

Public Information for Smoke Testing Program

The Ridgefield Water Pollution Control Authority is initiating smoke testing in Sewer District 1 which will begin in September 2013

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As part of the recently initiated Phase 1 Wastewater Facilities Plan, the Ridgefield Water Pollution Control Authority (WPCA) will be conducting a smoke testing program to identify sources of leakage in the sewer system. Infiltration and inflow (I/I) add flow to the wastewater collection system which is conveyed to and treated at the South Street Wastewater Treatment Facility (WWTF). Sewers that are in poor condition can lead to I/I which increases the cost of treating wastewater as well as result in capacity issues, sewer backups, and sewer system overflows (SSOs). The Town has made significant efforts in the recent past to identify areas of the collection system that are in poor condition through visual inspections, TV inspections and flow metering. Unfortunately, the condition of the collection system is always changing and continues to degrade as time passes. It is important that the assessment of the collection system be an ongoing program so that problem areas can be identified and rehabilitation efforts be performed to keep pace with or to stay ahead of the development of new I/I sources.

During periods of high groundwater and heavy precipitation, the Town experiences high flows in the wastewater collection system. As part of proactively addressing I/I, the Ridgefield WPCA is implementing a smoke testing program. Smoke testing is an effective way to locate and identify problems and defects in the collection system that can contribute to SSOs and decrease the existing capacity and efficiency of the collection system infrastructure.

Stacey DePasquale Engineering, Inc. (SDE), under contract to our consulting engineer, AECOM is currently working with the Ridgefield WPCA to implement the smoke testing program. Below is a contact list.

Contact	Role, Affiliation	Phone Number
Lucas Chapman	Field Crew Leader, SDE	978.854.3142
Stacey DePasquale	President, SDE	978.273.3307
Alberto Angles	Project Engineer, AECOM	781.224.6405
Diana VanNess	Administrator, Ridgefield WPCA	203.431.2734

Public Notification

In the weeks preceding the smoke testing public notices will be published in the Ridgefield Press. This will be followed by the distribution of flyers to all affected residents and commercial properties.

Public door hanger notification for smoke testing of sanitary sewer lines in the smoke testing area will be distributed to residents and commercial areas approximately 24-72 hours prior to field investigations.

The door hanger will describe the pending smoke testing efforts and what should be done in advance to minimize smoke from entering buildings. Residents do not need to be home during the testing. Contact information will be provided on the door hanger in the event smoke does enter a building.

Neighborhoods to be tested will be published monthly on this project website at the [Smoke Testing Area Schedule link](#). Residents are encouraged to use the links on this site to learn more about smoke testing.

During testing, crews will seal off segments of the sanitary sewer and push smoke into the sewer pipelines with smoke blowers. Materials used to generate the smoke are **non-toxic, harmless, virtually odorless, and do not create a fire hazard.**



Typical smoke testing blower and smoking defect.

Should smoke enter your home, the room should be promptly ventilated through an open window or door. Visit our [Public Preparation link](#) for additional information.

General goals of a collection system I/I reduction program are to find and reduce defects in the wastewater collection system, reduce operating costs, help control wet-weather flows, eliminate future wastewater overflows and backups, and aid in infrastructure improvement and rehabilitation.

Eliminating wet-weather induced problems helps reduce costs of potential future relief sewer construction and protects the health and well being of the public and the environment.

Public Preparation for Smoke Testing

The smoke that you may notice rising from the vent stacks on house roofs or from holes in the ground is: **NON-TOXIC, HARMLESS, VIRTUALLY ODORLESS, AND CREATES NO FIRE HAZARD.**

Smoke should not enter into buildings unless leaks or plumbing defects exist. However infrequently used drains may permit smoke to enter. Please make sure that the drain traps for seldom-used drains, sink traps and other plumbing fixtures have water in them by pouring water into each drain. This will add moisture to drains that are not often used. Drains can be prepared as soon as notification has been issued for smoke testing in the area. Preparation procedures only need to be performed once before smoke testing in the area begins. Residents do not need to be at home during smoke testing.

Note that it is possible that smoke could also enter your building around a faulty wax ring seal at the base of toilets. Should smoke enter a building there is a chance that the smoke will set off an active smoke alarm. The room should be ventilated through an open window or door.

Acute exposure can cause irritation of the respiratory system. Leave the area and ventilate well to dissipate the smoke. If smoke does enter the building, notify a member of the crew performing the smoke testing and the crew will investigate the source.

FAQs

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FAQs

What is the purpose of Smoke Testing?

The Ridgefield wastewater collection system or sanitary sewer system is designed to transport wastewater to the 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 infiltration (I/I). I/I is the process of groundwater and storm water runoff getting into the sanitary sewer system.



Inflow entering the sewer system through a manhole.



Infiltration entering the sewer system from a pipe defect.

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

Not only do cracks, leaks, and defects in the sanitary sewer line allow I/I to enter, but blockages and maintenance problems within the pipes can also hamper the flow. These blockages could be attributed to vegetation roots, offset pipe joints, and even broken or collapsed pipe.

Although above ground problems, such as SSOs, are indicative of an existing problem somewhere within the sewer pipes, locating that problem can be challenging. A smoke test is one of the best ways to locate and mark breaks and defects in a sewer line. This is why many cities and municipalities implement smoke testing programs as a cost-effective method to assess the condition of collection systems.

Much of our nation's infrastructure is aging and deteriorating rapidly. In older parts of Ridgefield, entire segments of sewer networks have been around for decades. Some even date back to the early 1900's.

What is a Smoke Test?



High-capacity blowers are used to pump smoke into a manhole.



Smoke is pushed into the system and emerges from cracks in the sidewalk

A smoke test is the process of injecting artificially produced smoke into a blocked off pipeline segment to see where the smoke emerges. The test is performed by injecting opaque-colored smoke into an isolated sewer with specially designed blowers. If the sewer is in good condition then the forced smoke will emerge at the other end of the line or through vent pipes on building roofs. However, if the line has defects, the smoke will find the break and try to escape through the break.



Smoke emerging from a defective sewer lateral beneath a lawn.

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.

Traffic is controlled and a blower is placed over a manhole on the line to be tested. Smoke is then injected into the sewers.

While the smoke is being injected into the sewers, crews look around the smoke test area to observe and flag the places smoke escapes. Technicians document the locations of defects with digital photos and diagrams so defects can be analyzed later and ultimately repaired.

Is The Smoke Hazardous?

The smoke utilized during smoke testing is hydrated zinc chloride and is commonly used in the industry.

"Superior Smoke can be used without hazard if applied as directed. The main effects of the smoke are some minimal irritation of the throat and an awareness of an odd odor. These effects act as a warning and are desirable to prevent voluntary overexposure." Material Safety Data Sheet (MSDS)

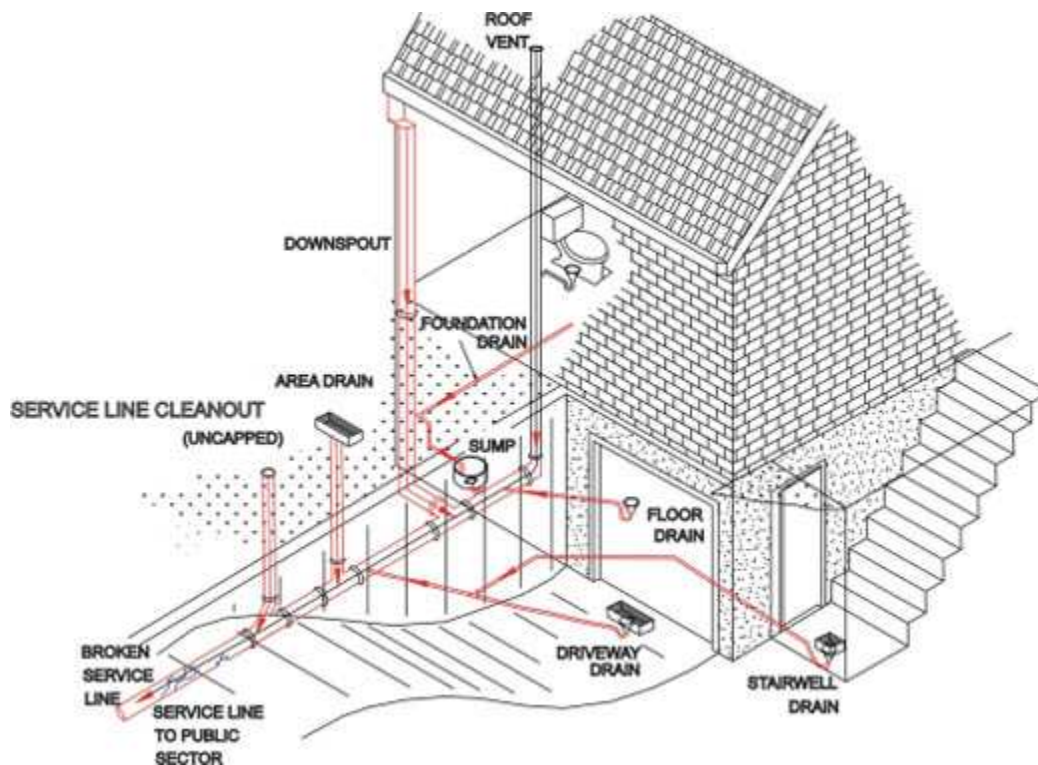
While the smoke is not considered harmful, it is recommended to avoid prolonged periods of exposure. If smoke appears from a drain inside your residence, open windows and ventilate well to dissipate the smoke. Please do not call the Fire Department, but notify a member of the crew performing the smoke testing and the crew will investigate the source.

Will I have smoke coming into my house?

It is possible, although rare, 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.

Private properties may have several connections to the sanitary sewer system such as downspouts, floor drains and sump pumps. If these become clogged or blocked, they could cause problems.

Additionally, defects can allow toxic fumes and wastewater to seep up into the residence itself.



Typical private property connections to the sanitary sewer system.

I see smoke in my front yard!

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.

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.

I don't see any smoke at all!

This may be good.



Smoke emerging from roof vent.

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 where the technician expects to observe smoke, such as the 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.

Is anyone going to call on me?

The Town, through their engineering consultant AECOM or their subcontractor SDE, may need to contact property owners to secure permission to inspect around the property.



A technician checks the drainage features of a private residence.

Additionally, technicians may need to identify features of a building's drainage system such as downspouts, area drains, service laterals or sump pumps.

Technicians carry appropriate identification and use clearly marked vehicles.

Should I do anything to prepare?

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



A typical drain trap.

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

Please make sure that the drain traps for seldom-used drains, sink traps and other plumbing fixtures have water in them by pouring water into each drain. This level of water in the trap creates a type of seal and blocks gasses from rising up through the drain and into the residence. A *dry trap* could be found in drains which are not used regularly and may allow smoke to enter the residence.

Smoke Testing Area Schedule

Smoke testing is currently scheduled to begin on September 9, 2013.

[Please see the map for more detail on the area scheduled for smoke testing.](#)

[Material Safety Data Sheet \(MSDS\)](#)