Frequently asked questions and answers about Smoke Testing

1. What is the purpose of Smoke Testing?

A wastewater system or sanitary sewer system is designed to transport wastewater to a treatment facility. In dry weather it usually does so without issue. However, in wet weather storm-related runoff may leak into the sewer system, resulting in an increased volume of flow the system wasn't designed to handle.

This situation is called inflow and is the process of storm water runoff getting into the sanitary sewer system.

Storm water entering into the sewer system from a manhole, at left, and from a defect inside a pipe, at right.

Inflow such as depicted here can result in an overburdening of the sanitary sewer system, which may result in Sanitary Sewer Overflows (SSOs).

Smoke testing is one of the best cost-effective ways to locate defects in the main sewer line and service lateral that connects to a residence. This is why many cities and municipalities implement smoke testing programs as a cost-effective method to assess the condition of sanitary sewer systems.

2. What is a Smoke Test?

High-capacity blowers are used to pump smoke into a manhole (left photo). In the right photo, smoke is pushed into the system and emerges from cracks in the sidewalk and at a downstream manhole.

Smoke testing is the process of injecting artificially produced smoke into a blocked off pipeline segment to see where the smoke emerges. If the sewer is in good condition, then the forced smoke will emerge from manhole lids along the line and house vents on the roof. If the line has defects, the smoke will find the break and try to escape through the break.

It is not unusual to see plumes of smoke issuing up from peculiar places, such as cracks in the street or in residential yards during smoke testing.

A three or four-person crew will conduct the tests. Each crew member will have proper identification and use well marked vehicles.

While the smoke is being injected into the sewers, crews fan out around the smoke test area to observe and flag the places smoke escapes. Technicians document and/or mark up the location(s) where defect(s) were found for repairs.

3. Is the Smoke Hazardous?

The smoke utilized during smoke testing is LiquiSmoke™ and is commonly used in the industry. The smoke is not harmful to you, your pets, or house plants. It will not harm or stain clothes, drapes, or furniture. It is not flammable and does not create a fire hazard.

While the smoke is not considered harmful, it is recommended to avoid prolonged periods of exposure. If smoke appears from a drain inside your residence, open windows and ventilate well to dissipate the smoke.

4. Will I have smoke coming into my house?

Probably not, but it is possible that smoke could enter a residence through a drain trap which has dried out or some other plumbing defect such as an un-trapped washing machine drain, cracked pipe, garbage disposal or dishwasher not installed correctly.

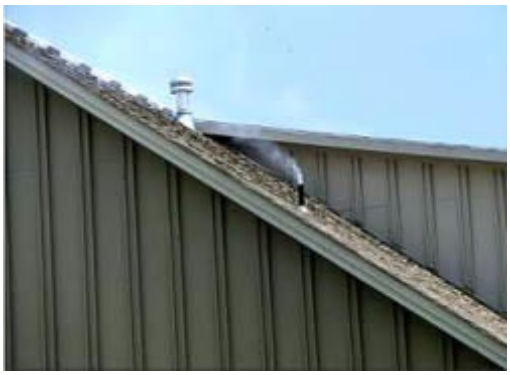
Note that if smoke can enter your home, then dangerous sewer gases can also.

If smoke gets inside of your home, locate one of the smoke testing crew members and they will assist you in locating where the smoke entered your home.

5. I see smoke in my front yard and venting out my neighbours' roof.

That may indicate a break or other defect in the sewer line.

In these photos, a defect in an underground sewer pipe is allowing smoke to escape up through the ground.



Roof vents are where the smoke should be released or seen. This is good!

However, smoke doesn't always originate at the spot the smoke plume emerges.

Sometimes smoke will escape through a defect in the sanitary sewer line, then travel or migrate along the pipe until it finds a way to rise to the surface.

6. I don't see any smoke at all!

This may be good.

If the sanitary sewer line is in a state of good condition, the smoke will migrate along the sewer network and appear at a distant manhole or some other area. Technicians expect to observe smoke, such as a sewer vent pipe on top of a residence, but in some cases the smoke doesn't reappear at all.

Since it has to go somewhere, then a process of investigation and research begins to try and determine where the smoke is ending up.

7. Should I do anything to prepare?

During smoke testing, field crews force smoke into the sanitary sewer. The possibility exists for smoke to enter a residence due to infrequently used drains or a defect in the sewer pipes.

A drain trap is the S-shaped curvature or elbow in the pipe typically found under sinks. It exists to capture and hold water in the trap's curve.

This water in the trap creates a type of seal and blocks gases from rising up through the drain and into the home. This trap will also keep the smoke from entering your home. A dry drain trap could be found in drains which are not used regularly, and the water has evaporated.

Water should be run in these isolated areas monthly to maintain the drain seal in proper operating condition.

8. Do I have to be home when smoke testing is being performed?

Homeowners do not need to be home and at no time will a field crew member need to enter your home.

9. Can the smoke activate the smoke alarm?

Yes, smoke alarms may be activated during smoke testing if some enters your home. If it does, open windows and doors for ventilation. If you are not sure or have any doubts about the smoke, call 911.

10. I am not going to be home, but I have pets in the house. What should I do?

The smoke is not harmful to pets, but you can place your pet in an area of the home that has no plumbing, or leave windows cracked for good ventilation. If your plumbing is properly connected and all the drain traps are seals, there should not be any problems.