

Wastewater Collection

in the City of Montgomery, Alabama



Published by Montgomery Water Works & Sanitary Sewer Board



Engineering Services

There are a number of programs in place to provide technical support to operation and maintenance activities.

Pump station capacity and efficiency monitoring

Yearly or as needed tests are performed at each pump station to calculate the efficiency and capacity of each pump to determine when pumps need to be upgraded.

Trunk sewer capacity monitoring

Flow meters are used to monitor each trunk sewer. Information gathered is compiled into a report used as the foundation for replacing sewer mains in order to ensure future capacity needs are met.

Infiltration and inflow studies

These studies provide flow information during a variety of conditions to determine actual current capacities and the impact on the system of new development projects and anticipated growth.

Odor control assessment

When an odor is reported, possible sources and causes are evaluated. Based on the evaluation, the recommended solution is implemented.

Development of projects for the Capital Improvement Program

Based on the projections of future needs and referrals by operation supervisors, new improvements are planned, designed and constructed.

Assessing & Maintaining the Collection System

Private Lateral Management System

Smoke crews identify stormwater inflow sources on private lateral connections in a comprehensive program initiated to find and remedy the problems with inflow across the Board's vast collection system. Property owners are notified and asked to repair problems like missing clean-out caps, broken lateral pipes, and direct storm drain connections. Sanitary sewer main, manhole and stormwater conveyance system problems are identified at the same time and assigned to repair crews. Eliminating these stormwater inflow sources saves the Board millions of dollars on capital improvement projects to increase the size of the conveyance system and treatment plants.

Inspections

Regular inspections of pipelines, pump stations and manholes are the first line of defense in the effort to keep the wastewater collection system running smoothly. Pipeline inspection crews check the integrity of manholes and look for indications of pipeline problems such as slow flowing mains, evidence of structural deterioration or the presence of grease, roots or debris. Pump station inspection crews monitor the pump stations and check for indications of any problems.

Video Inspection

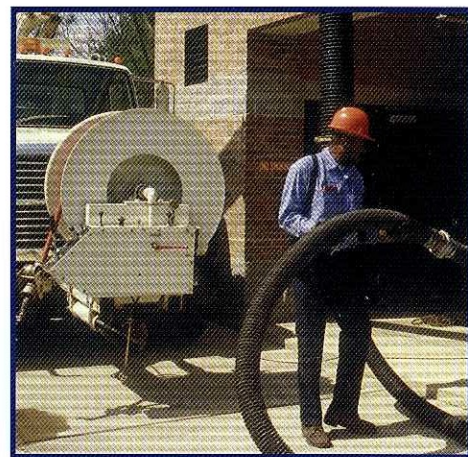
If a pipeline shows evidence of structural deterioration, or if the extent of potential problems cannot be determined by a physical inspection, a video inspection may be undertaken. Based on the findings of the video inspection, the decision can be made to clean or repair the pipeline and to prioritize the work that needs to be done. Once the work is complete, video inspection may also be utilized to ensure the pipeline was returned to working order.

Preventive Maintenance

In addition to the regular pipeline inspections, the Wastewater Collection Division provides for the ongoing preventive cleaning of the collection system pipelines, including system-

wide routine cleaning and high frequency cleaning of pipelines that have been identified as having the potential for repeat stoppages.

Scheduled pump station maintenance is performed by designated maintenance crews, each assigned certain pump stations to maintain on a daily basis. The scheduled cleaning of pump station wet wells is performed by special crews that enter wells to remove accumulated sand, grit and debris that may damage pumping equipment. This is accomplished with the use of a machine that is similar to a large vacuum cleaner. In addition, some pump stations receive an application of a microbe-based solution that consumes grease to reduce or eliminate grease clogs in the incoming mains, wet wells and pumps.



Inspection and cleaning of all pump station components are part of the Wastewater Collection Division's pump station maintenance program

A Proactive Response Plan

The goal of the Wastewater Collection Department is to operate an efficient and effective wastewater collection system with as few avoidable spills as possible. The staff's task is to overcome the obstacles that are a part of virtually every wastewater collection system including grease, roots, rocks, debris and vandalism.

Grease Control

Grease is a typical component of sewage. However, problems develop when grease, oils and soaps cool and solidify to form a coating or deposit on the walls of the pipeline, thus restricting flow and creating blockages in the line. Grease discharges resulting in sewer spills are principally attributed to restaurants and high-

density residential areas. When grease is found during a routine inspection or cleaning, the appropriate cleaning crew is dispatched to clear the pipeline. The pipeline may also be added to the high frequency cleaning list. In addition, staff from the Pre-Treatment Enforcement Group may be alerted. The Pre-Treatment program requires commercial and industrial food preparation facilities to obtain wastewater discharge permits and install and maintain grease pretreatment equipment. The Pre-Treatment Enforcement Group reviews pretreatment plans, performs inspections, and provides training on procedural changes that will prevent grease and oil from being discharged to the collection system.

Rocks can find their way into the system through construction damage, collapsed and damaged mains, illegal dumping and vandalism. Debris such as lumber, rags and plant material is also illegally disposed through sewer mains and manholes. Routine monitoring, inspection and cleaning of mains and manholes has proved most effective to assure that rocks and other debris are not accumulating in the sewer system. If an inspection shows the presence of debris, a crew is dispatched to remove the items from the system because rocks and other debris frequently wash downstream and create problems at other locations. If a nearby manhole was the target of intentional vandalism a crew is dispatched to secure the manhole.

Pump Stations

If a pump station inspection indicates some type of malfunction, a technical crew is dispatched to make the necessary repair, including the overhaul of all pumps, valves and components within the pump station. There are also electrical support crews that provide technical support for pump station electrical controls and systems when an electrical irregularity is observed.

Terms to Know

Lateral: A small pipeline, 4 inches and larger in diameter, running from a home or business to a larger pipeline in the street.

Main: The larger collection pipeline, 8 to 15 inches in diameter, running down a street. The main is fed by numerous laterals.

Trunk Sewer: An even larger pipeline, 16 inches in diameter and larger, which is fed by numerous mains.

Interceptor: Very large pipeline, up to 78 inches in diameter, that collects almost all the wastewater in the City for conveyance to the regional treatment system.

Pump Station: A facility located in low-lying areas to push the wastewater along to higher elevations.

Force Main: A pressurized pipeline that conveys the wastewater to another force main or gravity sewer.

Gravity Main: A pipeline that uses gravity to convey wastewater.

Wet Well: A holding tank located within a pump station.

Storm Drain: Part of a separate system that collects street runoff for conveyance to bodies of water.

Quick Facts

Sewer pipelines:

1,116 miles

Diameter:

4 to 78 inches

Pipe Materials:

concrete, clay, ductile iron or polyvinyl chloride (PVC)

Pump Stations:

53

Service connections:

78,100

Manholes:

23,000

Population served:

230,000

Service area:

180 square miles



Although grease is a typical component of sewage, it can build up and cause blockages. Video inspection provides pipeline maintenance crews with a view of the inside of pipelines and the ability to detect problems such as the grease that is collecting on the sides of this pipe.

Root Control

Roots enter the sewer system through joints and manholes to reach the water supply and nutrients afforded by sewer mains. As the roots grow, they can eventually cause separation of pipeline joints and crack or break sewer mains. Most known root problems are addressed with an accelerated cleaning schedule. Although this is effective, it lasts for only a short period of time, since the roots continue to grow back. An additional method of control is through the application of a chemical foam to the problematic mains. This treatment does not harm the plant itself but merely destroys the roots inside the main. This has proved to be the most effective method of treatment for the worst cases of root intrusion.

Control of Rocks, Debris and Vandalism

Various sizes of rocks and chunks of concrete can enter the collection system and cause immediate blockages.



Roots, such as these found during a pipeline video inspection, can grow into pipes through joints and manholes and cause damage to the pipe. An aggressive program is in place to find and remove roots.

Responding to Spills

When spills do occur, there are strict procedures in place to contain, cleanup and report them as quickly as possible. The Water Works Board has a Sewer Overflow Prevention Plan and a Sewer Overflow Response Plan to prevent or minimize the potential of sewer spills as well as minimize their volume and impact if they should occur. All operation, maintenance, repair and related support functions are available twenty-four hours a day, seven days a week. When a spill



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Frequently Called Numbers

General Information
(334) 206-1600

*To Report a Sewer Overflow
or Water Line Break*
(334) 206-1753 or
(334) 206-1754

*Questions About Your Water
or Sewer Bill*
(334) 206-1600

is reported, a crew is immediately dispatched to the scene to contain and cleanup the spill. A report is filed with the Alabama Department of Environmental Management within twenty-four hours. The conditions causing the spill are immediately evaluated and the appropriate remedial action is taken.



Making an Environmental Commitment...

Wastewater Collection

The Montgomery Water Works and Sanitary Sewer Board wastewater collection system is a complex system of pipelines and pump stations that collects wastewater from almost every home and business in the City of Montgomery. The wastewater is then conveyed through the Sewer System for treatment and disposal at one of our three wastewater treatment plants. The Wastewater Department is responsible for the operation, maintenance and repair of this system of pipelines and pump stations.

Wastewater Treatment

The Board's Sewer Treatment Facilities treat and dispose of wastewater generated by over 230,000 people in a 180 square mile area. The treatment and disposal of the wastewater is accomplished at the Towassa Wastewater Plant, 3 MGD; Catoma Wastewater Plant, 35 MGD; and the Econchate Wastewater Plant, 21 MGD.

Watershed Management

Board Management initiated efforts to involve members from all areas of the community in developing a plan to protect the waterways in the community and downstream from

pollutant sources. Participating in this Watershed Management Program are representatives from local government, commercial and industrial organizations, the agricultural community, environmentalist groups, educators, and many others. The ultimate goal of the group is to educate everyone regarding their responsibility in keeping our waterways clean and help initiate cleanup practices.

Storm Drains

Storm drains in Montgomery are not a part of the wastewater collections system. This is an important distinction because it means that materials emptied into storm drains do not go to a wastewater treatment facility. Whatever enters the storm drain system from City streets, such as oil from automobiles and fertilizers from yard runoff, empties directly into the nearest body of water, such as the Alabama River, Tallapoosa River, or Catoma Creek.

Planning for the Future

Rehabilitation and new construction are an important part of a comprehensive plan for the wastewater collection system. Based on information gathered while monitoring for capacity limitations and deterioration, new improvements are planned, designed and constructed. Since 1991, approximately \$175 million has been spent to maintain and upgrade the wastewater treatment and collection system.

What you can do to help

Prevent clogs!

Put grease in the trash, not down the drain.

Keep roots out of your pipes!

Don't plant trees over a sewer line.

Stop spills!

Don't put debris into manholes

Limit Inflow

Cooperate with Board staff when lateral problems are identified.

If you see, hear, or smell something you think might be a sewer spill, report it immediately!!

Be prepared to describe the location and the nature of the problem.