

City of Guelph Guelph Residential Greywater Field Test Draft Final Report

Appendix C

Treated Greywater Testing Results by Parameter (all participants)

Final Report

June 29, 2012

Treated Greywater Testing Results by Parameter (all participants)

It can be seen in Figure 11 that most sites (23 of 25) have average turbidity values over the maximum set by the HCG (<5 NTU). Meaning the majority of greywater samples had a lot of particles floating around in it giving it a cloudy appearance. The remaining two sites, Home 2 and Home 24, relied heavily on municipal supplies (including potable water top-up to the system) for toilet flushing thus accounting for their low turbidity values stemming from dilution of greywater from higher quality source water (potable water).

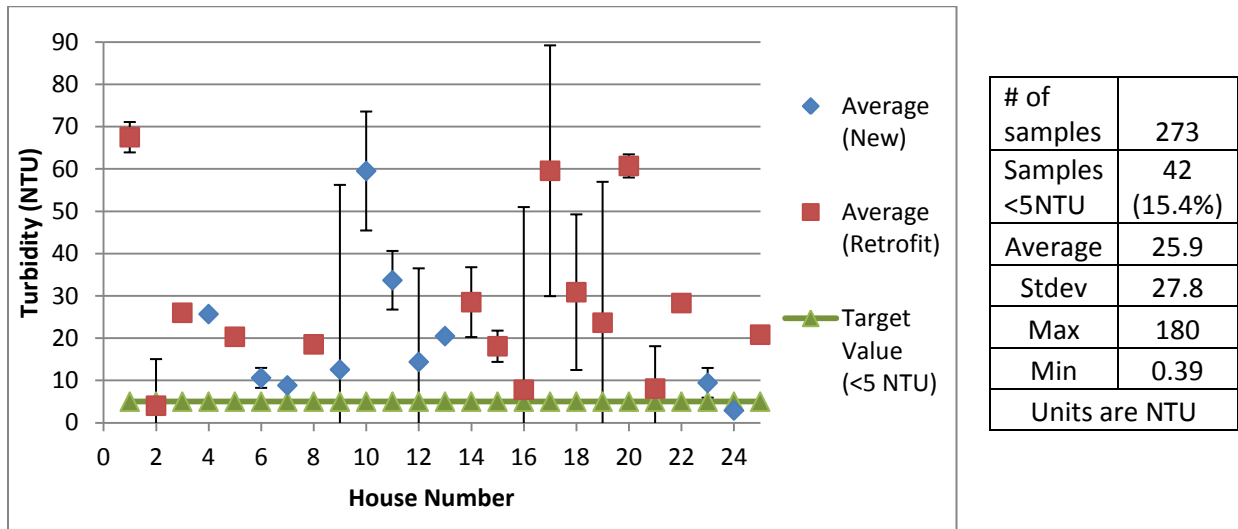


Figure 1: Box and whisker plot of turbidity at all sites compared with the HCG.

The majority of sites (21 of 25) also had average BOD values that fell above the maximum 20mg/L level set by the HCG (see Figure 13). As discussed previously, the variability of the raw shower water quality are reflected by the extreme variation of the treated greywater quality (minimum of 0 to 280mg/L).

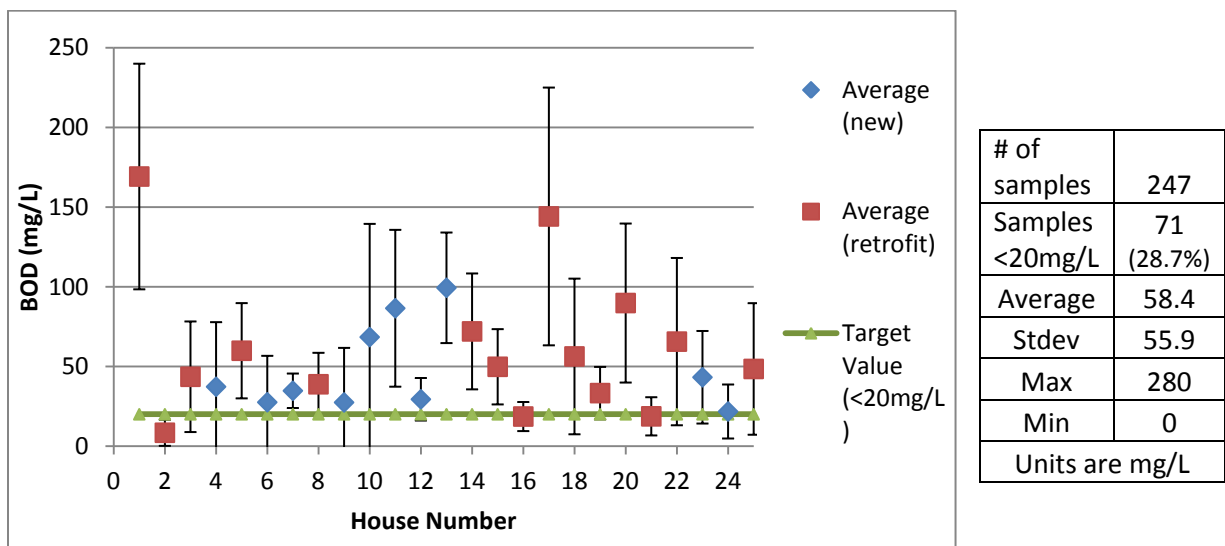


Figure 2: Box and whisker plot of BOD at all sites compared to the HCG.

The majority of sites (19 of 25) met the HCG for E.coli (<200cfu/100mL)(see Figure 14 [Error! Reference source not found.](#)). Further, 80.7% of samples (196 of 243) were free of E.coli (<1cfu/100mL). Note that 9% (21 of 243) of samples were reported by Maxxam as 2000cfu/100mL, but were actually too numerous to count. In these cases there was typically no free chlorine residual in the greywater stemming from private side maintenance issues (failure to add chlorine or challenges with chlorine puck feed/dilution systems employed by the technology) or treatment approaches of the individual technology (such as the iDus Controls ConservePump System where no disinfectant is present).

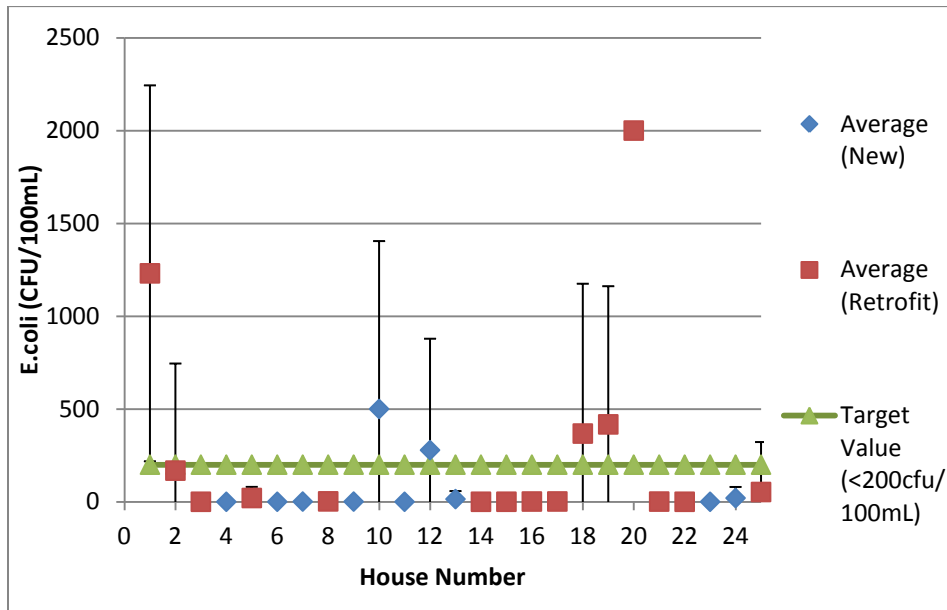


Figure 3: Box and whisker plot for E.coli at all sites compared with HCG.

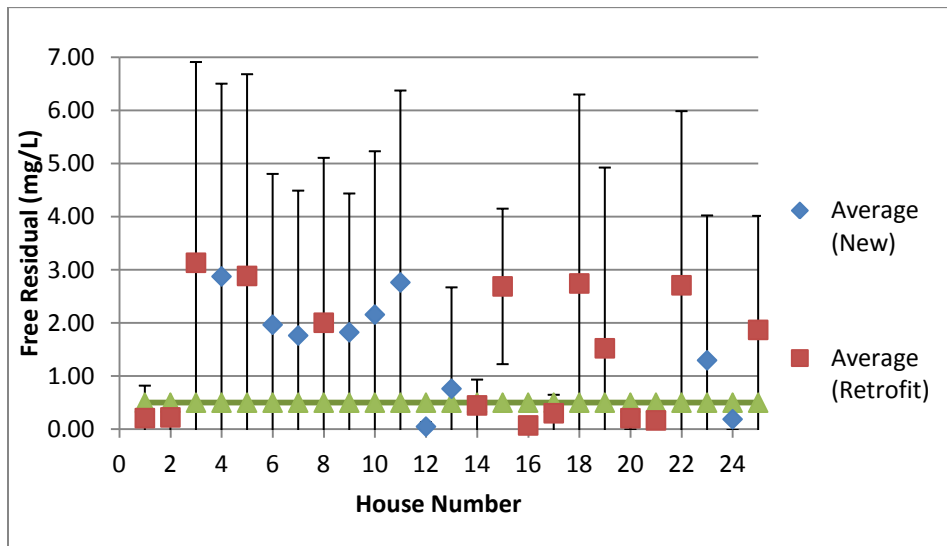


Figure 4: Box and whisker plot of free chlorine residual at all sites compared with HCG

The HCG specifies that the total chlorine level should be maintained above 0.5mg/L to ensure proper disinfection. Overall, 17 of 25 sites achieved average free chlorine residuals that were greater than 0.5mg/L. Free chlorine residual is a measure of the chlorine that is available for disinfection. Total chlorine is the sum of free chlorine and chlorine that has combined with contaminants (which has little sanitizing ability). As noted in the above section, compliance of all systems with the HCG Guidelines would also be impacted by the occurrence of private side maintenance issues or treatment approaches of the individual technology.

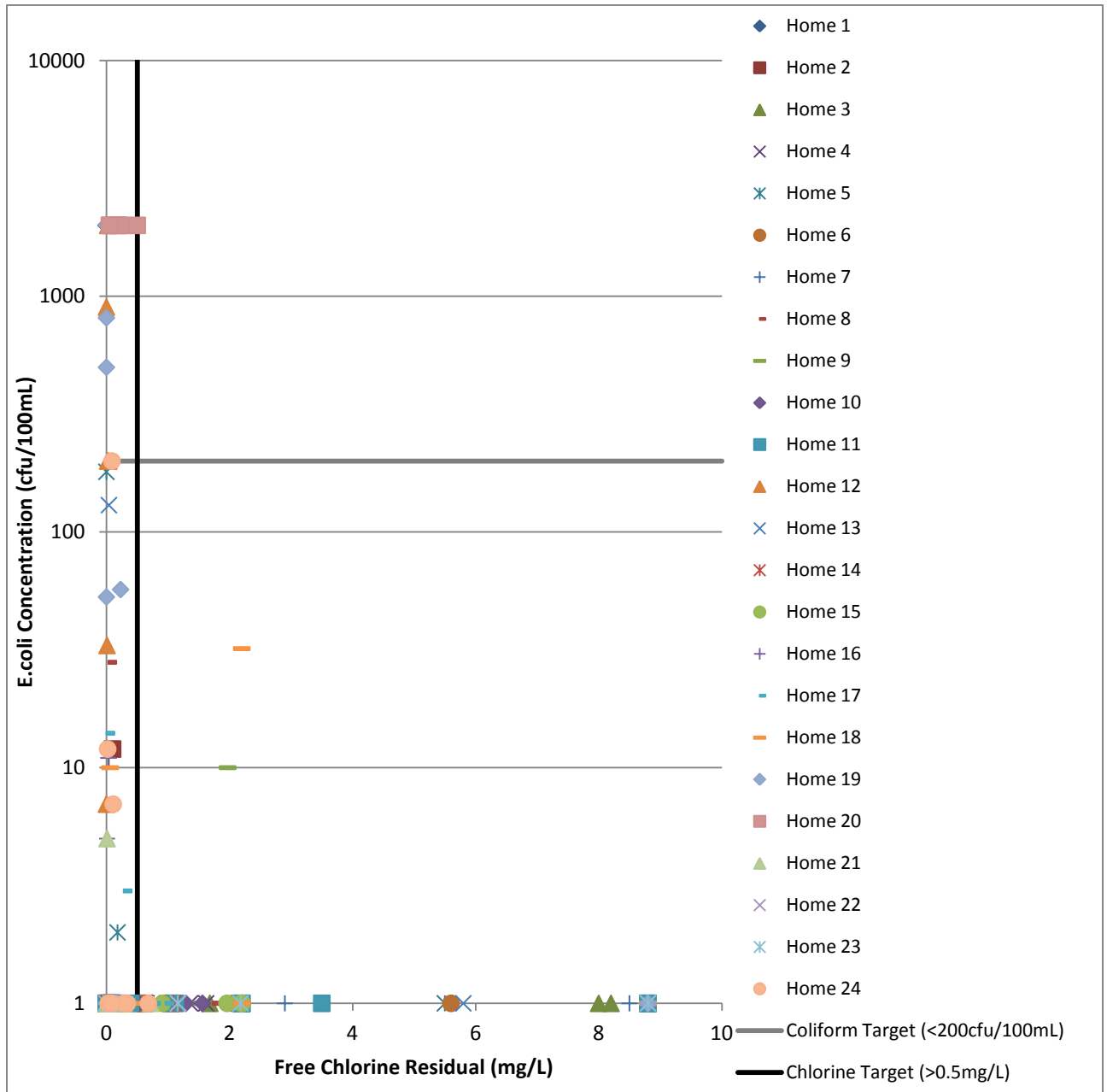


Figure 5: E.coli concentrations verses free chlorine residual at all sites.