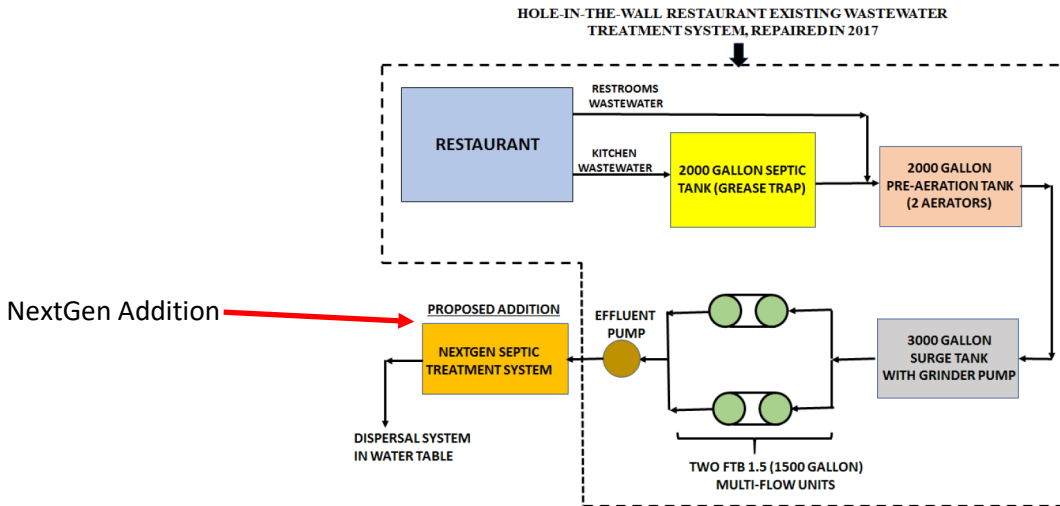


The Simple Breakdown

Current System as repaired in 2017 and proposed addition of the NextGen Treatment System

Although the specific design of this system is experimental in Virginia, it is not an experimental system and ozone has been around for years for disinfecting both drinking water and wastewater to be put back into the ground.



The NextGen System uses Ozone system for disinfection. The chart below shows Ozone is the most effective means of disinfecting effluent.

Table 1. CT values (mg/L.min) for 99% Inactivation.

Microorganism	Free chlorine (pH 6–7)	Preformed chloramines (pH 8–9)	Chlorine dioxide (pH 6–7)	Ozone (pH 6–7)
<i>E. coli</i>	0.034–0.05	95–180	0.4–0.75	0.02
Poliovirus 1	1.1–2.5	770–3740	0.2–6.7	0.1–0.2
Rotavirus	0.01–0.05	3810–6480	0.2–2.1	0.006–0.06
Phage f2	0.08–0.18	–	–	–
<i>G. lamblia</i> cysts	47–>150	–	–	0.5–0.6
<i>G. muris</i> cysts	30–630	1400	7.2–18.5	1.8–2.0

Adapted from Hoff (1986)

This new addition to the system will more than handle the current recorded flowrates. The original system was built to manage 1500 gallons per day flowrate.

The permit given on March 11, 2014 to the restaurant on 384 Old Ferry Road, Gwynn, VA (refer to **Appendix 1**), Health Dept ID: 157-98-01, was for a maximum influent flow of 380 gallons of dispersal per day.

There is a water meter attached to the water line and this meter has to be read manually. Hence data on water flow was collected over several weeks, and this data, with a photograph of the meter reading is shown in Appendix 3. The average flow data, as determined from the photographs in **Appendix 3** (photographs are only given for 4 week duration) are given below:

Weekly Average Flowrates in Gallons per day

349.43

392.57

348.86

335.29

368.29

~~343.00~~

Overall Averaged Flowrate = 356.24 gallons per day ← Current HITW Average Daily Flowrate

Hence, the maximum flow of 380 gallons per day is sufficient for the design of the treatment system.

The proposed NextGen Septic Treatment system will be installed to further treat the flow from the two Multi-Flo units, as shown in the previous drawing. The NextGen Septic treatment will consist of a Bioreactor Tank, with a total volume of 3,135 gallons and a usable water volume of 2,800 gallons.

The treated and cleaned wastewater will be dispersed into the water table at more than acceptable levels. If you are concerned about ozone being used to disinfect the wastewater at Hole in the Wall there are many articles available on the internet to use for research.