City of Gallatin Mayor Paige Brown

News Release

STATE DEPARTMENT CONFIRMS PETROLEUM DISCHARGE UNDER GREENWAY TRAIL

Suspected Source Could be Leaky Underground Storage Tank or Discharge from Decades Ago

GALLATIN – The Tennessee Department of Environment and Conservation (TDEC) and the City of Gallatin are working to remediate remnants of petroleum-based product contamination that could be the result of a leaking storage container or discharge from decades ago. TDEC's Division of Underground Storage Tanks is conducting initial research along Town Creek northeast of downtown Gallatin before beginning the remediation process in the spring.

"According to TDEC's field investigation, they have categorized this is a 'nuisance odor' but not a health hazard," says Gallatin Stormwater Utility Manager Lance Wagner. "While they try to pinpoint where the contamination originated, the remediation process will get underway to quickly resolve the odor issue in that area."

TDEC's inspection was prompted by complaints of odors on the greenway on the north side of Gallatin in September 2018. Through water and air sampling, low concentrations of petroleum-based products diluted in the air and in the groundwater were confirmed. Evidence of contamination was found in multiple springs/seeps under the City Greenway Trail and in multiple smaller seeps/springs on residential properties along Perrolee Street, Morton Avenue and Barton Drive.

In February, TDEC began drilling soil borings to test soil, installing groundwater monitoring wells to sample groundwater and determine flow direction, mapping the pathways in the underlying soil and bedrock using geophysics, and conducting dye-trace testing to determine water-flow direction and travel time. Understanding the underground drainage systems will help determine where remediation efforts should take place.

In order to immediately mitigate the distinct petroleum odor present in this area and begin the long-term remediation process, an activated carbon and nutrient solution will be injected into the soils and ground water in the affected area. The carbon will help adsorb the petroleum-based products limiting their ability to migrate into the air, and the nutrient mixture will start breaking down the petroleum-based products. These injections will start along the City Greenway and progress into residential yards and drainage ways. This method is anticipated to eliminate the odor in the area within three months, and bacterial agents will continue to clean up the system for another 15 years.

TDEC's Division of Underground Storage Tanks will cover the costs of both the investigation and remediation since a leaky underground storage tank is suspected to be the source of the contamination.

TDEC and Gallatin's Stormwater Utility will hold a public meeting to share additional results of TDEC's investigation and the short and long-term remediation actions that will be implemented. Questions on this ongoing investigation should be directed to Lance Wagner or Jennifer Watson in the City of Gallatin Engineering Division 615-451-5968.

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TOWN CREEK GREENWAY

Department of Environment & Conservation

EXAMPLE OF INTERIM CLEAN-UP ACTION:
-Inject food-grade activated carbon and nutrient mixture into injection points at or near seeps and springs.

-Carbon absorbs petroleum contamination and then nutrients promote microorganisms to consume petroleum and accelerate natural biodegradation processes.

ADDITIONAL INFORMATION CAN BE FOUND AT:
https://www.gallatintn.gov/greenwayproject

https://www.tn.gov/environment/program-areas/ust-underground-storage-tanks.html

https://www.epa.gov/ust

ENVIRONMENTAL INVESTIGATION

The Division of Underground Storage Tanks in the Tennessee Department of Environment and Conservation (TDEC) is partnering with the City of Gallatin on a long-term clean-up effort to remediate contamination from petroleum along the eastern bank of Town Creek.

TDEC and Gallatin will determine sources of petroleum that has seeped into Town Creek. Petroleum has been identified as seeping into a residential neighborhood to the southeast.
TDEC has already conducted an initial response and is monitoring activities in the area of the Town Creek Greenway.
TDEC will conduct interim clean-up activity to relieve any odors and treat water contaminated by petroleum. It will also attempt to reduce excessive water flow. After an investigation is complete, TDEC will develop a clean-up plan for any contaminated areas.

The investigation includes:
- Testing underground storage tanks, piping and other equipment used to store and dispense gasoline and other petroleum products
- Drilling soil borings and soil sample collection
- Installation of groundwater monitoring wells to sample ground water and determine flow direction
- Laboratory analysis of soil and groundwater
- Geophysics to map the structure and possible pathways in the underlying soil and bedrock
- Dye-trace testing and stream and seep/spring analyses to determine flow direction and travel time
- Historical research, site reconnaissance, and surveying

The mission of the Division of Underground Storage Tanks at TDEC is to protect human health and environment by remediating existing contamination and preventing future petroleum releases.

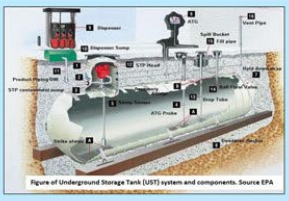
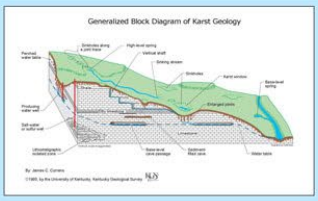


Figure of Underground Storage Tank (UST) system and components. Source EPA



DEFINITIONS:
Groundwater - Water present beneath the ground surface in soil pore spaces and in the fractures of rock formations. A unit of rock or an unconsolidated deposit is called an aquifer when it can yield a usable quantity of water. The depth at which soil pore spaces or fractures and voids in rock become completely saturated with water is called the water table.

Groundwater Flow - Groundwater is stored in and moves through the layers of soil, sand and rock called aquifers. The rate of groundwater flow and direction depends on the permeability, which is a function of the size of the pore spaces or void space(s) in the soil or rock and how well the spaces are connected. The direction is dependent on the hydraulic gradient, e.g., flow direction is from high to low.

Soil - The layer of earth in which plants grow; a black or dark brown material typically consisting of a mixture of organic remains, clay, and rock particles and is partially derived from weathering of underlying bedrock.

Limestone Bedrock - Limestone is a sedimentary rock, composed mainly of skeletal fragments of marine organisms such as coral. Its major materials are the minerals calcite and aragonite, which are different crystal forms of calcium carbonate ($CaCO_3$), which is soluble in slightly acidic groundwater.

Karst - A landscape that is characterized by caves, sinkholes, fissures, and underground streams. Karst topography usually forms in regions of plentiful rainfall where bedrock consists of carbonate-rich rock, such as limestone or dolomite, which is easily dissolved. Note: Petroleum contamination in karst areas is complicated because distribution and transport of the petroleum contaminants in karst landscapes exhibits high flow rates, unknown pathways, and may exit the subsurface through springs or seeps.