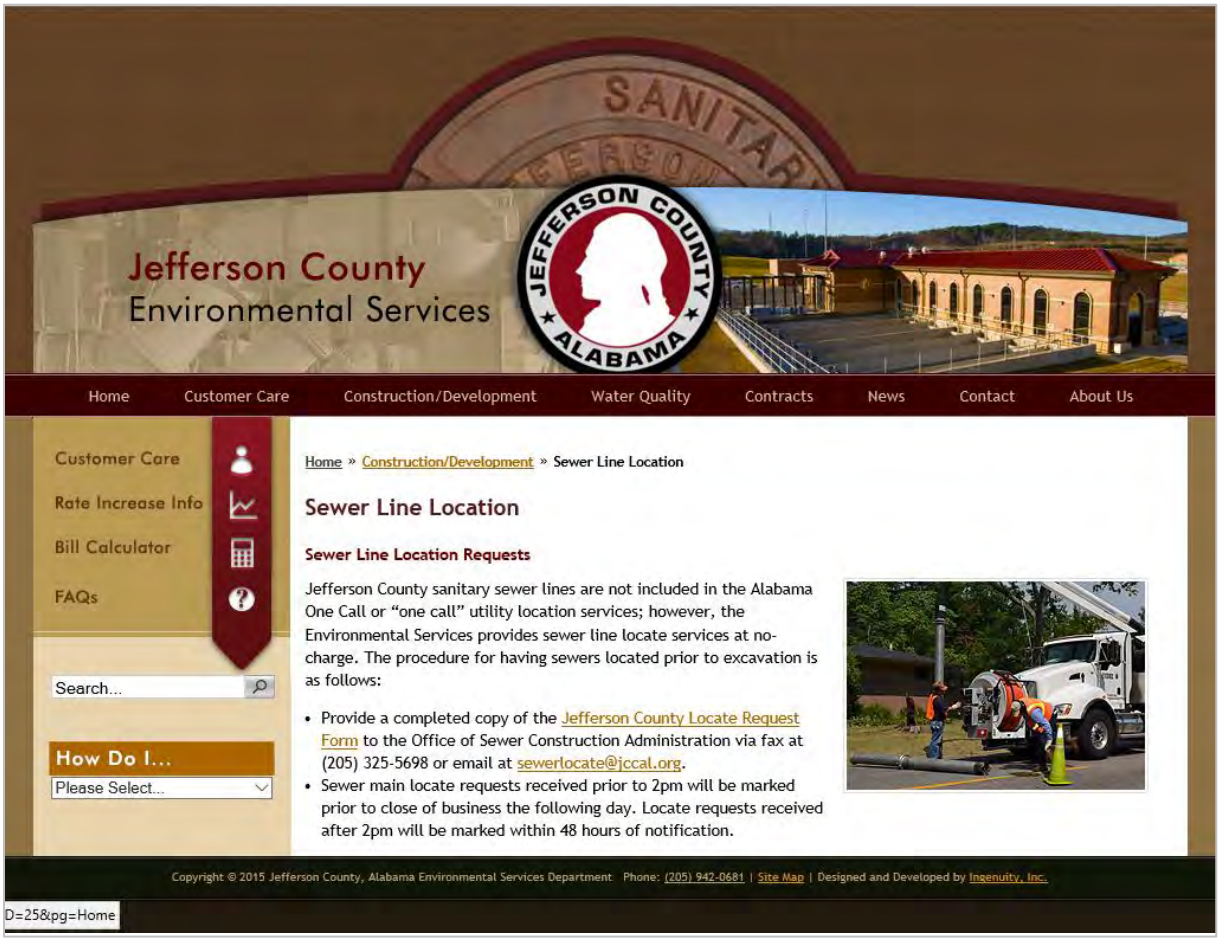



**Figure 2.JCESD Sewer Line Location Webpage**

JCESD staff give a verbal disclaimer for all line locations provided: "This is what our records indicate. We have received these records from other parties. We cannot guarantee this information."

The Construction Inspector assigned to mark the sewer main uses a geographic information system (GIS) based mapping and system inventory to access record plan information. Sewer Line Locate requests received prior to 2:00 pm are marked by a Construction Division Inspector prior to the close of business on the following business day. Locate requests received after 2:00 pm on Fridays are marked within 48-hours of notification.

If necessary, the Construction Inspector will request assistance from the TVI personnel or Surveyors to locate the line to be marked.

## Planning-Level Service Line Location Requests

Requests for service line location information that are not urgent are frequently received and processed by Sewer Impact Division personnel. These requests may be made in writing, via a phone call, or through an email. Some of these requests are made in person at the Mapping Division Counter in the County Courthouse, and are handled by available staff.

If as-built location information is available for a sewer lateral connection, the requester will be provided with the upstream manhole station, downstream manhole station, and lateral station. A GIS Plan view or record plan and profile sheet may be printed out and given to the customer for a fee, if requested.

For more information on the County's public records policy, see the **Legal Support Program** plan.

## Sewer Connection Locations Identified by TVI Inspection

As detailed in **Table 1**, JCESD receives a high volume of service requests for locating service lines utilizing TVI Inspection. The majority of these calls are made by plumbers. In addition, requests to locate sewer connections to the main line may be initiated by the Mapping Division.

**Table 1. Number of Service Requests for Locating Service Lines, January 2010 – September 2015**

| Year | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|
| **Month** | **Number of Service Requests for Service Line Locates** | | | | | |
| January | 14 | 23 | 18 | 32 | 26 | 32 |
| February | 18 | 34 | 20 | 30 | 29 | 18 |
| March | 23 | 10 | 23 | 30 | 32 | 27 |
| April | 30 | 16 | 18 | 18 | 27 | 27 |
| May | 15 | 23 | 16 | 31 | 29 | 22 |
| June | 18 | 18 | 15 | 16 | 31 | 23 |
| July | 23 | 10 | 18 | 28 | 24 | 17 |
| August | 19 | 24 | 24 | 34 | 28 | 26 |
| September | 13 | 19 | 30 | 23 | 23 | 36 |
| October | 28 | 27 | 31 | 31 | 25 | 50 |
| November | 17 | 15 | 10 | 42 | 22 | 21 |
| December | 3 | 14 | 24 | 31 | 20 | 28 |
| **Total** | **221** | **233** | **247** | **346** | **316** | **327** |

An example Service Line Location Service Request is provided in **Appendix B**.

For more information on how the service requests are received and responded to, see the **Customer Service Program**.

Sewer Service Requests (work orders) for locating service lines via CCTV inspection are routed to the TVI Sewer Video Operations Supervisor, who schedules the inspection work. Although TVI crews' schedules are priority-driven, in most cases the location inspection can be completed within a 2-week period. Priority is given to customers experiencing a service disruption. For more information on how the inspection is performed, see the **Standard Operation Procedures and Work Process Documentation for Field Operations** manual.

The TVI Sewer Video Operations Supervisor is responsible for providing the location information to the requestor. The field crew completes the work order and turn it into the Dispatch office. A Dispatcher will close out the service request.

## Program Performance Metrics

Performance measures are important management tools that allow for continuous measurement and evaluation of program activities. Performance measures are designed to collect information that enable JCESD to determine if established goals and level of service are being met and, if not, what activities need to be adjusted to meet program goals.

Data currently tracked includes the following:

- Number of Sewer Main Locate Request forms received per month
- Number of TVI-related line locate requests received per month
- Average time to complete service line locate sewer service requests

In most cases, and depending on TVI crews' schedule priorities, sewer line location requests are targeted be completed within a 2-week period.

The success and effectiveness of these efforts can be evaluated by reviewing the following:

- How many sewer mains are located in the field
- How many service connections are located via CCTV inspection
- How many non-urgent location requests are processed

The **Line Locate Program** performance measures established at JCESD are shown in **Table 2**.

**Table 2. Line Locate Program Performance Metrics**

| Performance Measure | Formula | Definition | Desired Result | Data Interval | JCESD Group |
|---|---|---|---|---|---|
| Sewer Line Locate Prior to Construction Requests | Value | Number of Requests made for Sewer Line Location prior to construction activity in vicinity of Sewer Assets | Value | Monthly | Construction |
| Sewer Line Locates Prior to Construction Response | Value | Response time to locate and close out requests for Sewer Line Locate prior to Construction >48 hours | 0 | Monthly | Construction |
| Sewer Line Locate Requests for Planning | Value | Number of requests made for Sewer Line Location during planning for construction activity | Value | Monthly | Construction |

# APPENDIX

## Appendix A Sanitary Sewer Main Locate Request Form

**JEFFERSON COUNTY ENVIRONMENTAL SERVICES DEPARTMENT**
**SANITARY SEWER LOCATE REQUEST FORM**

DATE OF REQUEST: _____

TYPE OF UTILITY WORK BEING PERFORMED: _____

CONTRACTOR NAME: _____

CONTRACTOR ADDRESS: _____

CONTRACTOR CONTACT PERSON: _____

CONTACT PERSON PHONE NUMBER: _____

PROPOSED DATE OF WORK: _____

**PROJECT AREA MAP**

SKETCH OR ATTACH LOCATION DIAGRAM SHOWING ADDRESS
AND/OR INTERSECTION AND BOUNDARIES/LIMITS OF WORK

JEFFERSON COUNTY ENVIRONMENTAL SERVICES DEPARTMENT
OFFICE OF SEWER CONSTRUCTION
PHONE: 205.325.5127
FAX: 205.325.5981
EMAIL: SEWERLOCATE@JCCAL.ORG

## Appendix B Example Locate and Mark Service Lateral Sewer Service Request



# Jefferson County, Alabama
# Environmental Services Department
# Sewer Service Request

| | | |
|---|---|---|
| **Request Number:** 1052060 | **Map Page:** 41-H16 | **Service Priority:** Medium Low |
| **Code:** Locate Service Line | **Description:** Locate and Mark Service Lateral | **Associated WO Number:** |
| **Problem Address:** 1708 34TH STREET, BIRMINGHAM 35208 | | |
| | | |
| **Date / Time Reported:** 10/16/2015 2:37:33 PM | **Date Submitted:** | **Tile No.:** VALLEY CREEK |
| **Intitiated By:** ODEN, JANICE | **Dispatched To:** CREW, 73DONALDP | **Date Dispatched:** 10/19/2015 10:55:00 AM |
| **Submitted To:** | | **Number of Calls:** 1 |

| Customer Call # | First Name | Last Name | Address | | Apt. # |
|---|---|---|---|---|---|
| 1053627 | CHRIS | CHRIS ROOTER | 1708 34TH STREET | | |
| **City** | **Zip** | **Home Phone** | **Work Phone** | **Other Phone** | **Date & Time Of Call** |
| BIRMINGHAM | 35208 | | | | 10/16/2015 2:36:44 PM |
| **Customer Email** | | | **Cell Phone** | **Fax Phone** | |
| | | | 205-746-3071 | | |

| | |
|---|---|
| **Closed By:** HOPKINS, KIM | **Closed Date/Time:** 10/19/2015 3:04:08 PM |
| **Was Customer Contacted?** N | **Name of Customer Contacted:** |

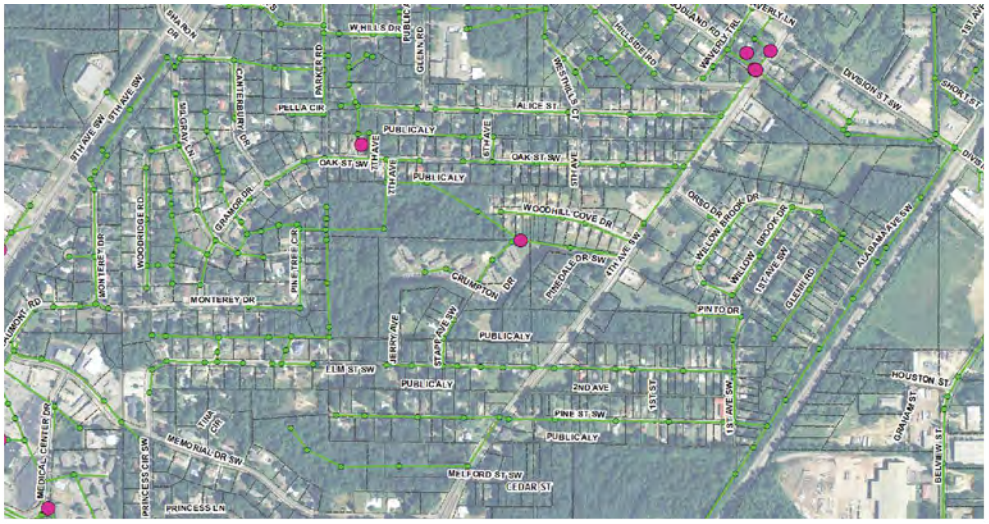
**Customer Comments:** LOCATE & MARK CONNECTION
**Location Details:**
Problem Details:

**Custom Fields**

| Custom Field Names | Custom Field Value |
|---|---|
| | |

**Existing Service Request Comments**: By HOPKINS, KIM: 10/19/2015 3:04:06 PM
CREW ARRIVAL TIME @ 10:55 AM
CAMERA 8 INCH CLAY PIPE DOWNSTREAM 422 FEET, NO PROBLEMS IN THE MAIN.
LOCATED & MARKED CONNECTION @ 89 FEET DOWNSTREAM FROM MH 1076-005G20A, CONNECTION IS OPEN & OK @ THE MAIN

# Maintenance
















# Gravity Line Preventative Maintenance Program

**Final**

December 2016

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# Acronyms

| | |
|---|---|
| ADEM | Alabama Department of Environmental Management |
| AWPCA | Alabama Water Pollution Control Act |
| CCTV | Closed-circuit television |
| CEO | Construction Equipment Operator |
| CMMS | Computerized maintenance management software |
| CMOM | Capacity, Management, Operations, and Maintenance |
| CSSAP | Continuous Sewer System Assessment Program |
| FOG | Fats, oils, and grease |
| GIS | Geographic Information System |
| GLPMP | Gravity Line Preventative Maintenance Program |
| gpm | Gallons per minute |
| HEO | Heavy Equipment Operator |
| IMS | Information management system |
| JCESD | Jefferson County Environmental Services Department |
| LF | Linear feet |
| MH | Manhole |
| NASSCO | National Association of Sewer Service Companies |
| NPDES | National Pollutant Discharge Elimination System |
| OEM | Original equipment manufacturer |
| OSARP | Ongoing Sewer Assessment and Rehabilitation Program |
| PACP | Pipeline Assessment and Certification Program |
| psi | Pounds per square inch |
| PTO | Power take-off |
| QA/QC | Quality assurance and quality control |
| SL-RAT | Sewer Line Rapid Assessment Tool |
| SOP | Standard operating procedure |
| SSO | Sanitary sewer overflow |
| SSORRP | Sanitary Sewer Overflow Response and Reporting Program |
| TVI | Television inspection |
| WWTP | Wastewater treatment plant |

# Gravity Line Preventative Maintenance Program

## Program Activities

### Purpose and Goals

The ultimate goal of the **Gravity Line Preventive Maintenance Program (GLPMP)** is to support the Jefferson County Environmental Services Department's (JCESD) ongoing compliance efforts with its National Pollutant Discharge Elimination System (NPDES) permits and the Alabama Water Pollution Control Act (AWPCA) and the Federal Clean Water Act. Under the Code of Alabama 1975 AWPCA, as amended, the WATER DIVISION – WATER QUALITY PROGRAM, Volume I, Division 335-6, Section 335-6-6-.12, Conditions Applicable to all NPDES Permits, established, among other provisions, a requirement to provide proper operation and maintenance. The provision in subparagraph (e) reads as follows:

> (e) Proper Operation and Maintenance - The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of the permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities only when necessary to achieve compliance with the conditions of the permit.

By implementing a program that locates and removes roots, debris, fats, oils, and grease (FOG), and repairs damaged pipe and manholes, JCESD will maintain the capacity of its collection system; minimize system surcharges, building backups, and sanitary sewer overflows (SSOs); and ensure the sustainability of the gravity system infrastructure.

### Program Components and Approach

The **GLPMP** is a compilation of activities that incorporate preventive maintenance concepts to locate and address defects in the JCESD collection system, such as pipe obstructions and defects that may lead to blockages and pipe collapses that have the potential to cause collection system surcharges, backups or SSOs. The **GLPMP** plays an important role in maintaining system capacity by outlining a framework for clearing obstructions and identifying potential condition problems requiring rehabilitation or replacement, in addition to maintaining the capacity of the sewer system and preventing overflows.

This program is designed to improve operation, efficiency, and effectiveness of the sewer system; maintain the integrity of the sewer gravity lines and manholes; and reduce or prevent sewer overflows and other performance exceptions caused by system deficiencies. GLPMP activities will also help extend the life of the gravity collection system and assist JCESD in planning for capital improvements to focus operations and capital investments in higher risk areas first.

Key components of the **GLPMP** include:

- Pipe cleaning and debris removal
- Root control
- TV inspection
- Acoustic testing to determine the degree of pipe obstruction prior to cleaning
- Manhole raising and manhole cover and lid repair and replacement
- Certain pipeline point repairs

JCESD's collection system consists of approximately 3,064 miles of gravity sewers as described in JCESD's **CMOM Program Organization** plan. JCESD maintains gravity sewers throughout its entire service area. Typically, JCESD crews clean 6-inch to 15-inch diameter sewers and inspect pipe up to 18-inch diameter. However, JCESD crews are equipped with machines that are capable of cleaning up to 36-inch diameter pipe and internally inspecting up to 24-inch diameter pipe. For larger diameter pipes or pipe segments that experience high flows or are located in densely trafficked areas, JCESD may contract out cleaning and inspection services.

The JCESD **Continuous Sewer System Assessment Program (CSSAP)**, described in the **Engineering Program** plan, is a key element of assessing the sanitary sewer collection system to identify defects that could contribute to backups and SSOs. That program, along with the **Ongoing Sewer Assessment and Rehabilitation Plan (OSARP)** will provide the justification to prioritize GLPMP efforts.

# Program Resources

## Related CMOM Program Documents and Other References

JCESD has developed standard operating procedures (SOPs) for sewer line maintenance and inspection that reflect industry best practice protocols adopted by the organization. These documents are designed to promote similar operation practices between crews using similar equipment, improved effectiveness, and more uniform data collection. Copies of the SOPs are provided in the JCESD's **Standard Operation Procedures and Work Process Documentation for Field Operations.**

JCESD field personnel are an integral part of SOP development. SOPs are developed using a consensus-based process designed to introduce new technology and/or best practice methods by engaging operators to think through various operational issues and make recommendations on how best to accomplish them safely and effectively. Through this process, SOPs become a tool linked into the training program to hone skills of current personnel, provide a standard means to cross train personnel functions, and help formalize on-the-job training when onboarding new personnel.

Successfully engaging field personnel in this process increases safety awareness, improves operational efficiency and effectiveness, and broadens the ability to adopt new technologies. JCESD will continue to develop and refine SOPs and written work process documentation for the processes used in sewer line maintenance and inspection.

Policies and procedures observed when responding to and reporting SSOs are detailed in JCESD's **Sanitary Sewer Overflow Response and Reporting Program (SSORRP)** plan. For more information on gravity line maintenance-related safety issues, see the **Safety Program** plan.

Other CMOM Program plans that reference or are referenced in the **Gravity Line Preventive Maintenance Program** plan are as follows:

- CMOM Information Management Systems (IMS) Program
- CMOM Program Organization
- Customer Service Program
- Contingency Planning Program
- Corrosion Control Program
- Engineering Program (includes CSSAP description)
- Equipment and Supplies Program
- Fats, Oils, and Grease (FOG) Management Program
- Line Locate Program
- Maintenance of Way Program
- Pretreatment Program
- Service Connection and Disconnection Program
- Training Program

## Staffing

JCESD staff assigned to various departments are responsible for gravity sewer line maintenance, pipeline and manhole inspection, acoustic testing, manhole raising, and some pipe point repairs, as follows:

- Chief Civil Engineers assigned to Department 7100 administer the Line Maintenance and Construction activities.
- Day-to-day operations of the Line Maintenance crews are led by the Sewer Construction/Maintenance Supervisor in Department 7250.
- Day-to-day operations of the Construction crews are led by the Sewer Construction/Maintenance Supervisor in Department 7230.
- Gravity line preventive maintenance work is performed by staff in Department 7252 Village Line Maintenance, 7253 Shades Line Maintenance, and Department 7270 TV Inspection.

For more information on the departments involved with the **GLPMP** initiatives, see the Organizational Charts provided in the **CMOM Program Organization** plan.

Staff positions within Line Maintenance and Construction are shown in **Table 1**.

**Table 1. Line Maintenance and Construction Positions**

| Line Maintenance | Construction |
|---|---|
| Chief Civil Engineer (Department 7100) | Chief Civil Engineer (Department 7100) |
| Sewer Maintenance/Construction Supervisor | Sewer Maintenance/Construction Supervisor |
| Administrative Clerk | Administrative Clerk |
| Communication Operator II | Construction Supervisor |
| Principal Engineering Inspector | Construction Equipment Operator |
| Sewer Service Inspector | Heavy Equipment Operator |
| Public Works Inspector | Bridge Maintenance Worker |
| Construction Equipment Operator (CEO) | Truck Driver |
| Heavy Equipment Operator (HEO) | Labor Supervisor |
| Video Operations Supervisor | Skilled Laborer |
| CCTV Technician | Laborer III |
| Video Supervisor | Laborer II |
| Video Specialist | |

Line Maintenance and Construction crews operate five days a week in eight-hour shifts. If required, work is completed after regular business hours or during weekends using overtime.

Line Maintenance and Construction staff are located in separate facilities to provide a high level of coverage and Department management within the County. The JCESD administrative offices (Department 7100) are located in the Jefferson County Courthouse, 716 Richard Arrington Jr. Blvd North, Birmingham. The administrative functions for JCESD are performed in this office, which houses the Chief Engineers responsible for the Line Maintenance and Construction Divisions.

Line Maintenance and Construction personnel are located at two facilities, the Shades Valley Complex (Oak Grove Road, Birmingham, AL 35209) and the Village Creek Wastewater Treatment Plant (WWTP) Facility (Pleasant Hill Road, Birmingham, AL 35244).

## Shades Valley Complex

The Line Maintenance Division Administration personnel (Department 7250) are located at the Shades Valley Complex (1295 Oak Grove Road). This group is responsible for oversight of the Village Line Maintenance and Shades Line Maintenance field activities, Television Inspection (TVI), Call Center and Dispatch staff and operation, and SSO reporting and tracking.

Shades Line Maintenance personnel (Department 7253, 1299 Oak Grove Road) are responsible for pipe cleaning, service request response, manhole cover/frame maintenance, and backup and SSO response for the southern and eastern portions of the JCESD service area.

The Shades Line Maintenance yard includes a dedicated building with offices for the field Supervisor and staff. Hydraulic cleaners and portable equipment can be stored in a large garage area closed to the weather. A workshop area is provided for light repairs and tool adjustments. Secured inventory storage to support daily operations is maintained. A large yard area provides storage for equipment infrequently used and materials inventory to support manhole frame and cover adjustment and replacement work.

Personnel assigned to TVI (Department 7270, 1296 Oak Grove Road) are also located at the Shades Valley Complex, and are responsible for all CCTV inspection operations, including scheduled pipe inspection and associated pipe cleaning, support for other departments, contractor support, service connection location, and SSO investigations throughout the service area.

TVI personnel are housed in a dedicated building with offices for the Video Operations Supervisor and field staff. CCTV inspection vans and hydraulic cleaners assigned to TVI can be stored in a large garage area closed to the weather. A workshop area is provided for light repairs and tool adjustments. Secured tool inventory storage to support daily activity is maintained. A secured inventory of critical parts to support camera inspection equipment and a CCTV Technician is located in the building performing this work in-house when possible.

### Village Creek WWTP Facility

Line Maintenance and Construction staff are located at the Village Creek WWTP facility and work out of separate yards. Village Line Maintenance (Department 7252, 1474 Pleasant Hill Road) personnel are responsible for pipe maintenance, manhole frame and cover repairs, and backup and SSO response for the northern and western portions of the Jefferson County collection system. Construction (Department 7230, 1470 Pleasant Hill Road) personnel are responsible for performing certain high priority pipe repairs.

The Village Line Maintenance yard includes two dedicated buildings with offices for the field Supervisor and staff. Hydraulic cleaners and portable equipment can be stored in a large garage area closed to the weather. A workshop area is provided for light repairs and tool adjustments. Secured inventory storage to support daily operations is maintained. A yard area adjacent to the garage provides storage for equipment and a storage container is used to secure materials needed for manhole frame and cover adjustment and replacement work.

The Construction yard includes two dedicated buildings with offices for the field Sewer/Construction Maintenance Supervisor, administrative clerk, and field staff. Response service trucks and portable equipment are housed in a large garage closed to the weather. A workshop area is provided for light repairs and tool adjustments. Secured inventory to support operations are maintained in the two buildings.

A storage/parking area is maintained for dump trucks, heavy equipment, and trailers used in construction operations. A large covered area is under construction to provide protected storage of consumable construction materials, pipe inventory, bypass pumps and hose, trench boxes, and prefabricated manhole components.

## Data Management

### Mapping

Mapping information from the County's geographic information system (GIS) is available to field crews through the cloud-based field tablets. The tablets connect to the County server, are easy to setup and manage, and function exactly like a PC, running enterprise software and standard Windows® desktop applications.

The GIS mapping application shows the components of the collection system that include:

- Sewer main, trunk and interceptor pipes
- Manhole and cleanout locations
- Pressure pipe and related pump stations
- Streets, property lines, and service area boundaries

GIS mapping is used extensively by field crews in locating manholes and system components in poor light or weather conditions and to confirm the pipe and manhole ID numbers for reporting purposes. For more information on collection system mapping and GIS, see the JCESD **Engineering Program** plan.

### Computerized Maintenance Management System (CMMS)

Service requests are created when the Call Center receives calls from customers requesting service, or from other JCESD work groups requiring assistance. Service requests are transferred to a crew through Dispatch and are responded to appropriately. When work results from a service request, a work order is created to document the work and the service request number is attached for tracking.

Work orders are completed by field crews and electronically transferred to Dispatch. Dispatchers review each work order for accuracy, enter the appropriate data into JCESD's CMMS, and close out the work order. JCESD utilizes Cityworks asset management/work order management system to generate and track work orders and service request assignments.

JCESD crews are assigned electronic tablets to create work orders and record data from field activities. Sewer cleaning data captures the sub-basin number, the upstream and downstream manhole, and pipe asset ID number of pipes cleaned. A standardized cleaning form, which documents the type and estimated amount of material removed during cleaning has been developed.

For more information on service requests, see the JCESD **Customer Service Program**, and for more information on work orders, see the **CMOM IMS Program**.

## Training

Best practice ideology for pipe cleaning has changed considerably over the past several years and now utilizes more advanced technology and formalized protocols. Best practice protocols will continue to drive the need for higher end technology in equipment, tooling, and data capture and management.

JCESD has developed a long-term operator training program to provide the necessary level of training for onboarding new personnel and keeping existing personnel current as new practices and technology are adopted. The formal training program is tiered to address the goals, policies, and practices through classroom and hands-on field training for personnel.

JCESD's Operator Training program provides training in individual and group settings on a variety of topics including, but not limited to, the following:

- SSORRP and emergency response
- Environmental awareness
- Traffic safety
- Safety and situational awareness
- Jobsite logistics
- Data and record keeping
- Assessing cleaning findings
- Manhole inspection
- Proper tool use protocols
- Equipment operation and maintenance
- Bypass pumping
- Inventory management and control
- SOP evaluation and development
- Certification exam preparation
- Collection system and construction mathematics

JCESD has identified mandatory and recurrent training needs of personnel in the organization and provides recurring safety and pipeline assessment training opportunities for field personnel. For more information, see the **Training Program** plan.

## Operator Certification

Certification for collection system operators in Alabama is available through the Alabama Department of Environmental Management (ADEM). JCESD understands that certification is a feature of best practice organizations that provide a higher level of training and competency for field personnel and supervisory staff. JCESD provides opportunities for personnel to become certified in the State certification program.

## Safety

JCESD considers safety to be a top priority in field operations and continually makes improvements to field safety equipment and standards. Field supervisors conduct routine field crew visits to observe the jobsite and discuss and/or correct any safety concerns. JCESD has initiated several safety related programs and processes to better ensure personnel are protected and have the necessary equipment to perform their work safely and effectively. Among programs that have been put in place are:

- Standardization of traffic management devices and deployment, creating a much higher visibility on roadways for construction and line maintenance operations.
- Provisions for a steel toed shoe annual allowance for all field personnel that encourages routine replacement of footwear.
- Use of trenching and shoring equipment on all construction jobsites, regardless of estimated depth, to increase trench safety.
- Standardization of work practices in line maintenance, which improves safety awareness.

JCESD is developing a safety plan and related program for its field and supervisory personnel. For more information, see the **Safety Program** plan.

## Equipment

JCESD maintains a fleet of vehicles specifically used for line maintenance, including:

- Single function high velocity flushing machines (known as "jet wash trucks")
- Combined function high velocity flushing/vacuum machines (known as "combination cleaners" or "combo trucks")
- Vans equipped with closed circuit television (CCTV) inspection equipment (known as TVI vans)
- Combined use flatbed trucks that carry hand rodding equipment and tools and materials used for manhole raising.

**Table 2** lists the JCESD maintenance groups and the types of equipment that is used by each group.

**Table 2. Type of Collection System Maintenance Equipment Used by Line Maintenance Groups**

| Group | Jet Wash Trucks | Combo Trucks | TVI Vans | Rod Trucks | Manhole Trucks |
|---|---|---|---|---|---|
| 7252 Village Line Maintenance | X | X | | X | X |
| 7253 Shades Line Maintenance | X | X | | X | |
| 7270 Sewer Video Operations | X | X | X | | |

In addition, Line Maintenance and TVI utilize pickup trucks, all-terrain vehicles and a variety of small equipment for specialized use (i.e., bypass pumping, easement access). For more information, see the JCESD **Equipment and Supplies Management Program.**

## Hydraulic Cleaning Equipment

Hydraulic cleaning refers to the use of water under pressure to operate nozzles that deliver a powerful jet spray or can turn rotating tools in the pipe to scour sedimentary debris, FOG, and cut roots from pipes. Vacuum cleaning refers to the use of air conveyance systems that draw air through a long induction tube designed to lift sand, gravel, rock, grit, sludge, or slurry from pipes or large underground structures.

JCESD's jet wash and combo trucks are typically equipped with a 1,500-gallon water tank for the flushing system and approximately 600 feet of 1-inch diameter sewer cleaning hose on a powered, articulating reel. The pump is powered by a chassis power take-off (PTO) system, generating between 65 gallons per minute (gpm) at 2,000 pounds per square inch (psi) to 80 gpm at 2,500 psi, depending on the truck.

**Figure 1** shows a jet wash truck staffed by a crew of two: a HEO and a Skilled Laborer. The jet wash truck has the capability to clean 6-inch diameter to 30-inch diameter pipe; however, most routine cleaning is performed in 6-inch to 12-inch diameter pipe. Jet wash trucks are used primarily for scheduled routine maintenance throughout the JCESD service area.




**Figure 1. JCESD Jet Wash Truck**

This equipment is also used when responding to customer service requests generated through the Call Center and Dispatch staff, and responds to Supervisor support requests. This equipment is frequently used when crews respond to SSO reports and blockage-related service requests.

**Figure 2** shows a combo truck staffed by a crew of two: a CEO and a Skilled Laborer. This equipment is equipped with water flushing and vacuum systems. The water flushing system has the capability of cleaning 6-inches to 30-inch diameter pipes. The vacuum system has debris storage capacity of 7-yards. Debris removed with the vacuum system is offloaded at the Five Mile Creek WWTP facility.



**Figure 2. JCESD Combo Truck**

This equipment is primarily used when debris removal is anticipated. Most work performed with this equipment is scheduled siphon cleaning, pump station wet well cleaning and providing support during WWTP tank cleaning. Combo trucks may also be used when responding to SSO and blockage-related service requests.

JCESD field crews are responsible for light maintenance of the hydraulic cleaners, in accordance with the original equipment manufacturer (OEM) recommendations and JCESD SOPs. Light (field) maintenance includes routine checks/cleaning of water tank strainers, greasing bearings and components on the cleaning equipment in accordance with OEM intervals, equipment and chassis fluid checks, and notifying the Supervisor if the equipment or chassis has mechanical issues.

The Jefferson County Fleet Management Division performs all chassis maintenance on a scheduled basis, and performs repair work as needed by the equipment. Cleaning equipment maintenance requiring specialized tools or significant time to complete may also be done by the Fleet Management Division or referred to a local dealer as necessary. For more information, see the **Equipment and Supplies Management Program**.

## Mechanical Cleaning Equipment

Mechanical cleaning refers to the use of a series of mechanically connected metal rods, that are turned by hand or machine to rotate tools designed to cut and remove roots and other materials from pipes. This equipment is used primarily for responding to customer service requests. It is also used to clean pipes located in areas where jet wash or combo trucks cannot easily access.

**Figure 3** shows a Rod Truck. These trucks are staffed with and carry a crew of four: a Labor Supervisor, two skilled laborers, and a Laborer III. Hand rodding equipment is capable of cleaning 6-inch to 12-inch diameter pipe, with most routine work performed in 6-inch to 8-inch pipe. Hand rodding equipment on these trucks include a rod reel holding approximately 350 feet of connected sectional steel rod, assorted tools, and a rod turning machine (gas powered) to use in pipes when hand turning cannot be used.




**Figure 3. JCESD Rod Truck**

Rodding utilizes tools designed for specific material removal mounted on a string of mechanically connected steel rods. The rods are fed into the sewer pipe and are pushed, pulled, or turned by hand whenever possible. If the material is heavy, or the pipe condition reduces the ability of personnel to turn the rod by hand, a gasoline powered Rod Turning Machine is used. Special tools can cut and remove roots, FOG, and stubborn materials, such as rags and non-woven fabric (disposable wipes), that do not break down in wastewater. This equipment can be very effective in blockage relief.

In addition to performing hand rod cleaning and service request response, flatbed trucks are outfitted with the tools and materials necessary to perform manhole frame and cover adjustment/replacement on a scheduled basis, at the direction of the Sewer Service Inspector.

During warm months, some rod trucks are outfitted with mowing and weed maintenance equipment to perform scheduled junction box mowing and other services to augment easement maintenance operations.

JCESD crews assigned to these trucks are responsible for light maintenance of the rod turning machine and/or mowing equipment, replenishment of materials and fuel used the previous day, and inventory condition. Jefferson County Fleet Management Division performs all chassis maintenance on a scheduled basis and performs repair work as necessary. For more information, see the JCESD **Equipment and Supplies Management Program**.

## TV Inspection Equipment

**Figure 4** shows a TVI van staffed with a crew of two, a Video Supervisor and a Video Specialist. This equipment has the capability to inspect 6-Inch to 24-Inch diameter pipe. The TVI van houses camera inspection equipment and operation systems in the rear of the van, and is equipped with an operator cabin that houses a computer, printer, and other items.

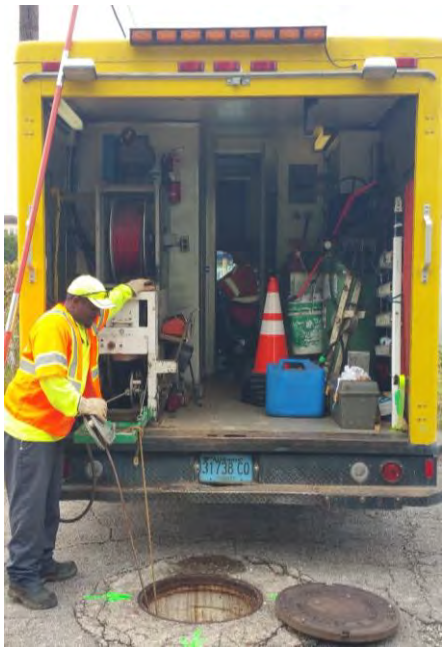

**Figure 4. JCESD TVI Van**

JCESD has standardized equipment and tools on board the TVI vans. The CCTV camera is equipped with pan/tilt capabilities, mounted on a wheeled transporter that can be adjusted for different pipe sizes, allowing the operator in the TVI van to remotely maneuver the camera transporter and/or rotate the camera lens to view and capture desired imagery for accurate determination and coding of a given defect or problem. An on-board computer system provides real-time defects coding to be captured during the inspection, and can be used to generate a report and electronically transfer the data. For additional information on the inventory carried on the TVI Vans, see the **Equipment and Supplies Management Program**.

JCESD TVI crews are responsible for routine field maintenance of the camera system components, in accordance with the OEM recommendations and JCESD SOPs. Light field maintenance includes routine checks of the cable and connections, greasing of camera system components, cleaning the camera and

transporter between each use and at the end of the day, and notifying the Supervisor if the equipment or chassis has mechanical issues.

Jefferson County Fleet Management Division performs all chassis maintenance and repair work. Some camera and camera system component service work is done in-house by the CCTV Technician, or is shipped to the OEM for service when necessary. For more information, see the JCESD **Equipment and Supplies Management Program**.

## Tools

Each cleaning and inspection vehicle is supplied with an array of tools required to do the tasks assigned. For a complete listing of tools and supplies carried on each maintenance vehicle, see the **Equipment and Supplies Management Program** plan.

In keeping with industry best practice, JCESD standardized the tool inventories used on like equipment and adopted new technologies to improve the pipe cleaning and point repair activities. The standardization process was done through an extensive evaluation and assessment process conducted by field staff. JCESD personnel performed an integral role in the equipment standardization process, similar to the SOP development process. Tools carried into the field were assessed and a determination was made on what tools would be in the standard inventory and what tools and equipment would be available at each jobsite.

JCESD initiated the standardization process with the evaluation of cleaning nozzles and functions to improve the effectiveness of pipe cleaning. Nozzle technology improvements over recent years have introduced designs that have expanded the effectiveness of hydraulic cleaners in difficult cleaning applications. Engineered nozzle technology provides a wide selection of nozzles with different water jet patterns and spinning tools having very specific functions.

An assessment of cleaning issues not being well met with existing nozzles was performed, which included:

- Root removal
- Hardened FOG deposit and other caked material removal
- Sag pipe hardened debris removal

An evaluation of different nozzle technology was made using TVI support, and nozzles having the greatest impact on these issues were issued to crews. Instead of having only one or two different nozzles, or many similar nozzles on each truck, the nozzle “Kit” was reduced to five different nozzles, each with specific cleaning functions. Training on these functions included a change in nozzle cleaning speeds in the pipe to a much slower rate. Subsequent CCTV inspections in pipes known to have the cited issues were performed on a random basis to verify the effectiveness of the new technology and operation procedures. Subsequently, the nozzles were added to the standard inventory and SOPs changed to reflect the new use protocols.

Inventory standardization enables any operator to use any truck from any yard to perform cleaning and/or response duties efficiently and effectively using the same tools system wide. Tool inventory is managed at each facility using a minimum/maximum supply spreadsheet, allowing facility managers to assess what inventory items have a predictable consumption so that ordering can become more automated and is adjustable for items easily obtained or require long lead time to receive.

For additional information on the standardized inventory, see the **Equipment and Supplies Management Program** plan**.**

# Program Implementation

Each year, JCESD's goal is to clean a certain percentage of its sewer collection system through the GLPMP. A risk/consequence analysis of critical areas is used to establish cleaning and/or inspection frequencies. Some pipe sections require a higher cleaning frequency than others due to pipe history, root cause analysis of SSOs and blockages, and routine television inspection.

## Gravity Sewer Inspection and Assessment

The JCESD **CSSAP**, as described in the **Engineering Program** plan, defines the implementation of an ongoing inspection and assessment program to identify defects in the system that scores and prioritizes system maintenance needs. The **GLPMP** consists of ongoing cleaning and assessment efforts, as well as high frequency cleaning in areas that are more prone to accumulation of roots, FOG, and debris that may contribute to SSOs and backups.

Elements used to determine focus areas of the **GLPMP** include:

- Sewer pipe CCTV inspection
- Manhole inspection
- Small diameter gravity sanitary sewer acoustic inspection

The ongoing assessment of the gravity system is of ultimate importance for identifying preventive maintenance needs in the system. This is performed by pipe and manhole inspections to assess conditions of the conveyance system. These procedures are further defined in the **CSSAP**.

## CCTV Pipe Inspection

The evaluation of detailed CCTV inspection data will further define pipeline defects so that maintenance or rehabilitation work can be appropriately prioritized for the collection system. The use of TVI assessment data is further described in the **CSSAP**.

CCTV inspection defect coding is standardized. Operators are trained in the National Association of Sewer Service Companies (NASSCO) Pipeline Assessment and Certification Program (PACP) coding system to standardize coding entries between operators and to support repair/rehabilitation/ replacement priority evaluation. Procedures for CCTV inspection are defined in the "CCTV Sewer Inspection Practices and NASSCO PACP Coding - Inside CCTV Van" and "CCTV Operational Practices Outside the Van" SOPs maintained in the **JCESD Standard Operation Procedures and Work Process Documentation for Field Operations** manual.

The Video Operations Supervisor schedules inspections based on the following priorities:

- Service requests for service connection locates due to service interruption
- SSO investigation
- Engineering support inspection
- Construction/contractor support locating/marking pipes requiring point repair
- Lateral locates for non-emergency use
- Pipe condition assessments of County pipes having no recent (10 years) record of inspection

TVI crews create work orders for each inspection during the day and generate a report of the inspection. During inspections, defects are coded as they are encountered. If materials in the pipe prevent the camera from continuing, have a potential to hide defects, or standing water in sags has to be lowered, a wash truck is called in to clean and/or dewater the pipe. Typically an inspection is completed from manhole to manhole, even in instances where a specific repair location is all that is necessary. If an inspection cannot be completed from upstream, efforts are made to complete the inspection of the balance of the pipe from the downstream manhole.

TVI crews provide investigation inspections for SSO and backup events. For information on SSO response, see the JCESD **SSORRP**.

Inspection data and work orders are collected by the Supervisor at the end of the shift and recorded in a spreadsheet to update the pipe condition assessment map. Inspection data is forwarded to the Inspection Division where pipe defects are reviewed and appropriate repair/rehabilitation/replacement work is assigned to the Construction Division or to outside contractors. Work orders are forwarded to Dispatch for review, entry into the CMMS, and closing.

## Acoustic Inspection

JCESD recently started to use an acoustic inspection tool (InfoSense's Sewer Line Rapid Assessment Tool or SL-RAT) to identify pipe blockages and assess how this information can best be used in the collection system maintenance prioritization process.

The SL-RAT tool exploits the similarities and differences between water and sound transmission through a pipe segment to assess obstructions within a pipe. As shown in **Figure 5**, an acoustic transmitter and receiver are placed within manholes (above the water surface), and the low frequency sound waves generated at the transmitter propagate from the speaker to the receiving microphone located at the adjacent manhole.




**Figure 5. SL-RAT Concept and Operational Procedure**

In a clean pipe segment, the acoustic waves propagate naturally. Commonly encountered sanitary sewer defects such as roots, grease, and sags with absorb or reflect acoustic energy. These defects change a pipe segment's acoustic properties and produce a measurable impact on the received signal. The signal represents the pipe segment's acoustic profile; this profile changes over time as the conditions within the pipe segment change. The acoustic profile is evaluated to obtain two assessment criteria: SL-RAT Blockage Assessment and SL-RAT Measurement Confidence. These criteria are used to classify the sewer segment's condition on a numeric scale (1 to 10), where 1 is fully obstructed and 10 is unobstructed.

The objective of the SL-RAT Acoustic Inspection Program is to assess the aggregate obstruction within a 6- to 12-inch diameter gravity sewer pipe segment (baseline), and to use the baseline and subsequent test data to define the progression of partial-to-complete obstruction within a pipe segment over time.

Appropriate goals for an SL-RAT Acoustic Inspection Program involve using the valuable information to enhance cleaning operations in many ways, including, but not limited to, aiding with the following determinations:

- Whether a sewer pipe scheduled for cleaning actually needs to be cleaned.
- Whether an assigned sewer cleaning work order was performed effectively.
- Whether the condition of sewer pipe scheduled to be internally re-inspected has changed over time, and whether the sewer pipe should be re-inspected.
- Whether FOG prevention measures undertaken by a specific sewer user are effective.

The SL-RAT is a predictive maintenance tool that contributes to the development of a results-based cleaning program. Pipes showing a low numerical score will be cleaned and another inspection made to secure the acoustic footprint of the pipe for future use and comparison. JCESD will also use this tool to assist in pipe cleaning frequency adjustments.

For more information on the application of this tool, see the JCESD **Engineering Program** plan.

## Pipe Cleaning

As stated previously, JCESD crews are equipped to clean gravity sewer pipe that is 6- to 36-inch in diameter. This section describes how pipe cleaning activities are scheduled, performed, assessed, and recorded.

## Scheduling

Cleaning crews perform routine scheduled cleaning from assigned lists of prioritized pipes generated from the **CSSAP**. For more information on the **CSSAP**, see the **Engineering Program** plan.

Pipe cleaning intervals can range from high frequency cleaning (1-month to 12-month intervals) to much longer intervals. Additional or unscheduled cleaning work during the shift may be assigned via Service Requests from the Call Center and Dispatch staff, or Supervisor direction in support of TVI or other Divisions.

The determination of how often a specific pipe segment should be cleaned (referred to as a "cleaning frequency") may be made by one or more of the following methods:

- Performing an assessment of the historical performance of a pipe (complaints, field reports, or history of SSO or blockages).
- Identifying the root cause of a sewer surcharge as part of SSO investigations to be a pipe obstruction such as FOG build up, root intrusion, or debris deposition.
- Observing FOG, roots, and debris deposition in manholes that is likely originating from upstream of the structure.
- Assessing CCTV inspection data that indicates FOG build up, root intrusion, or debris deposits.
- Acoustic inspection screening that indicates obstructions within a specific pipe segment.
- Characterization of materials removed from pipes during cleaning.

As pipe conditions can change over time due to repairs/rehabilitation, FOG discharge compliance upstream, and other circumstances, a method to track the quantity and type of material removed from a specific pipe segment during the cleaning process has been adopted. This cleaning debris quantification process is useful in determining if assigned cleaning frequencies of specific pipes are appropriate.

To facilitate this process, JCESD crews use debris traps (see **Figure 6**) to capture material removed from pipes during cleaning for assessment.



**Figure 6. Debris Trap Used to Capture Material During Pipe Cleaning**

Quantifying materials removed during cleaning is an effective way to assess if cleaning frequency is too high, low, or properly set. JCESD has developed a Cleaning Findings Scale to characterize what is found during the cleaning process. Materials removed from the pipe during cleaning are trapped at the downstream manhole, removed, assessed for type and amount using the scale, recorded, and the material disposed.

For more information on use of debris traps and cleaning findings, see the hydraulic and mechanical cleaning SOPs and the Cleaning Findings Scale provided in the JCESD **Standard Operation Procedures and Work Process Documentation for Field Operations** manual.

Changes will be made to cleaning frequencies based on the number of cleanings that record amounts lower or higher than anticipated. For example, one finding of "heavy" will advance a pipe cleaning to the next higher frequency. Multiple findings of "clear" or "light" will push a pipe cleaning to the next longer frequency. This process is designed to slowly move pipes into the best frequency, as determined by findings, without undue risk of service interruption.

JCESD will use cleaning findings data to make cleaning frequency adjustments to pipes on the preventive maintenance schedule.

#### *Unimproved Easement Access*

Cleaning pipes in unimproved easements poses two distinct challenges: access to manholes and the type of equipment that can be used to clean pipe. Currently, there is an easement clearing crew that uses specialized equipment to clear easements for manhole access. For more information on easement clearing activities, see the JCESD **Maintenance of Way Program** plan.

### Hydraulic Cleaning

Hydraulic cleaning represents the majority of preventive maintenance pipe cleaning performed in the JCESD collection system. Standard procedures for hydraulic cleaning are further defined in the Wash Truck and Combination Truck SOPs maintained in the JCESD **Standard Operation Procedures and Work Process Documentation for Field Operations** manual.

Hydraulic cleaners also respond to SSO and blockage calls. For information on processes for SSO response, see the JCESD **SSORRP**.

### Mechanical Cleaning

As described previously, mechanical cleaning is used for assigned preventive maintenance cleaning work, service request response, root removal in pipes that are difficult for hydraulic cleaning equipment to access, and SSO and blockage response. Mechanical cleaning is scheduled based on priority and areas of concern. Routine mechanical cleaning will be completed in conjunction with acoustic inspection prior to and after cleaning activities and CCTV inspections.

Procedures for mechanical cleaning are further defined in the Hand Rodding and Rod Turning Machine Pipe Cleaning SOPs maintained in the JCESD **Standard Operation Procedures and Work Process Documentation for Field Operations** manual.

For information on the use of mechanical cleaning equipment (rod turning machines and hand rods) to remove blockages and respond to sewer surcharges and SSOs, see the JCESD **SSORRP.**

### Pipe Cleaning Quality Assurance/Quality Control (QA/QC)

QA/QC CCTV inspections are currently performed on a random basis, following pipe cleaning activities, to assess cleaning operations. JCESD will continue to monitor cleaning work and tool effectiveness with this process. The SL-RAT tool used to develop acoustic footprints of specific pipes will also be used for QA/QC purposes to assess the performance of cleaning crews.

## Root Control Program

The goal of JCESD's root control program is to limit root intrusion sufficiently to prevent significant capacity reductions and SSOs. Root intrusion is a significant cause of SSOs and backups in sanitary sewer systems. Roots can also serve as a ballast for debris and FOG to accumulate, thus accelerating the development of system backups and SSOs. Root intrusion typically occurs in the gravity sewer line through pipe joints and cracks in pipes, from root growth in service laterals that impact mainline sewer pipes, and from manhole structures. Roots eventually accumulate or collect debris and FOG to restrict flow and cause SSOs and backups.

JCESD will continue to use hydraulic and mechanical cleaning in pipes subject to root intrusion. A chemical root control plan is being implemented using outside contractors.

## Manhole Raising and Repairs

The Manhole Raising Crew is responsible for raising manholes to grade, replacing broken manhole frames and covers, and addressing "rattling" manhole covers. All rod truck crews are outfitted with similar tools and materials to perform this work also. This work may result from the investigation of a Service Request or a request from another JCESD Division or County Department. For more information, see the JCESD **Maintenance of Way Program** plan.

## Sewer Point Repairs

JCESD's Construction Division personnel generally perform point repair work on gravity sewers less than or equal to 16-inch diameter. The Chief County Engineer and/or the Sewer Construction/Maintenance Supervisor determine which point repairs will be attempted with in-house crews.

Currently, the approximate depth to which the Division repairs pipe defects is 12 feet, and it is assumed that all work assigned can be completed within one working day. Generally, repairs on pipe greater than 16 feet deep are performed by contractors. Additionally, shallow excavation work that is complicated (e.g., extensive traffic control requirements, close proximity to critical buried utilities, expensive landscaping restoration) is also performed by contractors.

Construction crews perform assigned repair work based on a priority list generated by Construction Inspection personnel, and provide support for other divisions and departments in the County. Requests for repair notifications are received from the Inspection Division, resulting from defects found during CCTV pipe inspections. The Inspection Division provides detailed information on the priority (high to low), pipe type, diameter, location, and extent of the defect, along with appropriate supporting

information such as inspection reports and video images. On occasion, the Division receives notifications from other parties, such as contractors, Line Maintenance Division, Pump Station Division the Surveying Division, and senior management.

Request for repair notifications are logged and a file is created for the repair work. The Sewer Construction/Maintenance Supervisor determines the severity/importance of the remaining (non-immediate attention) high-priority repairs.

The Sewer Construction/Maintenance Supervisor or an appointed field supervisor typically makes a site visit 48 hours prior to the scheduled start of the job. Site conditions are noted, and reference points are marked for the One Call utility locating service. An estimation of the materials, equipment, and personnel necessary for the job is made at that time and material is ordered, if needed.

If work will impact private property owners, the Sewer Construction/Maintenance Supervisor or an appointed field supervisor will contact the owner to discuss the impact, mitigation, and restoration plans. Door hangers may be used when property owners are not reached during the day. Property owners who may be impacted by equipment are contacted at the start of the job and given the opportunity to move vehicles or perform other tasks.

Worksite practices include the use of traffic management devices, flaggers, and/or detours, based on conditions. Excavation is typically performed using a backhoe or excavator, depending on need. Hand excavation is performed in areas where power equipment cannot be used. Trench boxes and/or shoring equipment are onsite and appropriately used. Excavation spoil is removed and offloaded at the Village Creek WWTP facility grounds. On completion of the job, street and/or property restoration work is performed.

A notification of completion is sent to the Chief County Engineer, Line Maintenance Division, and Inspection Division. The Sewer Construction/Maintenance Supervisor for the Line Maintenance Division orders the pipe section to be cleaned so no debris from the repair work remains in the pipe. Most pipe sections are then televised.

For more information on JCESD's sewer assessment, defect identification, and sewer rehabilitation and repair prioritization, see the **Engineering Program** plan.

## Smoke Testing

JCESD has equipment used to generate a harmless, odorless smoke to find sources of extraneous water entry in the system through damaged pipe and service connections, discover source of odors in response to customer complaints, confirm sewer connections, and use connection data against billing records. JCESD will continue to utilize this equipment to investigate these issues in the service area.

# Program Performance Measures

Performance measures are important management tools that allow for continuous measurement and evaluation of program activities. Performance measures are designed to collect information that enable JCESD to determine if established goals and level of service are being met and, if not, what activities need to be adjusted to meet program goals.

Principal elements of the sewer maintenance monitoring program are:

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

The indicators that JCESD uses to measure the performance of its wastewater collection system and effectiveness of the **GLPMP** are listed in **Table 3** on the following page.

## Program Updates

The JCESD **GLPMP** will be updated whenever required, based on the performance indicators and the results achieved, but at a minimum of every 5 years. Updates will include any major program changes, such as new maintenance methods being adopted, that would need to be documented and circulated to Sewer Maintenance Division staff. It is the intent of JCESD to continuously improve gravity sewer maintenance, which will require periodic updates to the **GLPMP**.

**Table 3. GLPMP Performance Indicators**

| Performance Measure | Formula | Definition | Data Interval |
|---|---|---|---|
| **Cleaning** | | | |
| Linear feet (LF) of line rodded | LF | Length of pipe cleaned mechanically with rodding equipment | Monthly |
| Line washed | LF | Length of pipe cleaned with hydraulic cleaners | Monthly |
| Manholes (MH) Pumped Out | Value | Number of MH cleaned with hydraulic cleaners | Monthly |
| Siphons Cleaned | Value | Number of siphons cleaned with hydraulic cleaners | Monthly |
| WWTP | Value | Number of WWTP tanks cleaned with hydraulic cleaners | Monthly |
| Wet Wells | Value | Number of pump station wet wells cleaned with hydraulic cleaners | Monthly |
| Gallons Pumped | Gallons | Volume of water pumped for hydraulic cleaning purposes | Monthly |
| Blockage-related SSOs | Value | Number of dry-weather SSOs that are blockage-related | Monthly |
| **Smoke Testing** | | | |
| LF of Lines Smoked | LF | Length of pipe investigated using smoke testing methods | Monthly |
| **Acoustic Sounding** | | | |
| LF SL-Rat Inspection | LF | Length of pipe investigated using SL-RAT acoustic inspection methods | Monthly |
| **Video Inspection** | | | |
| LF of Line Inspected | LF | Length of pipe inspected using CCTV cameras | Monthly |
| **Equipment** | | | |
| # of Jet Washers | Value | Number of jet washers owned, operated, and maintained by JCESD | Monthly |
| # of Non-Operational Jet Washers | Value | Number of jet washers owned by JCESD that are not operational and in need of maintenance and/or repair | Monthly |
| # of Combos | Value | Number of combo trucks owned, operated, and maintained by JCESD | Monthly |
| # of Non-Operational Combos | Value | Number of combo trucks owned by JCESD that are not operational and in need of maintenance and/or repair | Monthly |
| # of Rod Trucks | Value | Number of rod trucks owned, operated, and maintained by JCESD | Monthly |
| # of Non-Operational Rod Trucks | Value | Number of rod trucks owned by JCESD that are not operational and in need of maintenance and/or repair | Monthly |
| # of TVI Vans | Value | Number of TVI vans owned, operated, and maintained by JCESD | Monthly |
| # of Non-Operational TVI Vans | Value | Number of TVI vans owned by JCESD that are not operational and in need of maintenance and/or repair | Monthly |

# Maintenance of Way Program

**Final**

December 2016

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# Acronyms

| | |
|---|---|
| CMMS | Computerized maintenance management system |
| CMOM | Capacity, Management, Operations, and Maintenance |
| GIS | Geographic information system |
| JCESD | Jefferson County Environmental Services Department |
| ROW | Right-of-way |
| SOP | Standard operating procedure |

# Maintenance of Way Program

## Program Overview

The Jefferson County Environmental Services Department (JCESD) maintains rights-of-way (ROWs) and sewer easements to minimize delays when crews need to access sewer system assets to perform inspection, preventive maintenance, repair, and emergency response activities. JCESD raises manholes to grade and performs manhole lid and cover repairs to ensure the safety of the traveling public. JCESD also coordinates non-emergency sewer repairs with municipal paving activities within its service area to avoid unnecessary repaving, and to ensure the utility's manholes are not paved over when a street is resurfaced.

### Purpose and Goals

The purpose of JCESD's **Maintenance of Way Program** is to ensure collection system personnel are able to access sewer system assets when needed, to identify problems that may exist in areas that are not readily visible, and to ensure the safety of the general public by identifying and repairing manhole and sewer line defects.

The goals of the **Maintenance of Way Program** are to:

- Maintain manageable easements and ROWs to enable access for inspection, preventive maintenance, and emergency response for sewer assets.
- Coordinate sewer repairs in streets before scheduled paving/resurfacing, and minimize cutting and repairing recently paved streets.

### Program Resources

#### Related CMOM Program Documents and Other References

JCESD developed standard operating procedures (SOPs) for various CMOM-related job duties. Copies of the SOPs are provided in the JCESD's **Standard Operation Procedures and Work Process Documentation for Field Operations.**

Other CMOM Program plans that reference or are referenced in the **Maintenance of Way Program** are as follows:

- CMOM Program Organization
- Engineering Program
- CMOM Information Management Systems Program

### Staffing

The JCESD ROW Crew reports to Shades Line Maintenance (Department 7253), and includes a Labor Supervisor, a Skilled Laborer, and at least one Laborer III. The ROW Crew is responsible for cleaning and clearing existing, unimproved easements. The JCESD Manhole Raising Crew reports to Village Line Maintenance (Department 7252), Crew 20, and includes a Labor Supervisor, three Skilled Laborers, and a Laborer III. When not raising or repairing manholes, this crew performs sewer cleaning using a rodding

machine. For more information on staffing and the JCESD organization charts, see the **CMOM Program Organization** plan.

### Data Management

The JCESD's geographic information system (GIS) contains gravity sewer, manhole, cleanouts, parcel, streets, easements / ROW, and planned street repavement projects. These shapefiles, along with aerial photography, are used to identify unimproved easements within JCESD's service area.

Work orders for easement clearing and manhole raising/repairs are generated using JCESD's Cityworks computerized maintenance management system (CMMS). For more information on work orders, see the **CMOM Information Management Systems Program** plan.

## Program Implementation

### Easement and ROW Maintenance

JCESD regularly maintains the ROW in areas where regular or routine access or entrance to sewer facilities is necessary (e.g., flow monitors, sewer control structures, and pump stations). Work typically performed in these ROWs include mowing, regrading paths, trimming branches, and removing brush.

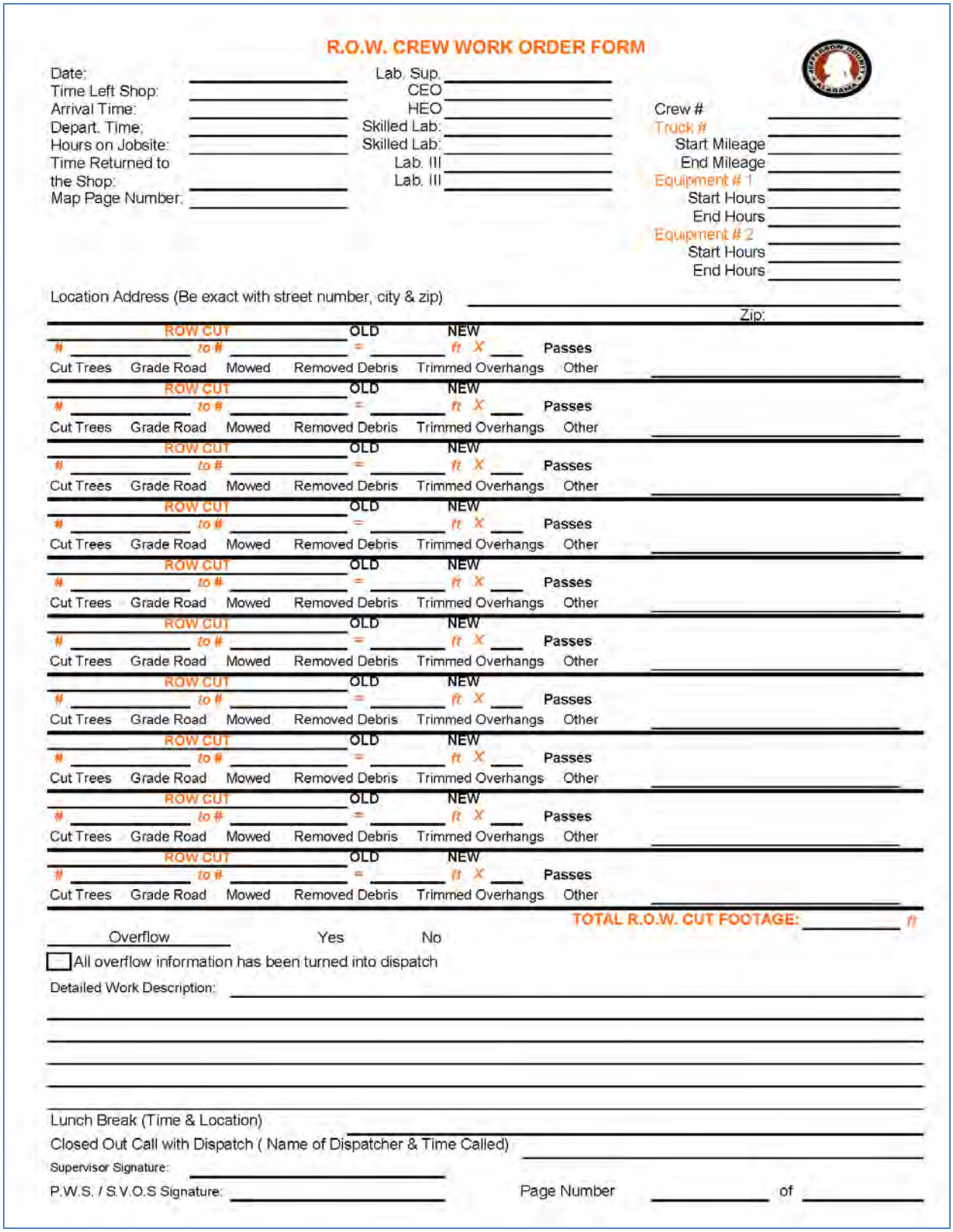
### Unimproved Easement Clearing

In areas of the collection system where regular access is not required, JCESD does not perform regularly scheduled ROW maintenance. Based on direct visual observations from JCESD employees and complaints received from landowners adjoining unimproved sewer easement areas, unauthorized vehicular traffic and litter is regularly observed in recently cleared easements. It has been the County's experience that providing open access to easements in remote areas promotes unauthorized vehicle and pedestrian traffic, which eventually leads to criminal activity and vandalism of sewer system assets. In areas where unauthorized entry and vandalism becomes a routine problem, gates or fencing may be constructed and erected.

The ROW Crew will clear unimproved easements on an as-needed basis (e.g., ahead of scheduled sewer inspection and preventive maintenance) using heavy equipment (as shown in **Figure 1**), and by hand. This work is coordinated through the Construction/ Maintenance Supervisors. An example of an easement clearing work order is shown in **Figure 2** on the following page.




**Figure 1 Heavy Equipment Used to Clear Easements**



R.O.W. CREW WORK ORDER FORM

Date:
Time Left Shop:
Arrival Time:
Depart. Time:
Hours on Jobsite:
Time Returned to the Shop:
Map Page Number:

Lab. Sup.
CEO
HEO
Skilled Lab:
Skilled Lab:
Lab. III
Lab. III

Crew #
Truck #
Start Mileage
End Mileage
Equipment # 1
Start Hours
End Hours
Equipment # 2
Start Hours
End Hours

Location Address (Be exact with street number, city & zip)

Zip:

ROW CUT # to # OLD = ft NEW X Passes
Cut Trees Grade Road Mowed Removed Debris Trimmed Overhangs Other

(repeated 12 times)

TOTAL R.O.W. CUT FOOTAGE: ft

Overflow Yes No

All overflow information has been turned into dispatch

Detailed Work Description:

Lunch Break (Time & Location)

Closed Out Call with Dispatch ( Name of Dispatcher & Time Called)

Supervisor Signature:

P.W.S. / S.V.O.S Signature:

Page Number of

**Figure 2.Easement Clearing Work Order Form**

### Manhole Raising and Repairs

The Manhole Raising Crew is responsible for raising manholes to grade, replacing broken manhole frames and covers, and addressing "rattling" manhole covers. This work may result from the investigation of a service request, or a request from another JCESD Division or County Department.

JCESD also deploys staff to raise manholes as part of a paving/resurfacing project undertaken by other Departments and governmental agencies. JCESD coordinates this work with local municipalities' Public Works Departments and County and State Roads and Transportation Departments.

An example manhole raising work order form is shown in **Figure 3** on the following page.

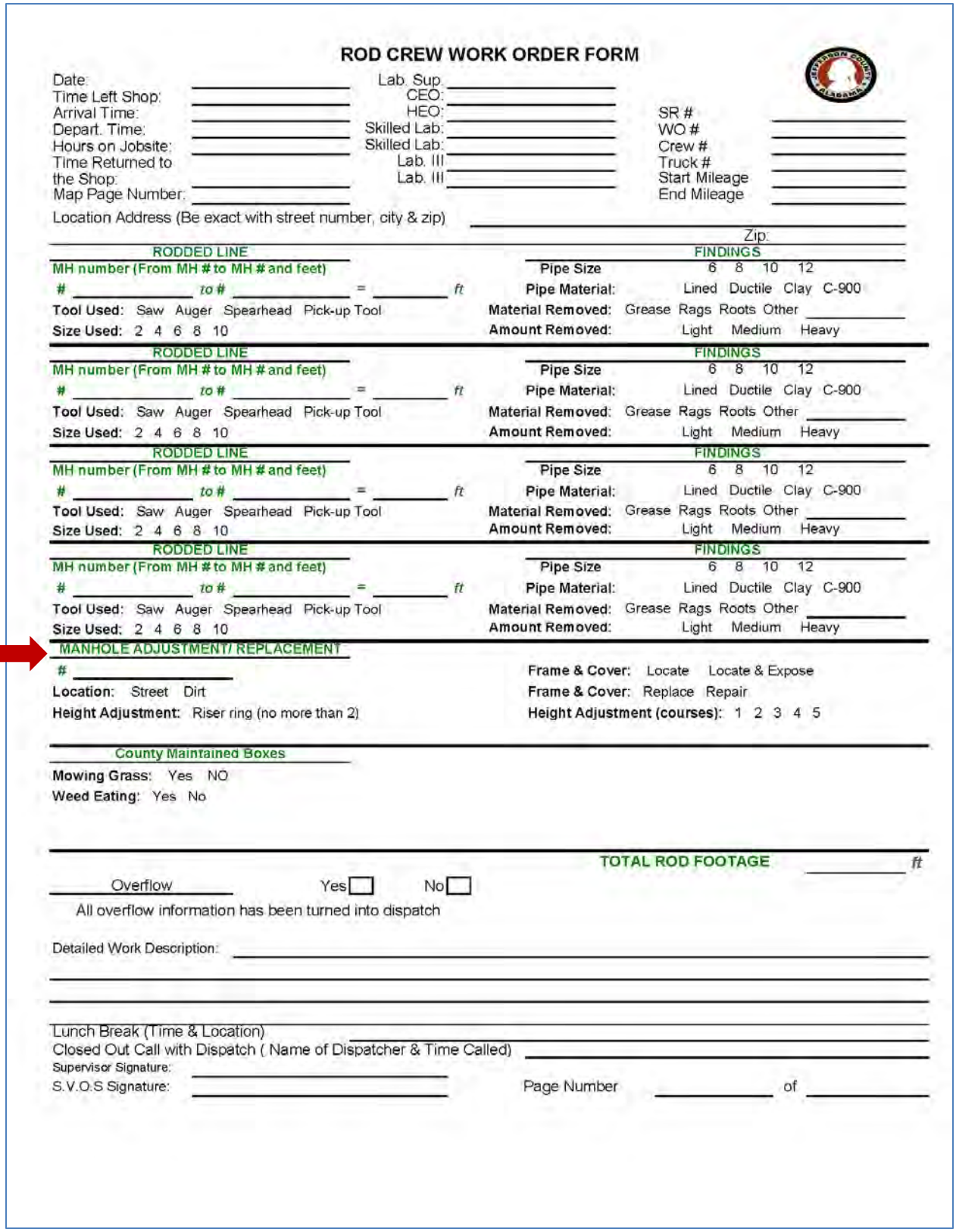
## Street Paving Program

### Linking Street Resurfacing Plans on GIS to Planned Sewer Rehabilitation Capital Improvement Projects

In 2015, JCESD initiated a program to link street resurfacing work that will be done within the service area to the development and scheduling of the County's upcoming sewer rehabilitation capital improvement projects and non-emergency point repairs.

As part of this program, letters were sent to the Jefferson County Roads and Transportation Department and the public works/street maintenance departments of each municipality in the Jefferson County service area (see sample letter provided in **Appendix A**). The purpose of the letters is to request information concerning the 1-year, 3-year and 5-year paving and resurfacing plan. A request will be made for updated information each year.

The County and municipalities' authorities were requested, if possible, to provide resurface planning information in a shape file format that can be merged into the JCESD GIS. Information provided in non-shape file form will be merged into other resurfacing plan shape files. The resurfacing shape files will be superimposed on the JCESD sewer rehabilitation plan shapefiles, and be considered as part of the prioritization strategy for rehabilitation work to minimize the need to make repairs in recently paved streets.



## ROD CREW WORK ORDER FORM

Date: _____ Lab. Sup. _____
Time Left Shop: _____ CEO: _____
Arrival Time: _____ HEO: _____
Depart. Time: _____ Skilled Lab: _____
Hours on Jobsite: _____ Skilled Lab: _____
Time Returned to the Shop: _____ Lab. III _____
Map Page Number: _____ Lab. III _____

SR # _____
WO # _____
Crew # _____
Truck # _____
Start Mileage _____
End Mileage _____

Location Address (Be exact with street number, city & zip) _____ Zip:

**RODDED LINE**
MH number (From MH # to MH # and feet)
# _____ to # _____ = _____ ft
Tool Used: Saw Auger Spearhead Pick-up Tool
Size Used: 2 4 6 8 10

**FINDINGS**
Pipe Size 6 8 10 12
Pipe Material: Lined Ductile Clay C-900
Material Removed: Grease Rags Roots Other _____
Amount Removed: Light Medium Heavy

**RODDED LINE**
MH number (From MH # to MH # and feet)
# _____ to # _____ = _____ ft
Tool Used: Saw Auger Spearhead Pick-up Tool
Size Used: 2 4 6 8 10

**FINDINGS**
Pipe Size 6 8 10 12
Pipe Material: Lined Ductile Clay C-900
Material Removed: Grease Rags Roots Other _____
Amount Removed: Light Medium Heavy

**RODDED LINE**
MH number (From MH # to MH # and feet)
# _____ to # _____ = _____ ft
Tool Used: Saw Auger Spearhead Pick-up Tool
Size Used: 2 4 6 8 10

**FINDINGS**
Pipe Size 6 8 10 12
Pipe Material: Lined Ductile Clay C-900
Material Removed: Grease Rags Roots Other _____
Amount Removed: Light Medium Heavy

**RODDED LINE**
MH number (From MH # to MH # and feet)
# _____ to # _____ = _____ ft
Tool Used: Saw Auger Spearhead Pick-up Tool
Size Used: 2 4 6 8 10

**FINDINGS**
Pipe Size 6 8 10 12
Pipe Material: Lined Ductile Clay C-900
Material Removed: Grease Rags Roots Other _____
Amount Removed: Light Medium Heavy

**MANHOLE ADJUSTMENT/ REPLACEMENT**
# _____
Location: Street Dirt
Height Adjustment: Riser ring (no more than 2)

Frame & Cover: Locate Locate & Expose
Frame & Cover: Replace Repair
Height Adjustment (courses): 1 2 3 4 5

**County Maintained Boxes**
Mowing Grass: Yes NO
Weed Eating: Yes No

TOTAL ROD FOOTAGE _____ ft

Overflow Yes ☐ No ☐
All overflow information has been turned into dispatch

Detailed Work Description: _____

Lunch Break (Time & Location) _____
Closed Out Call with Dispatch ( Name of Dispatcher & Time Called) _____
Supervisor Signature: _____
S.V.O.S Signature: _____ Page Number _____ of _____

**Figure 3.Manhole Raising Work Order Form**

# Program Performance Metrics

Performance measures are important management tools that allow for continuous measurement and evaluation of program activities. Performance measures are designed to collect information that enable JCESD to determine if established goals and level of service are being met and, if not, what activities need to be adjusted to meet program goals.

The Maintenance of Way Program performance measures established at JCESD are shown in **Table 1**.

**Table 1. Maintenance of Way Program Performance Metrics**

| Performance Measure | Formula | Definition | Desired Result | Data Interval |
|---|---|---|---|---|
| Easements / ROWs Cleared | Value | Miles of Easements /ROWs Cleared for preventive or emergency response | Maintain records of performance for clearing easements /ROWs | Weekly and Monthly |

# APPENDIX

## Appendix A Example JCESD Sewer Line Repair/Pavement Project Coordination Letter

**JEFFERSON COUNTY COMMISSION**

GEORGE F. BOWMAN
SANDRA LITTLE BROWN
DAVID CARRINGTON
T. JOE KNIGHT
JAMES A. "JIMMIE" STHEPHENS

**TONY PETELOS –**
**CHIEF EXECUTIVE OFFICER**

ENVIRONMENTAL SERVICES
Suite A300
716 Richard Arrington, Jr. Blvd N.
Birmingham, AL 35203
Telephone (205) 325-5496

October 5, 2015

Mayor Pam Palmer
City of Adamsville
P.O. Box 309
Adamsville, AL 35005

Dear Mayor Palmer,

In an effort to better coordinate non-emergency sewer line construction projects with paving projects, the Jefferson County Environmental Services Department is requesting your municipality's future asphalt paving plans. At a minimum, we are requesting your proposed 1, 3 and 5 year plans; however, if you have developed paving plans that extend beyond 5 years, we would appreciate this information as well. By providing your paving plans, you will assist with our attempt to reduce the number of sewer cuts and the resulting pavement patches through newly paved areas.

As the County's Collection System Asset Management Program further develops, the County also intends to provide a list of its planned work locations to affected municipalities with some advanced notice. Please also provide a primary contact in your organization to coordinate these efforts.

Please forward your municipal paving plans to:

Celeste Lachenmyer, PE
Hazen and Sawyer
Two Chase Corporate Drive
Suite 170
Hoover, AL 35244

Your cooperation and assistance with our efforts to coordinate sewer construction with paving plans is greatly appreciated. Please feel free to call Celeste Lachenmyer at (205) 547-5960 if you need any additional information.

Best Regards,

David Denard, Director
Jefferson County Environmental Services Department




# STANDARD OPERATING PROCEDURES
# AND
# WORK PROCESS DOCUMENTATION
# For
# Collection System Field Operations

December 2016

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## 1. Standard Operating Procedures Policy

The Jefferson County Environmental Services Department (JCESD) uses different types of equipment to maintain sanitary collection systems and to prevent sanitary sewer overflows (SSOs).

The standard operating procedures (SOPs) and work process documentation (WPD) outline the standard use guide for field operations and are designed to:

- Minimize the risk of injury to personnel and bystanders.
- Minimize the risk of damage to equipment and property.
- Promote efficient and effective sewer maintenance and repair.
- Provide continuity in equipment use between operators and crews.

## 2. Purpose

JCESD's sewer maintenance field operations personnel improve system reliability and sustainability by:

1. Installing, repairing and/or replacing manholes. Manhole structures, frames and covers need to be raised, lowered or repaired. Buried pipes and gravity sewer system components need to be repaired or rehabilitated.
2. Maintaining sewer easements through wooded areas and unimproved rights-of-way.
3. Cleaning sewer pipe to remove deposits and organic materials that can interrupt flow and result in sanitary sewer overflows (SSOs).
4. Internally inspecting gravity sewer pipes with closed circuit television (CCTV) cameras to assess pipe conditions, collect information needed to schedule future maintenance, locate and identify defects, determine causes of SSOs, and to provide pipe cleaning and repair quality assurance and quality control (QA/QC) documentation.

JCESD's staff requires special training, equipment, tools, and protocols to complete this work. Accurate reporting is required to document the work completed and conditions encountered, so that a determination can be made if additional cleaning, repair or replacement of a given pipe or structure is needed. These SOPs provide equipment operation and related field protocols that will best ensure this result.

Operators assigned to the equipment in these SOPs shall be experienced beyond novice level or, when working on or with this equipment, an experienced operator must be present to oversee the work. For detailed information about a specific brand/model machine, refer to the original equipment manufacturers' (OEM) operation and maintenance (O&M) manuals.

These SOPs relate standards of operation under normal or anticipated conditions, and are for use by JCESD personnel under current policy and/or past practice. Documentation of these practices does not limit equipment operation to these practices alone. These documents are intended as a guideline for equipment operation; during emergencies or other abnormal circumstances, some flexibility in using the equipment may be required.

The primary goal of operation is to ensure every pipe cleaned meets the standard of care and safe operation as outlined in the SOP. Any questions, comments, additions, corrections, or changes to this SOP should be addressed to the appropriate Crew Supervisor, Public Works Supervisor or their designee.

It is the intent of JCESD to review these SOPs and WPDs annually.

# 3. Safety

JCESD intends to provide a safe work environment for all our employees and the public. A well-managed workplace safety program will benefit both our organization and the community in measurable ways.

The success of the program is dependent on the cooperative effort and active engagement of all JCESD employees, as well as the enforcement of program policies and standards.

Both management and operations employees must become familiar with the program, follow and enforce the procedures, and become an active participant in this workplace safety program.

## 3.1 Personal Protective Equipment

All operators and other personnel working in the field must be protected from any hazards of operation that may be encountered. Operators and other personnel shall wear clothing appropriate to the weather conditions, as may be needed during operation, and observe JCESD policies regarding the following:

- Steel-toed shoes
- Traffic safety vests
- High visibility jackets and head gear
- Hard hats
- Gloves and respiratory, hearing, and/or eye protection

## 3.2 Confined Space Entry

No personnel shall enter a confined space without following JCESD's Confined Space Entry practice.

A confined space as defined as a space that:

(1) Is large enough and so configured that an employee can bodily enter it;

(2) Has limited or restricted means for entry and exit; and

(3) Is not designed for continuous employee occupancy.

A Permit Required Confined Space is a confined space that has one or more of the following characteristics:

1. Contains or has a potential to contain a hazardous atmosphere;
2. Contains a material that has the potential for engulfing an entrant;

3. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or
4. Contains any other recognized serious safety or health hazard.

A hazardous atmosphere is defined as:

1. Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL);
2. Airborne combustible dust at a concentration that meets or exceeds its LFL;
3. Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent;
4. Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published in Subpart D – Occupational Health and Environmental Control, or in Subpart Z – Toxic and Hazardous Substances, and which could result in employee exposure in excess of its dose or permissible exposure limit;
5. Any other atmospheric condition that is dangerous to life and health.

Confined space entry equipment includes the following:

- Approved gas detectors (properly calibrated)
- Fresh air blower
- Safety harness, rope, and tripod safety system
- Approved hard hat
- Aluminum ladder
- Radio communication (preferred)

### 3.2.1 Confined Space Entry for Manholes

See the Standard Operating Procedure for Confined Space Entry for Manholes.

## 3.3 Hazard Identification

If any employee sees, suspects, or knows of a potential safety hazard, including equipment components, tools, set up conditions, or traffic conditions, it is his/her responsibility to immediately bring it to the attention of the crew leader or the operator in charge of the work crew, and other crew members.

The person in charge of the work site shall take appropriate corrective or preventive measures in addressing the situation. Any additional actions should be made with this information in mind if corrective, anticipatory, or preventive measures are needed. If the hazard is not able to be resolved with these actions, the person in charge of the work site shall notify the Field Supervisor (or onsite Supervisor or Inspector).

If the situation cannot be resolved, then the Field Supervisor (or onsite Supervisor or Inspector) shall consult with the Public Works Supervisor or his/her representative prior to proceeding.

### 3.4 Traffic Control

Follow JCESD's traffic control policy and procedures. Traffic control devices include the following (as appropriate):

- Cones
- Flags
- Signs (detour/stop/slow)
- Barricades
- Police officers

The need for a flagger shall be determined by the Crew Supervisor and shall take into consideration sight distance, traffic volume, traffic speed, and location of the work in relation to the roadway.

## 4. Training

Each operator of JCESD sewer maintenance equipment (including CCTV inspection, construction, and cleaning equipment) shall be fully trained in operation and field use, and be thoroughly familiar with operating techniques, including mechanical systems, safe set-up and control functions, tool selection, and driving the vehicle (if applicable).

At no time should inexperienced personnel be in the field with this equipment without an experienced operator present. Only when suitable field training has been completed, and competency successfully demonstrated, can a JCESD employee operate heavy machinery.

Operational training shall include mechanical system familiarity, detection of irregularities in operation and machine performance, field operation instruction, and debris disposal. Cross-training on various maintenance processes and equipment will be provided as needed.

Each assigned equipment operator shall read the OEM O&M, user, and safety manuals, and any other current JCESD-approved reference materials.

## 5. Equipment Operation

### 5.1 Operation Parameters

An operator shall never operate equipment while under the influence of drugs or alcohol, as defined by JCESD policy. Operators shall follow all applicable City, State and Federal regulations pertaining to a Commercial Driver's License (CDL) and other requirements.

Any personnel operating equipment shall be classified employees, and have the following minimum qualifications:

- Be fully trained and familiar with all systems and tools necessary for specific conditions.
- Be able to set up, operate, and shut down the machine under various field conditions.
- Demonstrate proper operational technique to the satisfaction of JCESD field management.

Inexperienced operators may operate the equipment only under immediate supervision of an experienced operator.

Experienced operators, in addition to the above, shall:

- Demonstrate the ability to read, comprehend, and interpret operation manuals, safety codes, and other information pertinent to correct and safe operation of the equipment used.
- Possess knowledge of emergency procedures for equipment shut-down and how to summon assistance, if needed.
- Demonstrate to the Crew Supervisor the ability to operate the specific type of equipment, or provide other satisfactory evidence of qualifications and experience.
- Be familiar with all relevant safety standards or safety codes, applicable government regulations, and JCESD policies as they apply to the equipment, procedure, circumstance, and safety.
- Recognize and be responsible for all field maintenance requirements of the equipment and tools used by the operator or by any trainee(s) under the operator's supervision.
- Be thoroughly familiar with the equipment control functions and tool applications, associated maintenance, and storage; and have read, fully understood, and signed off on these operation procedures; and have completed the necessary course(s) of instruction and worked with a competent operator prior to sole operation of the equipment.

## 5.2 Operator Mechanical Familiarity

An operator shall be familiar with the equipment's transport, including truck mounted equipment, compressors, generators, and flatbed towed equipment:

Chassis/Auxiliary Engine (as applicable)

- Engine fluid reservoir location and level
- Fuel fill location and fuel type
- Power Take Off (PTO) drive shaft and engine throttle
- Air brake system and appropriate CDL-required checks
- Vehicle directional indicators, brake lights, and night running lights
- Emergency lighting, including beacons, traffic control arrows, and night operation lighting
- Tire condition and inflation pressures

An operator shall be familiar with the necessary equipment and communications systems, including:

Hydraulic System

- Hydraulic fluid reservoir location and level
- System filters
- Pressure gauges
- Type of fluid required

Electrical System

- Electric components and switches
- Fuse block

Basic Controls

- Power supply
- PTO
- Auxiliary engine
- Electrical generation
- Air pressure
- Emergency shut down

Trailers and Towing

- Ramp deployment
- Hitch mounting and safety chain use
- Electrical connections
- Weight limits
- Maneuvering requirements
- Tie down strapping and/or chains

Communications

- Hand held radios
- Hand Signals

The equipment used in performance of routine operations is varied; experience is required to use the equipment, and train new personnel. Refer to the original chassis and OEM O&M manuals for suggested maintenance intervals and use parameters.

## 5.3 Machine Pre-Inspection and Maintenance

Inspect the mechanical tool and consumable (including disposable gloves, ear protection kits, and rags) inventory weekly.

Check operational equipment inventory monthly, so that the proper minimum number and types of mechanical tools, operational equipment, nozzles and/or pipe cleaning tools, and safety items are on board the machine and in proper operational condition.

Conduct an inventory after any maintenance and/or repairs are performed by the motor pool or vendor service.

Conduct regular inspection checks as required by the chassis and equipment manufacturer maintenance guidelines, JCESD policy, and/or the Daily Pre-Trip Inspection Report. Lists of daily and weekly maintenance tasks for specific equipment are provided in individual SOPs.

Routine maintenance, such as oil changes and other mechanical procedures, should be conducted by Jefferson County Fleet Maintenance at regular intervals, as defined by the OEM O&M manuals and good mechanical practice.

# 6. Equipment Start-up and Transport to Job Site

## 6.1 Start-Up Duties

Follow these steps when starting the shift, and when traveling to field assignments:

1. Perform a vehicle and equipment check, including critical fluids, before leaving the facility.
2. Verify that all field equipment and tools required for the assigned work are on board and in good working order, including:
    - Traffic safety equipment, including cones (12 recommended)
    - Field tools, shovels, and picks
    - Personal protective equipment (vests, high visibility hats, gloves, and hard hats)
    - Manhole lid hooks, sledge hammer, and other necessary access tools
    - Manhole and debris removal tools (traps, baskets and scoops)
    - Portable radio(s), maps, mobile devices, data collection forms, and writing instrument
    - Any other required equipment
3. Once equipment is loaded, secure all tool boxes on the truck for travel. Lock the tool boxes when the truck is unattended.
4. Start chassis engine and wait for air system to charge. Be sure that oil and air pressures are within normal operating ranges, and that beacon lights are functioning before moving a vehicle.

## 6.2 Machine Transport

Observe proper driving procedures, including:

- Adjust all mirrors, as needed by the driver, before putting the truck in gear.
- Buckle seat belts (this applies to driver and all passengers).
- Do not make sudden starts and stops.
- Do not exceed the posted speed limit.
- Slow down when on unimproved or rough roads, at railroad crossings, or near other hazards.
- Prepare for any turns by being in the proper lane at least 100 yards before the turn.
- Use directional signals before changing direction.
- Do not make sharp turns at high speed.
- Do not back up without a backing assistant to clear the path.

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### 6.2.1 Driving Hazards

Driving hazards include low bridges, weight restricted roadways/bridges, narrow lanes, sharp bends, blind junctions covered by vegetation, unmarked junctions, slow moving vehicles, pedestrians, cyclists, animals, weather related road conditions (ice, snow, rain), etc.

## 7. List of Field Operations SOPs and WPDs

The following SOPs and WPDs, as related to ESD's Capacity, Management, Operations, and Maintenance (CMOM) Program plans, are included in this handbook:

Safety-Related
Confined Space Entry for Manholes

Sanitary Sewer Overflow-Related
Sanitary Sewer Overflow Response and Reporting Plan
Bypass Pumping System Operations (draft under ESD review)

Gravity Line Preventive Maintenance-Related
Wash Truck Pipe Cleaning
Combination Cleaner Pipe Cleaning
Hand Rod and Rod Turning Machine Pipe Cleaning
*Power Rodding Machine Pipe Cleaning**
*Siphon Cleaning**

Engineering-Related
Geographic Information System Updates
Closed Circuit Television (inside the van)
Closed Circuit Television (outside the van)
Pre- and Post-Rehabilitation Flow Monitoring
*Acoustic Inspection***

Pump Station-Related
Pump Station Inspection and Preventive Maintenance
Pump Station Inspection Checkoff and Repair Log
Pump Drawdown Test
Pump Station Standby General Preventive Maintenance
Pump Station Forms

Corrosion Control-Related
Air/Vacuum Relief Valve Procedures

**Under development
**To be developed

# Confined Space Entry for Manholes

## Objective:

To describe mandatory safe procedures to be used when working around an "open" manhole and entering a manhole for routine maintenance or inspection.

## Responsibilities:

A manhole structure is a confined space that presents fall hazards where there is a potential for toxic gases to be present. Therefore, ALL ENVIRONMENTAL SERVICES DEPARTMENT PERSONNEL assigned to enter sanitary and storm manholes shall comply with this SOP.

**Note: this SOP must be updated to reflect responsibilities of the ESD Director, Supervisors, Competent Persons, and Health and Safety Representatives at such time a formal Confined Space Entry Program is initiated, and/or when ESD requires Confined Space Entry Permits to be completed for each manhole entry.**

## Task:

Using proper safety equipment, enter sanitary and storm sewer manholes for routine maintenance and inspection.

## Performance Standard:

Staff performing or assisting with a confined space entry into a storm or sanitary manhole shall have knowledge of appropriate safety measures and proper equipment and tool operation.

## Safety and Field Cautions:

- Engulfment and drowning hazards
- Presence of toxic gases
- Presence of explosive/flammable gasses
- Oxygen deficiency
- Lifting hazards
- Falling object hazards
- Slip and fall hazards
- Tailgate safety meeting

## Tools and Equipment:

- Approved gas detector (properly calibrated)
- Fresh air blower
- Safety harness, rope, and tripod safety system
- Approved hard hat
- Aluminum ladder
- Radio Communication (preferred)

A qualified person shall inspect all safety devices and instruct all involved employees on proper confined space safety procedures. All defective safety devices shall be reported to the __*Supervisor, Field Supervisor, Crew Lead*__ immediately.

It shall be the __*Field Supervisor's, Crew Lead's*__ responsibility to verify that crews assigned to enter confined spaces have the required safety devices in their possession. The __*Field Supervisor, Crew Lead*__ must assure the assigned employee is trained to operate all safety equipment and understands all safety procedures.

**Prepare to Enter an Opened Manhole:**

1. Before any personnel enters the confined space, test the space for all three atmospheric conditions.

    a. Measure the **Oxygen Content** at all levels (bottom, middle, and top of manhole). The oxygen content must be at least 19.5% in the confined space. The safe oxygen level is between 19.5% and 21%.

    **Do not enter the confined space if the oxygen level is below 19.5% or above 21%.**

    Due to the extreme danger of suffocation in confined spaces, constant and continuous oxygen monitoring is required throughout each work period. Oxygen content above 23% can cause explosions or vigorous burning of flammable materials, including hair and clothing.

    b. After the oxygen content is determined, use the detector to measure **Flammability** at all levels (bottom, middle, and top of manhole).

    Flammability is measured in terms of the Lower Flammable Limit (LFL) or Lower Explosive Limit (LEL). This is the smallest concentration of a combustible gas in air that will explode when it contacts a spark or open flame.







c. After testing for flammability, test the atmosphere for any **Toxicity** (toxic concentrations of vapors) at all levels (bottom, middle, and top of manhole).

   Toxicity is measured in terms of the Threshold Limit Value (TLV). Since toxic concentrations may be lighter or heavier than air, they can be present at the top or bottom of the manhole.

NOTE: The confined space must be tested at three levels (not greater than 4' increments) minimum for each atmospheric condition from top to bottom. Each level must be tested for a minimum of 60 seconds.

The gas detector can be lowered into the confined space atmosphere with a safety line or the detector can be used with an aspirator pump so the detector is not lowered into the confined space.

Consult the gas detector user manual for further information on the gas detector operation.



2. Position the **gas detector** in the manhole and secure safety line.

   **The gas detector must remain in operation the entire time the entrant is in the confined space due to the possibility of a rapid change in the confined space atmosphere.**

3. Set up and operate the fresh **air blower ventilation system.**

   **The fresh air blower ventilation system must be in operation before and during all inspection and maintenance procedures.**





4. After the air blower ventilation system has been in operation, and the confined space atmosphere has been tested and determined to be safe for entry, equip the entrant with the following:

   a. **Tyvec suit**

   b. **Approved hard hat**

   c. **Safety harness and lifeline**



5. Set up the **tripod**.

   Consult the tripod user manual for further information on the proper tripod configuration and use.



6. Attach the entrant's safety harness and lifeline to the tripod; perform safety check to verify proper adjustment and fit.

   Adjust the tripod winch cable as necessary.



7. Begin descent into manhole.

   a. Test each manhole step carefully while descending into the manhole.

      If permanent ladder steps are not provided in the manhole, or not structurally sound, use an aluminum ladder (in good condition) to enter and exit the confined space.

   b. An attendant will lower the cable as the entrant descends into the manhole.



**Two persons must be stationed above ground for support personnel whenever a confined space (manhole) is entered.**

8. Upon completion of the work, an attendant will raise the cable as the entrant ascends the manhole.

   Attendants will help the entrant stand and move away from the open manhole.



9. Replace the manhole cover.

10. Dismantle and stow the tripod, winch, fresh air ventilation system, gas detector and all other equipment on the appropriate crew truck.

**<u>Emergency Action Plan</u>:**

No person shall enter a confined space (manhole, wet well, dry well, or underground vault) to retrieve someone who is unconscious without having required personnel above ground to assist.

Summon help.

The person entering the confined space for rescue purposes must be equipped with the required rescue equipment and follow the specific rescue procedure.

# Sanitary Sewer Overflow Response and Reporting

## 1. OBJECTIVE

The objective of this SOP is to aid staff in conducting responsible and prompt response, notification and reporting of sanitary sewer overflows (SSOs), and is intended only as a condensed version of the Jefferson County Environmental Services Department's (ESD) 2012 *Sanitary Sewer Overflow Response and Reporting Program (SSORRP)* document. The purpose of the SSORRP is to minimize the impact of SSOs to the public and the environment.

This SOP shall be reviewed and updated annually, and when changes to the SSORRP are adopted by ESD.

## 2. RESPONSIBILITIES

The parties responsible for the various elements of SSO response, notification, and reporting are listed below.

### 2.1 Reporting an SSO to the Dispatch Facility

Any ESD staff member who witnesses an SSO is required to report the SSO to the Dispatch Facility by calling (205) 942-0681. SSO reports may also be made by other individuals who witness an SSO.

### 2.2 Notifying ESD Personnel of an SSO Call

The Dispatcher shall notify the appropriate ESD personnel, giving details on the reported SSO (see Section 4).

### 2.3 Responding to an SSO Call

The first responders to an observed SSO location shall be the on-duty Line Maintenance crews, the Labor Supervisor, Heavy Equipment Operator (HEO), or the Construction Equipment Operator (COO), Public Works Supervisor and/or Inspector. Additional crews and equipment may be necessary (see Sections 5 and 7).

### 2.4 Evaluating the Cause and Extent of the SSO

The initial determination of the cause of an SSO shall be made by the responding Line Maintenance Crew Supervisor, Supervisor and/or Inspector (see Section 6.1).

The Line Maintenance crew, Crew Supervisor, Public Works Supervisor, and/or Inspector responding to the SSO call shall be responsible for:

- Identifying the discharge source that contributed to the SSO (See Section 6.2)
- Identifying the final destination of the SSO (see Section 6.3)
- Estimating the SSO volume (see Section 8)

### 2.4.1 Notifications for SSOs Lasting More than 12 Hours

If a SSO continues for more than 12 hours, the Sewer Construction/Maintenance Supervisor will notify the ESD Director, Deputy Director, and Chief Engineer. Reports will be made at least twice per day until the SSO has ceased.

## 2.5 Notifying and Reporting to Regulatory Agencies and the Public

If an SSO is determined to reach surface waters, Dispatch shall be responsible for sending a Sewer Overflow Advisory form to the appropriate parties (see Section 9.1).

If the Crew Supervisor and responding Supervisor (or Inspector) determines that a significant danger to public health exists due to SSO contact with surface water, the responding crew shall be responsible for placing warning signs, at the direction of the Crew Supervisor (see Section 9.3).

Responding crews shall be responsible for completing SSO reporting forms (see Section 8.2)

The Dispatcher, Onsite Supervisor, and Sewer Construction Maintenance Supervisor shall be responsible for the final review of information on SSO reporting forms (see Sections 8.3 and 8.4).

The Sewer Construction Maintenance Supervisor shall be responsible for submitting the Wastewater Discharge Reporting Form (ESD Form RF1-1) to all appropriate parties (see Section 9.2).

Within 24-hours of a reported SSO, Dispatch shall be responsible for notifying the Alabama Department of Environmental Management (ADEM) of the event by telephone, and for submitting the 24-Hour Report (ESD Form RF3-1) to ADEM and the Jefferson County Department of Health (JCDH) (see Section 9.2).

Within 5 days after an SSO event, the Sewer Construction Maintenance Supervisor shall be responsible for submitting a 5-Day Follow-Up Report (ESD Form RF3-1) to ADEM and JCDH (see Section 9.2).

### 2.6 Training

Annual training on this procedure shall be provided to all ESD individuals involved in responding to and reporting SSOs. Training will also be provided when any modifications to this SOP are adopted by ESD.

## 3. MAINTAIN A SAFE WORKING ENVIRONMENT

All personnel working in the field must be protected from any hazards of equipment operation that may be encountered. Operators and other personnel shall wear clothing appropriate for weather conditions as needed during operation, and shall observe ESD policy regarding the **Personal Protection Equipment (PPE)** listed in **Appendix A**.

**FOLLOW ESD SAFETY POLICIES & PROCEDURES**

Any crew member who sees, suspects, or knows of a potential safety hazard, including any equipment component, tool, set-up condition, or traffic condition, must bring it to the attention of the onsite Supervisor and/or other personnel immediately.

The onsite Supervisor shall use sound judgment when directing the response to the SSO, and shall document unsafe conditions. If working conditions prevent the ESD from responding to the SSO, the Supervisor shall notify his Manager, and document the unsafe conditions.

## 4. ESD PERSONNEL NOTIFICATION

The list of **ESD Personnel to be Notified** (as appropriate), and their contact information, is provided in **Appendix B**.

### 4.1 During Manned Call Center Hours (7:00 AM to 11:00 PM)

1. When the Call Center Dispatcher is notified of a potential SSO during working hours, the Dispatcher shall notify the appropriate Line Maintenance Division Crew Leader by radio.

   If the Dispatcher is unable to reach the Crew Leader or the crew personnel, the Dispatcher shall call the Public Works Supervisor.

   If the Dispatcher is unable to contact the Public Works Supervisor, the Dispatcher shall call a Principal Engineering Inspector.

2. The Dispatcher shall send an email regarding the potential SSO to the Sewer Construction/Maintenance Supervisor's and Principal Engineering Inspectors' cell phones.

### 4.2 After Manned Call Center Hours (11:00 PM to 7:00 AM)

1. After hours, an automated system will notify the on-call Supervisor that a potential SSO call was received.

   If the call is not acknowledged within 10 minutes, the automated system will continue to call the next on-call supervisor until the call is acknowledged.

2. The on-call Supervisor shall notify the appropriate Maintenance Division crew.

## 5. SSO RESPONSE

### 5.1 Crew Supervisor duties

1. The Crew Supervisor and the assigned crew shall respond to the site of the reported SSO with the proper **Spill Response Material** listed in **Appendix C**, a crew truck and a rod turning machine, a jet-washer truck, or a combination jet-washer/vacuum truck (as assigned to the responding crew).

   The Supervisor (Sewer Construction and Maintenance Supervisor, Principal Engineering Inspector, Public Works Supervisor, Sewer Video Operations Supervisor or Sewer Service Inspector) shall meet the crew at the SSO location.

**FOLLOW ESD POLICIES & PROCEDURES FOR PROPER TRAFFIC CONTROL SETUP**

2. The Crew Supervisor and Supervisor (or Inspector) shall assess the problem and assign the response crew duties to eliminate the overflow.

   If required, the Crew Supervisor shall request additional Line Maintenance trucks and equipment to assist the responding crew:

   - Rod turning machines
   - Jet-washer trucks
   - Combination jet-washer/vacuum truck
   - Portable bypass pumps

3. If the problem has escalated to an emergency situation, the ESD Construction Division's aid shall be requested for assistance with:

- Bypass pumping
- Sand bag and/or berm placement
- Piping and manhole repair

4. If outside service assistance is required, the following contractors may be called:

| | | |
|---|---|---|
| Alabama Pump & Power | (205) 2561-2563 | Rental Equipment |
| Hydra Service, Inc. | (205) 647-5326 | Rental Equipment |
| Alabama Barricade, Inc. | (205) 655-5290 | Traffic Maintenance Equipment |
| Alabama Construction Supply | (205) 592-8499 | Traffic Signs/Safety Equipment |

### 5.2 Mitigation Efforts for SSOs Lasting More than 12 Hours

If a SSO continues for more than 12 hours, mitigation will be developed by the engineering staff. The mitigation plan may include placement of containment booms, sandbagging, temporary collection pits, temporary pipes and/or pumping, application of lime, and cleanup of debris after the event has subsided.

### 5.3 Corrective Action Plan for SSOs Lasting More than 12 Hours

ESD will initiate a plan to determine the cause of the SSO in an attempt to prevent its reoccurrence. The corrective plans may include visual upstream manhole inspections, wet-weather TVI, dry-weather TVI, smoke testing, night-time flow isolation, temporary flow monitoring, hydraulic and capacity analysis, and other engineering and inspection activities as needed to determine the cause.

Once the cause has been determined, a corrective action plan will be implemented to remedy the defects or deficiencies and prevent the reoccurrence of the SSO under design conditions.

## 6. SSO DETERMINATION

The responding Line Maintenance Crew Supervisor and Supervisor (or Inspector) shall make every attempt to initially determine the cause of the SSO and identify the SSO discharge source. A final determination of the cause shall be made after the SSO is mitigated.

### 6.1 SSO Cause

During a rain event, manholes upstream of the surcharged sewer shall be opened in an attempt to identify the location of a potential blockage by tracing surcharged sewer flow to the trunk line.

During a non-rain event, a visual inspection shall be made to determine the cause of the SSO (blockage, construction damage, vandalism, line break or other external cause).

Once the initial cause is determined, the responding Line Maintenance crew shall make every attempt to remove the blockage (see Section 8.1), or, with assistance from the ESD Construction Division, repair broken pipe, manhole or pump station (see Section 8.2).

After the SSO has been mitigated, sewer lines in the area of the discharge shall be internally CCTV inspected to verify the pipe was cleaned, identify sources of infiltration/inflow, and determine if another cause contributed to the SSO event.

**FOLLOW ESD POLICIES & PROCEDURES FOR PROPER CCTV EQUIPMENT SETUP, OPERATION, AND PIPELINE INSPECTON**

## 6.2 SSO Source

The responding Line Maintenance crew, Crew Supervisor, and Supervisor (or Inspector) shall determine if the SSO discharge source is owned and maintained by a private owner or by the County. The SSO notification and reporting procedures undertaken depend on the ownership and maintenance responsibilities of the SSO discharge source (see Section 9.).

The Crew shall take digital photographs of the SSO (or surrounding area if SSO is not visible) following the **SSO Picture Procedures** listed in **Appendix D**.

If there is not an active SSO when the crew arrives, The Crew shall take digital photographs of any evidence that will document the occurrence.

## 6.3 SSO Destination

The SSO notification procedures taken depend on the ultimate destination of the SSO, which may be one or more of the following:

- Water body that is entirely confined and drained completely within a single property, and is not readily accessible to the public
- Creek or river (surface waters)
- Drainage ditch or storm drain (surface waters)
- Ground absorbed (non-surface water)

The maintenance crew shall assist the Crew Supervisor and Supervisor (or Inspector) in visually inspecting the area surrounding the SSO, and tracing downstream to determine if the SSO reaches flowing water.

If the final destination is indeterminate, the assumption shall be that the SSO reached surface waters.

The maintenance crew may be required to place warning signs and/or alert citizens that are in immediate threat or danger due to the SSO event. See Section 9 for the SSO destination-related notification procedures.

## 7. MITIGATION

Using all available tools, ESD personnel shall make every effort to stop the SSO as quickly as possible. When a safety threat or higher priority incident is identified, work shall be temporarily suspended until conditions allow work to resume.

See Section 5.2 and 5.3 for mitigation measures required for SSO lasting more than 12 Hours.

### 7.1 Blockage Removal

If the cause of the SSO is a suspected blockage, the responding crew shall use a rod turning machine, a jet-washer truck, or a combination jet-washer/vacuum truck to remove the blockage.

**FOLLOW ESD POLICIES & PROCEDURES FOR PROPER EQUIPMENT SETUP, OPERATION, AND EMERGENCY BLOCKAGE REMOVAL**

If a blockage was removed, the type of blockage shall be determined based on the material removed during the cleaning. Photographs shall be taken if the reason is any of the following:

- Construction damage
- Line break
- Vandalism
- External causes

### 7.2 Pipe, Manhole, Service Lateral, Cleanout or Pump Station Repair

If the cause of the SSO is structural in nature, the ESD Construction Division shall attempt to repair the pipe, manhole, service lateral, cleanout, or pump station.

**FOLLOW ESD POLICIES & PROCEDURES FOR PROPER CONSTRUCTION EQUIPMENT SETUP, OPERATION, AND PIPE AND MANHOLE REPAIR/REPLACEMENT**

## 7.3 Containment

The responding crew shall make reasonable efforts to keep the SSO contained in as small an area as possible.

The responding crew (and/or assisting Construction Division crew) shall attempt to contain the SSO by using sand bags and/or a berm.

## 7.4 Bypass

After all reasonable efforts have been made to stop or contain the SSO and if the SSO is not anticipated to stop in the immediate future, then the County will implement where feasible bypass procedures to stop or mitigate the SSO.

**FOLLOW ESD POLICIES & PROCEDURES FOR PROPER BYPASS PUMPING EQUIPMENT SETUP AND OPERATION**

## 7.5 Unattended Active SSO

In the event that an active SSO must be left unattended due to safety issues, or the need to respond to a higher priority incident, the SSO site shall be delineated or otherwise made visible as needed to prevent public exposure.

The portable **Warning Sign**, carried on Line Maintenance crew trucks and shown in **Figure 1**, shall also be placed at the SSO site and removed when the SSO has ceased.




**Figure 1. Portable SSO Notification Sign Placed Near SSO Discharge**

## 7.6 Clean-Up

The maintenance crew shall do the following, as needed, to clean up the impacted area:

- Remove the SSO notification sign(s)
- Use hand tools (shovels, rakes and brooms) to collect any solids for removal and proper disposal
- Use a combination jet-washer/vacuum truck to vacuum up liquids and remaining solids
- Apply lime to the area surrounding the SSO
- If necessary, revisit the location to restore the impacted area to pre-SSO event conditions

## 8. RECORDKEEPING

### 8.1 Service Request

After the Crew receives a service request from Dispatch, the Crew shall respond. After the call, the Crew shall prepare a work order.

### 8.2 SSO Volume Estimation and Discharge Documentation

If the County owns and maintains the SSO discharge source (manhole service lateral, cleanout, pipe, or pump station), or, if the discharge source is privately owned and maintained, but the County is a contributing factor to the SSO occurrence, specific SSO documentation must be completed in accordance with the County's Consent Decree.

After the SSO has been mitigated, the Line Maintenance crews and Crew Supervisor shall estimate the SSO volume using a standard **Volume Estimating Worksheet** (and related tables) provided in **Appendix E** and following the procedures outlined in the SSORRP:

- SSO Volume Estimating Worksheet for Manholes (ESD Form WS1-1)
- SSO Volume Estimating Worksheet for Service Cleanouts (ESD Form WS1-2)
- SSO Volume Estimating Worksheet for Pipes or Cleanouts (ESD Form WS1-3)

The Line Maintenance crew shall measure the estimated height of the overflow using a plastic measuring stick (carried on all trucks). If Line Maintenance personnel cannot safely access the SSO point in order to use the plastic measuring stick, a visual field estimate shall be made.

All relevant field data shall be gathered on-site and recorded by the Line Maintenance crew on the appropriate Volume Estimating Worksheet and the **Wastewater Discharge Reporting Form (ESD Form RF1-1) and Check Lists** provided in **Appendix F**.

The Line Maintenance Crew Supervisor shall request the assistance of ESD engineering staff to perform an alternate SSO volume estimation if:

- Insufficient field data is available to use a standard estimating worksheet
- The standard method produces results that are not reasonable or consistent with field observations
- The nature of the overflow is non-standard
- A more accurate estimation method may be available

### 8.3 Documentation QA/QC

The Wastewater Discharge Reporting Form, SSO Volume Estimating Worksheet, photographs, and other SSO documentation shall be reviewed in accordance with the procedures outlined in the SSORRP.

The Dispatcher shall verify that the Wastewater Discharge Reporting Form (ESD Form RF1-1) and the Service Request are filled out completely and correctly.

The onsite Supervisor shall review and correct the Wastewater Discharge Reporting Form (ESD Form RF1-1), SSO Volume Estimating Worksheet, photographs, and other documentation.

### 8.4 Regulatory Report Preparation

The Principal Engineering Inspector shall review all SSO documentation and complete the **24 Hour Report (ESD Form RF2-1)** provided in **Appendix G.**

The Principal Engineering Inspector shall complete the **5-Day Follow-Up Report (ESD Form RF3-1)** provided in **Appendix H**.

## 9. NOTIFICATION AND REPORTING

All notification and reporting shall be performed in accordance with the County's Consent Decree requirements and as outlined in the SSORRP.

### 9.1 Sewer Overflow Advisories

If it has been determined that the SSO has reached surface waters (see Section 6.3), and the SSO discharge source is maintained by the county, or the County is a contributing factor to a privately maintained discharge source, Dispatch shall complete a **Sewer Overflow Advisory** form (provided in **Appendix I**) to the **Regulatory Agencies, Officials and Media Outlets** listed in **Appendix J** (as appropriate)**.**

**NOTE:** the Dispatcher shall notify specific individuals or groups directly if threat of exposure is eminent.

## 9.2 Regulatory Agencies

If the SSO discharge source (manhole, service lateral, pipe, or pump station) is privately owned and maintained, Dispatch (at request of the Crew) shall notify the JCDH of the SSO occurrence by fax.

Within 24 hours of the SSO event, Dispatch shall notify the Alabama Department of Environmental Management (ADEM) by telephone, and submit the 24-Hour Report (ESD Form RF2-1) to ADEM and the Jefferson County Department of Health (JCDH).

Within 5 days of the SSO occurrence, the Principal Engineering Inspector shall submit the 5-Day Follow-Up Report (ESD Form RF3-1) to the ADEM and JCDH.

Monthly SSO reporting procedures are outlined in the SSORRP.

## 9.3 The Public

If the SSO has entered surface waters, Line Maintenance crews shall place the portable **Warning Sign** shown in **Figure 1** in the immediate vicinity of the SSO.

If the SSO occurs during wet weather, or if the SSO occurs during dry weather and has an estimated volume greater than 10,000 gallons and reaches surface waters, the portable **Surface Water Sign** shown in **Figure 2** shall be placed at likely points of public access to the affected downstream surface waters.

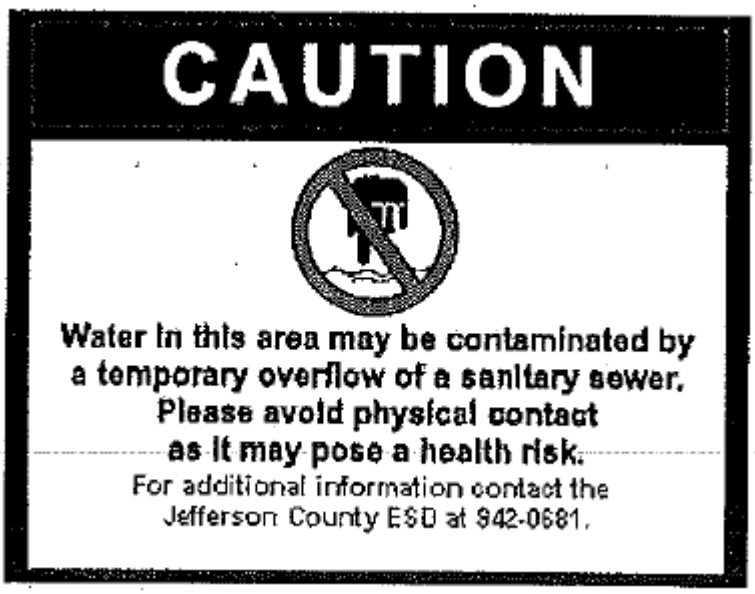


**Figure 2. Portable SSO Notification Sign Placed Near Surface Waters**

If the SSO occurs during dry weather and has an estimated volume less than 10,000 gallons and reaches surface waters, the portable Warning Sign shown in **Figure 1** shall be placed in a safe and visible location.

Line Maintenance Crews shall remove portable signs after the SSO has ceased and its effects have been mitigated.

## 10. REFERENCE DOCUMENTS

Jefferson County Environmental Services Department (2012) *Sanitary Sewer Overflow Response and Reporting Program*

## Appendix A Personal Protective Equipment

The following items shall be made available for use and carried by all personnel working in the field:

- Splash Protection (Rain Gear)
- Leather Boots (Steel Toe)
- Hearing Protection
- Eye Protection
- Hard Hat
- Gloves
- Dust Mask
- Safety Vest
- Splash Shield
- First Aid Kit
- Waterless soap/disinfectant

## Appendix B Initial SSO Notification Call List

| Position | Name | Phone Number | Email Address |
|---|---|---|---|
| **Sewer Construction / Maintenance Supervisor** | Vacant | - | - |
| **Principal Engineering Inspector** | Brian Champion | (205) 601-5054 | champion@jccal.org |
| **Principal Engineering Inspector** | Lavon Evans | (205) 601-5056 | evansl@jccal.org |
| **Sewer Video Supervisor** | Don Goodwin | (205) 296-2012 | goodwind@jccal.org |
| **Public Works Supervisor** | Todd Childers | (205) 396-3821 | childerst@jccal.org |
| **Public Works Supervisor** | Ronnie Collier | (205) 601-5055 | ronniecollier@jjcal.org |
| **Public Works Supervisor** | Vacant | - | - |
| **Sewer Service Inspector** | Jason Ashley | (205) 601-5052 | ashleyj@jccal.org |
| **Sewer Service Inspector** | Vacant | - | - |

## Appendix C Spill Response Materials/Basic Field Tools and Accessories

### Spill and Complaint Response

- Lime (disinfectant) - 40 pound container
- Digital Camera and batteries
- Stopwatch or Watch
- Plastic Measuring Stick
- Calculator
- Necessary Reporting Forms
- Clipboard and extra Pens

### Tool Box

- Screwdrivers – large and small Phillips, large and small flat head
- American standard crescent wrenches set from 7/16-inch to 3/4-inch
- Pipe wrench (2)
- Adjustable wrench - large and small
- Small socket set and American standard sockets 3/8-inch drive
- Socket for draining pump
- Allen wrench set
- "T" handle Allen wrench for truck-sized Allen screws
- Deep well sockets (if needed for truck)
- Pliers, channel locks and side cutters
- Small hammer
- Hack saw
- Wire cutters
- Bailing wire
- Duct tape
- 25- and 100-foot tape measures
- Utility knife
- Lube spray
- Electrical tape and duct tape

### Jet Cleaning Tools

- Stoppage nozzle, grease nozzle, invert cleaner, specialty nozzles
- Assorted sized finned extensions for cleaning
- 6-, 8-, 10-, and 12-inch proofing skids
- Upper maintenance hole roller
- Hose splice repair kit - hydraulic jack, dies, hacksaw, 2 splice fittings, 2 male

### Field Accessories

- Sewer map
- Appropriate papers – time sheets, backup reports, unscheduled reports, and handouts
- Leader hose and tiger tail
- Dye – green, orange, and red
- Spray paint – green
- Water jug (5 gallon) with cups
- Traffic cones (10 minimum)
- Portable radios – two
- Stove pipe- various sizes
- Poly line
- Flashlight
- Spot light
- Metal detector
- Wheel footage counter
- Hydrant valve with hydrant wrench & key
- Maintenance hole hook, T hook for LIT and 16lb sledge hammer
- Mirror
- Shovels – 1 flat, 1 standard
- Debris traps for 6-, 8-, 10-, and 12-inch pipe with extension pipes
- (6) 5' extension pipes threaded type with couplings
- Spoon shovel (wood handle type)
- 12- foot grabbing tools (clam shovels)
- (2) 5-gallon buckets for debris
- Pruning saw, brush loppers, and machete
- Grease gun and spare cartridge
- Cones
- Magnet with 25 feet of small cord attached
- Skids, Chock blocks
- Spare filters

**Appendix D** **SSO Picture Procedure**
**(*from Appendix C of the SSORRP)***

***See following two pages***

# SSO PICTURE PROCEDURE

Please follow all steps to ensure that SSO pictures comply with requirements.

1) Verify that camera time and date are correct prior to taking pictures.

2) Verify that the time and date stamp is set to be active within the camera.

3) First picture should be taken from the side of the manhole or cleanout to show the height of the discharge on the measuring stick.

4) Second picture should be taken from a distance and angle so that a landmark (i.e.,house, street sign, mailbox) is visible in the picture.

5) If the SSO has ceased upon arrival, pictures are to be taken of the area surrounding the overflow.

6) The minimum number of pictures taken should be two. Additional pictures should be taken if necessary.

7) Please note the address of the closest structure or building to the manhole or cleanout. ***(Reported Location)***

8) The pictures should be submitted to the Public Works Supervisor or Sewer Video Operations Supervisor along with the ***Reported Location*** the same day.

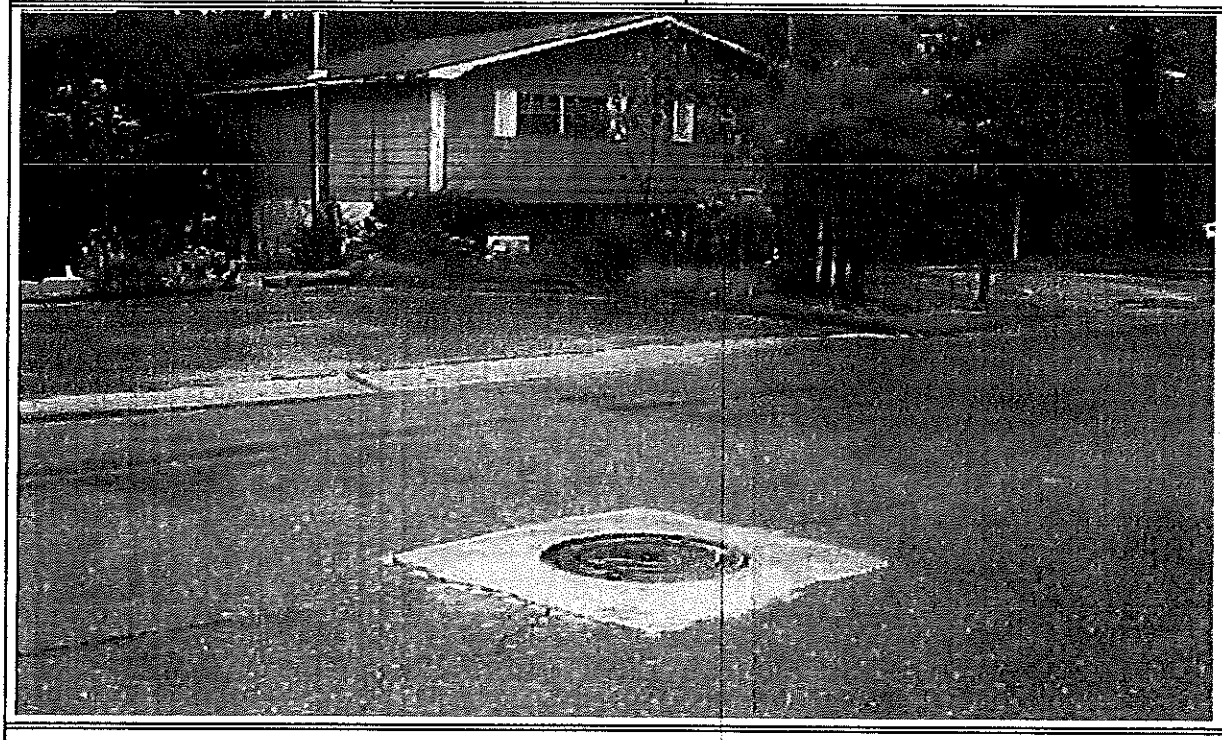
9) The Public Works Supervisor or Sewer Video Operations Supervisor will then forward the pictures along with the signed ***SSO Check List for Line Maintenance*** to the Principle Engineering Inspector.

10) The Principal Engineering Inspector should insert the pictures on the **SSO Picture Form** and insert the required information. ***(Service Request Number, Address of Reported Location, Manhole number for overflowing manhole, Mini-system number for overflowing cleanout)***

11) The Principal Engineering Inspector will save an electronic copy of the SSO Picture Form with a file name of the Service Request Number.

# SSO PICTURE FORM

| SERVICE REQUEST NUMBER | MANHOLE OR MINI SYSTEM NUMBER | ADDRESS |
|---|---|---|
| | | |



PEI's Intials _____

Version 1

# SSO PICTURE PROCEDURE

Please follow all steps to ensure that SSO pictures comply with requirements.

1) Verify that camera time and date are correct prior to taking pictures.

2) Verify that the time and date stamp is set to be active within the camera.

3) First picture should be taken from the side of the manhole or cleanout to show the height of the discharge on the measuring stick.

4) Second picture should be taken from a distance and angle so that a landmark (i.e.,house, street sign, mailbox) is visible in the picture.

5) If the SSO has ceased upon arrival, pictures are to be taken of the area surrounding the overflow.

6) The minimum number of pictures taken should be two. Additional pictures should be taken if necessary.

7) Please note the address of the closest structure or building to the manhole or cleanout. ***(Reported Location)***

8) The pictures should be submitted to the Public Works Supervisor or Sewer Video Operations Supervisor along with the ***Reported Location*** the same day.

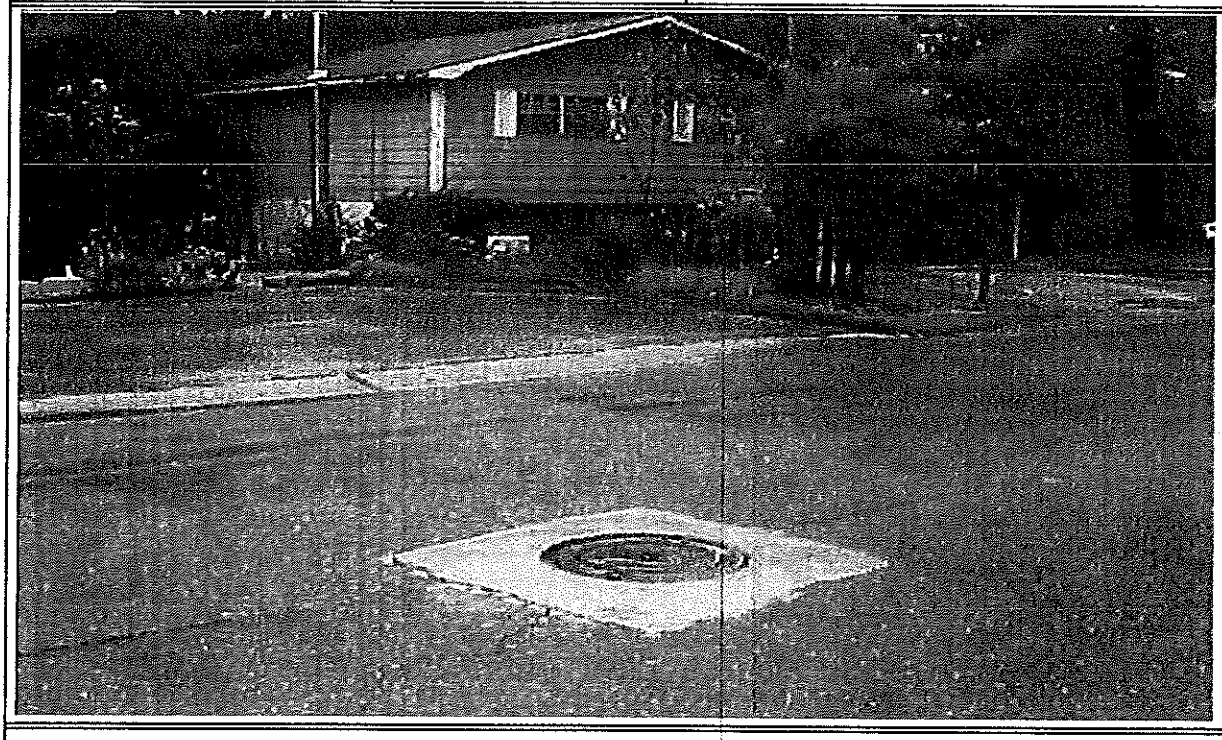
9) The Public Works Supervisor or Sewer Video Operations Supervisor will then forward the pictures along with the signed ***SSO Check List for Line Maintenance*** to the Principle Engineering Inspector.

10) The Principal Engineering Inspector should insert the pictures on the **SSO Picture Form** and insert the required information. ***(Service Request Number, Address of Reported Location, Manhole number for overflowing manhole, Mini-system number for overflowing cleanout)***

11) The Principal Engineering Inspector will save an electronic copy of the SSO Picture Form with a file name of the Service Request Number.

# SSO PICTURE FORM

| SERVICE REQUEST NUMBER | MANHOLE OR MINI SYSTEM NUMBER | ADDRESS |
|---|---|---|
| | | |



PEI's Intials _____

Version 1

**Appendix E** **SSO Volume Estimating Worksheets**
**(*from Appendix B of the SSORRP)***

***See following three pages***

## JEFFERSON COUNTY, AL

### ENVIRONMENTAL SERVICES DEPARTMENT

Suite A-300
716 Richard Arrington Jr. Boulevard, N
Birmingham, AL 35203

# SSO VOLUME ESTIMATING WORKSHEET FOR MANHOLES

Date: _____ Sewer Service Request Number: _____

If MANHOLE is overflowing or not overflowing at the time the crew arrives at the reported location, pictures will be taken in accordance with the SSO Picture Procedure. The Jefferson County SSO Volume Estimating Procedure will be used to determine the estimated flow rate.

**Determine Duration**

Time SSO Reported: _____ Time SSO Stopped: _____
(Dispatcher)

Time of Arrival: _____ * Duration of SSO: _____ Minutes

* DURATION OF SSO: If the MH is overflowing when crews arrive, then the SSO Start Time will be the Time SSO Reported (dispatcher) shown above. The duration of the SSO will be the difference between Time SSO Reported and Time SSO Stopped (minutes).

**Determine Volume**

○ *SSO Digital Photo Measurement - to be used when MH is overflowing upon crew arrival.*

_____ Average measured height from measuring stick.

_____ Cover On or Off _____ Table Used _____ GPM

Volume from Table - _____

Duration of SSO - _____ Minutes

Estimated Volume = _____ Gallons (est. rate in GPM X est. duration in minutes)

○ *Ponding Calculation - to be used when SSO originated from MH, is not overflowing upon crew arrival, but is contained in an area*

Volume of Sewage = length (ft) X width (ft) X depth (ft) X 7.48*

_____ length (ft)
_____ width (ft)
_____ depth (ft)

* 7.48 gallons = 1 $ft^3$

Volume = _____ $ft^3$ X 7.48 = _____ Gallons

○ *Not Determinable - when an SSO from a MH is not overflowing upon crew arrival and rate can not be determined.*

Explain: _____

Crew # : _____ Signed: _____

I certify that I have personally examined and am familiar with the information submitted herein; and based on my inquiry of those individuals immediately responsible for obtaining the information. I believe the submitted information is true, accurate, and complete. I am aware that there are significant penalties for knowingly submitting false information.

JEFFERSON COUNTY, AL
ENVIRONMENTAL SERVICES DEPARTMENT
Suite A-300
716 Richard Arrington Jr. Boulevard, N
Birmingham, AL 35203

Date: Sewer Service Request Number:

## SSO VOLUME ESTIMATING WORKSHEET FOR SERVICE CLEANOUTS

1 Determine diameter (d) of service cleanout. = _____ inches
2 Estimate height (h) of flow from service cleanout. = _____ inches
3 Determine estimated flow rate (Q) from charts below. = _____ gpm
4 Estimate time (t) of discharge. = _____ minutes
5 Multiply step 3 & 4 to obtain estimated volume. = _____ Gallons

| 4" Diameter Cleanout | |
|---|---|
| h (in) | Q (gpm) |
| 0.25 | 6 |
| 0.5 | 14 |
| 0.75 | 24 |
| 1 | 35 |
| 1.5 | 60 |
| 2 | 86 |
| 2.5 | 108 |
| 3 | 128 |
| 3.5 | 145 |
| 4 | 160 |
| 4.5 | 173 |
| 5 | 184 |
| 6 | 205 |
| 7 | 223 |
| 8 | 239 |
| 9 | 254 |
| 10 | 268 |
| 11 | 282 |
| 12 | 295 |
| 14 | 320 |
| 16 | 345 |
| 18 | 367 |
| 20 | 388 |

| 6" Diameter Cleanout | |
|---|---|
| h (in) | Q (gpm) |
| 0.25 | 9 |
| 0.5 | 23 |
| 0.75 | 40 |
| 1 | 58 |
| 1.5 | 100 |
| 2 | 150 |
| 2.5 | 205 |
| 3 | 250 |
| 3.5 | 293 |
| 4 | 330 |
| 4.5 | 365 |
| 5 | 395 |
| 6 | 445 |
| 7 | 485 |
| 8 | 520 |
| 9 | 550 |
| 10 | 585 |
| 11 | 631 |
| 12 | 650 |
| 14 | 705 |
| 16 | 755 |
| 18 | 800 |
| 20 | 850 |

Time SSO Reported: (Dispatcher)

Time of Arrival:

Time SSO Stopped

* Duration of SSO _____ Minutes

*Duration of SSO: If the cleanout is overflowing when crews arrive, then the SSO start time will be the time SSO reported (dispatcher) shown above. The duration of SSO will be the difference between time SSO reported and time SSO stopped (minutes).

Crew #: _____ Signed: _____

I certify that I have personally examined and am familiar with the information submitted herein; and based on my inquiry of those individuals immediately responsible for obtaining the information. I believe the submitted information is true, accurate, and complete. I am aware that there are significant penalties for knowingly submitting false information.

Disclaimer:

This table was developed by the Jefferson County ESD utilizing *Chapter 14-Measurements in Pressure Conduits, Section 13-Trajectory Methods* of the *U.S. Department of the Interior Bureau of Reclamation Water Measurement Manual.* This table is provided as an example. Other Agencies may want to develop their own estimating tables.

# JEFFERSON COUNTY, AL

## ENVIRONMENTAL SERVICES DEPARTMENT

Suite A-300
716 Richard Arrington Jr. Boulevard, N
Birmingham, AL 35203

## SSO VOLUME ESTIMATING WORKSHEET FOR PIPES OR CLEANOUTS

Date: _____ Sewer Service Request Number: _____

If CLEANOUT is overflowing or not overflowing at the time the crew arrives at the reported location, pictures will be taken in accordance with the SSO Picture Procedure. The Jefferson County SSO Volume Estimating Procedure will be used to determine the estimated flow rate.

### Determine Duration

Time SSO Reported: _____ Time SSO Stopped: _____
(Dispatcher)

Time of Arrival: _____ * Duration of SSO: _____ Minutes

* DURATION OF SSO: If the PIPE is overflowing when crews arrive, then the SSO Start Time will be the Time SSO Reported (dispatcher) shown above. The duration of the SSO will be the difference between Time SSO Reported and Time SSO Stopped (minutes).

### Determine Volume

○ *Determine number of residential connections upstream of overflow. Each residence contributes approximately 250 gal/day-res (100 gal/day-cap X 2.5 cap/res), or 10.5 gal/hr-res (0.175 gal/min-res).*

Res. Connections - _____ X 0.175 = _____ GPM
Duration of SSO - _____ Minutes
Estimated Volume = _____ Gallons (est. rate in GPM X est. duration in minutes)

○ *Ponding Calculation - to be used when SSO is not overflowing upon crew arrival, but is contained in an area.*

Volume of Sewage = length (ft) X width (ft) X depth (ft) X 7.48*

_____ length (ft)
_____ width (ft)
_____ depth (ft)

* 7.48 gallons = 1 $ft^3$

Volume = _____ $ft^3$ X 7.48 = _____ Gallons

○ *Volume computed by Engineering Staff of ESD - Attach copy of supporting documentation and Engineer's name.*

Comments: _____

Crew # : _____ Signed: _____

I certify that I have personally examined and am familiar with the information submitted herein; and based on my inquiry of those individuals immediately responsible for obtaining the information. I believe the submitted information is true, accurate, and complete. I am aware that there are significant penalties for knowingly submitting false information.

## JEFFERSON COUNTY, AL

### ENVIRONMENTAL SERVICES DEPARTMENT

Suite A-300
716 Richard Arrington Jr. Boulevard, N
Birmingham, AL 35203

# SSO VOLUME ESTIMATING WORKSHEET FOR MANHOLES

Date: _____ Sewer Service Request Number: _____

If MANHOLE is overflowing or not overflowing at the time the crew arrives at the reported location, pictures will be taken in accordance with the SSO Picture Procedure. The Jefferson County SSO Volume Estimating Procedure will be used to determine the estimated flow rate.

**Determine Duration**

Time SSO Reported: _____ Time SSO Stopped: _____
(Dispatcher)

Time of Arrival: _____ * Duration of SSO: _____ Minutes

* DURATION OF SSO: If the MH is overflowing when crews arrive, then the SSO Start Time will be the Time SSO Reported (dispatcher) shown above. The duration of the SSO will be the difference between Time SSO Reported and Time SSO Stopped (minutes).

**Determine Volume**

○ *SSO Digital Photo Measurement - to be used when MH is overflowing upon crew arrival.*

_____ Average measured height from measuring stick.

_____ Cover On or Off _____ Table Used _____ GPM

Volume from Table - _____

Duration of SSO - _____ Minutes

Estimated Volume = _____ Gallons (est. rate in GPM X est. duration in minutes)

○ *Ponding Calculation - to be used when SSO originated from MH, is not overflowing upon crew arrival, but is contained in an area*

Volume of Sewage = length (ft) X width (ft) X depth (ft) X 7.48*

_____ length (ft)
_____ width (ft)
_____ depth (ft)

* 7.48 gallons = 1 $ft^3$

Volume = _____ $ft^3$ X 7.48 = _____ Gallons

○ *Not Determinable - when an SSO from a MH is not overflowing upon crew arrival and rate can not be determined.*

Explain: _____

Crew # : _____ Signed: _____

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JEFFERSON COUNTY, AL
ENVIRONMENTAL SERVICES DEPARTMENT
Suite A-300
716 Richard Arrington Jr. Boulevard, N
Birmingham, AL 35203

Date: Sewer Service Request Number:

## SSO VOLUME ESTIMATING WORKSHEET FOR SERVICE CLEANOUTS

1 Determine diameter (d) of service cleanout. = _____ inches
2 Estimate height (h) of flow from service cleanout. = _____ inches
3 Determine estimated flow rate (Q) from charts below. = _____ gpm
4 Estimate time (t) of discharge. = _____ minutes
5 Multiply step 3 & 4 to obtain estimated volume. = _____ Gallons

| 4" Diameter Cleanout | |
|---|---|
| h (in) | Q (gpm) |
| 0.25 | 6 |
| 0.5 | 14 |
| 0.75 | 24 |
| 1 | 35 |
| 1.5 | 60 |
| 2 | 86 |
| 2.5 | 108 |
| 3 | 128 |
| 3.5 | 145 |
| 4 | 160 |
| 4.5 | 173 |
| 5 | 184 |
| 6 | 205 |
| 7 | 223 |
| 8 | 239 |
| 9 | 254 |
| 10 | 268 |
| 11 | 282 |
| 12 | 295 |
| 14 | 320 |
| 16 | 345 |
| 18 | 367 |
| 20 | 388 |

| 6" Diameter Cleanout | |
|---|---|
| h (in) | Q (gpm) |
| 0.25 | 9 |
| 0.5 | 23 |
| 0.75 | 40 |
| 1 | 58 |
| 1.5 | 100 |
| 2 | 150 |
| 2.5 | 205 |
| 3 | 250 |
| 3.5 | 293 |
| 4 | 330 |
| 4.5 | 365 |
| 5 | 395 |
| 6 | 445 |
| 7 | 485 |
| 8 | 520 |
| 9 | 550 |
| 10 | 585 |
| 11 | 631 |
| 12 | 650 |
| 14 | 705 |
| 16 | 755 |
| 18 | 800 |
| 20 | 850 |

Time SSO Reported: (Dispatcher)

Time of Arrival:

Time SSO Stopped

* Duration of SSO _____ Minutes

*Duration of SSO: If the cleanout is overflowing when crews arrive, then the SSO start time will be the time SSO reported (dispatcher) shown above. The duration of SSO will be the difference between time SSO reported and time SSO stopped (minutes).

Crew #: _____ Signed: _____

I certify that I have personally examined and am familiar with the information submitted herein; and based on my inquiry of those individuals immediately responsible for obtaining the information. I believe the submitted information is true, accurate, and complete. I am aware that there are significant penalties for knowingly submitting false information.

Disclaimer:

This table was developed by the Jefferson County ESD utilizing *Chapter 14-Measurements in Pressure Conduits, Section 13-Trajectory Methods* of the *U.S. Department of the Interior Bureau of Reclamation Water Measurement Manual.* This table is provided as an example. Other Agencies may want to develop their own estimating tables.

# JEFFERSON COUNTY, AL

## ENVIRONMENTAL SERVICES DEPARTMENT

Suite A-300
716 Richard Arrington Jr. Boulevard, N
Birmingham, AL 35203

## SSO VOLUME ESTIMATING WORKSHEET FOR PIPES OR CLEANOUTS

Date: _____ Sewer Service Request Number: _____

If CLEANOUT is overflowing or not overflowing at the time the crew arrives at the reported location, pictures will be taken in accordance with the SSO Picture Procedure. The Jefferson County SSO Volume Estimating Procedure will be used to determine the estimated flow rate.

### Determine Duration

Time SSO Reported: _____ Time SSO Stopped: _____
(Dispatcher)

Time of Arrival: _____ * Duration of SSO: _____ Minutes

* DURATION OF SSO: If the PIPE is overflowing when crews arrive, then the SSO Start Time will be the Time SSO Reported (dispatcher) shown above. The duration of the SSO will be the difference between Time SSO Reported and Time SSO Stopped (minutes).

### Determine Volume

○ *Determine number of residential connections upstream of overflow. Each residence contributes approximately 250 gal/day-res (100 gal/day-cap X 2.5 cap/res), or 10.5 gal/hr-res (0.175 gal/min-res).*

Res. Connections - _____ X 0.175 = _____ GPM
Duration of SSO - _____ Minutes
Estimated Volume = _____ Gallons (est. rate in GPM X est. duration in minutes)

○ *Ponding Calculation - to be used when SSO is not overflowing upon crew arrival, but is contained in an area.*

Volume of Sewage = length (ft) X width (ft) X depth (ft) X 7.48*

_____ length (ft)
_____ width (ft)
_____ depth (ft)

* 7.48 gallons = 1 $ft^3$

Volume = _____ $ft^3$ X 7.48 = _____ Gallons

○ *Volume computed by Engineering Staff of ESD - Attach copy of supporting documentation and Engineer's name.*

Comments: _____

Crew # : _____ Signed: _____

I certify that I have personally examined and am familiar with the information submitted herein; and based on my inquiry of those individuals immediately responsible for obtaining the information. I believe the submitted information is true, accurate, and complete. I am aware that there are significant penalties for knowingly submitting false information.

**Appendix F** **Wastewater Discharge Reporting Form (ESD Form RF1-1) and Check Lists (*from SSORRP Appendix E*)**

***See following eight pages***

Jefferson County, AL
Environmental Services Department
Suite A-300
716 Richard Arrington Jr. Boulevard, N
Birmingham, AL 35203

# WASTEWATER DISCHARGE REPORTING FORM

Reported Information — Service Request Number: _____

Photos Taken: ☐ Yes ☐ No Number of Photos Taken: _____

Date Reported: _____ Time SSO Began _____ Time SSO Stopped _____

Caller Name: _____ Caller Phone No.: _____

Location from Caller Street Address: _____

Overflow Location Street Address: _____

**Collection System Permit #** _____ Overflowing Manhole Number: _____
*Enter Mini-system number if overflow is from a cleanout*

| Municipality | ☐ County Maintained | ☐ Privately Maintained |
|---|---|---|
| ☐ Adamsville ☐ Bessemer ☐ Birmingham ☐ Brighton ☐ Center Point ☐ Fairfield ☐ Fultondale ☐ Gardendale ☐ Graysville ☐ Homewood ☐ Hoover ☐ Hueytown ☐ Irondale ☐ Leeds ☐ Lipscomb ☐ Mountain Brook ☐ Midfield ☐ Pleasant Grove ☐ Tarrant ☐ Trussville ☐ Vestavia ☐ Warrior | ☐ Cahaba ☐ Five Mile ☐ Leeds ☐ Prudes ☐ Trussville ☐ Turkey Creek ☐ Valley ☐ Village ☐ Warrior | ☐ Referred caller to municipality ☐ County Investigated ☐ Other ☐ Notification of Public ☐ Press Release ☐ Placement of Signs |

**Field Observation (If County Investigated)**

**Destination of Discharge:** ☐ Ground absorbed ☐ Drainage Ditch ☐ Storm Drain ☐ Creek or River _____ ☐ Other _____

**Estimated Discharge Volume:** ☐ Volume not determinable ☐ Estimated Volume (Gallons) _____

**Discharge Source:** ☐ Cleanout ☐ Pipe ☐ Treatment Plant ☐ Manhole ☐ Pump Station ☐ Other _____

**Known or Suspected Discharge Cause: (Check all that apply)**
☐ Construction Damage ☐ Debris ☐ Infiltration/Inflow ☐ Force Main Break ☐ Gravity Main Break ☐ Grease ☐ Power outage ☐ P.S. Equipment Failure ☐ Rags ☐ Rocks ☐ Roots ☐ Surcharge from rain ☐ Vandalism ☐ Other _____

**Comments** _____

**Recent Weather** ☐ None **Rain:** ☐ Light ☐ Mod. ☐ Heavy **Estimated Duration:** _____

**Conditions Contributing to the Discharge:** **Flooding from rain in overflow area:** ☐ Yes ☐ No

**Action Taken (If County Investigated)**
☐ Blockage Removed ☐ Line Repaired ☐ Manhole Repaired ☐ Power Restored ☐ Additional Rehab Considered ☐ Project Planned to Replace/Repair Line ☐ Pump Station Repaired ☐ Other _____

SSO 24-Hour Notice FAXED? ☐ Yes ☐ No Date: _____

Remarks: _____

Maintenance Supervisor's Signature: _____ Date _____

I certify that I have personally examined and am familiar with the information submitted herein; and based on my inquiry of those individuals immediately responsible for obtaining the information. I believe the submitted information is true, accurate, and complete. I am aware that there are significant penalties for knowingly submitting false information.

ESD FORM RF1-1

# SERVICE REQUEST CHECK LIST

| YES | NO | N/A | |
|---|---|---|---|
| ☐ | ☐ | ☐ | Customer's Name |
| ☐ | ☐ | ☐ | Customer's Complete Address ( No Abbreviations, Except in Directional) |
| ☐ | ☐ | ☐ | Problem Address (If different than caller address) |
| ☐ | ☐ | ☐ | City |
| ☐ | ☐ | ☐ | Zip Code |
| ☐ | ☐ | ☐ | Customer's Phone Number(s) |
| ☐ | ☐ | ☐ | Complete Customer Comments on problem having |
| ☐ | ☐ | ☐ | Sewer Basin (proper format - located on wall behind both computers) |
| ☐ | ☐ | ☐ | Map Page (Proper Format 46-Z13) |
| ☐ | ☐ | ☐ | Crew Dispatched to call |
| ☐ | ☐ | ☐ | Mini System Number |
| ☐ | ☐ | ☐ | Crew Arrival Time noted on request |
| ☐ | ☐ | ☐ | Complete Crew Comments |
| ☐ | ☐ | ☐ | Proper Code from Crew's Comments |
| ☐ | ☐ | ☐ | Closed Call (unless waiting for another crew) |
| ☐ | ☐ | ☐ | Did Crew talk with Homeowner/Business Owner? |

## Backup in Home/Business

| | | | |
|---|---|---|---|
| ☐ | ☐ | ☐ | Were Pictures Taken? If so by whom? |
| ☐ | ☐ | ☐ | Was SERVPRO called? Who did you speak with? Time? |

## Broken Sewer Line

| | | | |
|---|---|---|---|
| ☐ | ☐ | ☐ | Who is handling repair? |

## Cleanout Overflow

Overflow stopped at (time)?

Called into ADEM (Date & Time) *** Note these two are separate do not join together ***

Faxed ADEM & Health Department (Date & Time) *** Note (see above)***

WWTP Permit Number (located on wall behind computer monitor)

## Called Wrong Utility

Company called? Who did you speak with?

## GCP

Did crew discover grease or other debris/roots in line? Was Code changed?

## MH Overflow

Overflow stopped at (time)?

Overflowing Manhole Number(s)?

Called into ADEM (Date & Time) *** Note these two are separate do not join together ***

Faxed ADEM & Health Department (Date & Time) *** Note (see above)***

WWTP Permit Number (located on wall behind computer monitor)

If line was Surcharging was it checked every 2 hours?

Date & Times Surcharge was checked

## Overflow~BSL

Overflow stopped at (time)?

Overflowing Manhole Number(s)?

Called into ADEM (Date & Time) *** Note these two are separate do not join together ***

Faxed ADEM & Health Department (Date & Time) *** Note (see above)***

WWTP Permit Number (located on wall behind computer monitor)

## TV Inspection Codes

Locate Manhole - Was Manhole Number listed?

# SSO CHECK LIST FOR LINE MAINTENANCE

***PUBLIC WORKS SUPERVISOR/ SEWER VIDEO OPERATIONS SUPERVISOR***

Please verify that information is correct by placing a check in the box prior to each statement. If information is not correct make a note at the bottom of the next page and follow procedures as outlined in the SSORRP.

| YES | NO | N/A | |
|---|---|---|---|
| ☐ | ☐ | ☐ | Service Request Number ☐ |
| ☐ | ☐ | ☐ | Date Reported |
| ☐ | ☐ | ☐ | Time SSO Began |
| ☐ | ☐ | ☐ | Time SSO Stopped |
| ☐ | ☐ | ☐ | Caller's Name |
| ☐ | ☐ | ☐ | Caller's Phone Number |
| ☐ | ☐ | ☐ | Reported Location *(Make sure that the reported location is not the caller's location unless they are the same.)* |
| ☐ | ☐ | ☐ | Street Address |
| ☐ | ☐ | ☐ | City |
| ☐ | ☐ | ☐ | Zip Code |
| ☐ | ☐ | ☐ | Collection System Permit |
| ☐ | ☐ | ☐ | Overflowing Manhole Number *(If overflow is from a cleanout, mini-system should be recorded.)* |
| ☐ | ☐ | ☐ | Municipality |
| ☐ | ☐ | ☐ | Basin |
| ☐ | ☐ | ☐ | Notification of Public |
| ☐ | ☐ | ☐ | Destination of Discharge |
| ☐ | ☐ | ☐ | Estimated Volume |
| ☐ | ☐ | ☐ | Discharge Source |
| ☐ | ☐ | ☐ | Discharge Cause |
| ☐ | ☐ | ☐ | Recent Weather |

# 5 DAY CHECK LIST FOR LINE MAINTENANCE

***PRINCIPAL ENGINEERING INSPECTOR***

Please verify that information is correct by placing a check in the box prior to each statement. If information is not correct make a note at the bottom of the next page. If a correction is required, the 5 day report should be corrected prior to submitting and procedures followed as outlined in the SSORRP.

| YES | NO | N/A | |
|---|---|---|---|
| ☐ | ☐ | ☐ | Service Request Number ☐ |
| ☐ | ☐ | ☐ | Date Reported |
| ☐ | ☐ | ☐ | Time SSO Began |
| ☐ | ☐ | ☐ | Time SSO Stopped |
| ☐ | ☐ | ☐ | Caller's Name |
| ☐ | ☐ | ☐ | Caller's Phone Number |
| ☐ | ☐ | ☐ | Reported Location *(Make sure that the reported location is not the caller's location unless they are the same.)* |
| ☐ | ☐ | ☐ | Street Address |
| ☐ | ☐ | ☐ | City |
| ☐ | ☐ | ☐ | Zip Code |
| ☐ | ☐ | ☐ | Collection System Permit |
| ☐ | ☐ | ☐ | Overflowing Manhole Number *(If overflow is from a cleanout, mini-system should be recorded.)* |
| ☐ | ☐ | ☐ | Municipality |
| ☐ | ☐ | ☐ | Basin |
| ☐ | ☐ | ☐ | Notification of Public |
| ☐ | ☐ | ☐ | Destination of Discharge |
| ☐ | ☐ | ☐ | Estimated Volume |
| ☐ | ☐ | ☐ | Discharge Source |
| ☐ | ☐ | ☐ | Discharge Cause |
| ☐ | ☐ | ☐ | Recent Weather |

Service Request Number

| YES | NO | N/A | |
|---|---|---|---|
| | | | Conditions Contributing to the Discharge |
| | | | Action Taken |
| | | | 24 Hour Notice Faxed |
| | | | Date & Time |
| | | | Health Department/ Other |

CORRECTIONS

I certify that I have personally examined and am familiar with the information submitted herein; and based on my inquiry of those individuals immediately responsible for obtaining the information. I believe the submitted information is true, accurate, and complete unless noted above.

Signature _____ Date _____

# SSO CHECK LIST FOR ADMINISTRATION

Please verify that information is correct by placing a check in the box prior to each statement. If information is not correct make a note at the bottom of the next page and follow procedures as outlined in the SSORRP.

| YES | NO | N/A | |
|---|---|---|---|
| ☐ | ☐ | ☐ | Service Request Number ☐ |
| ☐ | ☐ | ☐ | Date Reported |
| ☐ | ☐ | ☐ | Time SSO Began |
| ☐ | ☐ | ☐ | Time SSO Stopped |
| ☐ | ☐ | ☐ | Caller's Name |
| ☐ | ☐ | ☐ | Caller's Phone Number |
| ☐ | ☐ | ☐ | Reported Location *(Make sure that the reported location is not the caller's location unless they are the same.)* |
| ☐ | ☐ | ☐ | Street Address |
| ☐ | ☐ | ☐ | City |
| ☐ | ☐ | ☐ | Zip Code |
| ☐ | ☐ | ☐ | Collection System Permit |
| ☐ | ☐ | ☐ | Overflowing Manhole Number *(If overflow is from a cleanout, mini-system should be recorded.)* |
| ☐ | ☐ | ☐ | Municipality |
| ☐ | ☐ | ☐ | Basin *(Village - East or West)* *(Five Mile - Up or Down)* ***CIRCLE SELECTION*** |
| ☐ | ☐ | ☐ | Notification of Public |
| ☐ | ☐ | ☐ | Destination of Discharge |
| ☐ | ☐ | ☐ | Estimated Volume |
| ☐ | ☐ | ☐ | Discharge Source |
| ☐ | ☐ | ☐ | Discharge Cause |
| ☐ | ☐ | ☐ | Recent Weather |

Service Request Number

| YES | NO | N/A | |
|---|---|---|---|
| ☐ | ☐ | ☐ | Conditions Contributing to the Discharge |
| ☐ | ☐ | ☐ | Action Taken |
| ☐ | ☐ | ☐ | 24 Hour Notice Faxed |
| ☐ | ☐ | ☐ | Date & Time |
| ☐ | ☐ | ☐ | Health Department/ Other |

CORRECTIONS

I certify that I have personally examined and am familiar with the information submitted herein; and based on my inquiry of those individuals immediately responsible for obtaining the information. I believe the submitted information is true, accurate, and complete unless noted above.

Signature _____ Date _____

Jefferson County, AL
Environmental Services Department
Suite A-300
716 Richard Arrington Jr. Boulevard, N
Birmingham, AL 35203

# WASTEWATER DISCHARGE REPORTING FORM

Reported Information — Service Request Number: _____

Photos Taken: ☐ Yes ☐ No Number of Photos Taken: _____

Date Reported: _____ Time SSO Began _____ Time SSO Stopped _____

Caller Name: _____ Caller Phone No.: _____

Location from Caller Street Address: _____

Overflow Location Street Address: _____

**Collection System Permit #** _____ Overflowing Manhole Number: _____
*Enter Mini-system number if overflow is from a cleanout*

| Municipality | ☐ County Maintained | ☐ Privately Maintained |
|---|---|---|
| ☐ Adamsville ☐ Bessemer ☐ Birmingham ☐ Brighton ☐ Center Point ☐ Fairfield ☐ Fultondale ☐ Gardendale ☐ Graysville ☐ Homewood ☐ Hoover ☐ Hueytown ☐ Irondale ☐ Leeds ☐ Lipscomb ☐ Mountain Brook ☐ Midfield ☐ Pleasant Grove ☐ Tarrant ☐ Trussville ☐ Vestavia ☐ Warrior | ☐ Cahaba ☐ Five Mile ☐ Leeds ☐ Prudes ☐ Trussville ☐ Turkey Creek ☐ Valley ☐ Village ☐ Warrior | ☐ Referred caller to municipality ☐ County Investigated ☐ Other ☐ Notification of Public ☐ Press Release ☐ Placement of Signs |

**Field Observation (If County Investigated)**

**Destination of Discharge:** ☐ Ground absorbed ☐ Drainage Ditch ☐ Storm Drain ☐ Creek or River _____ ☐ Other _____

**Estimated Discharge Volume:** ☐ Volume not determinable ☐ Estimated Volume (Gallons) _____

**Discharge Source:** ☐ Cleanout ☐ Pipe ☐ Treatment Plant ☐ Manhole ☐ Pump Station ☐ Other _____

**Known or Suspected Discharge Cause: (Check all that apply)**
☐ Construction Damage ☐ Debris ☐ Infiltration/Inflow ☐ Force Main Break ☐ Gravity Main Break ☐ Grease ☐ Power outage ☐ P.S. Equipment Failure ☐ Rags ☐ Rocks ☐ Roots ☐ Surcharge from rain ☐ Vandalism ☐ Other _____

**Comments** _____

**Recent Weather** ☐ None **Rain:** ☐ Light ☐ Mod. ☐ Heavy **Estimated Duration:** _____

**Conditions Contributing to the Discharge:** **Flooding from rain in overflow area:** ☐ Yes ☐ No

**Action Taken (If County Investigated)**
☐ Blockage Removed ☐ Line Repaired ☐ Manhole Repaired ☐ Power Restored ☐ Additional Rehab Considered ☐ Project Planned to Replace/Repair Line ☐ Pump Station Repaired ☐ Other _____

SSO 24-Hour Notice FAXED? ☐ Yes ☐ No Date: _____

Remarks: _____

Maintenance Supervisor's Signature: _____ Date _____

I certify that I have personally examined and am familiar with the information submitted herein; and based on my inquiry of those individuals immediately responsible for obtaining the information. I believe the submitted information is true, accurate, and complete. I am aware that there are significant penalties for knowingly submitting false information.

ESD FORM RF1-1

# SERVICE REQUEST CHECK LIST

| YES | NO | N/A | |
|---|---|---|---|
| ☐ | ☐ | ☐ | Customer's Name |
| ☐ | ☐ | ☐ | Customer's Complete Address ( No Abbreviations, Except in Directional) |
| ☐ | ☐ | ☐ | Problem Address (If different than caller address) |
| ☐ | ☐ | ☐ | City |
| ☐ | ☐ | ☐ | Zip Code |
| ☐ | ☐ | ☐ | Customer's Phone Number(s) |
| ☐ | ☐ | ☐ | Complete Customer Comments on problem having |
| ☐ | ☐ | ☐ | Sewer Basin (proper format - located on wall behind both computers) |
| ☐ | ☐ | ☐ | Map Page (Proper Format 46-Z13) |
| ☐ | ☐ | ☐ | Crew Dispatched to call |
| ☐ | ☐ | ☐ | Mini System Number |
| ☐ | ☐ | ☐ | Crew Arrival Time noted on request |
| ☐ | ☐ | ☐ | Complete Crew Comments |
| ☐ | ☐ | ☐ | Proper Code from Crew's Comments |
| ☐ | ☐ | ☐ | Closed Call (unless waiting for another crew) |
| ☐ | ☐ | ☐ | Did Crew talk with Homeowner/Business Owner? |

## Backup in Home/Business

| | | | |
|---|---|---|---|
| ☐ | ☐ | ☐ | Were Pictures Taken? If so by whom? |
| ☐ | ☐ | ☐ | Was SERVPRO called? Who did you speak with? Time? |

## Broken Sewer Line

| | | | |
|---|---|---|---|
| ☐ | ☐ | ☐ | Who is handling repair? |

## Cleanout Overflow

Overflow stopped at (time)?

Called into ADEM (Date & Time) *** Note these two are separate do not join together ***

Faxed ADEM & Health Department (Date & Time) *** Note (see above)***

WWTP Permit Number (located on wall behind computer monitor)

## Called Wrong Utility

Company called? Who did you speak with?

## GCP

Did crew discover grease or other debris/roots in line? Was Code changed?

## MH Overflow

Overflow stopped at (time)?

Overflowing Manhole Number(s)?

Called into ADEM (Date & Time) *** Note these two are separate do not join together ***

Faxed ADEM & Health Department (Date & Time) *** Note (see above)***

WWTP Permit Number (located on wall behind computer monitor)

If line was Surcharging was it checked every 2 hours?

Date & Times Surcharge was checked

## Overflow~BSL

Overflow stopped at (time)?

Overflowing Manhole Number(s)?

Called into ADEM (Date & Time) *** Note these two are separate do not join together ***

Faxed ADEM & Health Department (Date & Time) *** Note (see above)***

WWTP Permit Number (located on wall behind computer monitor)

## TV Inspection Codes

Locate Manhole - Was Manhole Number listed?

# SSO CHECK LIST FOR LINE MAINTENANCE

***PUBLIC WORKS SUPERVISOR/ SEWER VIDEO OPERATIONS SUPERVISOR***

Please verify that information is correct by placing a check in the box prior to each statement. If information is not correct make a note at the bottom of the next page and follow procedures as outlined in the SSORRP.

| YES | NO | N/A | |
|---|---|---|---|
| ☐ | ☐ | ☐ | Service Request Number ☐ |
| ☐ | ☐ | ☐ | Date Reported |
| ☐ | ☐ | ☐ | Time SSO Began |
| ☐ | ☐ | ☐ | Time SSO Stopped |
| ☐ | ☐ | ☐ | Caller's Name |
| ☐ | ☐ | ☐ | Caller's Phone Number |
| ☐ | ☐ | ☐ | Reported Location *(Make sure that the reported location is not the caller's location unless they are the same.)* |
| ☐ | ☐ | ☐ | Street Address |
| ☐ | ☐ | ☐ | City |
| ☐ | ☐ | ☐ | Zip Code |
| ☐ | ☐ | ☐ | Collection System Permit |
| ☐ | ☐ | ☐ | Overflowing Manhole Number *(If overflow is from a cleanout, mini-system should be recorded.)* |
| ☐ | ☐ | ☐ | Municipality |
| ☐ | ☐ | ☐ | Basin |
| ☐ | ☐ | ☐ | Notification of Public |
| ☐ | ☐ | ☐ | Destination of Discharge |
| ☐ | ☐ | ☐ | Estimated Volume |
| ☐ | ☐ | ☐ | Discharge Source |
| ☐ | ☐ | ☐ | Discharge Cause |
| ☐ | ☐ | ☐ | Recent Weather |

# 5 DAY CHECK LIST FOR LINE MAINTENANCE

***PRINCIPAL ENGINEERING INSPECTOR***

Please verify that information is correct by placing a check in the box prior to each statement. If information is not correct make a note at the bottom of the next page. If a correction is required, the 5 day report should be corrected prior to submitting and procedures followed as outlined in the SSORRP.

| YES | NO | N/A | |
|---|---|---|---|
| ☐ | ☐ | ☐ | Service Request Number ☐ |
| ☐ | ☐ | ☐ | Date Reported |
| ☐ | ☐ | ☐ | Time SSO Began |
| ☐ | ☐ | ☐ | Time SSO Stopped |
| ☐ | ☐ | ☐ | Caller's Name |
| ☐ | ☐ | ☐ | Caller's Phone Number |
| ☐ | ☐ | ☐ | Reported Location *(Make sure that the reported location is not the caller's location unless they are the same.)* |
| ☐ | ☐ | ☐ | Street Address |
| ☐ | ☐ | ☐ | City |
| ☐ | ☐ | ☐ | Zip Code |
| ☐ | ☐ | ☐ | Collection System Permit |
| ☐ | ☐ | ☐ | Overflowing Manhole Number *(If overflow is from a cleanout, mini-system should be recorded.)* |
| ☐ | ☐ | ☐ | Municipality |
| ☐ | ☐ | ☐ | Basin |
| ☐ | ☐ | ☐ | Notification of Public |
| ☐ | ☐ | ☐ | Destination of Discharge |
| ☐ | ☐ | ☐ | Estimated Volume |
| ☐ | ☐ | ☐ | Discharge Source |
| ☐ | ☐ | ☐ | Discharge Cause |
| ☐ | ☐ | ☐ | Recent Weather |

Service Request Number

| YES | NO | N/A | |
|---|---|---|---|
| | | | Conditions Contributing to the Discharge |
| | | | Action Taken |
| | | | 24 Hour Notice Faxed |
| | | | Date & Time |
| | | | Health Department/ Other |

CORRECTIONS

I certify that I have personally examined and am familiar with the information submitted herein; and based on my inquiry of those individuals immediately responsible for obtaining the information. I believe the submitted information is true, accurate, and complete unless noted above.

Signature _____ Date _____

# SSO CHECK LIST FOR ADMINISTRATION

Please verify that information is correct by placing a check in the box prior to each statement. If information is not correct make a note at the bottom of the next page and follow procedures as outlined in the SSORRP.

| YES | NO | N/A | |
|---|---|---|---|
| ☐ | ☐ | ☐ | Service Request Number ☐ |
| ☐ | ☐ | ☐ | Date Reported |
| ☐ | ☐ | ☐ | Time SSO Began |
| ☐ | ☐ | ☐ | Time SSO Stopped |
| ☐ | ☐ | ☐ | Caller's Name |
| ☐ | ☐ | ☐ | Caller's Phone Number |
| ☐ | ☐ | ☐ | Reported Location *(Make sure that the reported location is not the caller's location unless they are the same.)* |
| ☐ | ☐ | ☐ | Street Address |
| ☐ | ☐ | ☐ | City |
| ☐ | ☐ | ☐ | Zip Code |
| ☐ | ☐ | ☐ | Collection System Permit |
| ☐ | ☐ | ☐ | Overflowing Manhole Number *(If overflow is from a cleanout, mini-system should be recorded.)* |
| ☐ | ☐ | ☐ | Municipality |
| ☐ | ☐ | ☐ | Basin *(Village - East or West)* *(Five Mile - Up or Down)* ***CIRCLE SELECTION*** |
| ☐ | ☐ | ☐ | Notification of Public |
| ☐ | ☐ | ☐ | Destination of Discharge |
| ☐ | ☐ | ☐ | Estimated Volume |
| ☐ | ☐ | ☐ | Discharge Source |
| ☐ | ☐ | ☐ | Discharge Cause |
| ☐ | ☐ | ☐ | Recent Weather |

Service Request Number

| YES | NO | N/A | |
|---|---|---|---|
| ☐ | ☐ | ☐ | Conditions Contributing to the Discharge |
| ☐ | ☐ | ☐ | Action Taken |
| ☐ | ☐ | ☐ | 24 Hour Notice Faxed |
| ☐ | ☐ | ☐ | Date & Time |
| ☐ | ☐ | ☐ | Health Department/ Other |

CORRECTIONS

I certify that I have personally examined and am familiar with the information submitted herein; and based on my inquiry of those individuals immediately responsible for obtaining the information. I believe the submitted information is true, accurate, and complete unless noted above.

Signature _____ Date _____

**Appendix G** **24 Hour Report (ESD Form RF2-1)**

***See the following page***

JEFFERSON COUNTY, AL
ENVIRONMENTAL SERVICES DEPARTMENT
SUITE A - 300
716 RICHARD ARRINGTON JR. BOULEVARD, N
BIRMINGHAM, AL 35203

TO: Alabama Department of Environmental Management - Montgomery Office
Fax Number: (334) 279 - 3051
Attention: Kimberly Minton

## SANITARY SEWER OVERFLOW (SSO)
## 24 - HOUR REPORT

The Jefferson County Environmental Services Department verified the occurrence of a sanitary sewer overflow (SSO).

I am _____at 205-942-0681. The SSO started on _____ at _____ at the following
(date) (time)

location: _____
(Street Address) (City, Zip)

The *estimated* volume of the SSO was: _____ Destination of Flow: _____
(Gallons) (Basin) (Permit Number)

Length of Occurrence: _____ Cause of the SSO due to: _____
(Minutes) ((Blockage Type)

Corrective action taken: _____

The receiving water if any was: _____

Additional information will be provided in a Follow-up Report within five (5) days.

**********

**FOR JEFFERSON COUNTY ESD PERSONNEL ONLY**

Service Request Number: _____

Date Called: _____ Date Faxed: _____

Time Called: _____ Time Faxed: _____

By: _____ _____
**Name** **Title**

*Jefferson County Environmental Services*
*Sewer Line Maintenance*
*1295 Oak Grove Road, Homewood, AL 35209*
*205 - 942 - 0681*

***If this page does not transmit clearly, please contact Sewer Line Maintenance @ 205-942-0681***

ESD FORM RF2-1

JEFFERSON COUNTY, AL
ENVIRONMENTAL SERVICES DEPARTMENT
SUITE A - 300
716 RICHARD ARRINGTON JR. BOULEVARD, N
BIRMINGHAM, AL 35203

TO: Alabama Department of Environmental Management - Montgomery Office
Fax Number: (334) 279 - 3051
Attention: Kimberly Minton

## SANITARY SEWER OVERFLOW (SSO)
## 24 - HOUR REPORT

The Jefferson County Environmental Services Department verified the occurrence of a sanitary sewer overflow (SSO).

I am _____ at 205-942-0681. The SSO started on _____ (*date*) at _____ (*time*) at the following location: _____ (*Street Address*) _____ (*City, Zip*)

The *estimated* volume of the SSO was: _____ (*Gallons*) Destination of Flow: _____ (*Basin*) (*Permit Number*)

Length of Occurrence: _____ (*Minutes*) Cause of the SSO due to: _____ (*Blockage Type*)

Corrective action taken: _____

The receiving water if any was: _____

Additional information will be provided in a Follow-up Report within five (5) days.

**********

**FOR JEFFERSON COUNTY ESD PERSONNEL ONLY**

Service Request Number: _____

Date Called: _____ Date Faxed: _____

Time Called: _____ Time Faxed: _____

By: _____ **Name** _____ **Title**

*Jefferson County Environmental Services*
*Sewer Line Maintenance*
*1295 Oak Grove Road, Homewood, AL 35209*
*205 - 942 - 0681*

***If this page does not transmit clearly, please contact Sewer Line Maintenance @ 205-942-0681***

ESD FORM RF2-1

**Appendix H 5-Day Follow-Up Report (ESD Form RF3-1)**

***See the following page***

Jefferson County, AL
Environmental Services Department
Suite A-300
716 Richard Arrington Jr. Boulevard, N
Birmingham, AL 35203

# WASTEWATER DISCHARGE REPORTING FORM
## SSO - 5 - DAY FOLLOW - UP REPORT

Reported Information — Service Request Number: _____

Photos Taken: ☐ Yes ☐ No Number of Photos Taken: _____

Date Reported: _____ Time SSO Began _____ Time SSO Stopped _____

Caller Name: _____ Caller Phone No.: _____

Location from Caller Street Address: _____

Overflow Location Street Address: _____

**Collection System Permit #** _____ Overflowing Manhole Number: _____
*Enter Mini-system number if overflow is from a cleanout*

| Municipality | | | ☐ County Maintained | | ☐ Notification of Public |
|---|---|---|---|---|---|
| ☐ Adamsville | ☐ Graysville | ☐ Mountain Brook | ☐ Cahaba | ☐ Turkey Creek | ☐ Press Release |
| ☐ Bessemer | ☐ Homewood | ☐ Midfield | ☐ Five Mile | ☐ Valley | ☐ Placement of Signs |
| ☐ Birmingham | ☐ Hoover | ☐ Pleasant Grove | ☐ Leeds | ☐ Village | ☐ Other (Describe) |
| ☐ Brighton | ☐ Hueytown | ☐ Tarrant | ☐ Prudes | ☐ Warrior | |
| ☐ Center Point | ☐ Irondale | ☐ Trussville | ☐ Trussville | | |
| ☐ Fairfield | ☐ Leeds | ☐ Vestavia | | | |
| ☐ Fultondale | ☐ Lipscomb | ☐ Warrior | | | |
| ☐ Gardendale | | | | | |

**Field Observation (If County Investigated)**

**Destination of Discharge:** ☐ Ground absorbed ☐ Drainage Ditch ☐ Storm Drain ☐ Creek or River _____
***Monitoring of the receiving water is:*** ☐ Complete ☐ Ongoing

**Estimated Discharge Volume:** ☐ Volume not determinable ☐ Estimated Volume (Gallons) _____

**Discharge Source:** ☐ Cleanout ☐ Manhole ☐ Pipe ☐ Pump Station ☐ Treatment Plant ☐ Other _____

**Known or Suspected Discharge Cause: (Check all that apply)**
☐ Construction Damage ☐ Debris ☐ Infiltration/Inflow ☐ Force Main Break ☐ Gravity Main Break
☐ Grease ☐ Power outage ☐ (P.S. Equipment Failure ☐ Rags ☐ Rocks
☐ Roots ☐ Surcharge from rain ☐ Vandalism ☐ Other _____

**Recent Weather** ☐ None **Rain:** ☐ Light ☐ Mod. ☐ Heavy **Estimated Duration:** _____

**Conditions Contributing to the Discharge:** **Flooding from rain in overflow area** ☐ Yes ☐ No

**Action Taken (If County Investigated)**
☐ Blockage Removed ☐ Line Repaired ☐ Manhole Repaired ☐ Power Restored ☐ Additional Rehab Considered ☐ Project Planned to Replace/Repair Line ☐ Pump Station Repaired ☐ Other _____

SSO 24-Hour Notice FAXED? ☐ Yes Date & Time: _____
☐ Health Department ☐ Other (describe) _____

Remarks: _____

Principal Eng. Insp's Signature: _____ Date _____

I certify that I have personally examined and am familiar with the information submitted herein; and based on my inquiry of those individuals immediately responsible for obtaining the information. I believe the submitted information is true, accurate, and complete. I am aware that there are significant penalties for knowingly submitting false information.

ESD FORM RF3-1

**Appendix I** **Sewer Overflow Advisory Form (ESD Form RF4-1)**

***See the following page***

# Sewer Overflow Advisory

**Issued By**

Jefferson County Commission
Environmental Services Department
A-300
716 Richard Arrington, Jr. Blvd. North
Birmingham, AL 35203

Sewer Line Maintenance
24 hour Dispatch Center
(205)942-0681

Date Issued _____ Time _____

Overflow Location _____

Waterway(s) Affected _____

Downstream Of _____

**Advisory**

A Jefferson County sanitary sewer line at the location listed above has experienced an overflow. Overflow was due to

Additional advisories will be issued as information becomes available.

## Appendix J Regulatory Agency, Official and Media Outlet Notification List

| Agency, Official, Media Outlet | Contact | Contact Number | Email/Web Address |
|---|---|---|---|
| **ADEM – 24 HR Notification** | ADEM SSO Hotline | (334) 274-4200 (O) | N/A |
| **ADEM – 24 HR Report** | Nicholas Caraway | (334) 279-3051 (F) | ncaraway@adem.state.al.us |
| **ADEM – 5-Day Report** | Nicholas Caraway | (334) 279-3051 (F) | ncaraway@adem.state.al.us |
| **JCDH -24 HR Report** | N/A | (205) 939-9019 (F) | N/A |
| **JCDH – 5-Day Report** | N/A | (205) 939-9019 (F) | N/A |
| **ESD Director** | David Denard | (205) 325-5979 (O) | denardd@jccal.org |
| **ESD Deputy Director** | Daniel White | (205) 214-8610 (O) | whited@jccal.org |
| **ESD Chief Civil Engineer** | Brian Rohling | (205) 521-7512 (O) | rohlingb@jccal.org |
| **ESD Sewer Construction / Maintenance Supervisor** | Brian Champion | (205) 601-5054 | championb@jccal.org |
| **Principal Engineering Inspector** | | | |
| **County Manager** | Tony Petelos | (205) 731-2880 (O) | petelost@jccal.com |
| **ESD Website** | | | www.jeffcoes.org |
| **If estimate SSO volume exceeds 10,000 gallons or is determined to reach surface waters, the following media outlets must be notified** | | | |
| **WABM** | N/A | (205) 290-2115 (F) | N/A |
| **ABC 33/40** | N/A | (205) 928-3942 (F) | N/A |
| **CBS 42** | N/A | (205) 320-2722 (F) | N/A |
| **FOX 6** | N/A | (205) 583-4356 (F) | N/A |
| **NBC 13** | N/A | (205) 323-3314 (F) | N/A |

# Wash Truck Pipe Cleaning

## Objective:

To describe maintenance practices and operation of the Wash Truck.

## Responsibilities:

Wash truck use shall be scheduled by the Field Supervisor.

## Task:

Perform routine and specialized sewer cleaning, relieve sewer blockages, and provide field support for closed circuit television (CCTV) inspection crews in 6- to 24-inch diameter sanitary sewer pipe.

## Performance Standard:

Staff performing or assisting with the use of wash truck equipment should have knowledge of the proper operation of the wash truck, hydraulic cleaning equipment and tools, traffic control set up, and appropriate safety measures. Crew supervisor and/or designees should have knowledge of the work order management system and use of assigned technology.

## Safety and Field Cautions:

Any machine part, function, or process that many cause injury must be safeguarded. When the operation of a machine, or accidental contact with it, can injure the operator or others in the vicinity, the hazards must be either controlled or eliminated.

It is ESD policy for all operators working in the field with this equipment to be protected from hazards of operation that may be encountered. Operators and other personnel shall wear appropriate clothing for weather conditions, steel toed shoes, and traffic safety vests when working. Hard hats and hearing protection shall be worn during machine operation, as well as suitable gloves and hearing and/or eye protection per ESD policy.

All primary operators shall read the equipment manufacturer's Operation and Maintenance manual for a full description of the machine, its operational parameters, operation procedures, and other information pertaining to the machine. Until suitable field training and operation has been successfully completed, inexperienced operators should not be in the field with this equipment without an experienced operator present. Operational training shall include mechanical system awareness and ability to detect minor differences in operation or machine performance, along with field operation instruction.

**Tools and Equipment:** See Attachments A and B

## Procedures

Comply with the Jefferson County ESD Safety Rules relative to this equipment and field use.

Comply with ESD Personal Protective Equipment, Confined Space Entry, and Traffic Control policies.

**Pre-Trip Inspection and Duties:**

1. Release the hood anchors (located near the doors) on both sides of the truck.

   With the help of two crew members, gently tilt the hood of the truck engine compartment forward to access fluid level indicators. Stop pushing on the hood if there is any resistance, and determine if there is anything in the way.

   If necessary, remove road cones and pole stands to avoid damaging the engine hood. Replace pitch pin holding stand at the 12:00 position and turn 180 degrees to 6:00 position.





2. Perform all Commercial Driver's License (CDL) required inspections, as detailed in the CDL cab card.

3. Check the water strainer in front of the water pump.

   Rinse materials from the screen, if necessary, and replace.



4. Using the water pump blow out valves, remove debris in the water pump. With the truck engine set to idle and the water pump cycling at a low RPM, engage the pump and gently open and close the blow out valve. Blow out and close each valve, one at a time, twice.



5. Notify the Supervisor of aging, loose, or worn coolant hoses, engine drive belts, or other critical parts.

6. Review assigned work orders and daily route.

7. Load all equipment and tools needed for the assigned cleaning work orders onto the truck. Verify all items are secured before travel.

**Filling-Up the Water Tank:**

1. Prior to filling the water tank, open and flush the water hydrant to remove rust and other particulates.



After the water runs clear, slowly close the hydrant valve to avoid water hammer.



2. Attach the water fill hose to the hydrant, making sure the hose will not kink during filling.



3. Slowly turn open the hydrant valve to reduce the amount of sediments entering the tank strainer.

Fill the water tank until water starts weeping from the fill inlet.



4. Shut the hydrant valve slowly to avoid water hammer, and replace the hydrant access cover.

5. Detach the fill hose and lay it downhill from the machine to drain. Drain the water from the fill hose before rolling it up and storing it on the truck.

**Arriving at the Site:**

1. Upon arrival at the site, position the Wash Truck in the best manner that provides access to the manhole and limits exposure to traffic.



Avoid blocking the entire street, unless it is absolutely necessary.

For off-road pipe cleaning, position the Wash Truck in the best location to accommodate the hose as it pulled off the reel to the remote manhole.



2. Place protective road cones around the work area.

If the line to be cleaned is in an area where a higher level of traffic control is necessary, set up additional traffic cones and other traffic management devices (including flagger).

Call the Supervisor, Dispatch, or other crew and ask for assistance if necessary.

3. Remove the manhole cover using proper lifting techniques to avoid strains. Move the cover out of the way to prevent a tripping hazard.



4. Use the manhole hook to scrape dirt and debris from the manhole rim.

5. Confirm the manhole depth, pipe diameter and material matches the manhole description on the work order.

   Determine if additional rollers, tiger tails, or other protective devices will be needed to protect the hose during cleaning.

   For off-road pipe cleaning, note the manhole location, and identify the path the sewer cleaning hose will need to take to reach the manhole.



6. Replace the manhole cover.

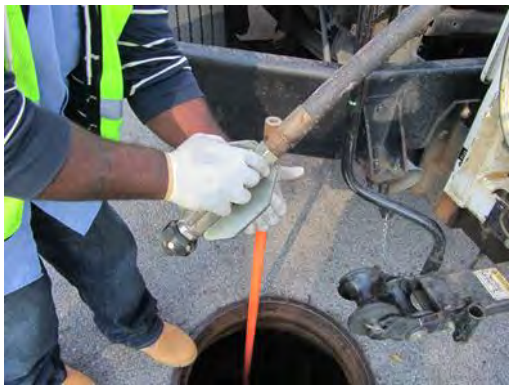
   NOTE: For jobsite safety, when possible, the manhole cover should remain on until the cleaning operation is ready to begin, and be replaced after the pipe has been cleaned.

7. When possible and safe to perform, position a crew member at the far manhole, set up road cones if necessary, and open the manhole lid.

8. Verify that a tiger tail is attached to the sewer cleaning hose.

9. Attach the appropriate cleaning nozzle for the job, and attach a nozzle extension if needed.

   Note: Bulldog and Grenade Bomb nozzles do not require a nozzle extension. To avoid getting the nozzle stuck when cleaning siphons, do not use a nozzle extension with any nozzle.



10. Lower the nozzle and tiger tail into the manhole channel.

    Secure the tiger tail rope to the Wash Truck.



11. If the sewer hose will run over the edge of the manhole frame, or if the manhole is off-road, use an upper manhole roller to protect the sewer hose while cleaning the pipe.



12. Select the proper size debris trap and attach the appropriate number of extension poles needed to place the trap in the manhole channel.



13. Lower the trap into the manhole and position the trap to catch materials at the downstream pipe invert.

    If needed, tip the trap forward to fit into the invert or to trap material in fast-moving flow.

    If the pipe is too deep and there are not enough extension poles, attach a rope to the trap and lower it into the manhole.



14. Activate the nozzle with low water pressure to verify visually that the nozzle is working properly, and then gently increase water pressure.



15. Clean the pipe using the appropriate cleaning technique based on the material encountered:
    - Step clean the pipe by moving the nozzle a set distance, returning the nozzle to the initial manhole to see what cleaning debris is returned, then sending the nozzle forward to further set distance, and returning the nozzle to the manhole. Repeat steps until nozzle reaches far manhole.
    - Move the nozzle straight through to the far manhole

    *If gravel is encountered during the cleaning process that appears to be pipe bedding material, immediately stop cleaning and notify the Supervisor. Resume cleaning operations only when and if directed by the Supervisor.*



16. Once the crew member stationed at the far manhole sees the nozzle, the crew member will signal the Wash Truck operator of its arrival, and the Wash Truck operator will pull the nozzle back through the pipe.



17. A proofing tool can be used to determine if there is material remaining in the pipe after cleaning.

    If the proofing tool does not fit into the pipe being cleaned, replace the proofing tool with the next size-down proofing tool.



18. On the final cleaning pass, maintain a nozzle return speed of 35 to 40 feet per minute. Use the white marking on the reel speed control valve as an indicator for this rate.

    If there is evidence of roots or grease from the cleaning process, re-clean the pipe using a nozzle specifically designed for the material being removed.



19. When the cleaning work is complete, lift the nozzle, and tiger tail from the manhole.

20. Remove the trap from the manhole, and indicate the type and amount of material removed as defined in the **Condition Findings Chart** (**Attachment C**).

    Use the trap or a pincher shovel to remove the solids, or consider using the vacuum system to remove the solids.



21. Place the material removed from the manhole into burlap bags or 5-gallon buckets.



**Adding Grease Liquifier to Pipe:**

When heavy grease is encountered during the cleaning process, use the grease liquefier to enhance the cleaning process.




1. When using the Jet Power II™ additive in pipes with odors or grease, verify the labeled container on the curbside of the truck is full before engaging the system. Follow manufacturer's application instructions provided by the supplier (located on the container).

Turn the supply line valve on and use the selector knob to set the chemical delivery rate.

For shallow manholes and short small diameter lines, use the low setting.

2. Clean the line and turn the water off.

3. Close the detergent valve and shut the detergent pump off.

   ***Note: if the valve is not closed, the tank will fill with detergent.***

4. Let the detergent set in the line for 10 minutes.

   After 10 minutes, turn the water back on and continue washing the pipe.



**End of Job Duties:**

1. Replace the manhole lid, properly stow all equipment and tools on the Wash Truck, and retrieve all traffic management devices.

2. Fill out all the information fields in the Wash Truck Work Order Form and/or tablet. Estimate the type and amount of materials removed from the pipe.

3. Call and update the Dispatch office on the status of service request-related work.

4. Proceed to the next work order location, or return to the yard.

5. If tools and equipment were borrowed from another truck, replace all items.

   Notify Supervisor if any issues were noted with the vehicle, tools or equipment.



## Attachment A Standard Nozzle Inventory

| Nozzle Type | Pipe Sizes | Applications |
|---|---|---|
|  Std Radial | 6" - 12" | Exploratory, light debris/grease, proofing skids |
|  Grenade | 6" - 18" | Debris, especially good in sag pipe, light grease |
|  Chisel Point | 6" - 18" | Relieve blockages |
|  Bulldog | 8" - 18" | Roots, grease, some light debris |
|  Root Cutter | 8" - 12" | Heavy/thick root removal |

| Nozzle Type | Grease | Roots | Grit/Sags | Stoppage | Exploration | Proofer |
|---|---|---|---|---|---|---|
|  Std Radial | | ● | ◐ | ◐ | ○ | ○ |
|  Grenade | ○ | ● | ○ | ● | ◐ | ● |
|  Chisel Point | ● | ● | ● | ○ | ● | ◐ |
|  Bulldog | ○ | ○ | ◔ | ● | ◐ | ● |
|  Root Cutter | ◐ | ○ | ● | ◔ | ● | ● |

Legend ○ Best use ◐ Can work ◔ Limited use ● Not suitable

## Attachment B Wash Truck Inventory

| Nozzles | | |
|---|---|---|
| Radial (Enz) | 1 | |
| Chisel (Enz) | 1 | |
| Bull Dog | 1 | |
| Hydraulic root cutter | 1 | |
| Grenade | 1 | |
| Brass nozzle | 1 | |

| Fins/Proofers | | |
|---|---|---|
| 2-inch finned sled | 1 | |
| 6-inch proofer | 1 | |
| 8-inch proofer | 1 | |
| 10-inch proofer | 1 | |
| 12-inch proofer | 1 | |
| | 1 | |

| Hose Aids | | |
|---|---|---|
| Leader hose (10 foot) | 1 | |
| Tiger tail | 2 | |
| Upper MH roller | 1 | |

| Traps | | |
|---|---|---|
| 6-inch open top | 1 | |
| 8-inch open top | 1 | |
| 10-inch open top | 1 | |
| 12-inch open top | 1 | |
| 5-foot Fiberglass poles | 4 | |

| Access Tools | | |
|---|---|---|
| Cover hook - JC type | 2 | |
| Hydrant wrench | 1 | |
| Wheel chocks | 2 | |
| Counter wheel | 1 | |
| 100-foot reel tape | 1 | |
| 50-foot fill hose rolls | 1 | |

| Long Tools | | |
|---|---|---|
| Fork head | 1 | |
| Chopper head | 1 | |
| 12-foot Pincher shovel | 1 | |
| 10-foot Pincher shovel | 1 | |
| 8-foot Pinchers hovel | 1 | |
| Rock bar | 1 | |

| Hard Tools | | |
|---|---|---|
| Brush cutter (Gerber) | 1 | |
| Brush axe | 1 | |
| Shovel - round | 1 | |
| Shovel - flat | 1 | |
| Sledge - 12 lb | 1 | |

| Mechanical Tools | | |
|---|---|---|
| Socket set tool box | 1 | |
| Asst'd tools - tool box | 1 | |
| Grease gun | 1 | |
| Spray lube | 1 | |
| 18-inch pipe wrench | 2 | |
| Hose reel crank | 1 | |

| Traffic Safety | | |
|---|---|---|
| Road cones orange | 12 | |
| Stop/slow paddles | 1 | |
| Road work sign set | 1 | |

| SSO/RRP | | |
|---|---|---|
| SSO measuring stick | 1 | |
| SSO Signage | 2 | |

| Misc. Item | | |
|---|---|---|
| Green paint | 2 | |
| Rags (several) | 1 | |
| Dye - yellow/green | 2 | |
| Atlas map | 1 | |
| Caution/flag tape roll | 2 | |
| Rain gear sets | 2 | |
| Radio - hand held | 2 | |
| Boots - calf high | 2 | |
| Spot light | 1 | |
| Flashlight | 1 | |
| Water jug or cooler | 1 | |
| Anti bacterial soap | 1 | |
| Burlap sacks | 5 | |
| 5-gallon bucket | 1 | |
| Vice mounted on bed | 1 | |
| Nozzle orifice cleaner | 1 | |

| PPE | | |
|---|---|---|
| Gloves - leather | 2 pair | |
| Gloves - rubber | 2 pair | |
| Gloves - latex | 1 box | |
| Safety glasses | 2 | |
| Hard Hat | 2 | |
| Hearing - push-ins | 1 box | |
| Tyvek suits | 2 | |
| Dust mask | 1 box | |
| Mirror | 1 | |
| Magnet | 1 | |
| Snake chaps | 1 | |

## Attachment C Condition Findings Chart

| | Minor | Moderate | Heavy |
|---|---|---|---|
| **Roots** | ***Visual:*** No evidence of roots or small bits of hair/curtain roots in the trap or on the sewer cleaning hose without large clumps | ***Visual***: Moderate clumps of roots in trap. Roots of 1/8" to 3/8" thickness.<br><br>***Feel***: Hose does not bind or hydraulic pressure does not jump when roots encountered | ***Visual***: Large clump/s of roots in trap. Roots over 1/2" thickness.<br><br>***Feel***: Hose binds, jumps or slows down, hydraulic pressure can jump when using hydro cutter. |
| **Grease** | ***Visual:*** No evidence of grease or very small bits of grease in flow or stuck to sewer cleaning hose. Water color change to light milky color with some odor. | ***Visual***: Popcorn size bits of grease with some larger chunks from 1/2" to 1" diameter. Water color change to light tan/brown with odor.<br><br>***Feel***: Hose may slow but does not bind or hydraulic pressure does not jump when grease encountered | ***Visual:*** Any Large chunks, logs or calcified grease of significant size. Water color change to dark brown to black with foul odor.<br><br>***Feel:*** Hose binds and requires repeated attempts to clear some sections of the pipe. |
| **Debris** | ***Visual:*** No evidence of any debris. Conditions do not require shortening standard step length. No operator concern for blockage (no indication debris is concentrated in a small area).<br><br>***Quantity***: Max pass less than:<br>*1 gallon (8 inch)<br>*2 gallons (10 inches)<br>*3 gallons (>= 12 inch)<br><br>Or - For every 25 feet step increment, less than 5% of channel filled | ***Visual***: Debris is removed held by trap, but conditions do not require shortening standard step length. No operator concern for blockage (no indication debris is concentrated in a small area).<br><br>***Quantity***: Max pass between:<br>*1-3 gallons (<= 8 inch)<br>*2-5 gallons (10 inches)<br>*3-7 gallons (>= 12 inch)<br><br>Or - For every 25 feet step increment, must be between 5-20% of channel filled | ***Visual***: Large amounts of debris returned with each pass. Condition requires shortening standard step length. Operator concern for blockage (debris feels concentrated in a small area)<br><br>***Quantity***: Max pass, more than:<br>*3 gallons (<= 8 inch)<br>*5 gallons (10 inches)<br>*7 gallons (>= 12 inch)<br><br>Or - For every 25 feet step increment, must be more than 20% of channel filled |

Volume of Traps: 6" = .25 Gallon 8" = 1 Gallon 10" = 1.5 Gallon 12" = 2.5 Gallon

*BASED ON 300' LENGTH OF PIPE

# Combination Cleaner Pipe Cleaning

## Objective:

To describe maintenance practices and operation of the Combination Cleaner Truck.

## Responsibilities:

Combination cleaner truck use shall be scheduled by the Field Supervisor.

## Task:

Perform routine and specialized sewer cleaning, relieve sewer blockages, and provide field support for closed circuit television (CCTV) inspection crews in 6- to 24-inch diameter sanitary sewer pipe (may be used in up to 48-inch pipe in special circumstances).

## Performance Standard:

Staff performing or assisting with the use of combination cleaner equipment should have knowledge of the proper operation of the combination cleaner, hydraulic cleaning equipment and tools, traffic control set up, and appropriate safety measures. Crew supervisor and/or designees should have knowledge of the work order management system and use of assigned technology.

## Safety and Field Cautions:

Any machine part, function, or process that may cause injury must be safeguarded. When the operation of a machine, or accidental contact with it, can injure the operator or others in the vicinity, the hazards must be either controlled or eliminated.

It is ESD policy for all operators working in the field with this equipment to be protected from hazards of operation that may be encountered. Operators and other personnel shall wear appropriate clothing for weather conditions, steel toed shoes, and traffic safety vests when working. Hard hats and hearing protection shall be worn during machine operation, as well as suitable gloves and hearing and/or eye protection per ESD policy.

All primary operators shall read the equipment manufacturer's Operation and Maintenance manual for a full description of the machine, its operational parameters, operation procedures, and other information pertaining to the machine. Until suitable field training and operation has been successfully completed, inexperienced operators should not be in the field with this equipment without an experienced operator present. Operational training shall include mechanical system awareness and ability to detect minor differences in operation or machine performance, along with field operation instruction.

**Tools and Equipment:** See Attachments A and B

## Procedures

Comply with the Jefferson County ESD Safety Rules relative to this equipment and field use.

Comply with ESD Personal Protective Equipment, Confined Space Entry, and Traffic Control policies.

**Pre-Trip Inspection:**

1. Release the hood anchors (located near the doors) on both sides of the truck, and move the sewer hose reel all the way forward.

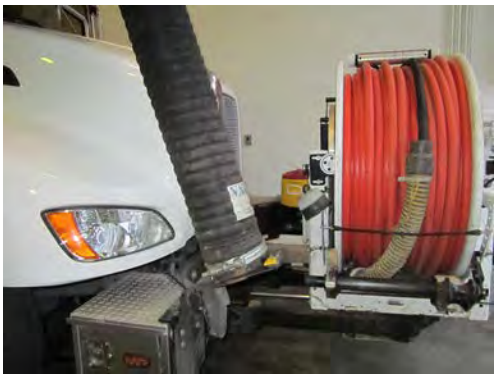
   With the help of two crew members, gently tilt the hood of the truck engine compartment forward to access fluid level indicators. Stop pushing on the hood if there is any resistance, and determine if there is anything in the way.

   Engage the hood brace to hold the hood in place while the fluids and engine components are checked.

2. Perform all Commercial Driver's License (CDL) required inspections, as detailed in the CDL cab card.

3. Check the hydraulic fluid level in the boom tower, and add fluid if needed.

4. Check the vacuum micro-screen strainers for debris every other week to once a month, depending on use. Rinse materials from the screens, if necessary, and replace.









5. Close the water tank valve to the pump and check the strainer at the water pump. Remove any debris found in the strainer and replace.

   Open the water control valve to the pump before operating the pump.



6. Check water strainer at the fill inlet to the water tanks.

   Remove any debris, and replace the strainer.



7. Using the water pump blow out valves, remove debris in the water pump. With the trunk engine set to idle and the water pump cycling at a low RPM, engage the pump and gently open and close the blow out valve. Blow out and close each valve, one at a time.



8. Notify the Field Supervisor of loose or worn coolant hoses, engine drive belts, or other critical parts.

9. Review assigned work orders and daily route.

10. Load all equipment and tools needed for the assigned cleaning work orders onto the truck. Verify all items are secured before travel.

**Water Tank Fill-Up:**

1. Prior to filling the water tank, open and flush the water hydrant to remove rust and other particulates.



After the water runs clear, slowly close the hydrant valve to avoid water hammer.



2. Attach the water fill hose to the hydrant, and make sure the hose will not kink during filling.



3. Slowly turn open the hydrant valve to reduce the amount of sediments entering the tank strainer.

   Fill the water tank until water starts weeping from the fill inlet.

4. Shut the hydrant valve slowly to avoid water hammer, and replace the hydrant access cover.

5. Detach the fill hose and lay it downhill from the machine to drain. Drain the water from the fill hose before rolling it up and storing it on the truck.

**Arriving at the Site:**

1. Upon arrival at the site, position the Combination Cleaner in the best manner that provides access to the manhole and limits exposure to traffic.

   Avoid blocking the entire street, unless it is absolutely necessary.

   For off-road pipe cleaning, position the Combination Cleaner in the best location to accommodate the hose as it pulled off the reel to the remote manhole.

2. Place protective road cones around the work area.

   If the line to be cleaned is in an area where a higher level of traffic control is necessary, set up additional traffic cones and other traffic management devices (including flagger)

   Call the Supervisor, Dispatch, or other crew and ask for assistance, if necessary.

3. Remove the manhole cover using proper lifting techniques to avoid strains. Move the cover out of the way to prevent a tripping hazard.

4. Use the manhole hook to scrape dirt and debris from the manhole rim.

5. Confirm the manhole depth, pipe diameter and material matches the manhole description on the work order.

6. Replace the manhole cover.

   NOTE: For jobsite safety, the manhole cover should remain on until the cleaning operation is ready to begin, and be replaced after the pipe has been cleaned.

   For off-road pipe cleaning, note the manhole location, and identify the path the water hose will need to take to reach the manhole.










Determine if additional rollers, tiger tails, or other protective devices will be needed to protect the hose during cleaning.



7. When possible and safe to perform, position a crew member at the far manhole, set up road cones if necessary, and open the manhole cover.

8. Verify that a tiger tail is attached to the sewer cleaning hose.

9. Attach the appropriate cleaning nozzle for the job, and attach a nozzle extension if needed.

   Note: Bulldog and Grenade Bomb nozzles do not require a nozzle extension. To avoid getting the nozzle stuck when cleaning siphons, do not use a nozzle extension with any nozzle.



10. Lower the nozzle and tiger tail into the manhole channel, and partially into the pipe to be cleaned.

    Secure the tiger tail rope to the Combination Cleaner.



11. If the sewer hose will run over the edge of the manhole frame, or if the manhole is off-road, use an upper manhole roller to protect the sewer hose while cleaning the pipe.



12. Select the proper size debris trap, and attach the appropriate number of extension poles needed to place the trap in the manhole channel.



13. Lower the trap into the manhole, and position the trap to catch materials at the downstream pipe invert.

    If needed, tip the trap forward to fit into the invert or to trap material in fast-moving flow.

    If the pipe is too deep and there are not enough extension poles, attach a rope to the trap and lower it into the manhole.



14. Activate the nozzle with low water pressure to verify visually that the nozzle is working properly, and then gently increase water pressure.



15. Clean the pipe using the appropriate cleaning technique based on the material encountered:

    - Step clean the pipe by moving the nozzle a set distance, returning the nozzle to the initial manhole to see what cleaning debris is returned, then sending the nozzle forward to further set distance, and returning the nozzle to the manhole. Repeat steps until nozzle reaches far manhole.

    - Move the nozzle straight through to the far manhole

    *If gravel is encountered during the cleaning process that appears to be pipe bedding material, immediately stop cleaning and notify the Supervisor. Resume cleaning operations only when and if directed by the Supervisor.*



16. Once the crew member stationed at the far manhole sees the nozzle, the crew member will signal the operator of its arrival, and the operator will pull the nozzle back through the pipe.



17. A proofing tool can be used to determine if there is material remaining in the pipe after cleaning.

    If the proofing tool does not fit into the pipe being cleaned, replace the proofing tool with the next size-down proofing tool.



18. On the final cleaning pass, maintain a nozzle return speed of 35 to 40 feet per minute. Use the white marking on the reel speed control valve as an indicator for this rate.



    If there is evidence of roots or grease from the cleaning process, re-clean the pipe using a nozzle specifically designed for the material being removed.

19. When the cleaning work is complete, remove the nozzle and gear from the manhole.

20. Remove the trap from the manhole, and indicate the type and amount of material removed as defined in the **Condition Findings Chart** (Attachment C).

    Use the trap or a pincher shovel to remove the solids, or consider using the vacuum system to remove the solids.



21. Place the material removed from the manhole into burlap bags or 5-gallon buckets.

**Adding Grease Liquefier to Pipe:**

When heavy grease is encountered during the cleaning process, use the grease liquefier to enhance the cleaning process.

When using the Jet Power II™ additive in pipes with odors or grease, verify the labeled container on the curbside of the truck is full before engaging the system

1. Follow manufacturer's application instructions provided by the supplier (located on the container).

   Turn the supply line valve on and use the selector knob to set the chemical delivery rate.

   For shallow manholes and short small diameter lines, use the low setting.

2. Clean the line and turn the water off.

3. Close the detergent valve and shut the detergent pump off.

   ***Note: if the valve is not closed, the tank will fill with detergent.***

4. Let the detergent set in the line for 10 minutes.

   After 10 minutes, turn the water back on and continue washing the pipe.

**Vacuum System Set-Up:**

1. Verify there are no overhead obstructions such as trees, structures, streetlights, telephone/cable, and power wires that would prohibit the boom from maintaining a minimum distance of 10-feet from power wires.



If work requires the boom to be closer than this, stop work and contact the Supervisor.

2. Lower the tube racks, remove the appropriate vacuum tubes, and return the tube racks to the upright position if needed to avoid traffic.

3. If several vacuum tubes are needed to be assembled, lay the tubes on the ground and attach them to each other. Position the attached tubes into the manhole using the boom.

   Alternately, carefully use the manhole cover to hold the tubes in place while connecting additional sections.

4. Attach tube sections with the nozzle tube (tube with crown shape at the end). The nozzle tube will be used to vacuum materials from the manhole.

5. Verify the connecting clamps are snug, and fully locked down.

6. Engage the vacuum system to remove debris from the manhole.

7. Once the vacuum job is completed, remove the tubes in the same way they were added. Do not leave tube sections standing near the travel area of the road in the event they fall over into traffic.

8. Return the vacuum tube sections to their appropriate rack space and secure for travel.

   Return clamps to the assigned compartment.

**Using the Hand Gun System:**

The hand gun washing system is used to wash debris in manholes so it can be vacuumed up, or used to clean the debris tank and/or debris on the truck.

1. Pull off the hose from the washdown gun hose reel.







2. Engage the washdown system using the valve next to the reel and operate it by using the trigger on the cleaning gun wand.

3. Once done, close the washdown system valve, rewind the hose onto the hose reel, and stow the washdown gun.



**End of Job Duties:**

1. Replace the manhole lid, properly stow all equipment and tools on the Combination Cleaner, and retrieve all traffic management devices.

2. Fill out all the information fields in the Combination Cleaner Work Order Form and/or tablet. Estimate the type and amount of materials removed from the pipe.

3. Call and update the Dispatch office on the status of service request-related work.

4. Proceed to the next work order location, or return to the yard.

5. If tools and equipment were borrowed from another truck, replace all items.

   Notify Supervisor if any issues were noted with the vehicle, tools or equipment.




COMBINATION CLEANERS WORK ORDER FORM

**Dumping the Debris Tank Decant into a Manhole:**

1. Identify a manhole for decanting. Look for a manhole downstream of the area cleaned. Manhole must be a minimum of 5-feet deep and open and flowing.

   Note: loads with heavy grease must be hauled to the treatment plant and not decanted back into the collection system.

   Verify that there are no overhead obstructions or hazards that will be encountered when the debris body is raised.

2. Position the Combination Cleaner so that when the debris tank is raised, the decant water will be directly discharged into the receiving manhole.

   Avoid blocking the entire street, unless it is absolutely necessary.

3. Place protective road cones around the work area.

4. Remove the manhole cover using proper lifting techniques to avoid strains. Move the cover out of the way to prevent a tripping hazard.

5. Remove decant discharge valve cap off.

   Note: water may splash out when the cap is removed. To avoid spillage, hold the open end of the discharge hose below the connection to catch the water.

6. Connect discharge hose to the decant valve.

7. Hang the discharge hose into the manhole.

   ***Note: once the decant process is started, do not leave the discharge hose unattended. Monitor the discharge hose and level of flow in the manhole to avoid a sanitary sewer overflow***.





8. Open the decant valve slowly, and wait until flow stops before raising the debris body.

   Note: raising the debris body too soon will fill the cyclone filters with water.

9. Raise the debris tank slowly and allow the decant to drain to the manhole.

   Avoid raising the debris tank any higher than necessary to decant the water, as debris may clog the decanting port.

10. Lower the debris body.

11. Close the decant valve and allow decant hose to drain into the manhole.

12. Disconnect hose and replace the decant discharge valve cap. Stow the hose.

13. Close the manhole lid. Retrieve and stow all traffic control devices.

14. Add notes to work order comment section with asset identification number and decant information.

**Dumping the Debris Tank at the Five-Mile Treatment Plant:**

1. Position the Combination Cleaner so that when the debris tank is raised, the debris will be directly discharged into the upper lagoon. A backing attendant should always be present during any backing process.

   Slowly back the cleaner up to the curb stop and set the brake.



2. Open the debris body tailgate.



3. Raise the debris tank slowly, and allow collected material to drain to the lagoon.

Continue to raise the debris tank body until it is emptied.



Open the cyclone clean out flaps on both sides of the debris tank body to drain.



4. Turn on internal wash down system.

With the debris tank body in the raised position, move the truck forward and back up onto the cleaning pad for internal cleaning.

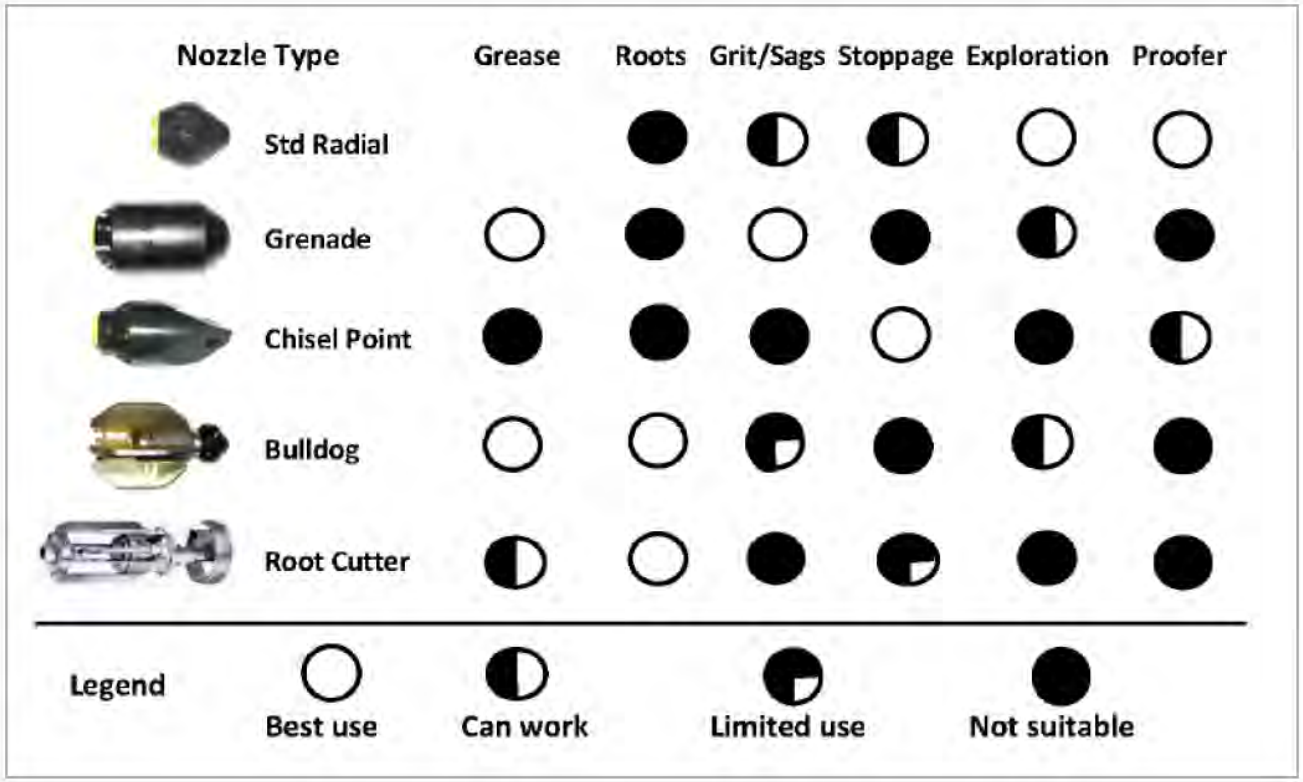


5. Use the wash down gun the clean the entire debris tank; verify screen baffles inside the tank (forward and aft) are clear and free of debris.

| | |
|---|---|
| 6. Lower the debris tank, clean up any material spilled on the cleaning pad.<br><br>7. Stow the wash down hose.<br><br>8. Complete all the necessary and required paperwork, and return to the yard, or continue to the next job. | |

## Attachment A Standard Nozzle Inventory

| Nozzle Type | Pipe Sizes | Applications |
|---|---|---|
|  Std Radial | 6" - 12" | Exploratory, light debris/grease, proofing skids |
|  Grenade | 6" - 18" | Debris, especially good in sag pipe, light grease |
|  Chisel Point | 6" - 18" | Relieve blockages |
|  Bulldog | 8" - 18" | Roots, grease, some light debris |
|  Root Cutter | 8" - 12" | Heavy/thick root removal |



## Attachment B Combination Cleaner Inventory

| | | |
|---|---|---|
| Chisel (Enz) | 1 | |
| Bull Dog | 1 | |
| Hydraulic root cutter | 1 | |
| Grenade | 1 | |
| Brass nozzle | 1 | |
| **Fins/Proofers** | | |
| 2-inch finned skid | 1 | |
| 6-inch proofer | 1 | |
| 8-inch proofer | 1 | |
| 10-inch proofer | 1 | |
| 12-inch proofer | 1 | |
| | 1 | |
| **Hose Aids** | | |
| Leader hose (10 foot) | 1 | |
| Tiger tail | 2 | |
| Upper MH roller | 1 | |
| **Traps** | | |
| 6-inch open top | 1 | |
| 8-inch open top | 1 | |
| 10-inch open top | 1 | |
| 12-inch open top | 1 | |
| 5-foot Fiberglass poles | 4 | |
| **Access Tools** | | |
| Cover hook - JC type | 2 | |
| Hydrant wrench | 1 | |
| Wheel chocks | 2 | |
| Counter wheel | 1 | |
| 100-foot reel tape | 1 | |
| 50-foot fill hose rolls | 1 | |

| | | |
|---|---|---|
| Chopper head | 1 | |
| 12-foot Pincher shovel | 1 | |
| 10-foot Pincher shovel | 1 | |
| 8-foot Pinchers hovel | 1 | |
| Rock bar | 1 | |
| **Hard Tools** | | |
| Brush cutter (Gerber) | 1 | |
| Brush axe | 1 | |
| Shovel - round | 1 | |
| Shovel - flat | 1 | |
| Sledge - 12 lb | 1 | |
| **Mechanical Tools** | | |
| Socket set tool box | 1 | |
| Asstd tools - tool box | 1 | |
| Grease gun | 1 | |
| Spray lube | 1 | |
| 18-inch pipe wrench | 2 | |
| Hose reel crank | 1 | |
| **Traffic Safety** | | |
| Road cones orange | 12 | |
| Stop/slow paddles | 1 | |
| Road work sign set | 1 | |
| **SSORRP** | | |
| SSO measuring stick | 1 | |
| SSO Signage | 2 | |

| | | |
|---|---|---|
| Rags (several) | 1 | |
| Dye - yellow/green | 2 | |
| Atlas map | 1 | |
| Caution/flag tape roll | 2 | |
| Rain gear sets | 2 | |
| Radio - hand held | 2 | |
| Boots - calf high | 2 | |
| Spot light | 1 | |
| Flashlight | 1 | |
| Water jug or cooler | 1 | |
| Anti bacterial soap | 1 | |
| Burlap sacks | 5 | |
| 5-gallon bucket | 1 | |
| Vice mounted on bed | 1 | |
| Nozzle orifice cleaner | 1 | |
| **PPE** | | |
| Gloves - leather | 2 pair | |
| Gloves - rubber | 2 pair | |
| Gloves - latex | 1 box | |
| Safety glasses | 2 | |
| Hard Hat | 2 | |
| Hearing - push-ins | 1 box | |
| Tyvek suits | 2 | |
| Dust mask | 1 box | |
| Mirror | 1 | |
| Magnet | 1 | |
| Snake chaps | 1 | |

## Attachment C Condition Findings Chart

| | Minor | Moderate | Heavy |
|---|---|---|---|
| **Roots** | ***Visual:*** No evidence of roots or small bits of hair/curtain roots in the trap or on the sewer cleaning hose without large clumps | ***Visual***: Moderate clumps of roots in trap. Roots of 1/8" to 3/8" thickness.<br><br>***Feel***: Hose does not bind or hydraulic pressure does not jump when roots encountered | ***Visual***: Large clump/s of roots in trap. Roots over 1/2" thickness.<br><br>***Feel***: Hose binds, jumps or slows down, hydraulic pressure can jump when using hydro cutter. |
| **Grease** | ***Visual:*** No evidence of grease or very small bits of grease in flow or stuck to sewer cleaning hose. Water color change to light milky color with some odor. | ***Visual***: Popcorn size bits of grease with some larger chunks from 1/2" to 1" diameter. Water color change to light tan/brown with odor.<br><br>***Feel***: Hose may slow but does not bind or hydraulic pressure does not jump when grease encountered | ***Visual:*** Any Large chunks, logs or calcified grease of significant size. Water color change to dark brown to black with foul odor.<br><br>***Feel:*** Hose binds and requires repeated attempts to clear some sections of the pipe. |
| **Debris** | ***Visual:*** No evidence of any debris. Conditions do not require shortening standard step length. No operator concern for blockage (no indication debris is concentrated in a small area).<br><br>***Quantity***: Max pass less than:<br>*1 gallon (8 inch)<br>*2 gallons (10 inches)<br>*3 gallons (>= 12 inch)<br><br>Or - For every 25 feet step increment, less than 5% of channel filled | ***Visual***: Debris is removed held by trap, but conditions do not require shortening standard step length. No operator concern for blockage (no indication debris is concentrated in a small area).<br><br>***Quantity***: Max pass between:<br>*1-3 gallons (<= 8 inch)<br>*2-5 gallons (10 inches)<br>*3-7 gallons (>= 12 inch)<br><br>Or - For every 25 feet step increment, must be between 5-20% of channel filled | ***Visual***: Large amounts of debris returned with each pass. Condition requires shortening standard step length. Operator concern for blockage (debris feels concentrated in a small area)<br><br>***Quantity***: Max pass, more than:<br>*3 gallons (<= 8 inch)<br>*5 gallons (10 inches)<br>*7 gallons (>= 12 inch)<br><br>Or - For every 25 feet step increment, must be more than 20% of channel filled |

Volume of Traps: 6" = .25 Gallon 8" = 1 Gallon 10" = 1.5 Gallon 12" = 2.5 Gallon

*BASED ON 300' LENGTH OF PIPE

# Hand Rod and Rod Turning Machine Pipe Cleaning

## Objective:

To describe operations and maintenance (O&M) practices of hand rods and the Rod Turning Machine (RTM).

## Responsibilities:

Hand rod and RTM use shall be scheduled and overseen by the Field Supervisor.

## Task:

Perform routine sewer cleaning, specialized cleaning, and sewer blockage relief in 6- to 12-inch diameter sanitary sewer pipe.

## Performance Standard:

Staff performing or assisting with the use of hand rodding equipment and the rod turning machine should have knowledge of the proper operation of the rodding equipment and tools, Confined Space Entry, traffic control set up, and appropriate safety measures.

## Safety and Field Cautions:

Any machine part, function, or process that many cause injury must be safeguarded. When the operation of a machine, or accidental contact with it, can injure the operator or others in the vicinity, the hazards must be either controlled or eliminated.

It is ESD policy for all operators working in the field with this equipment to be protected from hazards of operation that may be encountered. Operators and other personnel shall wear appropriate clothing for weather conditions, steel toed shoes, and traffic safety vests when working. Hard hats and hearing protection shall be worn during machine operation, as well as suitable gloves and hearing and/or eye protection per ESD policy.

All primary operators shall read the equipment manufacturer's Operation and Maintenance manual for a full description of the machine, its operational parameters, operation procedures, and other information pertaining to the machine. Until suitable field training and operation has been successfully completed, inexperienced operators should not be in the field with this equipment without an experienced operator present. Operational training shall include mechanical system awareness and ability to detect minor differences in operation or machine performance, along with field operation instruction.

## Tools and Equipment: See Attachment A

## Procedures

Comply with the Jefferson County ESD Safety Rules relative to this equipment and field use.

Comply with the ESD Personal Protective Equipment, and Confined Space Entry policies.

**Pre-Trip Duties:**

1. Check the following RTM items and resolve any issues noted; contact the Supervisor if repairs are needed:
   - Oil level in rod machine motor
   - Fuel level
   - Spark plug and wires
   - Drive belt
   - Cotter pins in wheels

2. Verify RTM is operational by starting the machine and letting it run a few minutes.

   Verify that the Rod Truck chassis engine critical fluids are checked and all Pre-Inspection Checklist items are inspected.

   Notify the Field Supervisor of worn, damaged or missing equipment.

4. Review assigned work orders and daily route.

5. Load all equipment and tools needed for the assigned cleaning work orders onto the truck. Use ratchet straps to tie down the RTM.

   Verify spare fuel is on board for the RTM.

**Arriving at the Site:**

Note: if using hand rods to relieve a pipe blockage, access the pipe from the downstream, dry manhole. For routine cleaning, hand rods can be deployed from the upstream or downstream manhole.



1. Upon arrival at the site, position the Crew Truck in the best manner that provides direct access to the manhole and limits exposure to traffic.

   Avoid blocking the entire street, unless it is absolutely necessary.

   For off-road pipe rodding, position the Rod Truck in the best location to accommodate the rod as it pulled off the reel to the remote manhole.

2. Place protective road cones around the work area.

   If the line to be cleaned is in an area where a higher level of traffic control is necessary, set up additional traffic cones and/or other traffic management devices (including flagger).

   Call the Supervisor, Dispatch, or other crew and ask for assistance if necessary.

3. Remove the manhole cover using proper lifting techniques to avoid strains. Move the cover out of the way to prevent a tripping hazard.



4. Use the manhole hook to scrape dirt and debris from the manhole rim.

5. Confirm the manhole depth, pipe diameter and material matches the manhole description on the work order.

   For off-road pipe cleaning, note the manhole location, and identify the path the rods will need to take to reach the manhole.



**Equipment Set-Up:**

1. Remove the rod guide pipe (2-inch galvanized steel pipe with the lower manhole curved section) from the Rod Truck.

If the guide pipe is not long enough to reach the manhole invert, thread more sections of pipe onto the guide pipe.



2. Position a crew member at the far manhole (if manhole location permits).

   Set up road cones at the far manhole if necessary, and open the manhole lid.

3. Pull the rod from the rod reel, and thread the rod through the guide pipe.



   Note: Sectional rods may be mounted on a reel, and pulled from the side (as shown) or rear of the truck.



4. Remove the RTM from the truck, and place it a safe location approximately 6 feet from the manhole.



5. Select the proper tool (size and type) to use for the pipe to be cleaned:

   - Use a root saw to remove roots, or an auger to remove grease.
   - Use a large spear point or small squarebar corkscrew to break up a blockage in a pipe.



6. Use the assembly wrenches to attach the selected tool to the rod that is threaded through the guide pipe.



7. Select the proper size debris trap and attach the appropriate number of extension poles needed to place the trap in the manhole channel.

   ***Note: if rodding a pipe from upstream to downstream, the trap should be placed in the downstream manhole.***

8. Lower the trap into the manhole and position the trap to catch materials at the downstream pipe invert.

   If needed, tip the trap forward to fit into the invert or to trap material in fast-moving flow.

   If the pipe is too deep and there are not enough extension poles, attach a rope to the trap and lower it into the manhole.



**Hand Rod Operation:**

1. With the trap in place, lower the guide pipe and rodding tool into the manhole invert, and align the pipe in such a manner that it will experience the least amount of movement while the rodding work is performed.



2. Position personnel along the string of rods to help guide the rod into the rigid pipe and prevent the rod from unexpected movement while it is being turned during the cleaning process.

3. Pay out rods from the reel and push the rods through the guide pipe. Continue to move the rodding tool through the pipe until the tool stops.

   ***Note: Use caution when handling turning rods. Do not wear rubber gloves.***

4. Once the rodding tool stops, disconnect the rod at approximately 10-feet from the manhole or as directed by the Labor Supervisor using the coupling wrenches.

   Use caution when taking rods apart as there may be tension on the rod that can cause it to move unexpectedly.





Maneuver the disconnected rod to insert the coupling into the RTM chuck (located at the front of the RTM) and remove the pin from the chuck.



Note: only one partial rod section is to protrude from the back of the RTM during use. <add photo>

Turn the chuck so the pin can be inserted once the rod coupling is positioned. Insert the rod coupling into the chuck until the hole in the coupling lines up with the chuck. Insert the pin through the RTM chuck and rod coupling.

5. Toggle the on switch, turn on the gas, turn on the choke, and pull the pull start until the RTM motor starts.

   Stand to the right side of the machine (away from the protruding rod) to access the rotation control and guide the machine toward the manhole as needed.

   Use the actuating lever that rotates the rod clockwise while pushing the rod into the manhole.



6. The lead operator pushes the rod into the manhole (RTM will be pulled towards the manhole).

   Pull the RTM forward as needed by the pushing the rod gently into the manhole.

   Adjust the rotation power and direction during operation to reduce twisting and tension on the rod.



***Note: Use caution to avoid the buildup of rod torque (twisting) that can cause the RTM to tip or the rods to break. Manage rod torque by increasing/decreasing the turning power or reversing turning direction of the RTM when cutting through material in the pipe.***



Continue pushing rod through pipe until the tool reaches the far manhole. Pull the tool back to the operating manhole. (If the tool does not move freely through the pipe while pulled back, return the tool to the far manhole and use a different tool.

If a different type or size tool is needed for the return pass to cut material, use a fork head pole to lift the tool out of the manhole.

Remove the tool from the rod and return the rod to the operating manhole.

If a larger tool is needed to clean the pipe, remove the rigid pipe set up from the manhole and replace the tool. Repeat the cleaning process.

Replace the tool at the end of the rod and use the fork head pole to assist the tool into the manhole channel for the return pass.

***Note: Use care when changing rodding tools as the rod may move without warning.***

8. When pipe is clean, shut down the RTM motor by toggling the off switch.

   Note: If this is the last job of the day, shut the fuel off and allow the motor run until residual fuel is consumed and the motor stops.

**End of Operations:**

1. When the pipe is clean, reattach the rod to the rod storage reel. Carefully draw the rod from the pipe through the rigid pipe set up and take up the rod with the reel.

   Once the tool reaches the guide pipe, remove the guide pipe and tool from the manhole, detach the tool from the rod and secure the rod on the storage reel.

2. Remove the trap from the manhole, and determine the type and amount of material removed from the pipe.

   Use pincher tool or fork head pole to remove materials from the manhole invert and deposit the material in a burlap bag or 5-gallon bucket for disposal at the yard.



3. Replace the manhole lid, properly stow all equipment and tools, and retrieve all traffic management devices.

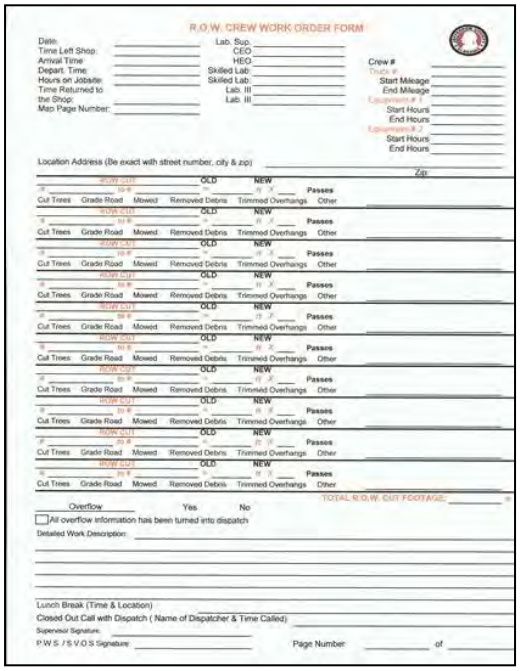
4. Fill out all the information fields in the Rod Truck Work Order Form and/or tablet. Estimate the type and amount of materials removed from the pipe.

5. Call and update the Dispatch office on the status of service request-related work.

6. Proceed to the next work order location, or return to the yard.

7. If tools and equipment were borrowed from another truck, replace all items.

   Notify Supervisor if any issues were noted with the vehicle, tools or equipment.



R.O.W. CREW WORK ORDER FORM

Date:
Time Left Shop:
Arrival Time:
Depart. Time:
Hours on Jobsite:
Time Returned to the Shop:
Map Page Number:

Lab. Sup.
CEO
HEO
Skilled Lab:
Skilled Lab:
Lab. III
Lab. III

Crew #
Truck #
Start Mileage
End Mileage
Equipment # 1
Start Hours
End Hours
Equipment # 2
Start Hours
End Hours

Location Address (Be exact with street number, city & zip)
Zip

ROW CUT — OLD — NEW — Passes
Cut Trees Grade Road Mowed Removed Debris Trimmed Overhangs Other

TOTAL R.O.W. CUT FOOTAGE:

Overflow Yes No
All overflow information has been turned into dispatch
Detailed Work Description:

Lunch Break (Time & Location)
Closed Out Call with Dispatch ( Name of Dispatcher & Time Called)
Supervisor Signature
P.W.S. / S.V.O.S Signature
Page Number: of

# Attachment A Rodding Tools and Equipment

## Standard Inventory List for Rod Trucks

| Rod Operation | | |
|---|---|---|
| 5/16" x 36" rod | 350' | |
| Rod Turning Mach | 1 | |
| Gas can - 2 gal | 1 | |

| Galvanized Pipe | | |
|---|---|---|
| 2' pipe | 2 | |
| 3' pipe | 2 | |
| 4' pipe | 3 | |
| 5' pipe | 2 | |
| 6' pipe | 2 | |
| 8' pipe | 2 | |
| 10' pipe | 2 | |
| Pipe Couplings | 6 | |
| 30° Bend with end | 2 | |

| Rod Tools | | |
|---|---|---|
| 4" Root saw | 2 | |
| 6" Root saw | 2 | |
| 8" Root saw | 2 | |
| 4" Auger | 2 | |
| 6" Auger | 2 | |
| 1.5" Spear head | 2 | |
| 3" Spear head | 2 | |
| Assembly wrench | 2 | |
| Pull out handle | 1 | |

| Traps | | |
|---|---|---|
| 6" Open top | 1 | |
| 8" Open top | 1 | |

| PPE/Safety | | |
|---|---|---|
| Gloves - leather (pr) | 8 | |
| Gloves - rubber (pr) | 8 | |
| Gloves - latex (box) | 1 | |
| Safety glasses | 4 | |
| Hard Hat | 4 | |
| Boots - knee high (pr) | 4 | |
| Rain gear (sets) | 4 | |
| Hearing push-ins - box | 1 | |
| Tyvek suits | 2 | |
| Dust masks - box | 1 | |
| SSO Signs | 5 | |
| Snake chaps (sets) | 4 | |

| Set Up & Access tools | | |
|---|---|---|
| Cvr hook JC type | 2 | |
| Cvr hook cold rolled | 1 | |
| wheel chocks | 2 | |
| Counter wheel | 1 | |
| 100' Reel tape | 1 | |
| Mirror | 1 | |
| Magnet with rope | 1 | |
| Steel palm mitts (pairs) | 3 | |

| Long Tools | | |
|---|---|---|
| Fork head (pole) | 1 | |
| Chopper head (pole) | 1 | |
| 12' Pincher shovel | 1 | |
| Rock bar - 12' | 1 | |
| Rock bar - 6' | 1 | |

| Traffic Safety | | |
|---|---|---|
| Road cones orange | 12 | |
| Road work sign set | 1 | |
| Stop paddles | 2 | |

| CSE Equipment | | |
|---|---|---|
| Tripod | 1 | |
| Winch (manual haul) | 1 | |
| Blower | 1 | |
| Bellows 20' min | 1 | |
| Harness | 1 | |
| Gas detector | 1 | |

| Hand Tools | | |
|---|---|---|
| Brush cutter - Gerber | 1 | |
| Brush axe | 2 | |
| Shovel - round | 2 | |
| Shovel - flat | 2 | |
| Shovel - trench | 1 | |
| Sledge 16 lb | 1 | |
| Rake - metal leaf type | 1 | |
| Rake - metal earth type | 2 | |
| Post hole digger | 1 | |
| Mattock | 2 | |
| T handle probe - 5' | 1 | |
| Concrete mixing hoe | 1 | |
| Wheel barrow | 1 | |
| Concrete trowel | 2 | |
| Push broom | 1 | |

| Misc Item | | |
|---|---|---|
| Green paint | 2 | |
| Rags - some/several | 1 | |
| Dye - yellow/green | 2 | |
| Atlas map | 1 | |
| Petzl head lamps | 4 | |
| Caution/flag tape roll | 2 | |
| Rain gear sets | 4 | |
| Radio - hand held | 4 | |
| Boots - calf high (pr) | 4 | |
| Flashlight | 4 | |
| Water jug or cooler | 1 | |
| Anti bacterial soap | 1 | |
| SSO measuring stick | 1 | |
| 10' Chain 3/8" link | 1 | |
| Level - 4' | 1 | |
| Manhole cushion | 5 | |
| Rachet straps (set) | 2 | |

| Mechanical Tools | | |
|---|---|---|
| Socket set tool box | 1 | |
| Asstd tools box | 1 | |
| Grease gun | 1 | |
| Assorted sprays | 1 | |
| Pipe wrench 24" | 2 | |
| Bolt/Chain cutter | 1 | |

| Misc supplies | | |
|---|---|---|
| Water in 50 gal tank | 25 | |
| 5- g bucket lime | 3 | |
| 5- g bucket quickcreet | 3 | |
| 5- g bucket concrete | 2 | |
| 5- g bucket sand | 3 | |
| Spare MH cover 20" | 2 | |
| Spare MH cover 22" | 2 | |
| MH Riser - steel | 2 | |
| MH Frame - 20" | 1 | |
| Burlap sacks | 12 | |

# GIS Updates

## 1.0 OBJECTIVE

The objective of this SOP is to provide Jefferson County (County) with a clear and concise document that summarizes the methods and applications used by County staff to maintain data in the current Geographic Information System (GIS).

## 2.0 RESPONSIBILITIES

Applying physical changes to the GIS database is restricted to an appointed County GIS staff member with editing permissions (hereafter referred to as the GIS editor). Changes shall be made using GIS desktop software and applied to the County's centralized ESRI ArcSDE geodatabase.

In cases where the GIS editor requires it, County Survey Department staff will be responsible to verify the attribute information and/or physical location of utility assets in the field as directed. Survey staff will be responsible to provide all requested information back to the GIS department and ensure it is accurate. At a minimum, GPS coordinates of the site visit location should be collected. Additional information such as paper sketches of the utility layouts and general notes of observation may be required by the GIS editor.

The GIS editor will be responsible to regularly coordinate with operations and maintenance staff in order to determine which work orders have been completed that require updates within GIS. Inspection staff and the GIS editor should work together to facilitate identification of relevant work orders requiring GIS updates.

All County staff including engineers, inspectors, and maintenance workers will be responsible to communicate to the GIS editor any discrepancies found in the wastewater collection system during the normal course of their duties. The GIS editor will be responsible to implement all updates.

## 3.0 PROCEDURES

**GIS UPDATES BASED ON RECORD DRAWINGS**

1. Record drawings documenting changes to the system that are made during construction by outside contractors (including utility contractors or subdivision construction developers) shall be received by GIS staff and cataloged. It is recommended to make scans of all received documents during this step to link to GIS.

2. The GIS editor will utilize ESRI ArcGIS GIS software to digitize the wastewater pipe and structure network features, etc. shown on the record plans.

3. Attribute data shown on the plans or reported by the contractor will be updated in the GIS database. It is recommended to include the following sewer feature GIS data at a minimum:

| Manholes | Gravity Lines | Force Mains | Lift Stations |
|---|---|---|---|
| Asset ID | Asset ID | Asset ID | Asset ID |
| MH Rim Elevation | Install or Replace Date | Install or Replace Date | Install or Replace Date |
| MH Depth | Upstream Invert Elevation | Line Diameter | Station Firm Capacity |
| Install or Replace Date | Downstream Invert Elevation | Pipe Material | Number of Pumps |
| Abandoned Date | Line Diameter | | Station Pump Type (centrifugal, suction-lift, other) |
| Barrel Diameter | Pipe Material | | Wet Well shape (circular, rectangular, irregular) |
| Sealed? | Cross Section Shape | | Wet Well Cross Sectional Area (if not irregular) |
| Drop Manhole? | Siphon? | | Standby Generator? |
| | Upstream MH Asset ID | | Upstream MH Asset ID |
| | Downstream MH Asset ID | | Downstream MH Asset ID |

4. As required, pending changes to property boundaries, deed documents are scanned into digital format and electronic database links are created to the GIS features referenced by the deed document.
    a. These links should be stored in the GIS database using the SIMS interface. It should be noted that this SOP should be updated in the future if the County adopts the new web-based SIMS tool currently under development.)
    b. The resulting scanned deed document images should be stored in a centralized location on the County's servers.

5. The GIS editor may request additional field verification for inconsistencies or omissions on the record drawings. In any case where a GIS feature is field verified, the date of verification should be entered in the "FLD_VERIFY" field in the underlying GIS attribute table.

**GIS UPDATES BASED ON WORK ORDERS**

1. Work order records indicating changes to the wastewater network by County personnel shall be a primary means to identify assets in need of GIS update. The GIS editor shall determine the relevant work orders for assets to update on a regular basis. This update frequency should be no less than once every two months.

2. Once the relevant work orders have been identified, GIS staff will identify the location of work performed and print paper maps of the existing wastewater network and basemap features for reference by survey staff.

3. Survey staff shall utilize the paper map documents to locate the area of work and use survey equipment (total stations, manual survey, GPS, etc.) as appropriate to collect the modified physical locations and attributes in the field.

4. Survey staff shall manually mark up the changes to the network on the paper maps provided by the GIS staff and record notes and observations as necessary to clearly communicate to GIS editor the changes to be made.

5. When available, GIS staff will import database output from total station survey equipment to assist with generation of new GIS features.

6. Once survey staff provides verification of changes from work orders, GIS staff shall remove existing/replaced wastewater assets in the GIS as appropriate and replace with the new/modified features from the survey data into the existing GIS wastewater network.

7. Once the GIS feature is field verified, the date of verification should be entered in the "FLD_VERIFY" field in the underlying GIS attribute table.

8. The GIS editor may request additional field verification for inconsistencies or omissions on the survey drawings.

**GIS UPDATES BASED ON CLOSED-CIRCUIT TELEVISED INSPECTION DATA**

1. For all closed circuit television inspections (CCTV) on the wastewater system by both County and outside contractor staff, the County's GIS shall be updated to match accordingly.

2. The GIS editor will be responsible for comparing the following fields from the PACP inspection database based on the line Asset ID.

| CCTV Update Fields |
| --- |
| Height |
| Width |
| Shape |
| Material |
| Length Surveyed |

3. It is recommended during this step to populate GIS fields with the following values from the CCTV inspection into the GIS gravity line feature:

| CCTV Update Fields |
| --- |
| Date Televised |
| Upstream Rim to Invert |
| Upstream Grade to Invert |
| Upstream Rim to Grade |
| Downstream Rim to Invert |
| Downstream Grade to Invert |
| Downstream Rim to Grade |

4. The GIS editor may request additional field verification for inconsistencies or omissions in the CCTV inspection data. In any case where a GIS feature is field verified, the date of verification should be entered in the "FLD_VERIFY" field in the underlying GIS attribute table.

**GIS UPDATES FOR NEW ASSETS IDENTIFIED IN FIELD**

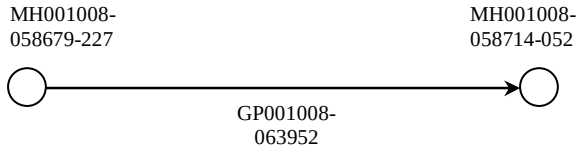
If manholes are discovered in the field that are not in GIS, the GIS editor will need to create new Asset IDs for the manholes and associated gravity lines. The Asset ID consists of three parts separated by hyphens [Feature Mini-Basin]-[Unique Numeric ID]-[Original Facility ID MH number]. Manholes are the only features that have the third part, which is a reference to the original Facility ID.

1. Referencing the downstream manhole Asset ID, the Asset ID of the new manhole(s) shall be created by appending either a letter or number to the original Facility ID.
2. A new unique numeric ID must also be generated for the new feature. The GIS editor will ensure this middle part of the Asset ID is unique to any other feature of the same type during this step.
3. New manholes that split existing gravity lines will require the new gravity line Asset IDs to be modified. Asset IDs for new gravity lines shall be assigned by ensuring the new feature(s) has a unique numeric ID in relation to any other gravity line.
4. See the following four examples for illustration of these update procedures.

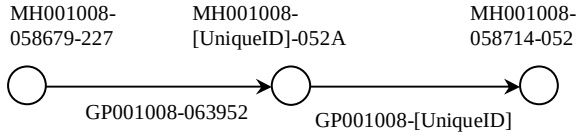
# GIS Updates

**Example 1: One MH discovered between two existing manholes with downstream manhole ID ending in a number**

GIS data:

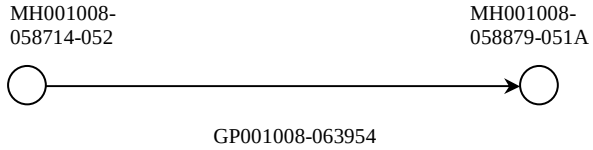



Field Observed data:

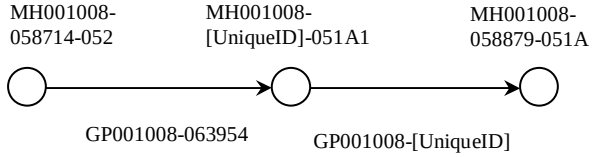



**Example 2: One MH discovered between two existing manholes with downstream manhole ID ending in a letter**

GIS data:



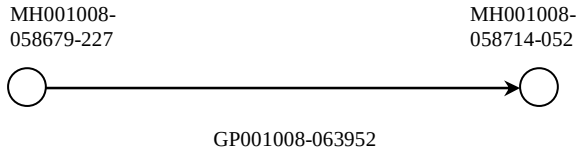

Field Observed data:



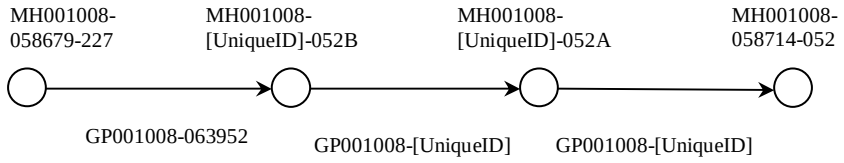
# GIS Updates

**Example 3: Multiple MHs discovered between two existing manholes with downstream manhole ID ending in a number**

GIS data:

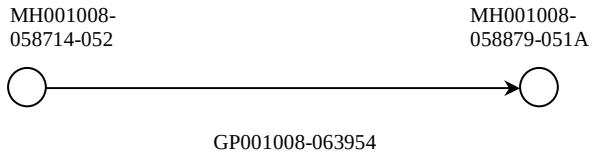



Field Observed data:

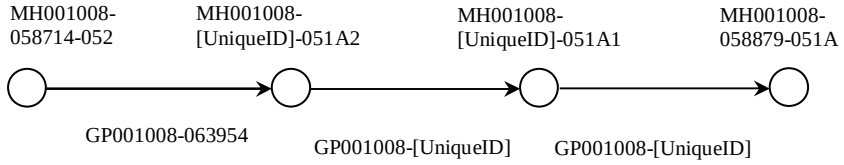



**Example 4: Multiple MHs discovered between two existing manholes with downstream manhole ID ending in a letter**

GIS data:




Field Observed data:



## 4.0 SAFETY PROCEDURES

1. Any field work should be in accordance with the County's standard safety procedures. These procedures should include provisions for traffic control and confined space entry at a minimum.

## 5.0 QA/QC

1. All updates that are inconsistent or suspicious in nature should be field verified. The GIS editor is ultimately responsible for all GIS edits.

2. CCTV inspection data is understood to have been field verified during data collection. The GIS editor should use basic software queries before final updates to check for inconsistencies with length surveyed and GIS.

3. Final updates shall be checked visually on-screen by GIS staff. GIS staff is encouraged to use basic software queries before leaving the update to check for inconsistencies with line diameters, length, and material.

# Closed Circuit Television (CCTV) Sewer Inspection Practices and NASSCO PACP Coding – Inside CCTV Van

## 1.0 OBJECTIVE

The objective of this SOP is to provide Jefferson County (County) with a clear and concise document that summarizes the methods and applications used by County staff to perform CCTV inspections of their sanitary sewer system using NASSCO PACP coding and software. This SOP will cover collecting, transferring, storing, reviewing and utilizing the data for making decisions on operating, maintaining and repairing the sewers.

*See the SOP entitled Closed Circuit Television (CCTV) Operational Practices outside the van.*

## 2.0 RESPONSIBILITIES

The CCTV operators were certified in NASSCO Pipeline Assessment and Certification Program (PACP) inspection on May 2012 and need to keep their certification update every 3 years by taking a recertification course and passing the exam.

The engineering department and data management staff need to transfer the video and data files from the operators and review for PACP coding accuracy, correct location, file naming, video and audio quality and asset ID accuracy. See section 3.2 for details on transferring the data.

The maintenance managers need to work with the engineering department to schedule future CCTV inspections of the sewers based upon prioritizations developed by the Asset Management Program.

## 3.0 PROCEDURES

3.1 CCTV INSPECTION OF SEWERS

1. The work orders are developed from the maintenance manager(s) and print outs of the locations of inspections to be done for each day are taken out in the field each morning.
2. Crews use a tool in ArcMAP (SIMS or SIMS replacement tool) to select sewer line segment for inspection and use fields on the displayed form to copy and paste feature attribute data into Pipetech Scan inspection software header fields. The “Asset ID” from ArcMap should be copied and pasted into the “Pipe Segment Reference” field and the Asset IDs of the manholes should be copied and pasted

into the Upstream and Downstream Manhole ID fields. The "Mini Basin" ID should be copied and pasted into the Pipetech Basin field.

3. A folder on the County server will be created for each inspection and the folder name should be: "Asset ID_ Date_Time". The Date should be in Year_Month_Day format and the time should be in military time. This name will also be used for the video file name.

   Table 1. The Variables Table in the PipeTech Template database (abbreviated).

| Variables | |
|---|---|
| VariableName | VariableValue |
| Attachment Filter | {Incident Code}@{Footage}.jpg |
| MPEG Filter | {Pipe_Segment_Reference}_{Date}_{Time}_{Direction_of_Survey}.mpg |
| PDF Filter | {Pipe_Segment_Reference}_{Date}_{Time}_{Direction_of_Survey}.pdf |
| | |

   The Variables Table in the attached PipeTech template file (JeffCoPACP.ptm) contains information that controls the names and pathnames of things like photo attachments, video files, and pdf files. Entries in the VariableValue field contained in {} brackets are field names from the Details table that are filled in on-the-fly as the photos, videos, and PDFs are generated and stored. For example, the inspection of the pipe with Pipe_Segment_Reference "GP004001-259036" done on 4/20/2013 at 8:30 AM in the downstream direction would generate a video with the filename based on
   {Pipe_Segment_Reference}_{Date}_{Time}_{Direction_of_Survey}.mpg, or

   GP004001-259036_04 20 2013_08 30_Downstream.mpg

   Other configurations are possible. Consult the PipeTech help for further details.

4. The camera operator should open the software program PIPETECH SCAN which will create *.ptd files (access database files), *.PDF files, *.JPG files and *.MPG or *.PTVfiles. A Pipetech template file (*.PTM file) should be pre-installed on the each CCTV computer that has a current PACP exchange template that will be utilized to collect the various Pipetech files.

5. The photos of each PACP code (.JPG files) should be collected as dictated by this protocol or the sewer maintenance manager. The software program can be set to collect NO Photos, ALL photos or only as the operator chooses. The digital video files will be collected in .PTV format or .MPG format. A one-page summary (*.PDF format) of inspection results for each pipe asset should be created and printed for each pipe as needed. The .PTD files are contained in a Microsoft Access database file for each MH to MH segment. The .PTD files will be combined into a larger database file by the data manager which are stored as a library file (*.PTL) on the county server. Pipetech View should be installed on individual computers to utilize this library of CCTV data.
6. The CCTV operator(s) should utilize the County cleaning crews as needed to properly clean the pipe. The cleaning should be completed after the pre-CCTV inspection to determine quantity and volume of debris. Typically one cleaning crew can keep the pace of two CCTV crews.
7. The camera operator and his crew should situate the camera within the manhole with the lowering hook to eliminate the need for man-entry of the manhole whenever possible.
8. The crew should situate the camera inside the pipe going downstream whenever possible. When the camera is in place in the pipe and the marking on the cable is observed to be at the center of the manhole, the operator should set the footage reading to 0.00 and begin recording the relevant codes.
9. The Pipetech software program shall be utilized to collect an inspection record from manhole to manhole whenever possible.
10. The camera operator should completely fill in all the mandatory PACP header fields per the PACP Manual and any additional optional fields per County protocol. The software will have mandatory and optional header fields to populate. The most critical field to enter correctly is the “Pipe_Segment_Reference”, which shall be populated from the Asset ID field (refer to Item 2 in this section).
11. The CCTV operator should collect all pertinent defect data per NASSCO PACP coding standards. The operator should reference the PACP Reference Manual and 2-page color coded sheet for any questions related to coding defects.
12. The CCTV operator shall collect video data with a minimum bit rate of 4,000 kbps.
13. The O&M defects such as roots and debris and deposits should be coded before the sewer is cleaned whenever possible.

14. The first code for each inspection should always be "AMH" at the starting access manhole and the last code should be "AMH" or other access code and the manhole identification should be entered into the "Remarks" column. The second code of the inspection should always be "MWL" to denote the beginning water level. The last code should be the ending access point such as a manhole and the code being AMH.
15. Special attention should be taken to properly code the worst structural defect in a given area and not excessively code defects that may be more aesthetic in nature.
16. Pipe sags should be recorded as a continuous defect from the beginning of the sag to the end of the sag with the code MWL. The % of the sag should be at the deepest location in the sag relative to the upstream or downstream normal water level. Several codes that are often coded incorrectly (all operators should be well versed in proper PACP coding) are: cracks, fractures, holes, sags, roots in the laterals and at the taps, deformed pipe, defective taps, continuous defects, taps (TFA vs. TF; TFA should only be used when water activity is observed).
17. Severe structural defects with a condition grade of 5 that require immediate repair or attention should be copied into an "Alert File" created by Jefferson County staff. Active spills and those conditions that appear could cause an overflow should be put into this type of file. A document file called Alert.txt should describe the problem and recommended solution if the operator is experienced enough to make an initial recommendation. The folder should contain a PDF of the PACP report, the PACP CCTV video, and jpg photos. These "Alert Files" should be given to the sewer operations manager on a daily basis for proper actions.

3.2 DATA COLLECTION, TRANSFER AND STORAGE

1. Crews will perform inspections and store the digital files initially onto the hard drive on the CCTV truck local computer. This SOP assumes the files will be located in C:\Pipetech_Staging
2. After inspection or at end of day, crews run a computerized routine developed by Jefferson County Staff that will copy all folders from C:\Pipetech_Staging onto a USB thumb drive and move the inspection folders into the C:\TVI_Backup\ folder.
3. A thumb drive gets inserted into a USB hub, at the maintenance shop, that can support up to 5 thumb drives at once. (There are 5 trucks in the maintenance shop.) These thumb drives can be connected to a computer as mapped drives and will show up as E:, F:, G:, H: and I: or some other letter. When these are plugged

into the USB hub, which is connected to the network, the GIS/CCTV data manager can see on his computer that they are plugged in.

4. Each truck will be assigned a designated truck ID (e.g. TVI-1, TVI-2, TVI-3 etc.).The volume label on the thumb drives should be named to match the truck ID so that the GIS/CCTV data manager can easily see files to be copied to the server.

5. Jefferson County staff shall schedule a task each work day to copy the folders from each of the thumb drives to the network share at the following location: \\esd-archive\esd\DocLinksP\Staging\. This task will also delete inspections from thumb drives once copied. Some QA/QC processes can be run on the inspections if needed at this point. Asset IDs, MH IDs, video quality, sound and other should be checked for accuracy

6. Jefferson County staff shall also copy any database changes onto these thumb drives so that they are ready to use the next day. This keeps the crews from having to wait to download the new database before they can leave in the morning. These can then be copied to the computer from the thumb drive on location.

7. Jefferson County staff shall use an existing application to parse the correct subbasin name from the inspection folder names and moves files to the correct \\esd-archive\esd\DoclinksP\PACP\TVI\{year}\ folder. This should be the final location for the inspections. Files shall be backed up regularly. Currently this task is performed nightly. After ten years, videos should be moved to an archive location.

3.3 CCTV DATA MANAGEMENT AND LIBRARY UPDATES

1. To add video files, use Pipetech View which is automatically set to the \\esd-archive \esd\DocLinksP\PACP\ folder to find new inspections to add to the library.

2. The CCTV database library (JEFFERSON COUNTY 2013.PTL file) will continuously update and become larger with the additional JEFFERSON COUNTY 2013.PTD files created in the field. This file shall be backed up regularly no less frequently than once per week.

3.4 IMPORTING GRAVITY INTERCEPTOR CONDITION DATA TO THE PIPETECH LIBRARY

1. If the data is organized per inspection, use PipeTech to import individual inspection databases (*.PTD files) into the master PipeTech Library.

   Before importing PipeTech data into the master PipeTech library; copy the data, *.ptd files, *.jpg and *.mpg files, to their final destination on the Jefferson County server. The data folder for a given inspection goes under the \\esd-archive\esd\

DoclinksP\PACP\TVI\{year}\{Pipe_Segment_Reference}_{Date}_{Time}_{Direction} folder. Ideally, the source data being copied will already have the desired directory structure, so copying to the final destination should involve copying entire folders without the need to manually create the destination folder structure.

For example, the inspection data for the pipe with AssetID "GP001080-253916," performed on 4/23/2013 at 8:58 AM, in the upstream direction, would include the files GP001080-253916_20130423_08 58_Upstream.mpg and JEFFERSON COUNTY 2013.ptd and would go under \\esd-archive\esd\DoclinksP\PACP\TVI\2013\ GP001080-253916_20130423_08 58_Upstream\

A. To import the data after copying it to the final destination, first open PipeTech View.

B. Set the current library to the master PipeTech library file: \\esd-archive\esd\DoclinksP\PACP\JEFFERSON COUNTY 2013.ptl.

C. Select 'File/Add PipeTech Data to Library' and browse for the location of the *.ptd files and press the 'OK' button. All *.ptd files at or below the selected location will be imported into the Master PipeTech Library. Be careful not to select a folder that would cause importing inspections that are already in the master library.

D. The PipeTech import process will replace any drive letter designation from the mpeg paths with the corresponding server share name: '\\esd-archive\esd\DocLinksP\PACP\'.

E. All of the decision tools can run with the server share name instead of the logical drive. The mpeg paths can be set back to the relative path drive designation by:

    a. Save a copy of the *.ptl file in the backup folder prior to opening MS Access.

    b. Start MS Access.

    c. Open the master PTL file. Note that the database access code is "sigchi".

    d. Create a new query.

    e. Go to SQL mode.

    f. Delete any text in the SQL window and enter the following text:

update Runs table and set MPEGPath = Replace (MPEGPath, "\\esd-archive\esd\DocLinksP\PACP\", ".\")

g. Run the query. Note that the query will state that it updated all of the rows; however, most rows will not need to be updated and will not be affected.

h. Notes:

1. When prompted to move or copy the video file(s), do not check any checkboxes, just press the "Next" button, as they are already in their final location.

2. The name of the *.ptd files must all match the name of the *.ptl file they are being imported to. If you get data from a contractor with different *.ptd names, you must first rename your master PTL file to match the *.ptd files, run the import routine, and then rename your *.ptl back to "JEFFCOSEWERPACP.ptl".

3. The recommended procedure is to give the contractor a seed *.ptd file (which is actually a *.ptm file) with the proper name you expect back with the data submittal. Giving the contractor the expected directory structure will help, too.

2. Importing a single PACP v 4.2 database.

The County specifies all submittals to be completed using the current version of PipeTech. It should be rare to receive data in another format. This may happen if the County receives assets from another organization and the data was recorded in a format other than PipeTech.

PACP version 6.1 interchange format does not include a specification for the video frame number or video timestamp. If you import data from a PACP exchange database, you will need to use some other means to import any video frame number or timestamp data.

3.5 POST REHABILITATION CCTV – CONSTRUCTION DELVERABLE

1. After a sewer line has been rehabilitated, a post rehabilitation CCTV video and database file (in current PACP exchange format) shall be provided that complies with all requirements of this SOP. The GIS/CCTV data manager shall edit the pipe

material in the County database as necessary (DIP/ VCP/RCP to CIPP) along with the date of the video which will be used as the in-service date.

## 4.0 SAFETY PROCEDURES

1. Refer to Standard Operating Procedures for CCTV Equipment Setup and Maintenance

## 5.0 QA/QC

**1.** It is recommended that 5% of the inspection data be reviewed in the office by a County staff person that is PACP certified.

# Closed Circuit Television (CCTV) Operational Practices Outside the Van

## Objective:

To describe internal pipeline operational practices and operation outside the CCTV Van.

See the SOP entitled Closed Circuit Television (CCTV) Inspection Practices Inside the Van

## Responsibilities:

CCTV van use shall be scheduled by the supervisor.

## Task:

Use a tractor mounted closed circuit television (CCTV) camera and recording equipment to televise 6- to 15-inch diameter sanitary sewer pipe.

## Performance Standard:

Staff performing or assisting with the use of CCTV inspection equipment should have knowledge of the proper operation of the CCTV inspection van, CCTV equipment, traffic control set up, and appropriate safety measures.

Comply with the Jefferson County ESD Safety Rules relative to this equipment and field use.

Comply with ESD Personal Protective Equipment, Confined Space Entry, and Traffic Control policies.

**Pre-Trip Duties:**

1. Verify potable water tank is filled.
   If the potable water tank is not full, fill the tank by connecting the fill hose to the hose bib at the rear of the truck.

2. Review assigned work orders, note the sizes of pipe to be televised, and any special equipment required.

3. Load all equipment necessary to perform the CCTV inspection(s) into an appropriate van.






**Arrival at the Site:**

1. Upon arrival at the site, position the CCTV van in the best manner that provides access to the manhole and limits exposure to traffic.

   If a wash truck is onsite to clean the pipe prior to the inspection, park the CCTV van safely at the side of the roadway. While waiting for the pipe to be cleaned, confirm the pipe to be inspected, and set up the camera and related systems in the viewing cabin (see Steps 6, 8 and 9).

   Avoid blocking the entire street, unless it is absolutely necessary.



2. If the sewer pipe to be inspected is located in an area where traffic control is necessary, set up traffic cones and other traffic management devices.

   For off-road pipe inspections, position the CCTV van in the best location to accommodate the cable as it is pulled off the reel to the remote manhole.

   If the line to be cleaned is located in an area where a higher level of traffic control is necessary, set up additional traffic cones and other traffic management devices (including flagger) in accordance with ESD's Traffic Control policy.



3. Remove the manhole cover using proper lifting techniques to avoid strains.

   Move the cover out of the way to prevent a tripping hazard.



4. Use the manhole hook to scrape dirt and debris from the manhole rim.

5. Confirm the manhole depth, pipe diameter and material matches the manhole description on the work order.

   For off-road pipe inspections, note the manhole location, and identify the path the camera cable will need to take to reach the manhole.

   Determine if additional rollers, tiger tails, or other protective devices will be needed to protect the camera cable during the inspection.



6. Replace the manhole cover.

   NOTE: For jobsite safety, the manhole cover should remain on until operation is ready to begin, and be replaced once the camera is taken out of the pipe and cleaned.

7. Position a crew member at the far manhole, set up road cones if necessary, and open the manhole cover.

8. Deploy the cable winder located at the rear of the van.

   Fold the boom down, and verify cable guides are in place.

   Use the electric hoist to avoid strains, and when maneuvering the camera into and out of deep manholes.

   Deploy the hoist by swinging it to the overboard position, and use the electric controls to lower and raise the cable.



9. Verify the size of the transporter drive wheels are appropriate for the size of the pipe to be inspected.

   If a wheel change is not necessary, check the wheel bolts for tightness.



10. Inside the van, turn on the camera status screen on the cabin control panel, and verify the camera is pressurized at or above 12 PSI.



a. If the air pressure in the camera is not at or above 12 PSI, remove the camera's nitrogen fill port access cover with a small screwdriver.




b. Connect the nitrogen kit valve to the camera's nitrogen fill port, and open the gas valve to pressurize the camera.



c. Use care and add gas in small amounts, closely watching the gauge on the nitrogen tank.



d. When the air pressure gauge on the nitrogen tank and the camera status screen indicate the camera air pressure has reached 12 PSI or higher, properly close and shut down the nitrogen tank, and seal the camera's nitrogen fill port.





11. Place the camera transporter on the side of the manhole rim.

    Pan the camera head down; verify the image is clear, and the recording system is working.

    Record the condition of the manhole structure.



12. If the van's hoist system is not going to be used, assemble the fiberglass pole and lift hook used to raise and lower the camera.



13. After verifying the camera and recording systems are operational, lower the camera unit into the manhole channel.

    If the van's hoist system is not used, two people are needed for this process: one person to hold the pole and support the weight of the camera; the other person to maneuver the cable, protecting the camera lens as the camera moves down the manhole structure and into the channel.



14. Once the camera is positioned in the channel to move downstream, remove the lift hook.

    Notify the operator that the camera is ready to travel to the "zero out" point (10 feet from the camera head lens). This point is indicated by a tape "mark" on the cable.

    The operator will then move the camera forward into the pipe.

    Once the tape mark reaches the pipe, tell the operator the camera is at the zero point.

    The operator in the viewing cabin will set the computer footage to zero. Set the mechanical footage meter on the cable reel to zero.

    At this point, the camera is operated by the operator in the viewing cabin (see **Operator Viewing Cabin Procedures**).

    While waiting for the inspection to be completed, light maintenance of various components should be done in the rear of the truck, along with cleaning and other housekeeping.

15. After the inspection is complete, the operator will pull the camera back to the manhole.

    Remove the camera using the lift pole and hook, using care to keep the camera lens from banging into the side of the manhole structure.

16. The camera will be washed every time it is removed from the manhole unless removal is for repositioning.

    Place the camera unit near the manhole, and wash the camera using the on-board water system.

    Use a spray cleaner and/or disinfectant to clean off the camera lens if needed. Direct the wash water, spray cleaner, and/or disinfectant into the open manhole.








Once the camera has been cleaned, the lens should be cleaned with a soft cloth and sprayed with Rain-X™.



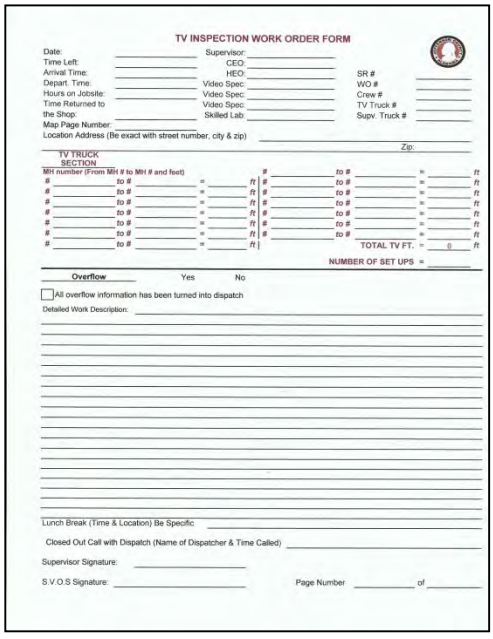



**End of Job Duties:**

1. Replace the manhole lid, properly stow all equipment and tools on the CCTV Truck, and retrieve all traffic management devices.

2. Fill out all the information fields in the TV Inspection Work Order Form. Estimate the type and amount of materials removed from the pipe.

3. Proceed to the next work order location, or return to the sewer maintenance yard.



TV INSPECTION WORK ORDER FORM

Date:
Time Left:
Arrival Time:
Depart. Time:
Hours on Jobsite:
Time Returned to the Shop:
Map Page Number:
Supervisor:
CEO:
HEO:
Video Spec:
Video Spec:
Skilled Lab:
SR #
WO #
Crew #
TV Truck #
Supv. Truck #
Location Address (Be exact with street number, city & zip)
Zip:

TV TRUCK SECTION

MH number (From MH # to MH # and feet)

TOTAL TV FT.
NUMBER OF SET UPS

Overflow Yes No

All overflow information has been turned into dispatch

Detailed Work Description:

Lunch Break (Time & Location) Be Specific

Closed Out Call with Dispatch (Name of Dispatcher & Time Called)

Supervisor Signature:

S.V.O.S Signature:

Page Number of

**On-Board Toilet Maintenance:**

Periodically, the on-board toilet must be drained and cleaned. This is typically done every other day under normal use. The manhole used for dumping is located in the Shades Plant yard driveway.



1. Position the CCTV van over the open manhole and line up the drain valve.



2. Pull on the drain valve opener located at the base of the toilet, and drain the toilet.

3. After the toilet has been drained, clean the toilet bowl using the on-board water supply.

   Use a brush to clean the toilet bowl and seat.



## Tool Box Inventory

- Screwdrivers – large and small Phillips, large and small flat head
- American standard crescent wrenches set from 7/16-inch to 3/4-inch
- Pipe wrench (2)
- Adjustable wrench - large and small
- Small socket set and American standard sockets 3/8-inch drive
- Socket for draining pump
- Allen wrench set
- "T" handle Allen wrench for truck-sized Allen screws
- Deep well sockets (if needed for truck)
- Pliers, channel locks and side cutters
- Small hammer
- Hack saw
- Wire cutters
- Bailing wire
- Duct tape
- 25- and 100-foot tape measures
- Utility knife
- Lube spray
- Electrical tape and duct tape

# Pre and Post Flow Monitoring

## 1.0 OBJECTIVE

The objective of this SOP is to provide Jefferson County Environmental Services Department (ESD) with a clear and concise document that summarizes procedures for analyzing flow monitoring data that has been collected from sanitary sewer rehabilitation project areas. Analytical procedures detailed in this SOP will provide the means and methods to produce defensible and measureable data that can show the effectiveness of rehabilitation projects and can be used by County officials to make educated decisions about the collection system.

## 2.0 RESPONSIBILITIES

Determining the effectiveness of sanitary sewer rehabilitation projects will be the responsibility of ESD Staff or designated representative. ESD is advised to use flow monitoring data (after QA/QC has been performed) from available flow monitors in completion of the analysis steps described in this SOP.

## 3.0 SUPPLEMENTAL DOCUMENTS

County staff is advised that this SOP provides direction solely on the strategies for locating flow monitors before and after rehabilitation as well as analytical procedures for determining the effectiveness of sewer rehabilitation projects. It should also be noted that heavy references to the Water Environment Federation Manual of Practice FD-6 (*WEF MOP6*) will be provided throughout this SOP, and it is recommended that a thorough review of WEF MOP 6 be made prior to beginning any data analysis tasks with particular attention to Chapter 7 *Effectiveness of Sewer Rehabilitation*.

Guidance on the topics discussed above can be found in the following supplemental documents:

1. Detailed Steps for analyzing flow monitoring data - see *Existing Sewer Evaluation and Rehabilitation*, MOP FD-6, Water Environment Federation and American Society of Civil Engineers, 3rd Edition , 2009.

## 4.0 PROCEDURES

### 4.01 Background

1. The analytical procedures described in this section are for determining the effectiveness of rehabilitation projects for the reduction of Infiltration and Inflow (I/I). Additional analytical methods for determining the effectiveness of rehabilitation for overflow remediation; capacity improvements; maintenance program improvement; regulatory compliance; structural rehabilitation and reduction of public risk can be found *in WEF MOP 6*, Chapter 7.

2. ESD staff should become familiar with the following terminology and are advised to review *WEF MOP 6* and other supplemental documents for more information:

   *RDII* - Rainfall Dependent Infiltration and Inflow that enters the collection system from a recent rainfall event. Infiltration enters through defects in the pipe, pipe joints or lateral connections that are below ground. Inflow enters through roof leaders, foundation drains or manhole covers.

   *GWI*- Ground Water Infiltration that enters the system through defects (foundation drains/sump pumps, lateral joints, mainline joints, mainline defects, lateral connections) that are below the dry-weather groundwater table. GWI may also include base sanitary sewer flow from residents, industry or businesses. GWI flows may not vary daily due to the base sanitary sewer flow but may vary seasonally due to the effects of evapotranspiration on the groundwater table.

   *R-Value* - RDII coefficient, that represents that percentage of rainfall that enters into the sanitary sewer system. The R-value is the indication of the severity of RDII in a sewershed, where a high R-value indicates a leaky system.

### 4.02 Collecting Flow Monitoring and Rainfall Data

1. In order to accurately determine the effectiveness of sewer rehabilitation projects, flow monitoring and rainfall data must be compared for a time period both before and after the sewer rehabilitation project is completed; known as the “pre-rehabilitation period” and “post-rehabilitation period”.

2. Verification of the rehabilitation effectiveness will also require a comparison of data collected from the rehabilitation project area and a control area (a selected location where no rehabilitation work has been performed). This comparison will

show how much I/I reduction can be attributed to the sewer rehabilitation improvements vs. other naturally occurring conditions.

3. For comparison of results, select a control area (sub-basin) that has been exposed to the same wet weather events as the rehabilitation area (review rain gauge data). The selected control area should be similar in size, similar in geography and have similar pipe material (as well as having similar RDII responses in terms of timing and amount).

4. After the project area and control area have been selected, wastewater flow and rainfall data must be collected for a minimum of 60 to 90 days prior to commencing any rehabilitation work. Note that monitoring will also be required for 60 to 90 days after completion of the rehabilitation work. Monitoring may be required for a longer period of time to capture an adequate number of events. Monitoring for pre and post-rehabilitation should also be done over the same season of the year and must include at least some portion of the wetter part of the season. Unless there is no other option summer and fall should not be used for pre and post rehabilitation flow monitoring.

5. A minimum baseflow must be available from each of the selected sub-basins for accurate flow monitoring data analysis. This information is typically provided by the flow monitoring vendor, however typical baseflow criteria are listed below:

    a. For most readily available flow monitors a minimum of 1” of cover is required above the monitoring probe.
    b. Flow monitors can typically monitor flows for up to 150 homes.

6. Using the parameters specified above, select a sufficient number of flow monitors for the control area and rehabilitation area (i.e. one flow monitor per 150 homes or choose a manhole location that provides 1” of cover for the flow monitoring probe).

7. If a sufficient number of existing flow monitors have been installed, proceed to collect data from the control area and rehabilitation area for at least 90 days pre-rehabilitation and at least 90 days post-rehabilitation. However, the longer the period of evaluation and the number and variety of storms in the evaluation will provide more accurate comparisons. In addition, a 90-day period may provide little to no quality large storm events with a variety of conditions

(antecedent moisture, seasonal variety, rainfall volume, rainfall intensity and rainfall duration) needed to understand the complex aspects of I/I.

8. Once the pre & post rehabilitation flow monitoring data has been processed by the County's flow monitoring vendor and final data has been sent to the County, proceed with the analytical steps described below.

## 4.03 Analyzing Collected Flow Monitoring Data – Volume

1. For both the control area and rehabilitation area, select several rain events where a minimum rainfall of 1" or greater fell over both the rehabilitation area and the control area (if a common rainfall event cannot be identified other analytical methods may be needed).

2. Using ESD's flow data analysis tool, Hazen Q, determine the R-value for each selected storm event and each installed flow monitor.

3. Plot the R values from the selected rehabilitation area flow monitor versus the R value for the selected control area flow monitor, as illustrated in **Figure 1.**

4. Perform linear regressions on the pre-rehabilitation R values and the post-rehabilitation R Values by forcing the regression line through "0,0" for both areas.

5. Calculate the correlation coefficient for each linear regression. Values as close to 1 as possible are desired.

6. Compute the RDII reduction by calculating the percent difference in the slopes of the lines from pre to post rehabilitation conditions. The percent reduction in the example shown in Figure 1, is (1.8167-0.6367)/1.8167 = 65% RDII reduction.

7. This resulting value represents the reduction of RDII entering the sanitary sewer system which can be directly attributed to the sewer rehabilitation improvements.

8. The calculated value can also be applied to the average R-value for the sewer rehabilitation area.

9. Additional analytical methods on adjusting RDII values for environmental factors are described in *WEF MOP6*, Chapter 7

10. If common rain events cannot be found between the control and rehabilitation areas other analysis methods must be utilized.

## 4.04 Analyzing Collected Flow Monitoring Data – Peak Flow

1. Plot the peak flows for each event for rehabilitation meter versus the control meter for both pre and post rehabilitation conditions.

2. Perform linear regressions on the pre-rehabilitation peak flows and the post-rehabilitation peak flows but do not force the regression through (0,0).

*References:*

1. Water Environment Federation/American Society of Civil Engineers, *Existing Sewer Evaluation and Rehabilitation*, Manual of Practice FD-6, 3rd Edition, 2009

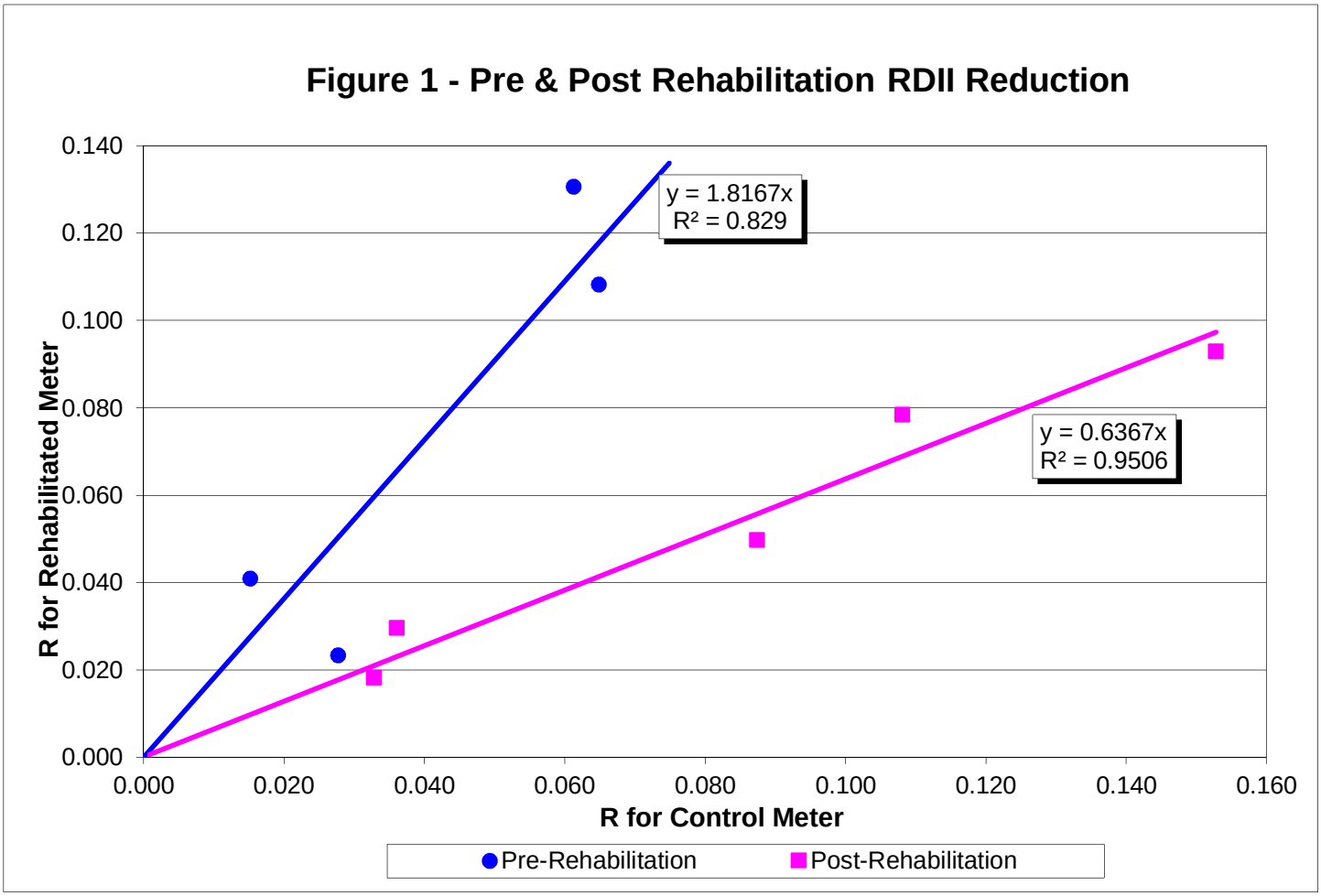


Figure 1 - Pre & Post Rehabilitation RDII Reduction
R for Rehabilitated Meter
R for Control Meter
0.000
0.020
0.040
0.060
0.080
0.100
0.120
0.140
0.160
y = 1.8167x
R² = 0.829
y = 0.6367x
R² = 0.9506
Pre-Rehabilitation
Post-Rehabilitation

# Wastewater Pump Station Inspection and Preventative Maintenance Process

## 1.0 OBJECTIVE

To outline general preventative maintenance practices for all wetwell/drywell, suction lift, and flooded suction pump stations in the Jefferson County service area.

## 2.0 RESPONSIBILITIES

Pump station preventative maintenance operations are schedule by the supervisor on a daily basis prior to leaving the maintenance shop.

## 3.0 SAFETY PROCEDURES

Personnel should observe all safety policies and regulations established by Jefferson County during the execution of this SOP to include but not limited to:

- Noxious and Toxic Atmospheres
- Confined Space Entry
- Mechanical and Electrical Hazards
- Infection and Disease Hazards

Note: All equipment manufacturer/vendor safety procedures and practices shall be followed in the care of their equipment.

## 3.0 PROCEDURE

All pump station equipment requires regular service to maintain its operability and reliability. A process is required to outline a preventative maintenance process (PM) and its frequency. This SOP contains a checklist and frequency of the items PM process required for each type of pump station.

3.1 Upon entering the site:
- Unlock and open cabinet and pit covers as need to perform the PM
- Turn on all ventilation devices
- Check site, wet well for any indication of abnormally high water levels. Attempt to determine cause of high level.

3.2 Refer to appropriate checklist(s) and perform indicated actions

3.3 As a part of the inspections, any work which cannot be corrected during inspection should be noted in a work order

3.4 Upon leaving the site
- Ensure alarms are cleared and addressed
- Ensure pumps are in AUTO mode – (unless locked out for maintenance)
- Ensure valves, switches and controls are in the correct position
- Turn off ventilation devices
- Close and lock all cabinets and pits
- Ensure the gate is locked
- Sign inspection report

3.5 Upon returning to the office

3.6 Notify supervisor of any problems

3.7 Supervisor enters a work request into INFOR

3.8 INFOR generates a work order and notifies the appropriate trade of the work that needs to be performed

3.9 Tradesman completes the work and generates a final report in INFOR

3.10 Supervisor orders and restocks spare parts that were used to complete the work order

3.11 Supervisor reviews the final report and the work order is closed

## 4.0 CHECKLISTS

Weekly, Semi-Annual, Annual Attached

**Wastewater Pump Station Inspection and Preventative Maintenance Process**

**WEEKLY PUMP STATION INSPECTION CHECK OFF SHEET**

| No. | Task |
|---|---|
| 1 | Prior to field inspection, check Mission for any alarms |
| **Site** | |
| 2 | Ensure signage is mounted and visible |
| 3 | Check fence and gate locks |
| 4 | Ensure pump station grounds are clean |
| 5 | Ensure life safety equipment is operational |
| 6 | Clean up any spills |
| 7 | Wipe down any equipment as needed |
| **Wet Well** | |
| 8 | Check wet well for grease and debris accumulation |
| 9 | Check wet well float(s) - lift floats and turn upside down to ensure no water has entered |
| 10 | Check wet well aerator where applicable |
| 11 | Check guide rails to determine if vertical |
| 12 | Check wet well and all appurtenances for corrosion |
| **Controls/Mechanical Systems** | |
| 21 | Check grinder, trash baskets, and bar screens where applicable (clean as necessary) |
| 22 | Check high level light/alarm |
| 23 | Check power failure relay/alarm system |
| 25 | Confirm operation of all push to test lights |
| 26 | Record pump run times |
| 27 | Ensure water level in wet well is above the top of the pumps (submerisble pumps) |
| 28 | Check manual operation of pumps |
| 28 | Observe check valve operation while pumps are operating |
| 30 | Observe normal pump operation sequence via level monitoring system |
| 31 | Check sump pump operation |
| 32 | Check dehumidifier operation |
| 33 | Check seal water flow |
| 34 | Check packing for leaks |
| 35 | Bleed bubbler air tanks |
| 36 | Observe ultrasonic level measuring system in relation to actual wet well level |
| **Generator** | |
| 35 | Check generator control panel for faults |
| 36 | Check generators fluids |
| 37 | Check generator battery for loose connections |
| 38 | Check generator charging system |
| 39 | Exercise generator (no load) |

DATE SIGNATURE

**Wastewater Pump Station Inspection and Preventative Maintenance Process**

**SEMI-ANNUAL SUCTION-LIFT PUMP STATION INSPECTION CHECK OFF SHEET**

| No. | Task |
|---|---|
| 1 | Prior to field inspection, check Mission for any alarms |
| 2 | Perform all checks on the weekly checklist |
| **Structure** | |
| 3 | Inspect integrity of pump station and note any issues |
| 4 | Pump out grease and grit from wet well (or as needed) |
| **Mechanical Systems** | |
| 5 | Tighten bubbler system tubing and fittings |
| 6 | Check bubbler system alternator |
| 7 | Change pump motor oil (per pump manufacturer's recommendation) |
| 8 | Inspect check valve operation |
| 9 | Check/clean level control floats system |
| 10 | Lubricate ventilator blower |
| 11 | Lubricate air release valves |
| 12 | Check surge valve operation |
| 13 | Service grinder (oil and grease) where applicable |
| 14 | Inspect drive belts, adjust/replace if needed, and note wear |
| 15 | Check vacuum pump house and fittings |
| 16 | Grease pumps and motors |
| 17 | Exercise all valves (record number of turns) |
| **Generator** | |
| 18 | Exercise generator under pump station load |
| 19 | Check transfer switch |

DATE SIGNATURE

## SEMI-ANNUAL FLOODED SUCTION PUMP STATION INSPECTION CHECK OFF SHEET

| No. | Task |
|---|---|
| 1 | Prior to field inspection, check SCADA for any alarms |
| 2 | Perform all checks on the weekly checklist |
| **Structure** | |
| 3 | Inspect integrity of pump station can and note any issues |
| 4 | Pump out grease and grit from wet well (or as needed) |
| **Mechanical Systems** | |
| 5 | Inspect seal water housing and packing (clean if needed) |
| 6 | Check surge valve operation |
| 7 | Service grinder (oil and grease) where applicable |
| 8 | Tighten bubbler system tubbing and fittings |
| 9 | Check bubbler system alternator |
| 10 | Change pump motor oil (per pump manufacturer's recommendation) |
| 11 | Lubricate ventilator blower |
| 12 | Grease motors and pumps |
| 13 | Inspect drive shafts and u-joints and grease if needed |
| 14 | Inspect and clean all filters (replace filter if necessary) |
| 15 | Inspect ventilator duct for holes, clean insect screen |
| 16 | Clean compressor moisture tap |
| 17 | Check (and replace if necessary) lift gear housing oil level |
| 18 | Oil lift chain (brush on) |
| 19 | Adjust lift chain and check for wear |
| 20 | Lubricate air release valves |
| 21 | Check and grease elevator and appurtenances at can pump stations |
| 22 | Check/clean level control float system |
| 23 | Inspect seal water lines and piping |
| 24 | Check crane operation |
| 25 | Check sump pump |
| 26 | Inspect ventilator belts |
| 27 | Exercise all valves (record number of turns) |
| **Generator** | |
| 28 | Exercise generator under pump station load |
| 29 | Check transfer switch |

DATE SIGNATURE

# Wastewater Pump Station Inspection and Preventative Maintenance Process

**ANNUAL PUMP STATION INSPECTION CHECK OFF SHEET**

| No. | Task |
|---|---|
| 1 | Prior to field inspection, check mission for any alarms |
| 2 | Perform all checks on the weekly and semi-annual checklist |
| **Site** | |
| 3 | Inspect integrity of pump station and note any issues |
| **Controls/Mechanical Systems** | |
| 4 | Check volts, megger, amps, ohms, and thermals on all pump motors and leads |
| 5 | Perform a wet well draw down test (See draw down test SOP) |
| **Generator** | |
| 6 | Perform annual generator maintenance (See generator SOP) |

DATE SIGNATURE

# Pump Station Drawdown Testing Procedure

## 1.0 OBJECTIVE

To outline the procedure to perform a pump station drawdown test to check pump efficiency and operation.

## 2.0 RESPONSIBILITIES

Pump station drawdown tests are scheduled by the supervisor.

## 3.0 SAFETY PROCEDURES

Personnel should observe all safety policies and regulations established by Jefferson County during the execution of this SOP to include but not limited to:

- Noxious and Toxic Atmospheres
- Confined Space Entry
- Mechanical and Electrical Hazards
- Infection and Disease Hazards

Note: All equipment manufacturer/vendor safety procedures and practices shall be followed in the care of their equipment.

## 4.0 PROCEDURE

This procedure is broken down into three (3) levels. Each level requires more time and resources and should be performed as directed by the supervisor. It should be noted that Items Number 5 and listed below should generally only be performed when a pump curve is not available, the pump is operation off the manufacturer's curve, the pump station is operating abnormally, or the pump drawdown test is abnormal.

1. Pump Station Inspection

    a. Prior to test day, review available pump station drawings, pump curves and data, previous pump test reports, pump run data, etc. Identify typical pump cycle time including pump on and off durations. Identify if supplemental

water (e.g. from water truck or fire hydrants) will be needed to expedite testing procedures. Identify any other special requirements or unique conditions to prepare for such as inaccessible wet well, etc.

b. Review pump station inspection report, O&M information, and/or as-built drawings for pipe configuration/size, number and type of pumps, pump on/off level settings, and wet well dimensions. Verify this information and note any discrepancies. If this information is not available or in the case of discrepancies, document the items listed and verify while on-site for pump station testing.

c. All wet well depth or water level measurements should be measured with a tape measure with no greater than 0.05-foot increments connected to a flat wooden float. The connection of the tape measure to the float should be adjusted so that accurate depth readings are indicated. If necessary to allow for accurate readings for the depth of water from a fixed point that can be converted to a water surface elevation based on drawings of the station, place a straight edge across the wet well access opening. If wet well top of slab elevation is not available, it should be obtained using a survey crew and documented. Actual wet well elevations will be used to calculate static head based on force main high point or discharge elevation. Force main as-built drawings, GIS records, or other available data should be used in calculating static head. If force main profile/elevations are not known, survey crew should also obtain pipe elevations at force main discharge and high points (e.g. air valve installations). (Note: Obtaining accurate relative elevations of pump station and force main is more important than obtaining actual formal elevations.)

d. Ensure all necessary calibrated pressure gauges are installed. For a Level 2 drawdown test, a gauge must be installed on the upstream (pump) side of the discharge isolation valve (for each pump). When feasible, an additional gauge can be installed on the common discharge header pipe (to confirm the static pressure with pumps off and to observe surge pressures). When possible for non-submersible pumps, a separate pressure gauge should be installed on the suction side of each pump, as close to the pump as practicable. Record the locations of pressure gauges and taps on the piping. Measure the vertical distance from the pressure gauge center line to a

known reference point to allow the gauge elevation to be calculated based on drawings. If gauge elevation cannot be established, these elevations should be obtained using a survey crew as described here within. (Note: Again, elevations relative to the wet well and force main are more important than formal elevations.)

e. If the gauge is not stable when taking pressure readings, adjust the snubber (small valve) between the pressure gauge and the main tap. If there is no snubber, then pressure readings should be taken when the gauge is at the most stable point. If the gauge is bouncing when the reading is taken, this should be documented along with an estimate of the range of bouncing. The reading taken and recorded should be a visual estimate of the average.

f. On submersible pump stations, friction head losses between the pump and the discharge pressure gauge will need to be calculated using assumed pipe roughness(es). On wet well/dry well pump stations, the friction head losses between the suction pipe inlet and discharge pressure gauge will need to be calculated. In cases where a calibrated suction pressure gauge is available, only head losses between the suction and discharge pressure gauges will need to be calculated. These calculations will need to be performed by those familiar with this type of calculations.

g. Determine if any of the pumps are controlled by a VFD, soft-starter, or other variable-speed device. For testing of any pumps that do not experience a full-voltage startup, the beginning time, water depth and pressures should be recorded after the pump reaches full speed. The ending time, water depth and pressures should be recorded when the pump is first called to shut off prior to ramp down. If these procedures need to be simplified, just record the beginning and ending data.

h. Determine if any of the pumps include a mixing system that recycles part of the discharge flow back into the wet well upon pump startup such as Flygt's Mix-Flush system or a solenoid-controlled valve in the valve vault. For testing of any pumps that include a mixing system, the beginning time, water depth and pressure(s) should be recorded after the mixing system closes. For Flygt Mix-Flush systems, this can usually be determined by a "clunk" sound emanating from the wet well and a reduction in turbulence in the wet well. If

these procedures need to be simplified, just record the beginning and ending data.

i. Identify if any existing flow metering equipment exists. If flow metering equipment is available, attempt to verify its accuracy with drawdown testing data. If accuracy of flow metering equipment is determined to be 5-10 percent or better throughout flow ranges tested, subsequent water depth measurements may be suspended and the flow meter readings may be used in lieu of calculated flow rates for the remainder of the testing.

j. If needed, mobilize a water truck or activate a fire hydrant to supplement influent flow.

k. If a pump station has a force main that discharges into it or into an upstream gravity sewer, do not operate these influent pump stations during the drawdown test. However, provide adequate monitoring and coordination of these influent pump stations to avoid an overflow during testing.

2. Inspect Wet Well

a. For submersible pumps, run each pump at or near minimum water depth, and watch for any blow-by at pump discharge connections. Document any blow-by observed. Correct blow-by as necessary if historical data is not needed for model calibration activities.

b. Observe check valves for proper operation. If check valves allow the force main to drain back into the wet well after pump shuts off, then the leaking check valve will affect calculations for pump flow rates. If a check valve is leaking badly, it will need to be repaired prior to testing.

c. Document the presence of grease in the wet well. If significant grease is present, the wet well will need to be cleaned prior to performing the test. Otherwise, grease may prevent accurate water level measurements, prevent accurate volume calculations, obstruct important visual observations, etc.

d. Identify the section of the wet well that will be most appropriate for use during testing. This test range should be below all incoming sewers and

should have a constant cross-sectional area. If it is not possible to meet these criteria, choose the best section and note locations where the wet well volume changes due to submerged incoming pipes and/or changes in wet well cross-sectional area. Volume calculations will have to be adjusted based on this information and available drawings.

3. Determine the Incoming Flow Rate

    a. Pump down the wet well to the minimum depth.
    b. Turn the pumps off.
    c. Measure the depth from the wet well top of slab to the water surface in the wet well, hereinafter referred to as “water depth”.
    d. Record the start time (actual clock time) and take a reading of the water depth every minute (for a minimum of 10 minutes) until the level rises at least 1.00 foot, unless water level reaches the top of the test range in less time. Calculate the total inflow for the 10 minute duration in gallons per minute (gpm). If a water truck or fire hydrant is used to supplement the flow, this must be properly coordinated and accounted for in determining the incoming flow rate and the drawdown calculations. Supplemental water should be added either at a constant rate throughout the testing process or only during the period after the incoming flow rate has been calculated and before the pump is started. If this is not possible, a meter should be used to calculate the volume of supplemental water used to determine the test.

4. Field Determine Pumping Rate and System Curve (Level 1)

    a. Confirm that the valves on the force main are fully open.
    b. If a pressure gauge is available, record the force main pressure downstream of the check valves. However, it should be noted that various factors could affect this “at rest” pressure reading; and this reading does not necessarily correspond to static head for the system curve. For example, if the check valves close too slowly or leak, they could allow the force main to partially drain back to the wet well. The individual doing the testing should use all the available data, including as-built drawings, GIS contours, and survey data to determine actual static head. The effective static head is established by the point where flow transitions from full-pipe flow to gravity flow, which can occur at the force main discharge, a high point along the force main, or at

some intermediate point if siphoning occurs. For force mains that have high points above their discharge elevation, effective static head may be different at different flow rates.

c. Allow wet well level to fill to the top of the test range.
d. Turn on one pump. Ensure that the check valve lever raises properly. Record the beginning time, water depth, and related pressures.
e. Take a reading of the water depth each minute for at least 5 minutes (or as long as wet well volume permits). Also, record the flow rate provided by metering equipment, if available.
f. Turn the pump off and record the ending time and water depth.
g. Repeat the incoming flow rate procedure as the wet well refills. The flow rate calculations should use the average of the pre and post test inflow rates.
h. Perform procedures 4.c.-4.g. twice for each pump and twice for each pump combination.

5. Field Determine Points on Pump Curve (Level 2)

a. A discharge pressure gauge (preferably with a gauge protector) must be located between the pump and the discharge valve for this test to be performed.
b. Turn off all pumps.
c. Confirm that the valves on the force main are fully open.
d. Record the force main pressure downstream of the check valves.
e. Turn on one pump. Ensure that the check valve lever raises properly. Record the beginning time, water depth and related pressures.
f. Record the water depth and related pressures every minute for at least 5 minutes. Also record the flow rate provided by metering equipment, if available.
g. Turn the pump off. (Note: If Level 1 testing has already been conducted the same day, steps 5.e. and 5.g. may be skipped and only results from Level 1 testing are required.)
h. Repeat the incoming flow rate procedure as the wet well refills.
i. Turn the discharge valve (either the individual pump's discharge valve or a valve on the force main) until it is closed. Record the number of turns required to close the valve.
j. Turn on the pump. Verify the valve is not leaking by ensuring the check valve lever does not rise. Record water depth and related pressures.

k. With the pump still running, turn the discharge valve approximately ¼ of the way open or less.
l. Record the beginning time, water depth and related pressures.
m. Record the water depth and related pressures every minute for at least 5 minutes. Also record the flow rate provided by metering equipment, if available.
n. Turn the pump off.
o. Repeat the incoming flow rate procedure as the wet well refills.
p. Repeat steps 5.i.-5.o. for the valve at approximately ½ and ¾ of the way open (by flow rate).
q. Repeat steps 5.c.-5.p. for each pump. For some pumps, especially large pumps, the manufacturer's allowable operating region does not extend all the way to shutoff conditions. If there is any doubt about the liability of the pump to operate at shutoff conditions without damage, reverse the order of this Level 2 testing to gradually close the valve and end testing when the left-end of the pump's allowable operating regions is reached or when unusual vibration or noise is noticed.

6. Return Pump Station to Normal Operation

a. Ensure all valves are fully open.
b. Return pump controls to normal.
c. Recover all equipment and documentation.
d. Close and lock all hatches and gates.
e. Provide final test report to supervisor.

7. Determine Points on Pump Curve (Level 3)

a. For each corresponding status of the valve (i.e. ¼, ½, ¾), compute the average flow rate of each pump and combination of pumps.
b. For each corresponding status of the valve (i.e. ¼, ½, ¾), determine the total dynamic head (TDH) experienced by the pump or combination of pumps (in feet).
c. Chart each flow/TDH combination on a copy of the pump curve.
d. Provide final report to supervisor.

8. Determine Pump Station System Efficiency, Wire to Water Test (Level 3)

a. In order to determine individual pump efficiency and/or pump station system efficiency, follow the same procedure as in Number 4 (Level 1) and/or Number 5 (Level 2), but also record the Voltage and current (Amps) for each test. For individual pump efficiency, measure average Voltage and current on the power supply to the individual pump. If overall efficiency of the pump station system is desired (e.g. with multiple pumps operating), measure average Voltage and current on the main power supply to the pump station. For 3-phase electrical systems, also measure the power factor if a suitable meter is available.

b. Overall (wire to water) pump efficiency can be described as follows:

$$Overall\ Pump\ Efficiency\ (\%) = \frac{Water\ Horsepower}{HP\ Input} \times 100$$

Where:

$$Water\ Horsepower = \frac{GPM \times Total\ Dynamic\ Head\ (TDH)}{3{,}960}$$

$$3{,}960 = 33{,}000\ \frac{ft-lbs}{HP} \div 8.33 \frac{lbs\ of\ water}{gallon}$$

$$TDH = Discharge\ Head + Pumping\ Water\ Level\ (ft)$$

$$Discharge\ Head\ (ft) = Discharge\ Pressure \times 2.31 + Velocity\ Head$$

$$Suction\ Head\ (ft) = Discharge\ Pressure \times 2.31 + Velocity\ Head - Gauge\ Elevation\ Difference$$

$$Velocity\ Head = \frac{[Velocity(ft/sec)]^2}{64.4 ft/sec/sec}$$

$$Gauge\ Elevation\ Differnece\ (ft) = Discharge\ Pressure\ Gauge\ Elevation - Suction\ Pressure\ Gauge\ Elevation$$

$$Friction\ Head\ Loss\ in\ Pump\ Piping = Calculated\ Head\ Losses\ between\ Suction\ Pressure\ Gauge\ and\ Discharge\ Pressure\ Gauge$$

For submersible pumps and other cases where suction pressure is not measured, use the following substitute for TDH:

$$TDH\ (ft) = Discharge\ Head + Water\ Level\ Below\ Gauge + Friction\ Had\ Loss\ in\ Station\ Piping$$

$$Water\ Level\ Below\ Gauge = Elevation\ of\ Discharge\ Pressure\ Gauge - Elevation\ of\ Water\ Surface\ in\ Wet\ Well$$

$$Friction\ Head\ Loss\ in\ Station\ Piping = Calculated\ Head\ Losses\ in\ all\ station\ piping\ from\ wet\ well\ to\ Discharge\ Pressure\ Gauge$$

$$HP\ Input\ (to\ motor) = kW\ input \times 1.341$$

$$kW\ Input\ (single\ phase\ motor) = \frac{Volts \times Amps}{1000}$$

$$kW\ Input\ (3\ phase\ motor) = \frac{Volts \times Amps \times 1.732 \times Power\ Factor}{1000}$$

$$Motor\ Load\ (\%) = \frac{HP\ Input \times Motor\ Efficiency\ (\%)}{Name\ Plate\ HP\ of\ Motor}$$

c. The same equations can be used to calculate overall pump station system efficiency (e.g. with multiple pumps operating) by either calculating the station's overall water horsepower or the sum total of the water horsepower of each individual pump, with the latter method being preferred. Either way, the HP input would be calculated for the station's main power supply rather than an individual pump.
d. When evaluating the TDH of the system, the individual doing the testing should evaluate the in situ TDH with the theoretical TDH. The theoretical TDH should be calculated from record drawings and/or using field survey data.

## 5.0 PUMP STATION DRAWDOWN TEST FORM

The pump station drawdown testing forms are attached. Note all miscellaneous information needed to perform this SOP not specifically noted in the form, should be recorded in the Notes and Additional Information section.

## PUMP STATION DRAWDOWN TEST FORM

Pump Station Name: Date:

### Pump Station Inspection

| | | | |
|---|---|---|---|
| Wet Well Shape (round, square, etc.) | | | Notes: |
| Wet Well Dimensions (ft.) | | | |
| Wet Well Cross Sectional Area (sq-ft) | | | |
| Wet Well Interior Depth (ft.)* | | | |
| Pump Control Level Settings* | **Off** | **On** | |
| Lead Pump | | | |
| Lag1 Pump | | | |
| Lag2 Pump | | | |
| Preferred Test Range* | | | |
| | **Suction** | **Discharge** | |
| Station Piping Diameter (in.) | | | |
| Station Piping Length (ft.) | | | |
| Force Main Diameter (in.) | | | |
| Depth to discharge pressure gauge (ft)* | | | |
| *Distance below wet well top slab (ft.) | | | |

### Determine Incoming Flow Rate

| | | | | | | |
|---|---|---|---|---|---|---|
| Test Start Clock Time | | | | | | |
| Initial Water Depth (ft) | | | | | | |
| Depth After 30 seconds (ft) | | | | | | |
| Depth After 1-Minutes (ft) | | | | | | |
| Depth After 1 Minute 30 seconds (ft) | | | | | | |
| Depth After 2-Minutes (ft) | | | | | | |
| Depth After 2 Minutes 30 seconds (ft) | | | | | | |
| Depth After 3-Minutes (ft) | | | | | | |
| Depth After 3 Minutes 30 seconds (ft) | | | | | | |
| Depth After 4-Minutes (ft) | | | | | | |
| Depth After 4 Minutes 30 seconds (ft) | | | | | | |
| Depth After 5-Minutes (ft) | | | | | | |
| Depth at End of Test (_____ min.) | | | | | | |
| Total Change in Depth (ft.) | | | | | | |
| Total Change in Volume (gallons) | | | | | | |
| Incoming Flow Rate (gpm) | | | | | | |

1 cubic foot = 7.48052 gallons

Notes and Additional Information:

**PUMP STATION DRAWDOWN TEST FORM**

Pump Station Name: Date:

**Level 1: Determine Pumping Rate and System Curve**

| **Pump(s) Number** | 1 | 2 | 3 | 1 & 2 | 1 & 3 | 2 & 3 |
|---|---|---|---|---|---|---|
| Test Start Clock Time | | | | | | |
| Initial Suction/Discharge Pressure (psi) | / | / | / | / | / | / |
| Initial Flow Rate from Meter (gpm) | | | | | | |
| Initial Water Depth (ft) | | | | | | |
| Depth After 1-Minute (ft) | | | | | | |
| Depth After 2-Minutes (ft) | | | | | | |
| Depth After 3-Minutes (ft) | | | | | | |
| Depth After 4-Minutes (ft) | | | | | | |
| Depth at End of Test (_____ min.) | | | | | | |
| Final Suction/Discharge Pressure (psi) | / | / | / | / | / | / |
| Metered Flow Rate at End of Test (gpm) | | | | | | |
| Average Voltage (Volts)--Level 3 only | | | | | | |
| Average Current (Amps)--Level 3 only | | | | | | |
| Power Factor--Level 3 only | | | | | | |
| Total Change in Depth (ft.) | | | | | | |
| Total Change in Volume (gallons) | | | | | | |
| Net Discharge Rate (gpm) | | | | | | |
| Pumping Rate w/ Incoming Flow (gpm) | | | | | | |

**Level 2: Determine Points on Pump Curve**

| Pump No. 1, 2, 3 (circle) | Valve Open | Valve Closed | Valve 33% between working pressure | Valve 67% between working pressure | | |
|---|---|---|---|---|---|---|
| Test Start Clock Time | | | | | | |
| Initial Suction/Discharge Pressure (psi) | / | / | / | / | / | / |
| Initial Flow Rate from Meter (gpm) | | | | | | |
| Initial Water Depth (ft) | | | | | | |
| Depth After 1-Minute (ft) | | | | | | |
| Depth After 2-Minutes (ft) | | | | | | |
| Depth After 3-Minutes (ft) | | | | | | |
| Depth After 4-Minutes (ft) | | | | | | |
| Depth at End of Test (_____ min.) | | | | | | |
| Final Suction/Discharge Pressure (psi) | / | / | / | / | / | / |
| Metered Flow Rate at End of Test (gpm) | | | | | | |
| Average Voltage (Volts)--Level 3 only | | | | | | |
| Average Current (Amps)--Level 3 only | | | | | | |
| Power Factor--Level 3 only | | | | | | |
| Total Change in Depth (ft.) | | | | | | |
| Total Change in Volume (gallons) | | | | | | |
| Net Discharge Rate (gpm) | | | | | | |
| Pumping Rate w/ Incoming Flow (gpm) | | | | | | |

Notes:

1. The incoming flow rate should be added to the net discharge rate calculated in this section to determine the pumping rate of each pump/combination. Incoming flow rate should be re-measured periodically during testing--esp. after any noticeable change in flow rate.

# Wastewater Pump Station Standby Generator Preventative Maintenance Process

## 1.0 OBJECTIVE

To outline preventative maintenance practices for all standby generators serving the pump stations in the Jefferson County service area.

## 2.0 RESPONSIBILITIES

Standby generator preventative maintenance operations are scheduled by the supervisor.

## 3.0 SAFETY PROCEDURES

Personnel should observe all safety policies and regulations established by Jefferson County during the execution of this SOP to include but not limited to:

a. Noxious and Toxic Atmospheres
b. Confined Space Entry
c. Mechanical and Electrical Hazards
d. Infection and Disease Hazards

Note: All equipment manufacturer/vendor safety procedures and practices shall be followed in the care of their equipment.

## 3.0 PROCEDURE

All standby generator equipment requires regular service to maintain its operability and reliability. A process is required to outline the preventative maintenance (PM) process and its frequency. This SOP contains a checklist for the PM process for every standby generator.

a. Upon entering the site:
    1. Turn on all ventilation devices if not already in operation
    2. Unlock and open cabinet and pit covers as needed to perform the PM

3. Witness automatic starting of generator or review runtime information to ensure that unit is powering up and running as scheduled.

b. Refer to checklist and perform indicated actions
c. As a part of the inspection, any work which cannot be corrected during inspection should be noted in a work order
d. Upon leaving the site
    1. Ensure alarms are cleared and addressed
    2. Close and lock all cabinets and pits
    3. Turn off ventilation devices that are not required to run continuously
    4. Ensure the gate is locked
    5. Sign inspection report
e. Upon returning to the office
    1. Notify supervisor of any problems
    2. Supervisor enters a work request into INFOR
    3. INFOR generates a work order and notifies the appropriate trade of the work that needs to be performed
    4. Tradesman completes the work and generates a final report in INFOR
    5. Supervisor orders and restocks spare parts that were used to complete the work order
    6. Supervisor reviews the final report and the work order is closed

## 4.0 CHECKLIST

Attached

# Wastewater Pump Station Standby Generator Preventative Maintenance Process

## STANDBY GENERATOR INSPECTION CHECK OFF SHEET

GENERATOR LOCATION:_____

| No. | General Procedures when Performing Maintenance | ✓ | Interval |
|---|---|---|---|
| 1 | Turn generator switch to the off position | | Prior to Performing Maint. |
| 2 | Disconnect battery cables | | Prior to Performing Maint. |
| 3 | Lock out tag out as necessary to ensure safety | | Prior to Performing Maint. |
| **Engine Maintenance** | | | |
| 4 | Check air intake piping | | Weekly |
| 5 | Check cooling fan | | Weekly |
| 6 | Check crankcase breather tube | | Weekly |
| 7 | Check air tanks and reservoirs | | Weekly |
| 8 | Check engine coolant level and antifreeze level | | Weekly |
| 9 | Drain fuel/water separator | | Weekly |
| 10 | Check engine oil level | | Weekly |
| 11 | Record run time | | Weekly |
| 12 | Exercise generator set under no load conditions | | Weekly |
| 13 | Exercise generator set under station load conditions | | Monthly |
| 14 | Check air cleaner restriction | | 250 Hours or 3 Months |
| 15 | Check charge air piping | | 250 Hours or 3 Months |
| 16 | Check charge air cooler | | 250 Hours or 3 Months |
| 17 | Check fuel injection pump mounting | | 250 Hours or 3 Months |
| 18 | Check air compressor mounting | | 250 Hours or 3 Months |
| 19 | Change fuel filters | | 500 Hours or 6 Months |
| 20 | Check cooling system | | 500 Hours or 6 Months |
| 21 | Change coolant filter | | 500 Hours or 6 Months |
| 22 | Change engine oil and filter - (See Note 1) | | 500 Hours or 6 Months |
| 23 | Check air filter (change as needed) | | |
| 24 | Check batteries | | 500 Hours or 6 Months |
| 25 | Check/Clean battery cables and connections | | 500 Hours or 6 Months |
| 26 | Check hose and fuel lines | | 500 Hours or 6 Months |
| 27 | Check radiator pressure cap | | 500 Hours or 6 Months |
| 28 | Check drive belts | | 1000 Hours or 1 Year |
| 29 | Check fan hub belt drive | | 1000 Hours or 1 Year |
| 30 | Check cooling fan belt tensioner | | 1000 Hours or 1 Year |
| 31 | Flush cooling system | | 2000 Hours or 2 Years |
| 32 | Check vibration damper, rubber | | 2000 Hours or 2 Years |
| 33 | Check vibration damper, viscous | | 2000 Hours or 2 Years |
| 34 | Clean engine steam clean | | 2000 Hours or 2 Years |
| 35 | Clean air compressor discharge lines | | 2000 Hours or 2 Years |
| 36 | Check engine mounts | | 2000 Hours or 2 Years |
| **Generator Testing** | | | |
| 37 | After PM is complete, run generator under pump station load for one hour | | Annually |
| 38 | Check operation of circuit breaker and transfer switch | | Annually |

Note 1: Engine oil and filter change intervals can be adjusted based on an oil analysis to check the sulfur content of the used engine oil. This is performed as directed by a supervisor.

Note 2: The above preventative maintenance schedule should not be used in lieu of the manufacturer's recommended maintenance schedule.

DATE_____ SIGNATURE_____

*I certify that the items marked above have been checked/changed/completed.

Name of Pump Station: _____ Pump Station No: _____

Address: _____

Type of Pump Station: ☐ Flooded Suction ☐ Suction Lift ☐ Submersible ☐ Other:_____

**General Site Information**



Date placed in operation: _____

1. Above Ground Structures: _____
2. Above Ground Equipment: _____
3. Utilities Serving Site: ☐ Gas ☐ Water ☐ Power ☐ Other _____
4. Accessibility: ☐ Good ☐ Fair ☐ Poor
5. Parking Available: _____ Driveway Length:_____
6. Is there debris around the site? ☐ No ☐ Yes

   If yes – What type? ☐ General trash (bottles, cans, paper, etc) ☐ Large items (appliances, bikes, furniture, etc)
7. General condition of site and access from the road: _____

   _____

**Access Driveway Site Plan**



**Site or Perimeter Fencing**

Is there fencing: ☐ No ☐ Yes ☐ Property/Site ☐ Pump Station ☐ Other: _____

Type of Fence: ☐ Chain Link ☐ Wood ☐ Other - _____

Finish Material: : ☐ Galvanized ☐ PVC Coated ☐ Other - _____

Are there architectural slats in the fencing? ☐ No ☐ Yes

How tall is the site fencing? _____

Is the fence fabric damaged? ☐ No ☐ Yes – describe _____

Is the fabric taut? ☐ No ☐ Yes

Are the fence posts damaged/leaning? ☐ No ☐ Yes – describe _____

Are there 3 strands of barbed wire along the top of the fence? ☐ No ☐ Yes

Is the barbed wire damaged? ☐ No ☐ Yes – describe _____

Are the wires taut? ☐ No ☐ Yes

Is vegetation growing up to or over the fence line? ☐ Yes ☐ No

If so, can it be cut back? ☐ Yes – How far? _____ ☐ No – Why not? _____

Is there a Property/Driveway Gate? ☐ No ☐ Yes Is there a Pump Station Site Gate? ☐ No ☐ Yes

Property/Driveway Gate:

Type of Gate? ☐ Single Leaf Swing Driveway ☐ Double Leaf Swing Driveway ☐ Cantilever Driveway Single

☐ Other _____

Does the gate move freely? ☐ Yes ☐ No – why not? _____

Is the gate securely locked? ☐ No ☐ Yes ☐ n/a Excessive openings when locked? _____

Type of locking mechanism? ☐ Chain & Padlock ☐ Slide bar & Padlock

☐ Other - _____

How many locks are on the gate? _____

Is there an identification sign on the Driveway gate? ☐ No ☐ Yes – What does it say? _____

Pump Station Site Gate:

Type of Gate? ☐ Single Leaf Swing Driveway ☐ Double Leaf Swing Driveway ☐ Cantilever Driveway Single

☐ Pedestrian ☐ Other - _____

Does the gate move freely? ☐ Yes ☐ No – why not? _____

Is the gate securely locked? ☐ No ☐ Yes ☐ n/a Excessive openings when locked? _____

Type of locking mechanism? ☐ Chain & Padlock ☐ Slide Bar & Padlock

☐ Other - _____

How many locks are on the gate? _____

Is there an identification sign on the Driveway gate? ☐ No ☐ Yes – What does it say? _____

Is vegetation growing up to or over the fence line? ☐ Yes ☐ No

If so, can it be cut back? ☐ Yes – How far? _____ ☐ No – Why not? _____

Describe the condition of the site, drives, fencing, gates, etc.:_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

**Pump Station Pad:**

Material of Construction: ☐ Asphalt ☐ Concrete ☐ Gravel ☐ Grass

Level of cracking (if applicable) : ☐ None ☐ Minor ☐ Moderate ☐ Extensive

Are there suitable construction/control joints (if applicable)? ☐ No ☐ Yes – Spacing: _____

Approximate thickness of pad material: _____

Is there expansion joint material between the pad around structures? ☐ No ☐ Yes

Does there appear to be settlement of the pad around structures and at perimeter? ☐ No ☐ Yes

If yes – describe _____

Has the pad been cut and patched? ☐ No ☐ Yes – How many locations? _____

If yes – describe _____

Are there trip hazards on the pad (uneven joints, conduit, piping, etc.) ? ☐ No ☐ Yes

If yes – describe _____

Describe the condition of the pad: _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

**Pump Station No: _____**

**Site Drainage/Erosion**



Does the site have a history of flooding Reported by ESD? ☐ No ☐ Yes How often:_____

Does the dry pit and equipment flood? ☐ No ☐ Yes

Are there adequate drainage channels to direct runoff around the site? ☐ No ☐ Yes

Does offsite runoff enter the site? ☐ No ☐ Yes

What is the distance to the closest receiving stream? _____

Does the pump station pad drain to the perimeter? ☐ No ☐ Yes

Is there evidence of ponding on the pad or access driveway? ☐ No ☐ Yes

If yes – describe _____

Is there evidence of erosion around the site? ☐ No ☐ Yes

If yes – describe _____

Is there suitable ground cover to prevent erosion? ☐ No ☐ Yes

Type: ☐ Grass ☐ Stone ☐ Concrete ☐ Asphalt ☐ Other - _____

Describe the condition of the site drainage: _____

**Additional Notes:**

**Pump Station No: _____**

**Summary**

| Recommended Improvements | Ranking of Importance | Estimated Cost | Time-Frame | Rating |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Name of Pump Station: _____ Pump Station No: _____

Number of Buildings on Site: _____ (If more than one building, fill out page 6 of 7)

Purpose of Building (_____) of (_____): _____



**Building Plan & Dimensions**

**Sketch:**

`

1. Building - Outside
   a. **Exterior Walls**

Material of Construction: ☐ CMU ☐ Split Face CMU ☐ Brick Veneer ☐ Other - _____

Level of cracking walls: ☐ None ☐ Minor ☐ Moderate ☐ Extensive

Are the walls painted? ☐ No ☐ Yes

Condition of paint (if applicable): ☐ Good ☐ Fair ☐ Poor

Wall joint material: ☐ Expansion joint gasket ☐ Caulk ☐ Other - _____

Condition of the joint material (if applicable): ☐ Good ☐ Fair ☐ Poor

Are there wall penetrations? ☐ No ☐ Yes – How Many? _____

Type of Penetration: ☐ Electrical conduit ☐ Piping ☐ Fan/Louver

Is there adequate sealing around penetration? ☐ No ☐ Yes

Seal material:_____

Describe the condition of the exterior walls:

_____

_____

**b. Roofing System**

Type of Roof: ☐ Pitched ☐ Flat

Material of construction: ☐ Shingle ☐ Metal ☐ Membrane ☐ Other - _____

Is there discoloration or deterioration of the roof? ☐ No ☐ Yes

If yes, describe: _____

Are there gutters and down spouts? ☐ No ☐ Yes

Are they clogged/damaged? ☐ No ☐ Yes – describe _____

Is there an eave and fascia? ☐ No ☐ Yes

Materials of Construction ☐ Wood ☐ Metal ☐ Other - _____

Is the eave and fascia painted? ☐ No ☐ Yes – Condition: _____

Are there roof penetrations? ☐ No ☐ Yes – How Many?

Type of Penetration: ☐ Electrical conduit ☐ Exhaust Stack ☐ Fan/Ventilation Duct

Is there adequate flashing/sealing around penetration? ☐ No ☐ Yes

Seal material:_____

Describe the condition of the roofing system: _____

_____

**c. Entry Doors:**

Number of each type of door: Single Leaf _____ Double Leaf _____ Roll Up _____

Material of Construction: ☐ Wood ☐ Hollow Metal ☐ Solid Metal ☐ Other - _____

Are there windows in the doors? ☐ No ☐ Yes – What size? _____

If yes, what condition? _____

Are there bars on the windows? ☐ No ☐ Yes

Exterior Hardware: ☐ Knob ☐ Thumb Latch ☐ Other - _____

Does hardware function properly? ☐ Yes ☐ No – describe _____

Interior hardware: ☐ Knob ☐ Push Bar ☐ Other - _____

Does hardware function properly? ☐ Yes ☐ No – describe _____

Is there an automatic closer? ☐ No ☐ Yes

Does closer function correctly? ☐ Yes ☐ No – describe _____

Type of locking mechanism: ☐ Keyed Knob ☐ Dead Bolt ☐ Latch and Pad Lock

☐ Other - _____

Does the lock function properly? ☐ Yes ☐ No – describe _____

Are there intrusion alarms? ☐ No ☐ Yes – describe _____

Describe the condition of the entry doors: _____

**Interior Sketch**

2. Building - Interior

How many rooms does the building have? _____

Room use: _____

**a. Interior Walls**

Material of Construction: ☐ CMU ☐ Sheet Rock ☐ Wood ☐ Other - _____

Level of cracking walls: ☐ None ☐ Minor ☐ Moderate ☐ Extensive

Are the walls painted? ☐ No ☐ Yes

Condition of paint (if applicable): ☐ Good ☐ Fair ☐ Poor

Are there wall penetrations? ☐ No ☐ Yes – How Many? _____

Type of Penetration: ☐ Electrical conduit ☐ Piping ☐ Fan/Louver ☐ Window

Is there adequate sealing around penetration? ☐ No ☐ Yes Seal material:_____

Describe the condition of the interior walls: _____

_____

**b. Ceiling**

Is there an interior ceiling? ☐ No ☐ Yes – Height? _____

Material of Construction: ☐ Wood ☐ Sheet Rock ☐ Drop Tile ☐ Concrete

☐ Other - _____

Is the ceiling painted? ☐ No ☐ Yes

Condition of paint (if applicable): ☐ Good ☐ Fair ☐ Poor

Are there signs of a leaking roof? ☐ No ☐ Yes – describe _____

Are there ceiling penetrations? ☐ No ☐ Yes – How Many? _____

Type of Penetration: ☐ Electrical conduit ☐ Exhaust Stack ☐ Fan/Ventilation Duct

☐ Piping

Is there adequate sealing around penetration? ☐ No ☐ Yes Seal material:_____

Describe the condition of the ceiling : _____

_____

**c. Interior Doors**

Is there an interior entry door for the room? ☐ No ☐ Yes

Material of Construction: ☐ Wood ☐ Hollow Metal ☐ Solid Metal ☐ Other - _____

Are there windows in the doors? ☐ No ☐ Yes – What size? _____

If yes, what condition? _____

Hardware: ☐ Knob ☐ Push Bar ☐ Other - _____

Does hardware function properly? ☐ Yes ☐ No – describe _____

Is there a locking mechanism? ☐ No ☐ Yes –describe _____

Is there an automatic closer? ☐ No ☐ Yes

Does closer function correctly? ☐ Yes ☐ No – describe _____

Describe the condition of the interior doors: _____

_____

**d. Ventilation/AC**

Area of Building: _____

Number of Fans: _____ Air Conditioning:_____

Describe System: _____

_____

_____

Fan Manufacturer: _____ AC Manufacturer: _____

Fan Model: _____ AC Model: _____

Fan Capacity: _____ AC Capacity:_____

Fan Electrical Rating: HP/Watts:_____ Amps:_____ Volts:_____ Phases:_____

AC Electrical Rating: HP/Watts:_____ Amps:_____ Volts:_____ Phases:_____

Year Installed: _____

Condition: _____

**Additional Notes:**

**Canopy**

How many canopies are on site? _____ (If more than one canopy, fill out page 6 of 7)

Purpose of canopy: _____

Is there a bridge crane, monorail, or jib crane under canopy? ☐ No ☐ Yes

1. Identify the current condition of the canopies on site:

**a. Framing**

Type of Framing: ☐ Steel ☐ Wood ☐ Other - _____

Condition of framing: ☐ Good ☐ Fair ☐ Poor

Is the framing painted? ☐ No ☐ Yes

Condition of paint (if applicable): ☐ Good ☐ Fair ☐ Poor

**b. Roofing**

Type of Roof: ☐ Pitched ☐ Flat

Material of construction: ☐ Shingle ☐ Metal ☐ Other - _____

Is there discoloration or deterioration of the roof? ☐ No ☐ Yes

If yes, describe _____

Are there gutters and down spouts? ☐ No ☐ Yes

Are they clogged/damaged? ☐ No ☐ Yes – describe_____

Is the roofing painted? ☐ No ☐ Yes

Condition of paint (if applicable): ☐ Good ☐ Fair ☐ Poor

Describe the condition of the canopy: _____

_____

**Additional Notes:**

**Name of Pump Station:**_____ **Pump Station No**:_____

**Additional Buildings or Canopies**

**Purpose of Building or Canopy (_____) of (_____):**_____

_____

**Building or Canopy General Information: (Describe as needed)**

**Building or Canopy Plan & Dimensions**

**Sketch:**

**Summary**

| Recommended Improvements | Ranking of Importance | Estimated Cost | Time-Frame | Rating |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Name of Pump Station: _____ Pump Station No: _____

**Wet Well**



How many wet wells are on site? _____ (If more than one Wet Well, fill out page 8 of 9)

If multiple, which number is this assessment for? _____

Is there an influent chamber or room with channels? ☐ No ☐ Yes

1. **Type of Wet Well**

   Material of Construction: ☐ Precast Concrete ☐ Cast-in-place Concrete ☐ Steel

   ☐ Fiber reinforced plastic (FRP) ☐ Other - _____

   Shape of Wet Well: ☐ Circular Diameter - _____ ☐ Rectangular Dimensions - _____

   Depth of Wet Well: _____ ☐ Measured ☐ From Record Drawings

   Interior baffle walls: ☐ No ☐ Yes – how many? _____

**Sketch:**

**a. Top Slab**

Is there a top slab? ☐ Yes ☐ No

Material of Construction: ☐ Precast Concrete ☐ Cast-in-place Concrete

☐ Other - _____

Is the exterior damaged? ☐ No ☐ Yes – describe - _____

Is there an access hatch? ☐ No ☐ Yes – How many? _____ Size?_____

Material of Construction: ☐ Aluminum ☐ Steel ☐ FRP

Does the hatch open properly? ☐ Yes ☐ No – describe _____

Is there a hold open arm? ☐ No ☐ Yes

Does the hold open arm function properly? ☐ No ☐ Yes – describe _____

Is there a fall protection device? ☐ Yes ☐ No

Type (if applicable): ☐ Safety net ☐ Safety grate

Condition (if applicable): _____

Does the hatch close properly? ☐ Yes ☐ No – describe _____

Is there a lock or locking device? ☐ Yes ☐ No Type: _____

Does it lock properly? ☐ Yes ☐ No – describe _____

Is there a lifting handle? ☐ Yes ☐ No

Are there access ladders or steps? ☐ No ☐ Yes

Type: ☐ Access ladder ☐ Manhole steps ☐ Stairs ☐ Other - _____

If ladder, are there safety bars or safety climb device? ☐ No ☐ Yes

Condition (if applicable): _____

Are there penetrations through the top slab? ☐ No ☐ Yes – How many? _____

Type of penetration: ☐ Vent pipe ☐ Odor control duct ☐ Exhaust/Ventilation duct

☐ Discharge piping ☐ Electrical conduit/cable ☐ Other - _____

Is there adequate sealing around penetration? ☐ No ☐ Yes Seal material:_____

Describe the condition of the top slab: _____

_____

**Additional Notes:**

**b. Interior of Wet Well**

Are the wet well walls coated with a corrosion resistant material? ☐ Yes ☐ No

Type of material: ☐ Coal tar ☐ Epoxy ☐ FRP coating ☐ Other - _____

Is the coating damaged? ☐ No ☐ Yes – describe _____

Are the channels coated? ☐ No ☐ Yes – describe _____

Is the underside of the top slab coated? ☐ No ☐ Yes

Type of material: ☐ Coal tar ☐ Epoxy ☐ FRP coating ☐ Other - _____

Is the coating damaged? ☐ No ☐ Yes – describe _____

Concrete walls/top, is the concrete spalling or damaged? ☐ No ☐ Yes

If yes, describe _____

Are there joints in the walls? ☐ No ☐ Yes – How many? _____

Are joints adequately sealed? ☐ Yes ☐ No – describe _____

If FRP walls/top, are there cracks or holes? ☐ No ☐ Yes

If yes, describe _____

If steel walls/top, is there corrosion or holes? ☐ No ☐ Yes

If yes, describe _____

Are there penetrations through the walls? ☐ No ☐ Yes – How many? _____

Type of penetration: ☐ Gravity sewer – How many? _____

☐ Force main piping – How many? _____

☐ Piping to Storage tank ☐ Odor control duct

☐ Suction Pipeline

☐ Exhaust/Ventilation duct ☐ Discharge piping

☐ Electrical conduit/cable ☐ Other - _____

Is there adequate sealing around penetration? ☐ No ☐ Yes – Seal Material: _____

Are there signs of infiltration/inflow? ☐ No ☐ Yes – describe _____

Describe the condition of the interior: _____

**Additional Notes:**

**c. Ventilation/AC**

Area of Building: _____

Number of Fans: _____ Air Conditioning:_____

Describe System: _____

_____

_____

Fan Manufacturer: _____ AC Manufacturer: _____

Fan Model: _____ AC Model: _____

Fan Capacity: _____ AC Capacity:_____

Fan Electrical Rating: HP/Watts:_____ Amps:_____ Volts:_____ Phases:_____

AC Electrical Rating: HP/Watts:_____ Amps:_____ Volts:_____ Phases:_____

Year Installed: _____

Condition: _____

**Additional Notes:**

**Wet Well Summary**

| Recommended Improvements | Ranking of Importance | Estimated Cost | Time-Frame | Rating |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

**Emergency Storage Tank/Pond**

How many storage tanks/ponds are on site? _____ Describe location: _____

1. Identify the current storage tank/pond on site:

**Type of Storage Tank -** ☐ Passive ☐ Pumped ☐ Other ☐ Describe:_____

Material of Construction: ☐ Precast Concrete ☐ Cast-in-place Concrete ☐ Steel

☐ Fiber reinforced plastic (FRP) ☐ Earthened

☐ Other - _____

Shape of tank: ☐ Circular Diameter - _____ ☐ Square/Rectangular Dimensions - _____

Depth of tank: _____ ☐ Measured ☐ From Record Drawings

**Earthen Pond**

Describe condition of piping in and out of pond:_____

_____

Are there signs of overflow? ☐ No ☐ Yes

Type of surface protection: ☐ Grass ☐ Gravel ☐ Other: -_____

Condition:_____

Is there overgrown vegetation? ☐ No ☐ Yes – Describe_____

Accessibility: ☐ Good ☐ Fair ☐ Poor – Describe_____

Safety and security: ☐ Good ☐ Fair ☐ Poor – Describe_____

**Sketch:**

**a. Top Slab**

Is there a top slab? ☐ No ☐ Yes

Material of Construction: ☐ Precast Concrete ☐ Cast-in-place Concrete

☐ Other - _____

Is the exterior of the top damaged? ☐ No ☐ Yes – describe _____

Is there an access hatch? ☐ No ☐ Yes – How many? _____

Material of Construction: ☐ Aluminum ☐ Steel ☐ FRP

Does the hatch open properly? ☐ Yes ☐ No – describe _____

Is there a hold open arm? ☐ No ☐ Yes

Does the hold open arm function properly? ☐ Yes ☐ No – describe _____

Is there a fall protection device? ☐ Yes ☐ No

Type (if applicable): ☐ Safety net ☐ Safety grate

Condition (if applicable): _____

Does the hatch close properly? ☐ Yes ☐ No – describe _____

Is there a lock or locking device? ☐ Yes ☐ No Type:_____

Does it lock properly? ☐ Yes ☐ No – describe _____

Is there a lifting handle? ☐ Yes ☐ No

Are there access ladders or steps? ☐ No ☐ Yes

Type: ☐ Access ladder ☐ Manhole steps ☐ Stairs ☐ Other - _____

If ladder, are there safety bars or safety climb device? ☐ No ☐ Yes

Condition (if applicable): _____

Are there penetrations through the top slab? ☐ No ☐ Yes – How many? _____

Type of penetration: ☐ Vent pipe ☐ Odor control duct ☐ Exhaust/Ventilation duct

☐ Discharge piping ☐ Electrical conduit/cable ☐ Other - _____

Is there adequate sealing around penetration? ☐ No ☐ Yes Seal material:_____

Describe the condition of the top slab: _____

_____

**Additional Notes**

**b. Interior of storage tank:**

Are the storage tank walls coated with a corrosion resistant material? ☐ Yes ☐ No

Type of material: ☐ Coal tar ☐ Epoxy ☐ FRP coating ☐ Other - _____

Is the coating damaged? ☐ No ☐ Yes – describe _____

Is the underside of the top slab coated? ☐ No ☐ Yes

Type of material: ☐ Coal tar ☐ Epoxy ☐ FRP coating ☐ Other - _____

Is the coating damaged? ☐ No ☐ Yes – describe _____

If concrete walls/top, is the concrete spalling or damaged? ☐ No ☐ Yes

If yes, describe _____

Are there joints in the walls? ☐ No ☐ Yes – How many? _____

Are joints adequately sealed? ☐ Yes ☐ No – describe _____

If FRP walls/top, are there cracks or holes? ☐ No ☐ Yes

If yes, describe _____

If steel walls/top, is there corrosion or holes? ☐ No ☐ Yes

If yes, describe _____

Is the floor damaged/deteriorated? ☐ No ☐ Yes

If yes, describe _____

Is the floor sloped to an outlet? ☐ No ☐ Yes

Is there ponding of water in the floor? ☐ No ☐ Yes – describe _____

Is the outlet clogged? ☐ No ☐ Yes – describe _____

Are there penetrations through the walls? ☐ No ☐ Yes – How many? _____

Type of penetration: ☐ Gravity sewer ☐ Odor control duct ☐ Suction pipeline
☐ Exhaust/Ventilation duct ☐ Discharge piping
☐ Electrical conduit/cable ☐ Other - _____

Is there adequate sealing around penetration? ☐ No ☐ Yes – Seal Material: _____

Describe the condition of the interior: _____

_____

**Additional Notes:**

**Name of Pump Station:_____ Pump Station No.:_____**

**Additional Wet Well or Storage Tank/Pond**

Purpose of Wet Well (_____) of (_____):_____

**Wet Well or Storage Tank/Pond General Information: (Describe as Needed)**

**Wet Well or Storage Tank/Pond Plan & Dimensions**

**Sketch:**

**Summary**

| Recommended Improvements | Ranking of Importance | Estimated Cost | Time-Frame | Rating |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Name of Pump Station: _____ Pump Station No: _____

**Dry Pit Conditions**

How many dry pits are on site? _____ (If more than on Dry Pit, fill out page 9 of 10)

If multiple, which number is this assessment for? _____

1. Identify the current condition of the dry pit on site:

   a. **Type of Dry Pit**

   Material of Construction: ☐ Precast Concrete ☐ Cast-in-place Concrete ☐ Steel

   ☐ Fiber reinforced plastic (FRP) ☐ Other - _____

   Shape of dry pit: ☐ Circular Diameter - _____ ☐ Square/Rectangular Length and Width - _____

   Depth of dry pit: _____ ☐ Measured ☐ From Record Drawings

**Sketch:**

**a. Top Slab**

Is there a top slab? ☐ Yes ☐ No

Material of Construction: ☐ Precast Concrete ☐ Cast-in-place Concrete

☐ Other - _____

Is the exterior damaged? ☐ No ☐ Yes – describe - _____

Is there an access hatch? ☐No ☐ Yes – How many? _____ Size?_____

Material of Construction: ☐ Aluminum ☐ Steel ☐ FRP

Does the hatch open properly? ☐ Yes ☐ No – describe _____

Is there a hold open arm? ☐ No ☐ Yes

Does the hold open arm function properly? ☐ No ☐ Yes – describe _____

Is there a fall protection device? ☐ Yes ☐ No

Type (if applicable): ☐ Safety net ☐ Safety grate

Condition (if applicable): _____

Does the hatch close properly? ☐ Yes ☐ No – describe _____

Is there a lock or locking device? ☐ Yes ☐ No Type: _____

Does it lock properly? ☐ Yes ☐ No – describe _____

Is there a lifting handle? ☐ Yes ☐ No

Are there access ladders or steps? ☐ No ☐ Yes

Type: ☐ Access ladder ☐ Manhole steps ☐ Stairs ☐ Other - _____

If ladder, are there safety bars or safety climb device? ☐ No ☐ Yes

Condition (if applicable): _____

Are there penetrations through the top slab? ☐ No ☐ Yes – How many? _____

Type of penetration: ☐ Vent pipe ☐ Odor control duct ☐ Exhaust/Ventilation duct

☐ Discharge piping ☐ Electrical conduit/cable ☐ Other - _____

Is there adequate sealing around penetration? ☐ No ☐ Yes Seal material:_____

Describe the condition of the top slab: _____

_____

**Additional Notes:**

**b. Interior of dry pit:**

Are the dry pit walls coated with a corrosion resistant material? ☐ Yes ☐ No

Type of material: ☐ Coal tar ☐ Epoxy ☐ FRP coating ☐ Other - _____

Is the coating damaged? ☐ No ☐ Yes – describe _____

Is the underside of the top slab coated? ☐ No ☐ Yes

Type of material: ☐ Coal tar ☐ Epoxy ☐ FRP coating ☐ Other - _____

Is the coating damaged? ☐ No ☐ Yes – describe _____

If concrete walls/top, is the concrete spalling or damaged? ☐ No ☐ Yes

If yes, describe _____

Are there joints in the walls? ☐ No ☐ Yes – How many? _____

Are joints adequately sealed? ☐ Yes ☐ No – describe _____

If FRP walls/top, are there cracks or holes? ☐ No ☐ Yes – describe _____

If steel walls/top, is there corrosion or holes? ☐ No ☐ Yes – describe _____

Is the floor damaged/deteriorated? ☐ No ☐ Yes – describe _____

Are there equipment pads? ☐ No ☐ Yes – How many?_____

Are there pipe and valve supports? ☐ No ☐ Yes – Describe?_____

What is their condition:_____

Is there a floor drain? ☐ No ☐ Yes – How many? _____ Location: _____

Is the drain clogged? ☐ No ☐ Yes

Is there ponding of water in the floor? ☐ No ☐ Yes – describe _____

Is there a sump pump? ☐ No ☐ Yes – How many? _____ Location: _____

What is their condition? _____

Are there penetrations through the walls? ☐ No ☐ Yes – How many? _____

Type of penetration: ☐ Force main pumping ☐ Odor control duct

☐ Exhaust/Ventilation duct ☐ Electrical conduit/cable

☐ Other - _____

Is there adequate sealing around penetration? ☐ No ☐ Yes – Seal Material: _____

Are there stairs, ladder or platforms inside the dry pit? ☐ No ☐ Yes

Is there a manlift? ☐ No ☐ Yes

If yes, materials of construction: ☐ Aluminum ☐ Steel ☐ Concrete ☐ Other - _____

Condition: _____

Describe the condition of the interior: _____

_____

_____

**Interior Sketch:**

**Additional Notes:**

**c. Ventilation/AC**



Area of Building: _____

Number of Fans: _____ Air Conditioning:_____

Describe System: _____

_____

_____

Fan Manufacturer: _____ AC Manufacturer: _____

Fan Model: _____ AC Model: _____

Fan Capacity: _____ AC Capacity:_____

Fan Electrical Rating: HP/Watts:_____ A:_____ Volts:_____ Phases:_____

AC Electrical Rating: HP/Watts:_____ A:_____ Volts:_____ Phases:_____

Year Installed: _____

Condition: _____

**Vault Conditions**

How many vaults are on site? _____ (If more than one vault, fill out page 9 of 10)

If multiple, which number is this assessment for? _____

Use of vault: _____

1. Identify the current condition of the vault on site:

**a. Type of Vault**

Material of Construction: ☐ Precast Concrete ☐ Cast-in-place Concrete ☐ Steel

☐ Fiber reinforced plastic (FRP) ☐ Other - _____

Shape of vault: ☐ Circular Diameter - _____ ☐ Rectangular Dimensions - _____

Depth of vault: _____ ☐ Measured ☐ From Record Drawings

**Sketch:**

**Additional Notes:**

**b. Top Slab**

Is there a top slab? ☐ No ☐ Yes

Material of Construction: ☐ Precast Concrete ☐ Cast-in-place Concrete

☐ Other - _____

Is the exterior of the top damaged? ☐ No ☐ Yes – describe _____

Is there an access hatch? ☐ No ☐ Yes – How many? _____

Material of Construction: ☐ Aluminum ☐ Steel ☐ FRP

Does the hatch open properly? ☐ Yes ☐ No – describe _____

Is there a hold open arm? ☐ No ☐ Yes

Does the hold open arm function properly? ☐ Yes ☐ No – describe _____

Is there a fall protection device? ☐ Yes ☐ No – describe _____

Type (if applicable): ☐ Safety net ☐ Safety grate

Condition (if applicable): _____

Does the hatch close properly? ☐ Yes ☐ No – describe _____

Is there a lock or locking device? ☐ Yes ☐ No

Is there a lifting handle? ☐ Yes ☐ No

Are there access ladders or steps? ☐ No ☐ Yes

Type: ☐ Access ladder ☐ Manhole steps ☐ Stairs ☐ Other - _____

If ladder, are there safety bars or safety climb device? ☐ No ☐ Yes

Condition (if applicable): _____

Are there penetrations through the top slab? ☐ No ☐ Yes – How many? _____

Type of penetration: ☐ Vent pipe ☐ Odor control duct ☐ Exhaust/Ventilation duct

☐ Discharge piping ☐ Electrical conduit/cable ☐ Fuel Lines

☐ Other - _____

Is there adequate sealing around penetration? ☐ No ☐ Yes Seal material:_____

Describe the condition of the top slab: _____

_____

**Additional Notes:**

**c. Interior of vault:**

Are the vault walls coated with a corrosion resistant material? ☐ Yes ☐ No

Type of material: ☐ Coal tar ☐ Epoxy ☐ FRP coating ☐ Other - _____

Is the coating damaged? ☐ No ☐ Yes – describe _____

Is the underside of the top slab coated? ☐ No ☐ Yes

Type of material: ☐ Coal tar ☐ Epoxy ☐ FRP coating ☐ Other - _____

Is the coating damaged? ☐ No ☐ Yes – describe _____

If concrete walls/top, is the concrete spalling or damaged? ☐ No ☐ Yes

If yes, describe _____

Are there joints in the walls? ☐ No ☐ Yes – How many? _____

Are joints adequately sealed? ☐ Yes ☐ No – describe _____

If FRP walls/top, are there cracks or holes? ☐ No ☐ Yes

If yes, describe _____

If steel walls/top, is there corrosion or holes? ☐ No ☐ Yes

If yes, describe _____

Is the floor damaged/deteriorated? ☐ No ☐ Yes

If yes, describe _____

Is there a floor drain? ☐ No ☐ Yes – How many? _____

Is the drain clogged? ☐ No ☐ Yes

Is there ponding of water in the floor? ☐ No ☐ Yes – describe _____

Is there a Sump? ☐ No ☐ Yes Does it have a permanent pump? ☐ No ☐ Yes

Are there penetrations through the walls? ☐ No ☐ Yes – How many? _____

Type of penetration: ☐ Force main piping ☐ Odor control duct

☐ Exhaust/Ventilation duct ☐ Electrical conduit/cable

☐ Other - _____

Is there adequate sealing around penetration? ☐ No ☐ Yes Seal Material: _____

Are there stairs or platforms inside the vault? ☐ No ☐ Yes

If yes, materials of construction: ☐ Aluminum ☐ Steel ☐ Other - _____

Condition (if applicable): _____

Describe the condition of the interior: _____

_____

**d. Ventilation/AC**

Area of Building: _____

Number of Fans: _____ Air Conditioning:_____

Describe System: _____

_____

_____

Fan Manufacturer: _____ AC Manufacturer: _____

Fan Model: _____ AC Model: _____

Fan Capacity: _____ AC Capacity:_____

Fan Electrical Rating: HP/Watts:_____ A:_____ Volts:_____ Phases:_____

AC Electrical Rating: HP/Watts:_____ A:_____ Volts:_____ Phases:_____

Year Installed: _____

Condition: _____

**Additional Notes:**

**Name of Pump Station:_____ Pump Station No._____**

**Additional Dry Pits or Vaults**

**Purpose of Dry Pits or Vaults (_____) of (_____):_____**

**_____**

**Dry Pit or Vault General Information: (Describe as Needed)**

**Dry Pit or Vault Dimensions**

**Sketch:**

**Pump Station No: _____**

**Summary**

| Recommended Improvements | Ranking of Importance | Estimated Cost | Time-Frame | Rating |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Name of Pump Station: _____ Pump Station No: _____

**Grinder Conditions**

Are there grinders? _____

**a. General Information**

Number of grinders installed: _____

Manufacturer: ☐ JWC Environmental ☐ Franklin Miller ☐ Other - _____

Model: _____

| | Year Installed | Operating Hours | Last Rebuilt/Serviced |
|---|---|---|---|
| Grinder #1: | _____ | _____ | _____ |
| Grinder #2: | _____ | _____ | _____ |

**Sketch:**

**b. Components (complete for each grinder)**

Grinder No: _____ Is the Grinder Operating? ☐ No ☐ Yes

Is the frame/housing damaged? ☐ No ☐ Yes – describe _____

Are the cutter teeth damaged? ☐ No ☐ Yes – describe _____

Type of motor: ☐ Immersible ☐Submersible ☐ Explosion Proof ☐ Other - _____

Are the cable seals damaged? ☐ No ☐ Yes – describe _____

Is there an emergency stop push button? ☐ No ☐ Yes – Location:_____

Is there a disconnect? ☐ Yes ☐ No – describe _____

Is there excessive noise or vibration during operation? ☐ No ☐ Yes – describe _____

Is there corrosion present? ☐ No ☐ Yes – describe _____

**c. Lifting Mechanism**

Are there guide rails? ☐ No ☐ Yes

Material of Construction: ☐ Stainless steel ☐ Galvanized steel ☐ Other - _____

Are the guide rails secure? ☐ Yes ☐ No ☐ Reported by ESD

Are the guide rails straight and plumb? ☐ Yes ☐ No

Is there corrosion on the guide rails? ☐ Yes ☐ No

Are the grinder(s) easily raised and lowered? ☐ Yes ☐ No ☐ Reported by ESD

Are there lifting lugs on the grinder? ☐ No ☐ Yes

**d. Overflow Screen**

Is there an overflow screen? ☐ Yes ☐ No

Material of Construction: ☐ Stainless steel ☐ Galvanized steel ☐ Aluminum

☐ Other - _____

Is it securely mounted in the channel? ☐ Yes ☐ No

If no, describe _____

Are bars damaged or bent? ☐ No ☐ Yes – describe _____

**Additional Notes:**

Describe the condition of the grinder: _____

_____

_____

_____

_____

**Submersible Pump**

1. Number of pumps installed: _____

**a. General Information**

Manufacturer: ☐ ITT Flygt ☐ KSB ☐ Fairbanks Morse ☐ Yeomans

☐ Smith & Loveless ☐ Ebara ☐ Other - _____

Model: _____ Capacity: _____ Head: _____ HP: _____

Serial No._____

| Year Installed | Operating Hours (Last 24 hrs) | Last Rebuilt/Serviced |
|---|---|---|
| Pump #1: _____ | Pump #1: _____ | Pump #1: _____ |
| Pump #2: _____ | Pump #2: _____ | Pump #2: _____ |
| Pump #3: _____ | Pump #3: _____ | Pump #3: _____ |
| Pump #4: _____ | Pump #4: _____ | Pump #4: _____ |

**Sketch:**

**b. Pump Components (complete for each pump)**

|  | Pump #1 | Pump #2 | Pump #3 | Pump #4 |
|---|---|---|---|---|
| Is the housing damaged? | ☐ No ☐ Yes ☐ Reported by ESD | ☐ No ☐ Yes ☐ Reported by ESD | ☐ No ☐ Yes ☐ Reported by ESD | ☐ No ☐ Yes ☐ Reported by ESD |
| Is the volute damaged? | ☐ No ☐ Yes ☐ Reported by ESD | ☐ No ☐ Yes ☐ Reported by ESD | ☐ No ☐ Yes ☐ Reported by ESD | ☐ No ☐ Yes ☐ Reported by ESD |
| Is the discharge flange damaged? | ☐ No ☐ Yes ☐ Reported by ESD | ☐ No ☐ Yes ☐ Reported by ESD | ☐ No ☐ Yes ☐ Reported by ESD | ☐ No ☐ Yes ☐ Reported by ESD |
| Are the cables or seals damaged? | ☐ No ☐ Yes ☐ Reported by ESD | ☐ No ☐ Yes ☐ Reported by ESD | ☐ No ☐ Yes ☐ Reported by ESD | ☐ No ☐ Yes ☐ Reported by ESD |
| Is the base securely attached to the floor? | ☐ No ☐ Yes ☐ Reported by ESD | ☐ No ☐ Yes ☐ Reported by ESD | ☐ No ☐ Yes ☐ Reported by ESD | ☐ No ☐ Yes ☐ Reported by ESD |
| Do seals appear to be leaking? | ☐ No ☐ Yes ☐ Reported by ESD | ☐ No ☐ Yes ☐ Reported by ESD | ☐ No ☐ Yes ☐ Reported by ESD | ☐ No ☐ Yes ☐ Reported by ESD |
| Are the cable seals damaged? | ☐ No ☐ Yes ☐ Reported by ESD | ☐ No ☐ Yes ☐ Reported by ESD | ☐ No ☐ Yes ☐ Reported by ESD | ☐ No ☐ Yes ☐ Reported by ESD |
| Is there an emergency stop button? | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes |
| Where is it located? | | | | |
| Is there a junction box? | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes |
| Where is it located? | | | | |
| Is there excessive noise or vibration during operation? | ☐ No ☐ Yes ☐ Reported by ESD | ☐ No ☐ Yes ☐ Reported by ESD | ☐ No ☐ Yes ☐ Reported by ESD | ☐ No ☐ Yes ☐ Reported by ESD |
| Is the finish peeling? | ☐ No ☐ Yes ☐ Reported by ESD | ☐ No ☐ Yes ☐ Reported by ESD | ☐ No ☐ Yes ☐ Reported by ESD | ☐ No ☐ Yes ☐ Reported by ESD |
| Is there corrosion present? | ☐ No ☐ Yes ☐ Reported by ESD | ☐ No ☐ Yes ☐ Reported by ESD | ☐ No ☐ Yes ☐ Reported by ESD | ☐ No ☐ Yes ☐ Reported by ESD |

If answered yes to anything above, please describe for each pump:

**Pump #1** _____

_____

_____

**Pump #2** _____

_____

_____

**Pump #3** _____

_____

_____

**Pump #4** _____

_____

_____

**c. Lifting Mechanism**

How does ESD Remove Pumps:_____

Are there guide rails? ☐ No ☐ Yes

Material of Construction: ☐ Stainless steel ☐ Galvanized steel

☐ Other - _____

Are the guide rails secured to the base elbow? ☐ Yes ☐ No – describe_____

☐ Reported by ESD

Are the guide rails secure at the top? ☐ Yes ☐ No – describe_____

Are the guide rails secure in the middle? ☐ Yes ☐ No – describe_____

Are the guide rails straight and plumb? ☐ Yes ☐ No – describe_____

Is there corrosion on the guide rails? ☐ Yes ☐ No – describe_____

Are the pumps(s) easily raised and lowered? ☐ Yes ☐ No – describe_____

☐ Reported by ESD

Is there a lifting ring on the pump? ☐ Yes ☐ No

Is the ring secure? ☐ Yes ☐ No – describe_____

☐ Reported by ESD

Is there a lifting chain/cable on the pump? ☐ No ☐ Yes ☐ Chain ☐ Cable

Is the chain/cable secure? ☐ Yes ☐ No – describe_____

☐ Reported by ESD

Is there corrosion on the chain/cable? ☐ No ☐ Yes – describe_____

Is the pump centered below an access hatch? ☐ No ☐ Yes

Is there sufficient clearance for pump removal? ☐ Yes ☐ No – describe_____

**Additional Notes:**

Describe the condition of the submersible pump: _____

_____

_____

**Dry Pit Pump**

**Flooded Suction:**

Number of pumps installed: _____

**a. General Information**

Single Stage:_____ Two-Stage:_____

Manufacturer: ☐ ITT Flygt ☐ KSB ☐ Fairbanks Morse ☐ Yeomans ☐ Submersible

☐ Smith & Loveless ☐ Other - _____

Model: _____ Capacity: _____ Head: _____ HP: _____

Serial Number:_____

| | Year Installed | Operating Hours (Last 24 hrs) | Last Rebuilt/Serviced |
|---|---|---|---|
| Pump #1: | _____ | _____ | _____ |
| Pump #2: | _____ | _____ | _____ |
| Pump #3: | _____ | _____ | _____ |
| Pump #4: | _____ | _____ | _____ |

**Sketch:**

**Additional Notes:**

**b. Pump Components (complete for each pump)**

| | Pump #1 | Pump #2 | Pump #3 | Pump #4 |
|---|---|---|---|---|
| Is the housing damaged? | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes |
| Is the volute damaged? | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes |
| Are the pump mounts damaged? | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes |
| Are the pump pads/piers damaged? | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes |
| Are the discharge flanges damaged/leaking? | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes |
| Are the cables damaged? | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes |
| Is the pump properly lined up with the suction and discharge piping? | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes |
| Is there excessive noise or vibration during operation? | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes |
| Are the seals/stuffing box leaking? | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes |
| Is the finish peeling? | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes |
| Is there corrosion present? | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes |

If answered yes to anything above, please describe for each pump:

**Pump #1** _____

_____

_____

**Pump #2** _____

_____

_____

**Pump #3** _____

_____

_____

**Pump #4** _____

_____

_____

**c. Lifting Mechanism**

Is there a secure lifting ring(s) on the pump? ☐ Yes ☐ No

Is the pump centered below an access hatch? ☐ Yes ☐ No

Is there sufficient room for maintenance? ☐ Yes ☐ No – describe_____

Is there sufficient room for pump removal? ☐ Yes ☐ No – describe_____

**Additional Notes**

Describe the condition of the dry pit pumps: _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

**Suction Lift Pump**

Number of pumps installed: _____

**a. General Information**

Single Stage:_____ Two-Stage:_____

Manufacturer: ☐ Smith & Loveless ☐Gorman Rupp ☐ Other - _____

Serial Number:_____

Model: _____ Capacity:_____ Head:_____ HP:_____

| | Year Installed | Operating Hours (Last 24 hrs) | Last Rebuilt/Serviced |
|---|---|---|---|
| Pump #1: | _____ | _____ | _____ |
| Pump #2: | _____ | _____ | _____ |
| Pump #3: | _____ | _____ | _____ |
| Pump #4: | _____ | _____ | _____ |

**Sketch**

**b. Housing Cover**

Is there a housing/cover over the pumps? ☐ No ☐ Yes ☐ Building

Material of Construction: ☐ FRP ☐ Aluminum ☐ Other –_____

Is the cover securely attached to slab? ☐ Yes ☐ No – describe _____

Is there a lock on the cover? ☐ No ☐ Yes – What type? _____

Does the cover freely open to allow access? ☐ Yes ☐ No – describe _____

Is the cover damaged? ☐ No ☐ Yes – describe _____

If in a building, Is the door to the building locked? _____

Is there good access to wet well? ☐ Yes ☐ No

**c. Pump Components (complete for each pump)**

| | Pump #1 | Pump #2 | Pump #3 | Pump #4 |
|---|---|---|---|---|
| Type of suction piping? | ☐ DIP ☐ STEEL ☐ Other | ☐ DIP ☐ STEEL ☐ Other | ☐ DIP ☐ STEEL ☐ Other | ☐ DIP ☐ STEEL ☐ Other |
| Diameter Size? | _____ inches | | | |
| Is the suction piping damaged or corroded? | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes |
| Is the priming system working properly? | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes |
| Do the pumps sit on a mounting frame | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes |
| Frame Material of Construction | ☐ Steel ☐ Aluminum ☐ Other | ☐ Steel ☐ Aluminum ☐ Other | ☐ Steel ☐ Aluminum ☐ Other | ☐ Steel ☐ Aluminum ☐ Other |
| Is the frame corroded? | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes |
| Is the pump body damaged? | ☒ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes |
| Is the pump, pipes or valves leaking? | ☒ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes |
| Are the cables damaged? | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes |
| Is there excessive noise or vibration during operation? | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes |
| Does priming take a long period of time? | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes |
| Is the finish peeling? | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes |
| Is there corrosion present? | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes | ☐ No ☐ Yes |

If answered yes or other to anything above, please describe for each pump:

**Pump #1** _____

_____

_____

**Pump #2** _____

_____

_____

**Pump #3** _____

_____

_____

**Pump #4** _____

_____

_____

_____

**Additional Notes**

Describe the condition of the pumps:

_____

_____

**Valve Conditions**



Valves Present: : ☐ Suction ☐ Discharge ☐ Check ☐ Other –_____

**a. Isolation Valves**

Are there isolation valves for each pump? ☐ No ☐ Yes

Type: ☐ Plug ☐ Ball ☐ Gate ☐ Other –_____

Operators: ☐ Manual ☐ Electric ☐ Hydraulic ☐ Other –_____

Location: ☐ In vault ☐ Dry Well ☐ Buried ☐Enclosure/Building ☐ Other –_____

If buried, is there a valve box? ☐ No ☐ Yes

Do valves show signs of external leakage? ☐ No ☐ Yes – describe _____

Do valves operate from fully open to fully closed? ☐ No ☐ Yes ☐ Reported by ESD

Do valves leak internally? ☐ No ☐ Yes ☐ Reported by ESD

Is the finish peeling? ☐ No ☐ Yes – describe _____

Is there corrosion present? ☐ No ☐ Yes – describe _____

**Sketch**

Describe the condition of the isolation valves: _____

_____

**b. Check Valves**

Are there check valves for each pump? ☐ No ☐ Yes - Horizontal or Vertical (circle)

Actuator: ☐ Swing ☐ Ball ☐ Disc ☐ Other _____

Type: ☐ Lever & Weight ☐ Lever & Spring ☐ No Outside Mechanism

☐ Electric Pump Control ☐ Hydraulic ☐ Other – _____

If electric pump control, type: ☐ Checktronic ☐ Hydraulic

☐ Other –_____

Is it cushioned? ☐ No ☐ Yes – describe _____

Does actuator operate properly? ☐ Yes ☐ No – describe _____

Are limit switches present? ☐ Yes ☐ No – describe _____

Do valves show signs of external leakage? ☐ No ☐ Yes – describe _____

Do valves leak internally? ☐ No ☐ Yes ☐ Reported by ESD

How was leak detection identified? ☐ No ☐ Yes – describe _____

Is the finish peeling? ☐ No ☐ Yes – describe _____

Is there corrosion present? ☐ No ☐ Yes – describe _____

**Sketch:**

**Additional Notes:**

Describe the condition of the check valves: _____

_____

**c. Surge Valves**

Is there a surge relief valve present? ☐ No ☐ Yes Location: _____

If yes, what type? ☐ Spring Loaded ☐ Hydraulic ☐ Other _____

Is setting known? ☐ Yes ☐ No – If Yes, setting? _____

Does it function properly? ☐ Yes ☐ No ☐ Observed ☐ Reported by ESD

Condition of Springs:_____

Is there an oil reservoir? ☐ No ☐ Yes

Signs of leakage? ☐ No ☐ Yes – describe _____

Does valve show signs of external leakage? ☐ No ☐ Yes – describe _____

Does valve leak internally? ☐ No ☐ Yes – describe _____

Is the finish peeling? ☐ No ☐ Yes – describe _____

Is there corrosion present? ☐ No ☐ Yes – describe _____

Describe the condition of the surge valves: _____

_____

**Additional Notes**

**Surge Tank Conditions**

Is there a surge tank? ☐ No ☐ Yes

Number of tanks installed: _____

**a. General Information**

Type: ☐ Hydro-pneumatic ☐ Bladder

Manufacturer: ☐ Charlotte ☐ Pulsco ☐ Other - _____

Model: _____

Year Installed: _____

**b. Components (complete for each surge tank)**

Surge Tank No: _____

Orientation: ☐ Vertical ☐ Horizontal

If bladder, when was bladder last replaced? _____

Does bladder show signs of failure? ☐ No ☐ Yes

If yes, describe _____

What is the pre-charge pressure? _____

If hydro-pneumatic, what is the compressor rating? _____cfm At _____ psi

Compressor Manufacturer: _____

Are there signs of oil or air leakage on the compressor? ☐ Yes ☐ No

If yes, describe _____

What is the maximum operating pressure? _____

How many compressors are there? _____ Are both in service? ☐ Yes ☐ No

What is the condition of the compressor(s)? _____

Does tank show signs of external leakage? ☐ No ☐ Yes – describe _____

Is the finish peeling? ☐ No ☐ Yes – describe _____

Is there corrosion present? ☐ No ☐ Yes – describe _____

Are tank supports damaged? ☐ No ☐ Yes – describe _____

How often does ESD clean tank? _____

**Additonal Notes**

Describe the condition of the surge tank: _____

_____

**Pump Station No: _____**

**Summary**

| Item | Startup Date | Estimated Life | Remaining Life | Improvements | Ranking of Importance | Estimated Cost | Time-Frame | Rating |
|---|---|---|---|---|---|---|---|---|
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Name of Pump Station: _____ Pump Station No: _____

**1. Generator**



Is there a generator on site? ☐ No ☐ Yes

What size is the generator (KW/KVA Rating)? _____

Type of fuel source: ☐ Diesel ☐ Natural Gas ☐ Other - _____

Storage tank capacity:_____

Is there secondary containment around the generator? ☐ No ☐ Yes

If yes, is the volume sufficient to hold 110% of tank volume? ☐ No ☐ Yes

Does generator have a sound enclosure around it? ☐ No ☐ Yes

Do the access panels have locks? ☐ No ☐ Yes

Are they locked? ☐ No ☐ Yes

Describe the condition of the enclosure: _____

Are there signs of oil and/or fuel leakage? ☐ No ☐ Yes – describe _____

Describe the condition of the generator: _____

_____

**Additional Notes**

**2. Odor Control Equipment**

Type: ☐ Carbon ☐ Chemical ☐ Ozone ☐ Gaseous ☐ Other - _____

Describe Operation:_____

_____

_____

Capacity (CFM):_____ Last Installed:_____

Chemical Tank Sizes (Identify Chemical):_____

Liquid Chemical Feed System

Chemical Type:_____ Storage Tank Size:_____

Describe Operation:_____

_____

_____

Containment: ☐ No ☐ Yes Containment Dimensions:_____

**3. Onsite Lifting Systems**

How Many Systems Are There?: Outside: _____ Inside: _____

Types: Bridge Crane with Hoist: ☐ No ☐ Yes Monorail with Hoist: ☐ No ☐ Yes

Single Hoist: ☐ No ☐ Yes Jib Crane: ☐ No ☐ Yes Other: _____

**Lifting System 1:**

Location: Outside:_____ Inside:_____

Purpose: _____ Type:_____ Capacity:_____

What Device(s) is Powered?: _____ Voltage: _____

Operational: ☐ No ☐ Yes Age: _____

Describe Operational and Safety Conditions:_____

_____

**Lifting System 2:**

Location: Outside:_____ Inside:_____

Purpose: _____ Type:_____ Capacity:_____

What Device(s) is Powered?: _____ Voltage: _____

Operational: ☐ No ☐ Yes Age: _____

Describe Operational and Safety Conditions:_____

_____

**Lifting System 3:**

Location: Outside:_____ Inside:_____

Purpose: _____ Type:_____ Capacity:_____

What Device(s) is Powered?: _____ Voltage: _____

Operational: ☐ No ☐ Yes Age: _____

Describe Operational and Safety Conditions:_____

_____

**Additional Notes**

**4. Summary**

| Item | Startup Date | Estimated Life | Remaining Life | Improvements | Ranking of Importance | Estimated Cost | Time Frame | Rating |
|---|---|---|---|---|---|---|---|---|
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Name of Pump Station: _____ Pump Station No: _____

## 1. Electrical Service Equipment:

☐ Disconnect Switch ☐ Circuit Breaker

Rating: Volts:_____ Phase(s):_____ Amps:_____ kA:_____

Fuses: Volts:_____ Amps:_____ kA:_____ kA RMS Symmetrical:_____

Electric Meter No.:_____

## 2. Electrical Distribution Equipment Conditions



1. Identify the current conditions of the electrical distribution equipment panels

### a. General Information

Identify the panels (if name plates, use names on panel, if not, provide description of what panel feeds)

| **Equipment:** | **Location:** |
|---|---|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

Material of Construction: ☐ Stainless Steel ☐ Powder Coating ☐ FRP ☐ Other - _____

Type of Mounting: ☐ Stands on pad ☐ Unistrut Frame ☐ Other - _____

Are there locks on the panels? ☐ Yes ☐ No – describe _____

Are the panels locked? ☐ Yes ☐ No – describe _____

Are there signs of moisture inside the panels? ☐ No ☐ Yes – describe _____

Is there corrosion inside the panels? ☐ No ☐ Yes – describe _____

Describe the condition of the panels: _____

_____

## 3. Exposed Conduit

### a. Outdoor Conduit

Type of Conduit: ☐ Rigid Metal ☐ PVC Coated Metal ☐ PVC ☐ Other - _____

Is conduit adequately supported? ☐ Yes ☐ No – describe _____

Is conduit damaged or corroded? ☐ Yes ☐ No – describe _____

**b. Wet/Well Influent Chamber**

Type of Conduit: ☐ Rigid Metal ☐ PVC Coated Metal ☐ PVC ☐ Other - _____

Is conduit adequately supported? ☐ Yes ☐ No – describe _____

Is conduit damaged or corroded? ☐ Yes ☐ No – describe _____

Is exposed conduit a tripping hazard? ☐ No ☐ Yes – where _____

**c. Dry Well / Dry Pit**

Type of Conduit: ☐ Rigid Metal ☐ PVC Coated Metal ☐ PVC ☐ Other - _____

Is conduit adequately supported? ☐ Yes ☐ No – describe _____

Is conduit damaged or corroded? ☐ Yes ☐ No – describe _____

Is exposed conduit a tripping hazard? ☐ No ☐ Yes – where _____

**d. Other Buildings / Structures**

Type of Conduit: ☐ Rigid Metal ☐ PVC Coated Metal ☐ PVC ☐ Other - _____

Is conduit adequately supported? ☐ Yes ☐ No – describe _____

Is conduit damaged or corroded? ☐ Yes ☐ No – describe _____

Is exposed conduit a tripping hazard? ☐ No ☐ Yes – where _____

**Additional Notes:**

**e. Lighting**



Is there exterior lighting for the site? ☐ No ☐ Yes – How many? _____

Do the lights work? ☐ No ☐ Yes ☐ Unable to confirm – reason? _____

How do the lights operate? ☐ Switch ☐ Photocell ☐ Timer

How are the lights mounted? ☐ Pole ☐ Building

If pole mounted – type of pole: ☐ Wood ☐ Steel ☐ Aluminum ☐ Other - _____

How is the lamp replaced? ☐ Hinged Pole ☐ Other - _____

Condition of painting (if applicable): ☐ Good ☐ Fair ☐ Poor

Level of corrosion/rot: ☐ None ☐ Minor ☐ Moderate ☐ Extensive

Describe the condition of the lighting: _____

_____

**Additional Notes:**

**a. Instrumentation and Control Panels/Control Panels for Process Equipment**

Identify the panels (if name plates, use names on panel, if not, provide description of what panel feeds)

| Panel/Use | Ref No. | Location |
|---|---|---|
| | | |
| | | |
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Material of Construction: ☐ Stainless Steel ☐ Powder Coating ☐ FRP ☐ Other - _____

Type of Mounting: ☐ Stands on pad ☐ Unistrut Frame ☐ Other - _____

Are there locks on the panels? ☐ Yes ☐ No – describe _____

Are the panels locked? ☐ Yes ☐ No – describe _____

Are there signs of moisture inside the panels? ☐ No ☐ Yes – describe _____

Is there corrosion inside the panels? ☐ No ☐ Yes – describe _____

Describe the condition of the panels: _____

_____

**Additional Notes**

**5. Supports**

**Location:** _____

**Type:**_____

**Material:**_____

**Condition:**_____

_____

_____

**Additional Notes**

**Controls**

Type of primary pump level controls: _____

What condition are they in? _____

Are there secondary pump level controls? ☐ No ☐ Yes – Type: _____

What condition are they in? _____

**a. Summary**

| Recommended Improvements | Rankng of Importance | Estimated Cost | Time-Frame | Rating |
|---|---|---|---|---|
| | | | | |
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# Force Main – Air Valve Procedures

## 1.0 OBJECTIVE

Air valves are used to allow air to escape the system when pumping begins; to evacuate air that accumulates during operation; to prevent vacuum damage, cavitation (i.e. vapor cavity collapse); and excessive surge pressures in the system when pumping stops. There are three basic types of air valves that provide different functions:

- Air release valves use a small orifice to release accumulated air from a pressurized pipeline. Air release valves are not intended to admit air into the pipeline.
- Air/vacuum valves use a large orifice to exhaust large quantities of air during pipeline filling and to admit large quantities of air when pumping stops or a pipeline break occurs. Air/vacuum valves will not release accumulated air under pressure.
- Combination air valves combine the functions of both air release and air/vacuum valves—either in a single body or by attaching an air release valve to the side of an air/vacuum valve.

Combination air valves are typically used at high points in force mains, but the other types are also installed on force mains. The purpose of this procedure is to provide guidance in the inspection and maintenance of these devices, regardless of the particular valve type.

## 2.0 RESPONSIBILITIES

Air valve testing shall be scheduled by the Supervisor.

## 3.0 SAFETY PROCEDURES

Personnel should observe all safety policies and regulations established by the Environmental Services Department during execution of this SOP to include but not necessarily limited to:

- Confined Space Entry
- Non-Atmospheric Pressures
- Mechanical Hazards
- Work Zone Traffic Control
- Noxious and Toxic Atmospheres
- Infection and Disease Hazards
- Cross Contamination of Potable Water Sources

## 4.0 AIR VALVE BASICS

There are a few different types of Air valves. In its purest sense, ARV means air release valve (only). There are 3 basic functions that ARVs are intended for, with each ARV being capable of one or more of these functions:

Slow air release – This function is to release accumulated pockets of air at high points to prevent capacity loss. It should be noted that the valve may not seat if the operating pressure is too low. The pipe's internal pressure needs to be is at least 3-7 psi for the valve to seat and shut off. If the line pressure is too low, the valve will leak. This low line pressure and leakage issue is typically noticed in applications where there is an ARV at a local high point close to the absolute high point and/or the ARV is located close to the discharge.

Vacuum Relief – Vacuum relief (or vacuum breaking) allows air to enter the pipe which protects against vapor cavity formation and the resulting possibility of surge of vapor cavity collapse. In addition to potential pipe damage, the negative pressures that occur during the vacuum conditions can also compromise the pipe joints by displacing the gaskets. This function also allows the FM to operate as a gravity sewer beyond the final high point by breaking the siphon (in some cases). In most cases, the air that is let in must subsequently be released when the hydraulic grade line rises again above the top of pipe (i.e. when the pipe refills).

High-volume air release – This function allows air to escape the FM at a rapid rate during initial filling or at pump start up. Also, this function can occur after a large volume of air enters a force main under a vacuum condition. However, if air is allowed to escape too fast, a significant surge could result after the valve closes.

Another problem occurs when the air escapes with a velocity that is too high. This can cause noise problems.

A fourth function commonly found in modern ARVs is Controlled air release. This function commonly works together with high-volume air release to allow a FM to fill or recharge at an appropriate rate that will not create a surge condition upon closure. The switchover from high-volume to controlled air release typically occurs automatically as the water column within the FM approaches the valve (typically at a pressure around 0.7 psi). Controlled air release can also be incorporated into a valve in place of high-volume air release capability.

There are generally three types of ARV's on the market. Each type includes one or more of the functions described above. These are:

Air Release Valve: Include slow air release function only. These are typically placed at intermediate high points along the force main.

Air Vacuum Valve: These valves include vacuum breaking and high volume air release. This type of valve is located typically at absolute high points where the HGL drops below the pipe and air must enter to eliminate vacuum conditions. It is also placed along force mains to facilitate proper filling. These valves can pose a risk of creating surge conditions if the valve shuts too fast following high-volume air release.

Combination Air Valve: These valves include all three main functions of an ARV plus, in many cases, the fourth function of controlled air release is added to slow the release of air as the water column approaches the valve, thereby avoiding excessive surge conditions when the valve closes.

These functions make ARVs essential to many pressure systems. However, there are operation and maintenance (O&M) problems that can occur even if the valves are functioning properly. Following are examples of some of the problems that can occur:

Corrosion – Internal corrosion of a metallic pipe can occur when a vacuum breaking ARV introduces air into the pipe. For this reason, metallic FMs should use air release only ARVs wherever possible especially where the pipe is not protected with a ceramic epoxy (protecto 401) or equivalent liner. Additionally, external corrosion can occur inside the ARV vault as the air from the pipe is released. If the air contains hydrogen sulfide, the external wall of the pipe, the ARV itself, the saddle and isolation valve attaching the ARV to the pipe, the vault, and the vault cover may all become corroded over time.

Surge – The sudden closure of an ARV after it rapidly releases air can create a surge event. This can be caused when the orifice is oversized. A too large orifice will increase the rate of flow of the air and reduce the time between its opening and closing.

Lack of Surge Control – ARVs often are not effective surge control devices either because they do not react fast enough to allow air in to prevent vapor cavity formation or because they become plugged with grease and debris and fail to open. As mentioned above, a fast acting ARV can result in further surge conditions.

Odor and noise – ARVs can be a nuisance to nearby residents if they emit odor or cause a whistling as the air is released from the FM (due to improper orifice sizing).

Siphoning – While this typically does not present a problem, flow can siphon over high points along a force main that are higher in elevation than the discharge. This may be a complete siphon or, more commonly, a partial siphon that reduces the effective static head on the pumps. This becomes a problem if it causes the pumps to operate too far right on their curve (runout condition). In rare cases, a full siphon can form while a pump is running and continue to lower the wetwell after the pump shuts off (if the FM discharge is below the water level in the wetwell). In some cases, siphoning may actually be desirable to reduce energy costs.

In addition to the above functions, many ARV models are available with various options, including different orifice diameters and/or special features. When selecting and/or replacing an ARV, the actual orifice diameters and optional features of the ARV should be selected for the specific conditions of that installation, which may be

different even from other ARVs on the same FM. In order to ensure appropriate equipment replacements and spare parts inventory (and to allow for accurate surge modeling), the actual orifice diameters and optional features of each ARV should be documented at the time of installation.

Another consideration to note is that if ARVs are closed, particularly at intermediate high points along the force main, air binding may develop in the force main. Thus, if any ARVs are turned off, ESD should be certain to monitor the pumping capacity, pump run times and pump discharge pressures to identify any signs of air binding. Also, if an unexplained reduction in pumping capacity is observed—especially if this corresponds with an increased discharge pressure, any ARVs along the force main should be inspected for air binding.

## 5.0 PROCEDURE

The following is the recommended procedure for inspection and testing Air Valves.

a) At the Air Valve manhole, pull the truck in to face traffic, turn on the truck sign board and/or hazards lights. Crew members should put on reflective vests before exiting the truck. While a crewman flags traffic, the other crewman sets up cones around the work zone, refer to “Work Zone Traffic Control” practices.

b) **CAUTION:** Always use proper work zone traffic control methods, procedures and devices to block and mark off the work zone prior to commencing work. Using a pick and shovel, pull the cover and inspect the manhole (MH) contents.

   1. If the manhole is flooded, a Vac Truck or portable pump may be required.
   2. If the liquid is sewage, the valve float mechanism may have stuck. Isolate the valve, drain and depressurize for disassembly and inspection/cleaning.

c) Air valves shall be inspected annually assuming the initial inspection does not reveal significant problems. If significant problems are found, the valve shall be inspected every 6 months. Valves should be disassembled, cleaned and

returned to service. A quick check of the need for back flushing would be to open the bottom drain valve on the side of the valve body. If sewage drains out easily, back flushing may not be required. The valve should still be disassembled and cleaned as grease or other debris may have accumulated in the top portion of the valve. If sewerage does not drain out, the valve may need back flushing.

1. If back flushing is required, an external source of clean water is required.
   *i. The air valve should be isolated from the main line.*
   *ii. The flushing water source is connected to the air valve's upper flushing connection.*
   *iii. A section of hose is connected to the bottom drain connection and its end placed in a suitable vessel to capture the contaminated flush water.*
   *iv. The drain valve and flushing water valves are opened and flushed through the bottom drain valve until it is clean.*

**CAUTION:** It is highly recommended that distribution system potable water not be used as the flushing water source. Instead, clear water from a portable water tank and pump should be used as the flushing water source thus protecting against potential backflow.

2. The main line air valve's isolation valve shall be exercised at least annually.

d. Air valves with cast iron bodies should be removed, cleaned, corrosion removed, primed and painted at least every five years or more often depending on inspection and need. Install a spare air valve to replace the removed valve. After the removed air valve has been rehabilitated, in should be placed in inventory.

e. Air valves with either stainless steel or plastic bodies should be removed, cleaned, and inspected at least every five years or more often depending on inspection and need. Install a spare air valve to replace the removed valve.

After the removed air valve has been rehabilitated, in should be placed in inventory.

## 6.0 COMMON PROBLEMS and POSSIBLE SOLUTIONS

The following is a listing of common problems with Air Valves and possible solutions for resolution.

a) **Leakage at Inlet Connection**:
Tighten valve threaded connection or flange bolts. If leaks persist, remove valve and re-seal the threads with pipe sealant/tape, or reattach with new bolts and tighten as necessary. Check that the valve's actual operating pressure does not exceed its design Working Pressure as stamped on the valve's nameplate.

b) **Leakage at Cover/Body joint**:
Tighten bolts per the manufacturer's recommendations. It may be advisable to replace the cover/body gasket first. Check that the valve's actual operating pressure does not exceed its design Working Pressure as stamped on the valve's nameplate.

c) **Orifice not Releasing Air Under Pressure**:
*Only for Air Release and Combination Valves*. Air/Vacuum valves will never release air under line pressure. Check that the valve's actual operating pressure does not exceed its design Working Pressure as stamped on the valve's nameplate. If the valve is operating within its design pressure range, isolate, drain and depressurize the valve for inspection and cleaning. Open the isolation valve and allow the ARV to refill. Once the valve is again pressurized, test the valve for proper operation by injecting air (with compressor) into the bottom drain connection line and see if the valve releases the injected air. If the valve does not release the injected air the valve needs to be repaired or replaced.

d) **Liquid Leakage through Air Blow Off**:
Isolate valve from main line, and depressurize valve through bottom drain connection. Check for gravel or other debris in the outlet at the top of the valve; clean as needed. Back flush the valve to remove debris. If back flushing is not effective, disassemble and inspect the internal seat, orifices, float and float guide for debris, wear, or damage. Replace as needed with a float kit or seat kit from the manufacturer. Check that the valve's actual operating pressure does not exceed its design Working Pressure as stamped on the valve's nameplate. Check that the valve's minimum operating pressure (typically 3-7 psi) is not less than the actual operating pressure of the line. If the minimum pressure is not met, leakage will occur until the valve is modified to seal better. Contact the ARV manufacturer on a case-by-case basis.

**CAUTION**: Always isolate and drain the valve and ***depressurize the valve*** before opening the cover/body or removing the valve.

**Replace all valves as necessary that cannot be repaired in the field. Ensure replacement valves are provided with same functionality and orifice sizing as the original valves (unless an appropriate evaluation is performed to confirm suitability of another valve type and/or size).**


W HILLS DR
PUBLICALY
GLENN RD
PARKER RD
CANTERBURY DR
PELLA CIR
ALICE ST
WESTHILLS CT
HILLSIDE RD
WAVERLY TRL
WAVERLY LN
DIVISION ST SW
SHORT ST
9TH AVE SW
MILGRAY LN
6TH AVE
OAK ST SW
7TH AVE
5TH AVE
GRAMOR DR
WOODRIDGE RD
MONTEREY DR
PINETREE CIR
WOODHILL COVE DR
ORSO DR
WILLOW BROOK DR
WILLOW BROOK DR
1ST AVE SW
GLENN RD
ALABAMA AVE SW
CRUMPTON DR
PINEDALE DR SW
4TH AVE SW
PINTO DR
JERRY AVE
STAPP AVE SW
ELM ST SW
2ND AVE
1ST ST
1ST AVE SW
HOUSTON ST
GRAHAM ST
BELVIEW ST
PINE ST SW
TINA CIR
MEMORIAL DR SW
PRINCESS CIR SW
MEDICAL CENTER DR
MELFORD ST SW
CEDAR ST
PRINCESS LN











