



Wastewater Inflow Abatement Technologies & Services



SMOKE TESTING

Smoke Testing

Smoke testing of all collections systems may affect occupants of buildings connected to the line being tested. Defects in the sewer system of buildings, dry traps, defective wax beneath toilets, terminated vents or breaks, missing or unsealed cleanouts of any kind will cause smoke to enter the building. It is imperative to avoid a public relations problem caused by panic or alarm if workers or residents suddenly see smoke in their building.

Adequate preparation plus notification of all residents by door hanger a minimum of 48 to 72 hours in advance of smoke testing shall be the responsibility of USSI.

It shall be the responsibility of USSI to provide adequate notification to the fire department, police department, and emergency services of the anticipated smoke testing schedule and to notify the departments at the start of each day in an area to avoid the departments diverting their attention to false alarms caused by smoke testing.

It shall be the responsibility of USSI to ensure that all operators who participate in the smoke testing be fully trained and briefed in the handling of residents and business owners who discover smoke in their buildings or in their yards.

It shall be the responsibility of USSI to ensure that all operators involved in smoke testing be trained that any smoke in a building is an indication of sewer gases from the sewer entering the building and to advise the homeowner that immediate action to correct the problem is needed for the health and safety of the building occupants.

Florida
Administrative
Code: Rule 62-600.705
says you must have a
5-year planning horizon
to reduce I & I into a
wastewater collection
system.

MINIMUM
5% a year
- or -
25% over 5 years
- and -
Reporting to DEP
annually

Evaluations and assessments may be made using one or more investigative techniques such as camera inspections, **smoke testing**, data analytics, flow isolation, focused electrode leak location, **direct observation**, and sonar imaging, water chemistry, and solids analysis, or flow monitoring.



USSI was established in 1999 with the express purpose of eliminating rainwater inflow into the wastewater collection systems. We have developed the AIIM program which provides unique products, procedures and systems.

When rainwater is prevented from entering the front end of the collection system, the AIIM program reduces overflows and spillages by increasing sewer capacity. The AIIM program is not only effective in preventing "Inflow" but it is also cost effective.



SMOKE TESTING

Technical Specifications



Operation

At the start of each operation, the smoke blower will be located over the manhole. (Smoke testing will not be conducted on windy or wet days). The blower will be started and liquid smoke will be employed. As soon as the liquid smoke has been blown into the manhole, the operators and recorders shall be instructed to move out according to prearranged plans to canvas the area affected by the smoke testing.

Observers will look for smoke rising from the ground that may indicate:

- The sources of entry into the collection system of surface waters (surface inflow) on both public and private property. This includes catch basins, storm sewer and/or retention pond defects
- The sources of entry into the collection system of illegal connections on both public and private property such as downspout connections or industrial connections, yard drains, and/or cooling water
- The sources of entry into the collection system due to broken or missing cleanouts
- Lost manholes
- Breaks in the main sewers or laterals that leach to the surface

Observers will pay particular attention to smoke rising around the foundation of the house where the service pipe likely enters the building.

Recording

USSI uses our own proprietary 25 point digital report while documenting every private and public defects found. These electronic means shall embed the collected information directly into the file of each defect to avoid recording errors.

To accomplish this, the observers will:

- Record the street address
- Record the GPS coordinates
- Record a digital photograph of the event
- Provide specific notes to permit follow-up activity

- Recorded through USSI's Advanced Web-Based Reporting to provide detailed map and report to owner with locations and call outs for each defect
- Paint a mark on the street, using green temporary marking chalk, to assist the city in finding defects for follow-up activity

Reports will be available to the client within 48 hours in digital formats PDF, KML, CSV, XLS and Shapefile. Online reports will made available and downloadable through USSI's website using a personal login and password.

Result Reporting

USSI shall document each case of improper entry or damage to the collection system and provide best case estimate as to the flow and cost incurred by the owner as a result of the defect. To accomplish this, the observers will:

- Record the type of defect
- Record the severity of the defect
- Record the topography influencing the defect
- Record the volumes of smoke emanating from the defect

USSI shall apply the recorded information to generate a detailed report to the owner which will:

- Estimate the amount of gallons entering the various defects per one inch rain fall
- Estimate the amount of gallons entering the smoked area per one inch rain fall
- Estimate the cost to process the inflow entering the various defects per one inch rain fall
- Estimate the cost to process the inflow entering the smoked area per one inch rain fall
- Provide a detailed estimate of the percentage of inflow and cost to process the inflow, broken down into four categories:
 - i. Lift station
 - ii. Chimney Sections
 - iii. Ring and Cover
 - iv. Laterals