

Gas station development with the possible impacts to the lake

The building of an EZ Stop Gas Station has 3 possible impacts on Fort Loudon Lake. These impacts would be the result for the potential of spilling fuel.

1. When semi- trucks are off loading gas (a hazardous material) and filling underground tanks there is the possibility that spills can get into the groundwater and contaminate the lake.
2. The close proximity of the train tracks to the Gas Station is a problem for the following reasons:

Railroad train traffic causes seismic waves that would cause the peak particle velocity to impact the underground fuel storage tanks and underground fuel lines by possibly cracking fuel lines, contaminating ground and surface waters. The surface impoundment structures would not mitigate the underground impacts.

3.

The reason that the Sinking Creek Embayment to the lake is called Sinking Creek is because, before the construction of Ft. Loudon Lake, Sinking Creek would go underground due to sink holes that were breached and flowed to the Tennessee River. This area lies within a geologic district of a Karst ecosystem with sink holes and caverns. Sink holes are formed by loss of subjacent support and internal soil erosion, called piping, to caverns. Placing a water retention structure over a sink hole will feed the soil piping problem causing a catastrophic collapse. A 4+feet deep closed depression (basin), a.k.a. sink hole, exists in the construction area. The proposed underground fuel storage tanks and as well as the restaurant, lie within the sink hole boundary. The collapse will take-down the building and underground fuel storage tanks resulting in a massive pollution of the ground water and the lake.

Field observations the of sink hole, suggests that no run-off water is being impounded in the sink hole which suggests that water directly infiltrates the sink hole soil and percolates to the underlying geologic strata of limestone caverns. This suggests that an active sink hole does exist.

Recently, there is no indication of water being retained by the closed basin. Surface water runoff was not retained after 5 inches of rainfall. There is no present indication of water loving plant species that grow in flood water basins. The plant species that currently grow in the basin would indicate that this is a well-drained basin with rainfall runoff rapidly infiltrating the soil and percolate through the soil into the sink hole caverns.

The B8 flag in the picture (taken October 2, 2024- two days after 5 inches of rainfall) is located at a geotechnical sample point in the sink hole. Notice no water loving plants are visible in the picture.



Since the proposed gas station is being built over this sink hole, special environmental concerns should be implemented to prevent a major pollution event that would affect the ground water. Best management practices should include **not** to allow a gas station to be built over this area.