TOWNSHIP OF SALISBURY
2900 SOUTH PIKE AVENUE
ALLENTOWN, PA 18103
LEHIGH COUNTY, PENNSYLVANIA

MANAGEMENT, OPERATIONS,
AND
MAINTENANCE PROGRAM (MOM)

TOWNSHIP OF SALISBURY

MAY 2018

PREPARED BY:
KEYSTONE CONSULTING ENGINEERS, INC.
6235 HAMILTON BOULEVARD, SUITE 100
WESCOSVILLE, PA 18106
P: (610) 395-0971
F: (610) 398-8942
TOWNSHIP OF SALISBURY
SEWER SYSTEM MAINTENANCE PLAN
MARCH 2018

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COLLECTION SYSTEM MANAGEMENT

1.1 MANAGEMENT, OPERATION & MAINTENANCE (MOM) OBJECTIVES AND GOALS

The Township of Salisbury’s Preventative Maintenance Plan (PMP) covers the assets they manage in their wastewater collection system and is one component of their overall MOM plan. The PMP combines preventative, predictive, and corrective maintenance strategies with best management practices. The MOM plan and PMP have been prepared to help the Township effectively manage their wastewater collection system and achieve the following objective.

1.1.1 OBJECTIVE

- Provide quick response to disruption in service that may occur.
- Protect the Township’s investment in the sewer collection system.
- Reduce expenditures for emergency maintenance.
- Provide a safe work environment for employees and residents.
- Utilize evolving technology to increase our effectiveness and efficiency.

The Township of Salisbury remains committed to reduce peak flows during heavy rainfall events and continue to implement flow monitoring, CCTV and manhole inspection of their system on a regular basis and repair all system defects as may be necessary.

The management plan describes the approach the Township of Salisbury will undertake to implement their overall MOM plan and achieve the following goals:

1.1.2 GOALS

a. Compliance with the system permitted requirements.
b. Prevent public health hazards, mitigate the impact of SSOs, basement backups and damage to property, unless under extreme conditions.
c. Minimize disruption of service and complaints.
d. Provide adequate capacity to convey peak flow and reduce or minimize infiltration/inflow into the system.
e. Conduct maintenance and repairs to prevent problems, reduce emergency repairs and extend the life of the system and assets.
f. Efficiently use Township funds to maintain infrastructure and operation of service.

1.2 ORGANIZATION

The Township of Salisbury Department of Public Works oversees the sanitary sewers and is responsible for all aspects of the wastewater collection system and appurtenances. The Township periodically reviews staffing on a regular basis and also out-sources repairs to general contractors for support and emergency repairs as needed.

1.2.1 TOWNSHIP STRUCTURE

Board of Commissioners  Elected officials who serve in a policy making roll for the Township.
Township Manager   Reports to BOC and manages all aspects of the Township’s overall operations.
Director of Public Works  Responsible for implementing and monitoring all field operations within the Township including the wastewater collection system. Leads staff and designates responsibilities.
Utility Division Supervisor  Manages filed operations and maintenance activities related to the sewer system and provides relative information to management.
Field Crew  Conducts staff operations and preventative maintenance activities, responds to emergency calls and reports directly to the Utility Division Supervisor.
Administrative Staff  Support staff operations, assist with data entry and quality control, billing, dispatch and customer issues.

1.3 TRAINING AND SAFETY

The Township of Salisbury’s training program provides a mechanism for educating employees and establishing their technical competence as well as safety awareness through on-the-job training, seminars and conferences, vendor training programs, operator certification programs and skills training for all employees.
Typical employee training involves, but not limited to:

- Routine sewer line/manhole maintenance and safety procedures
- Heavy equipment operation
- Equipment maintenance
- Infrastructure installation, trenching, and safety procedures
- Pump station/Meter station operations and maintenance
- Emergency response, public relations procedures
- Confined space entry procedures

The Township of Salisbury expects all employees to be knowledgeable and to adhere to their written safety policies and procedures of the Township and Department of Labor and Industry, Occupational Safety and Health Administration Act (OSHA) and the following:

- Confined space entry procedures. Hard hat policy, personal protection equipment policies (provided for employees) by the Township
- Vehicle and equipment operation and safety policies
- Injury reporting policy, First Aid, CPR, AED
- Excavation, trenching, safety policies and programs
- Hazardous waste/evacuation safety policy
- Maintenance and protection of traffic policies

Copies of personnel training and safety records and certifications are kept on file for each employee by the Township.

1.4 CUSTOMER SERVICE

Customer issues such as complaints or request are recorded by various means (e.g. phone calls, e-mail and in person).

Regardless of the nature of the means of receipt, all complaints and requests are logged via the administrative staff into the data base/log book and transferred to Public Works for investigation and/or action. Once the issue is addressed and/or completed, close-out information is recorded.
1.4.1 **PUBLIC INFORMATION / EDUCATION POLICY**

The Township maintains and updates their website which is used to inform utility customers of upcoming projects, access to sewer use ordinances, complaint procedures, newsletters and staff contact information.

1.5 **ASSET MANAGEMENT PLAN**

The Township uses both paper forms and electronic database to track all activities and reviews and updates the forms and spreadsheets on a regular basis.

1.5.1 **SANITARY SEWER SYSTEM MAPS AND INFORMATION TRACKING**

The Township maintains and updates their sewer system maps, showing key system assets such as locations of mains, laterals, manholes, meter stations, sewage pumping stations and force mains. A backup copy of the sewer system map is maintained and updated on the Township Engineer’s GIS system.

The Township of Salisbury collection system map information inventory includes:

- Manholes:  ID numbers, location references, depth (rim and invert) elevations, pipe size/diameter, structure material, inspection/observations for potential rehabilitation.
- Pipe information: Location, size, direction of flow, length, slope, material type, and service laterals stationing.
- Pumping stations: ID number/location, pump manufacturers, model and serial numbers, depth, discharge head (TDH), impeller size, installation date and emergency generator size, manufacturer and ID information.
- Force main: Individual map showing pipe location, size, material, fittings, elevations and correction points.
- Sewer meter stations: Locations of structures, meter type and manufacturers and flume data.

1.6 **LEGAL AUTHORITY AND CONTROL**

The Township of Salisbury has established and implemented regulations regarding the use of the wastewater collection system. The Township has comprehensive sewer ordinances in place, and as regulations and requirements have changed, the Township has updated their ordinances to address those issues. Ordinances are kept up-to-date and are available by contacting the Township.
1.6.1 **SEWER AGREEMENT**

The Township of Salisbury currently has in place agreements with the City of Allentown (COA) for the conveyance of their wastewater flows and for the treatment of the Township’s wastewater flows at the COA wastewater treatment plant at Klines Island.

The Township of Salisbury also has in place agreements with the City of Bethlehem (COB) for conveyance and treatment of that portion of their wastewater flow which is a tributary to the COB wastewater treatment plant.

The Township also maintains inter-municipal agreements for the conveyance of sewage flows from Lower Macungie Township and the Borough of Emmaus through their sanitary sewer system, as well as a conveyance agreement through South Whitehall Township.
2.1 BACKGROUND INFORMATION

The Township of Salisbury is located in the south-central part of Lehigh County and is separated into two unconnected parcels due to annexation in the early 1900’s. The Township today has a population of approximately 13,501 people and covers 11.3 square miles.

The Township of Salisbury owns, operates and maintains a sanitary sewer collection system under direct control of the Township elected five-member Board of Commissioners. The Township’s sanitary sewer system serves approximately 4,381 customers and is comprised of approximately 358,912 linear feet of gravity sewer pipe ranging in size from 8-inch to 18-inch in diameter. The sewer system utilizes two sewage pump stations and approximately 4,681 linear feet of 4”, 6” and 8-” force main to transport flow from low lying areas to the gravity mains, as well as, 335 linear feet of 1-1/2-inch low pressure sewer main (LPSS).

The majority of the developed areas of the Township are served by public sewer service. Most of the Township’s sewage is treated at the City of Allentown Wastewater Treatment Plant at Kline’s Island. Salisbury is authorized, by agreement, to use 1.99 MGD per day of treatment capacity, with the actual use averaging 1.345 MGD per day. An area in Eastern Salisbury adjacent to Fountain Hill is served by the City of Bethlehem Wastewater Treatment Plant and is authorized, by agreement, to discharge 0.225 MGD of treatment capacity, with actual use averaging 0.130 MGD.

The Township’s Public Works Staff performs planned sewer system maintenance tasks at scheduled frequencies. Frequencies are established based on experience and collection system information to minimize the risk of blockage or equipment failure that could lead to sewer system overflows.

2.2 COLLECTION SYSTEM DETAILS

- Service Area 5.4 Sq. Mi (City of Allentown & City of Bethlehem combined)
- Population Served 10,821

Township sanitary sewer system inventory:

<table>
<thead>
<tr>
<th>Length of Gravity Sewers</th>
<th>Length of Force Main</th>
<th>Number of Manholes</th>
<th>Number of Pump Stations</th>
</tr>
</thead>
<tbody>
<tr>
<td>358,912 (LF)</td>
<td>5016(LF)</td>
<td>1650</td>
<td>2 (Public)</td>
</tr>
</tbody>
</table>
2.3 AGE DISTRIBUTION COLLECTION SYSTEM

The Township of Salisbury conducts ongoing system inspections to access the structural condition and maintenance needs of the sewer system and appurtenances as part of their cleaning, TV inspection, assessment program and capital planning. The sanitary sewer system is categorized by age and size:

Age of Sewer System Components

<table>
<thead>
<tr>
<th>Age (Years)</th>
<th>Gravity Sewers (LF)</th>
<th>Force Main (LF)</th>
<th>Pump Stations</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-25</td>
<td>27,010</td>
<td>1,335</td>
<td>2</td>
</tr>
<tr>
<td>26-50</td>
<td>331,902</td>
<td>3,681</td>
<td>----</td>
</tr>
<tr>
<td>51-75</td>
<td>----</td>
<td>----</td>
<td>----</td>
</tr>
</tbody>
</table>

2.4 LENGTH OF PIPE BY DIAMETER

<table>
<thead>
<tr>
<th>Diameter of Pipe (IN)</th>
<th>Length (LF)</th>
<th>Material</th>
<th>Replacement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5</td>
<td>335</td>
<td>PVC</td>
<td>--</td>
</tr>
<tr>
<td>4</td>
<td>2726</td>
<td>CIP</td>
<td>1000 PVC</td>
</tr>
<tr>
<td>6</td>
<td>1351</td>
<td>CIP VCP</td>
<td>--</td>
</tr>
<tr>
<td>8</td>
<td>314,758</td>
<td>VCP CIP DIP PVC</td>
<td>7,394 CIPP Lined</td>
</tr>
<tr>
<td>10</td>
<td>10,586</td>
<td>VCP CIP DIP PVC</td>
<td>579 CIPP Lined</td>
</tr>
<tr>
<td>12</td>
<td>12,555</td>
<td>CIP DIP PVC VCP</td>
<td>3,035 CIPP Lined</td>
</tr>
<tr>
<td>15</td>
<td>6,439</td>
<td>CIP VCP</td>
<td>--</td>
</tr>
<tr>
<td>18</td>
<td>15,188</td>
<td>DIP</td>
<td>--</td>
</tr>
<tr>
<td>Greater Than 20</td>
<td>0</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Total</td>
<td>363,938</td>
<td></td>
<td>--</td>
</tr>
</tbody>
</table>
2.5 **SANITARY SEWER OVERFLOW HISTORY**

To assure sewer capacity the Township has developed programs to address capacity, infiltration/inflow, and condition of their collection system. These programs are described in Section 5 of this document.

2.6 **SEWER SYSTEM MAP**

An overall map of the Township’s sanitary sewer system is shown in Appendix 1. The map is updated to show the current sanitary sewer mains, manholes, and facilities.
SECTION 3
OPERATION AND MAINTENANCE PLAN

3.1 BACKGROUND INFORMATION

The Township of Salisbury in 2009 began development of a preventative maintenance plan (PMP). This includes sewer main cleaning, inspection and assessment program to evaluate the maintenance needs and structural condition particularly in the priority areas (I/I problem areas) within their collection system. The goal is to complete the sewer system assessment and rehabilitation by 2025.

The cleaning, inspection and assessment program focused on the high priority inflow/infiltration areas where known problems existed. The program includes sewer line cleaning, CCTV inspection of the sewer pipe system and visual inspection and classification of the manhole structures and flow channels. The results from the assessment program is used to categorize the cleaning and inspection frequencies and to identify the need for facility rehabilitation. This information is also used to update the Townships long-term preventive maintenance planning.

3.2 MAIN LINE SEWER CLEANING

The Township of Salisbury historically and routinely cleans various sub-basins of the collection system. The staff throughout the years of inspection, identified sewer mains that require regular or frequent scheduled cleaning to insure uninterrupted system operation. Typically, the priority cleaning areas tend to be in the older clay pipe areas, lines with flat slopes or low flow areas and restaurants where the potential for grease build up may result in a blockage. For other sections of the gravity sewer, routine cleaning is done on an as needed basis.

Manhole deficiencies are also identified and logged as a part of the sewer cleaning operations. Manholes requiring repair or attention are reported to the Utility Supervisor and added to the manhole rehabilitation schedule.

3.3 SEWER MAIN INSPECTION

The Township does not necessarily have a programed sanitary sewer CCTV inspection schedule. The TV inspection schedule is developed by the Public Works Director with input from the Utility Supervisor. The Township will outsource selected sewer areas for CCTV inspection to private contractors, by public bid, as necessary to complete or update their CCTV files.
Sewer inspections are done by closed circuit television inspection (CCTV). All sewer inspections are documented in National Association of Sewer Service Companies (NASSCO) Pipe Assessment Certification Program (PACP) standard format. The Township uses the PACP format as an internal developmental tool to evaluate and document sewer system data for their asset management assessment and to establish rehabilitation priorities.

3.4 **LATERALS**

The staff along with the Township Engineer review all the mainline CCTV tapes for lateral issues related to I/I and if necessary will develop a lateral CCTV inspection project to address and/or repair public laterals.

The Township investigates and addresses private property lateral maintenance on an as needed basis.

3.5 **MANHOLE INSPECTION**

The Township also inspects manholes on a regular basis. Typically, manholes are inspected as part of the CCTV inspection process. Manhole inspections are documented on the CCTV tapes as well as manhole inspection form. The manhole inspections are also reviewed by staff and Township Engineer as part of the condition assessment. All manhole defects are documented, evaluated and prioritized.

3.6 **CONDITION ASSESSMENT**

The CCTV inspections are used to determine the condition assessment of the sanitary sewer system assets. Information from CCTV and manhole inspection reports are evaluated to develop short and long-term maintenance and repair strategies. Based on the condition assessment review, recommendations of repairs, rehabilitation and/or replacement are developed for future consideration within the collection system. The improvements are then budgeted and scheduled for repair.

3.7 **INSPECTION OF EASEMENTS**

The Township of Salisbury regularly inspects and maintains all sanitary sewer easements in order to keep these areas clear and accessible for maintenance vehicles and equipment generally used in sewer line cleaning, CCTV inspection and emergency repairs.
3.8 INSPECTION OF CRITICAL FACILITIES

The Township of Salisbury owns, operates and maintains 15 sewage meter stations and two wastewater pump stations.

3.8.1 SEWAGE METER STATIONS

The sewage meter stations are inspected on a weekly basis for operation, maintenance and chart recorder changes by trained staff personnel. The meters are calibrated and certified for accuracy annually by an outside meter consultant.

3.8.2 SEWAGE PUMP STATION MAINTENANCE

The Township’s two sewage pump stations are routinely checked by trained staff personnel. The performance of the pump stations is monitored through weekly inspections. During these inspections, the staff reviews the pump run hours, wet well levels and alarms, and control operations. Back-up generators are exercised weekly under full load conditions and checked for proper system operations.

All inspections, maintenance and repairs are recorded in the log books at each station and with the Public Works Department. If a problem or maintenance issue is encountered, personnel report it immediately, directly to the Utility Supervisor/Public Works Director, for resolution.

3.8.3 PUMP STATION LOCATIONS

<table>
<thead>
<tr>
<th>Location</th>
<th>Description</th>
<th>Inspection Frequencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardinal Drive P.S.</td>
<td>90,000 GPD</td>
<td>Weekly</td>
</tr>
<tr>
<td>Riverside Drive P.S.</td>
<td>288,000 GPD</td>
<td>Weekly</td>
</tr>
</tbody>
</table>

Pump Station Equipment

A.) Cardinal Drive Pump Station

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pumps</td>
<td>2 - 5 HP</td>
</tr>
<tr>
<td>Flow Meters</td>
<td>1</td>
</tr>
<tr>
<td>Discharge</td>
<td>1,000’ 4” PVC</td>
</tr>
<tr>
<td>Air Release Valve</td>
<td>None</td>
</tr>
<tr>
<td>Alternate Power Sources</td>
<td>1 – Back-up Generator</td>
</tr>
</tbody>
</table>
B.) Riverside Drive Pump Station

| Pumps       | 2-10 HP |
| Flow Meters | 1       |
| Discharge   | 1,600’ 8” CIP |
| Air Release Valves | 4       |
| Alternate Power Sources | 1- Back-up Generator |

Copies of manufacturers/equipment operations (O&M) manuals are kept at each pump station site and with the Public Works Department.

3.8.4 MECHANICAL AND ELECTRICAL MAINTENANCE

Repairs to pump, motor, motor control center, valves, generator repairs and electrical issues are contracted out to specialized vendors who do that type of work. All repairs are recorded and logged by the Public Works Department.

3.8.5 FORCE MAIN MAINTENANCE

- Cardinal Drive Force Main
  The Cardinal Drive Force Main is a 4-inch main approximately 903 linear feet and the design does not warrant an air release valve. The existing 4-inch cast iron pipe was recently replaced in 2017 with PVC, C-900 Class DR14 pipe and ductile iron fittings. Maintenance at this point is not an issue.

- Riverside Drive Force Main
  The Riverside Drive Force Main is an 8-inch cast iron main approximately 3780 linear feet and was constructed with four air release valves. The 8-inch cast iron main is the original pipe since the installation of the pump station in 1971.

3.9 SEWER LINE CLEANING

The Township of Salisbury implements a main line sewer cleaning program to remove dirt and debris build-up from the mains to maintain continuous uninterrupted operation and to prevent main line blockages and potential sewer back-up or SSOs. The sewer main cleaning operation is conducted by in house staff using high velocity sewer jet cleaning truck, sewer cleaning logs are maintained on file at the Township’s Public Works Building.

The cleaning cycle is performed in conjunction with the CCTV inspection program. Sewer lines are identified to be CCTV inspected are cleaned via a high-pressure water jet cleaning equipment where necessary to remove persistent or heavy build-
up debris or grease the Township may employ outside contractors or vendors to assist with cleaning operations.

Based on the results of the CCTV inspections, the cleaning cycle may be revised to include some areas to be cleaned on a more frequent basis. All mains deemed problematic due to constant debris solids or grease build-up will be put on a list to be cleaned on a regular schedule.

### 3.9.1 ROOT CONTROL

As a result of the CCTV Inspections sewer mains experiencing moderate to heavy root intrusions are identified and scheduled to be chemically treated to limit root growth, on an annual basis. After the initial treatment, all mains are typically re-inspected and retreated on a three to four-year cycle as may be needed. All main line chemical root control is contracted to private vendors.
SECTION 4

EQUIPMENT AND TOOL INVENTORY

4.1 EQUIPMENT

To perform the daily routine sewer system operation and maintenance tasks, to respond to emergencies, prevent sanitary sewer overflows and system inspections, adequate equipment must be available to the Township field personnel. The heavy equipment owned by the Township is provided under the Public Works Department and is shared among all departments.

The Township of Salisbury owns, operates and maintains the following equipment:

<table>
<thead>
<tr>
<th>Description</th>
<th>Model/Year</th>
<th>Qty.</th>
<th>Capacity</th>
</tr>
</thead>
</table>

(SEE APPENDIX “H” FOR A DETAILED LIST OF THE TOWNSHIP EQUIPMENT)

4.2 Tools

The Township of Salisbury provides their field personnel with all the necessary work-related items and tools they may need and use on the job on a daily basis. All work-related items and tools needed or replacements are secured by the Public Works Department through the request of the Utility Supervisor.

4.2 PERSONNEL SUPPLIES (by Township)

<table>
<thead>
<tr>
<th>Description</th>
<th>Use</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard Hat &amp; Vest</td>
<td>Safety</td>
<td>Township Supplied</td>
</tr>
<tr>
<td>Work Boots/Gloves</td>
<td>Safety</td>
<td>Township Supplied</td>
</tr>
<tr>
<td>Disposable Gloves</td>
<td>Safety/Health</td>
<td>Township Supplied</td>
</tr>
<tr>
<td>Coveralls</td>
<td>Standard Issue</td>
<td>Township Supplied</td>
</tr>
<tr>
<td>Safety Vests</td>
<td>Safety</td>
<td>Township Supplied</td>
</tr>
<tr>
<td>Hand Sanitizer</td>
<td>Safety/Health</td>
<td>Township Supplied</td>
</tr>
<tr>
<td>Cell Phones</td>
<td>Communications</td>
<td>Township Supplied</td>
</tr>
</tbody>
</table>

4.4 TRAINING

The Township provides and periodically reviews all employee job safety training as well as equipment operator training, trench safety training, DEP operator
certification, confined space entry training and reporting on an annual basis. Safety training is important to the Township and is a mandatory requirement for all field personnel.
SECTION 5
CAPACITY MANAGEMENT PLAN

5.1 BACKGROUND INFORMATION

The Township of Salisbury is committed to maintaining sufficient capacity during dry weather events and to manage peak wet weather flows within their system. This includes identifying catchments or drainage basins where excess flow from I/I occurs during wet weather events.

5.2 CAPACITY

5.2.1 DRY WEATHER CONDITIONS

The Township of Salisbury, has not to date, exceeded design capacity within their sanitary collection system.

5.2.2 WET WEATHER CONDITIONS

The Township of Salisbury has completed flow studies during both dry and wet weather conditions and has identified priority I/I drainage basins. However, the Township has not experienced any SSOs as a result of any wet weather event.

The priority basins or catchments were analyzed and identified as either high priority or secondary priority areas. The Township over the past several years, has completed various I/I source removal projects in the priority areas and remains committed to continue their source removal program investigations to identify and reduce I/I in their system.

5.3 FIELD INVESTIGATION

The Township of Salisbury regularly performs various filed investigations to identify and locate I/I defects and other potential problems within the sewer system.
5.4 FLOW MODELING/MONITORING

5.4.1 FLOW MODELING

The Township of Salisbury does not currently use flow modeling to evaluate their collection system. Flow modeling may be considered as an alternative, if determined to be necessary to manage peak weather flow conditions.

5.4.2 FLOW MONITORING

The Township of Salisbury maintains 15 flow meters in various drainage basins within their collection system to evaluate flow and capacity constraints. The meters are located within individual drainage basins, at locations where the sewage flow exits the Township, and are maintained on a regular basis and calibrated annually.

Additional flow metering may be done on a case-by case basis to record and quantify the I/I rehabilitation result the sub basins or catchments.

5.5 CAPACITY CERTIFICATION/CONNECTION POLICY

All proposed subdivision and land development projects are required to submit, to the Township, a sewerage planning module, which designates the anticipated average daily sewerage flow from the proposed development. The Township will evaluate the development flow from the connection point leaving the proposed subdivision, as well as, the Township’s existing downstream sewer system for available capacity remaining in the existing sewer mains. The Township’s system does utilize neighboring sewer mains to convey the sewage to the wastewater treatment plants. All neighboring municipalities/Authorities, as well as, the WWTP, require a capacity review and sign-off to accept the proposed development flow.
SECTION 6
SANITARY SEWER OVERFLOW (SSO) RESPONSE, REPORTING, AND RECORDKEEPING PROGRAM

6.1 PURPOSE

The Township of Salisbury has the responsibility under State Law to respond, report and keep records on releases from their sanitary sewer system. The purpose of the SSO program is to prevent or reduce the environmental and/or public health impact of an SSO by providing structured guidance for release, response, compliance reporting and accurate record keeping of the SSOs. The Township ensures program compliance by:

- Correctly identifying sewage overflows
- Responding, tracking, documenting, and resolving overflows
- Reporting to appropriate governmental agencies and other affected groups
- Properly training employees who respond, report and record SSOs
- Providing emergency operations
- Meeting reporting and recordkeeping requirements

The Township reports all unauthorized release or spills of the wastewater to PADEP where endangerment of public health or the environment is likely, as soon as practical, but no later than 24-hours from the time the Township Sewer Crew becomes aware of the discharge.

6.2 GOALS AND PERFORMING MEASURES

A. SSO Response
   - Respond to sanitary sewer overflows for public and environmental protection
   - Respond within 2-hours of notification

B. SSO Release Reporting
   - Meet regulatory reporting requirements of PADEP for SSOs
   - Provide initial notice within 24-hours

C. SSO Training
   - Train employees who report, respond, and record SSOs
   - Provide the necessary training to all involved personnel
D. SSO Mapping
   - Input all SSOs into GIS data base for tracking and analysis

6.3 **CALCULATING SPILL VOLUMES**

The Township estimates or calculates spill volumes during an SSO event based on a number of parameters. The volume is dependent on the nature or origin of the spill, the method or methods used to remediate the spill, the characteristics of the area receiving the spill, the operational data available, and the actual observations of the spill.

6.3.1 **MEASURED VOLUME METHOD**

(This may take several calculations as may have to break down the odd shaped spill to rectangles, circles, and polygons)

It is important when guessing depth to measure if possible in several locations and use an average depth. Use the SSO Volume Estimated by Area Work Sheet if necessary, to sketch the shapes and show your work.

1. Draw a sketch of the spill SSO Volume Estimated by Area Work Sheet
2. Draw shapes and dimensions used on your worksheet
3. Use correct formula for various shapes

<table>
<thead>
<tr>
<th>Shape</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rectangle</td>
<td>L x W x D</td>
</tr>
<tr>
<td>Circle</td>
<td>$3.14 \times R^2 \times D$</td>
</tr>
<tr>
<td>Polygons</td>
<td>Show formula used</td>
</tr>
</tbody>
</table>

6.3.2 **DURATION AND FLOW RATE METHOS WORKSHEET:**

<table>
<thead>
<tr>
<th>Description</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Start date and time</td>
<td>1.</td>
</tr>
<tr>
<td>End date and time</td>
<td>2.</td>
</tr>
<tr>
<td>Total time elapsed of SSO event</td>
<td>3.</td>
</tr>
<tr>
<td>(Subtract line 11. From line 2. Show time in minutes)</td>
<td></td>
</tr>
<tr>
<td>Average Flow Rate</td>
<td>4.</td>
</tr>
<tr>
<td>(Account for diurnal pattern)</td>
<td></td>
</tr>
<tr>
<td>Total volume estimate using duration and flow rate method</td>
<td>5.</td>
</tr>
<tr>
<td>(line 3. X line 4.)</td>
<td></td>
</tr>
</tbody>
</table>
6.4 METHODS OF NOTIFICATION/TRACKING SPILLS/RESPONSE

The Township’s sewer overflow (spill) compliance report notes the specific details of an SSO event. A copy of the SSO compliance report is shown in Appendix “G”. Once the SSO has been neutralized, the Crew Leader completes the SSO compliance report and forwards it to the Public Works Director for review and submittal to PADEP. The Public Works Department retains the SSO compliance report on file with the Township.

During normal business hours, incoming messages are routed to the Public Works Department. The Sewer Crew Leader will gather the pertinent information to locate the spill and will notify the Public Works Director and Sewer Crew Leader for action. The Township goal is to have a crew on site within one-hour of the initial notification. After normal business hours the call will be received by the Township’s answering service and transferred to the Sewer Crew Leader who will immediately return the call to collect critical information on the incident and dispatch a field crew to evaluate the site and, if necessary, begin remediation. In addition, the Sewer Crew Leader will notify the Public Works Director. It is the goal to have a crew on site within 1-1/2-hours of the initial notification.

6.5 SPILL RESPONSE/REMEDIATION PRACTICES

The response and remediation practices taken in response of an SSO are dependent on several factors. Upon arrival on site, the Crew Leader will quickly evaluate the situation and determine an appropriate course of action and follow procedure. The Field Crew will determine the cause and make every effort to contain the spill, reduce any further damage, restore flow in the main line and document the event, including regulatory requirements.

After every gravity sewer SSO, the main line is CCTV inspected, to determine the root cause or underlying exacerbating cause for the wet/dry SSO. These results are used to determine if the main line requires a more systematic cleaning schedule or if other corrective action should be taken.

Disinfection of the spill area occurs using one of several products approved by PADEP. In the event an SSO response is beyond the Township’s in-house capabilities to respond and handle, a local contractor is called to provide emergency assistance on an as needed basis.
6.6 **EMERGENCY RESPONSE TRAINING**

The most important part of any emergency response plan includes the presence of skilled and knowledgeable crew leader and staff personnel. Township employees receive initial and periodic follow-up refresher training in emergency response skills. The attendance of staff personnel at training in these skills is recorded and kept on file with the Township. Where outside contractor assistance is necessary, on-site supervision and direction will be provided by trained Township staff.
APPENDIX

APPENDIX “A” - TOWNSHIP OF SALISBURY
SANITARY SEWER SYSTEM MAP
APPENDIX “B” - TOWNSHIP OF SALISBURY
GENERAL INFORMATION SYSTEM (GIS) DATA MAP
APPENDIX “C” – CCTV INSPECTION FORM
APPENDIX “D” – MANHOLE INSPECTION FORM
APPENDIX “E” – PUMP STATION INSPECTION FORM
APPENDIX “F” – SANITARY SEWER OVERFLOW (SSO) REPORT FORM
APPENDIX “G” – TYPICAL SEWER COMPLAINT REPORT
APPENDIX “H” – LIST OF TOWNSHIP EQUIPMENT
APPENDIX “A”

TOWNSHIP OF SALISBURY SANITARY SEWER SYSTEM MAP
APPENDIX “B”

TOWNSHIP OF SALISBURY
GENERAL INFORMATION SEWER
SYSTEM (GIS) DATA MAP
APPENDIX “C”

CCTV INSPECTION FORM
Sanitary Sewer Flushing/ Root Cutting/
TV Inspection Log

<table>
<thead>
<tr>
<th>Location</th>
<th>Date</th>
<th>Time</th>
<th>To MH</th>
<th>Section Length</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Pipe Size**

**Pipe Type**

**Special Conditions**

- Root cut line
- TV Line
- Flushed Line
- Vacuumed Manhole

<table>
<thead>
<tr>
<th>Feet/Meters</th>
<th>References</th>
<th>Observation</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

**Operator**

**Comments**

---

**DIAGRAM**

- Direction of Crawler Travel
- Direction of Flow

---

**DIAGRAM**

- Indicate with arrow head

---
APPENDIX “D”

MANHOLE INSPECTION FORM
MANHOLE INSPECTION FORM
Sanitary Sewer System – Manhole Visual Inspection

Municipality/Project: ____________________________

Date: ______________________ Time: ___________ Weather: ______________________

Inspected By: _______________________________________

Location: _______________________________________

Drainage Basin: __________________ Manhole ID No.: __________________

GPA Data

<table>
<thead>
<tr>
<th>Degrees</th>
<th>Min's</th>
<th>Sec</th>
</tr>
</thead>
</table>

GPS N: __________________

GPS WO: __________________

Exterior/Interior

Surface Cover/ Material: ______________________________________

MH Cover: __________________ MH Frame: __________________ Chimney: Brick Work/Riser Rings

Solid Low __________________ Parged Yes No __________________

Vented (# holes) High __________________ Evidence of Leakage Yes No __________________

Bolted Offset __________________ Needs Repair Yes No __________________

Watertight Inflow Dish Yes No __________________ Coated Yes No __________________

(Gasket) Possibility of Flooding Yes No __________________

Cover Condition Frame Condition __________________

Cover Diameter MH Frame Riser Yes No __________________

Manhole: __________________ MH Construction: __________________ Bench/Channel: __________________

Standard Brick Poured __________________

Splash Pre-Cast Conc. Pre-Cast Conc. __________________

Drop Other __________________

Base Section Pre-Cast Doghouse __________________

Rungs:

Material: Rebar Aluminum Reinf Plastic Other __________________

Condition Good Fair Poor Plastic Missing __________________

Infiltration Conditions (Leakage) Complete Manhole – Frame, Corbel, Wall Sections Base & Bench

Observed Yes No Location __________________

Possibility Yes No Location __________________
Manhole Sketch:

Pipe Size / Material: ____________ Effluent

Photo Documentation:
Exterior

Interior

Remarks:

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________
APPENDIX “E”

PUMP STATION INSPECTION FORM
## PUMP STATION MAINTENANCE LOG

<table>
<thead>
<tr>
<th>MONTH:</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE:</td>
<td>INSPECTED BY:</td>
</tr>
</tbody>
</table>

### WET & DRY WELL
- Clean Wet Well Basket
- Aeration System Working
- Ventilation System/Lights
- Sump Pump Operable
- Dehumidifier Operable
- System Alternating Properly
- Pump Operating Properly
- Any Evidence of System Leakage
- Pump Control Operating Properly
- Clean Pump Seal Filters
- Flush Filters
- Check Pump Temperature
- Check Pump & Valve Stem packing
- Operate All Valves
- Check Bubbler System/Filter
- Bleed Air Compressor
- Bleed Pumps
- Back Flush pumps 1X per month
- Record Suction psi Pump #1
- Record Suction psi Pump #2
- Record Discharge psi Pump #1
- Record Discharge psi Pump #2
- Record Discharge psi Both Pumps

### SERVICE BUILDING
- Check oil level
- Check all belts
- Check battery water
- Check chatterbox-status-switch (able)
- Record hour meter reading
- Check surge arrestor-Chatterbox
- Check surge arrestor main
- Record fuel guage indication
- Check alarm
- Check phone system
- Check crankcase heater
- Check building temp & Blding heat
- Check Zyme Flow System
- Check "ISCO" METER FLOW

### TEST EMERGENCY POWER SYSTEM
- Generator operates when switch is on "TEST"
- Yellow operating light active when generator on

### ATMOSPHERIC SAMPLING ON ENTERING CONFINED SPACE

<table>
<thead>
<tr>
<th>DATE</th>
<th>TIME</th>
<th>DISCRIPTION OF AREA</th>
<th>OXYGEN TEST RESULTS</th>
<th>COMBUSTABLE GAS RESULTS</th>
<th>TESTED BY</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
**Pump Service Building:**

- Dehumidifier
- System Alternating Properly:
- Pump Operating Properly:
- Any Evidence of System Leakage:
  - Check Pump Temp #1
  - Check Pump Temp #2
  - Check Pump Temp #1
  - Check Pump Temp #2
  - Check Oil Level Pump #1
  - Check Oil Level Pump #2
  - Check Suction Gauge #1
  - Check Suction Gauge #2
  - Check Discharge Gauge #1
  - Check Discharge Gauge #2
  - Air Meter Reading Pump #1
  - Air Meter Reading Pump #2
  - Check Air Release Valves (Grease)
  - Building Temp
  - Check Surge Arrestor (Chatterbox)
  - Check Surge Arrestor (Main)
  - Check Surge Arrestor Sub Main
  - Check Phone System
  - Check Isco Meter
  - Check Aerator System
APPENDIX “F”

SANITARY SEWER OVERFLOW (SSO) REPORT FORM
# Self-Reporting Form for Wastewater SSOs/Bypasses

## REPORT OF SANITARY SEWER OVERFLOW (SSO) OR WASTEWATER TREATMENT PLANT BYPASS

### FACILITY INFORMATION

<table>
<thead>
<tr>
<th>PERMITTEE (MUNICIPALITY/DISTRICT &amp; PLANT):</th>
<th>PERMIT NUMBER:</th>
</tr>
</thead>
<tbody>
<tr>
<td>COUNTY:</td>
<td>PHONE NUMBER:</td>
</tr>
</tbody>
</table>

### SSO OR BYPASS DETAILS

<table>
<thead>
<tr>
<th>a. Street Address/Landmark/Cross Street:</th>
</tr>
</thead>
<tbody>
<tr>
<td>b. Complaint Name/Telephone #:</td>
</tr>
<tr>
<td>c. Start Date &amp; Time</td>
</tr>
<tr>
<td>d. Total Time:</td>
</tr>
<tr>
<td>e. Contact Date &amp; Time</td>
</tr>
<tr>
<td>f. Weather Conditions/Precipitation Data</td>
</tr>
</tbody>
</table>

#### g. Categories of SSO

- [ ] Vandalism
- [ ] Infow & Infiltration
- [ ] Rain Inches ______
- [ ] Power Outage
- [ ] Plugged Sewer
- [ ] Manhole location # ______
- [ ] Broken Sewer
- [ ] Equipment Failure
- [ ] Widespread Flooding
- [ ] Other

#### h. Categories of STP Bypass

- [ ] Head Works
- [ ] Primary Basins
- [ ] Aeration/Biological Treatment
- [ ] Clarifiers
- [ ] Digester
- [ ] Solids Handling/Drying Beds
- [ ] Other

#### i. Strength of SSO/Bypass:

- [ ] Raw (Dry weather SSO or Influent)
- [ ] Partially Treated Bypass or Wet weather SSO)

Was sampling performed?  

<table>
<thead>
<tr>
<th>yes</th>
<th>no</th>
</tr>
</thead>
</table>

Type of Samples Taken:  

- [ ] BOD
- [ ] TSS
- [ ] Fecal
- [ ] Ammonia
- [ ] DO
- [ ] Other

### WATERCOURSE INFORMATION

<table>
<thead>
<tr>
<th>a. Name of Receiving Stream:</th>
<th>Length Affected:</th>
</tr>
</thead>
<tbody>
<tr>
<td>b. Discharge Course</td>
<td></td>
</tr>
</tbody>
</table>

- [ ] Runs on ground and absorbs into the soil.
- [ ] Ditch. Name of surface water it drains to: ________________________
- [ ] Storm sewer. Name of surface water it drains to: ________________________
- [ ] Surface water direct discharge: ________________________
- [ ] Other, describe: ____________________________________________

### CORRECTIVE ACTIONS/CLEAN UP

| a. [ ] Flushing | [ ] Removing | [ ] Chemical Application | [ ] Other: |

---

*Note: The form includes several detailed sections for reporting specific details about the event, including dates, times, categories, strengths, and corrective actions.*
b. Describe detailed actions taken to correct & clean up the SSO/Bypass and any follow up actions:

CLEAN UP PREFORMED BY:

<table>
<thead>
<tr>
<th>REPORT PREPARED/SUBMITTED BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME (PRINTED):</td>
</tr>
<tr>
<td>SIGNATURE:</td>
</tr>
</tbody>
</table>

NOTE: Any SSO, bypass or shutdown of a wastewater treatment facility and/or tributary sewer system, is prohibited unless necessary to prevent loss of life, personal injury or property damages. The Continuing Authority is required to notify the Department of Natural Resources by TELEPHONE or FAX by the next business day of any SSO or bypass, and to follow with a written report within 5 business days.
APPENDIX “G”

TYPICAL SEWER COMPLAINT REPORT
Sewer Complaint Report

Complaint #

Date of Report: ____________________________

Received by: _______________________________

Issuer of the Complaint: ____________________________

Contact Number:

(home) ____________________________ (cell) ____________________________

Physical Location: ____________________________

Complaint:

__________________________

__________________________

__________________________

__________________________

__________________________

__________________________

Signature ____________________________
APPENDIX “H”

LIST OF TOWNSHIP EQUIPMENT
APPENDIX “H”

Assessment of Equipment Available

1. John Deere 524K 4WD loader
2. John Deere 310SK loader/backhoe
3. John Deere 310SG loader/backhoe
4. Sterling Flush truck
5. Power Vision CCTV trailer
6. Six single-axle dump trucks
7. Two ten-wheel dump trucks
8. Four F-550 dump trucks
9. Three pick-up trucks
10. Five utility trucks
11. Two Pelican street sweepers