**Table G.4. Characteristics of Sampled and Studied OSSs in Comparison with All OSSs in Pierce and Thurston Counties**

| | Thurston | | Pierce | | | All Studied (n=99) | All (n=2,176) |
|---|---|---|---|---|---|---|---|
| | Studied (n=32, 23%) | All (n=142) | Studied (n=67, 3.3%) | Volunteered (n=210, 10%) | All (n=2,034) | | |
| Age of OSS [years]* | 12.0 ± 5.6 (1-24) NA=0 | 12.6 ± 6.0 (1-31) NA=1 | 10.6 ± 4.5 (2-20) NA=6 | 11.7 ± 4.6 (1-28) NA=16 | 11.2 ± 4.1 (0-29) NA=128 | 11.1 ± 4.9 (1-24) NA=6 | 11.3 ± 4.3 (0-31) NA=129 |
| *Ultraviolet Disinfection Unit Makes*** | | | | | | | |
| Salcor 3G | 9 (28%) | 64 (45%) | 22 (33%) | 74 (35%) | 776 (38%) | 31 (31%) | 840 (39%) |
| The Disinfector | 23 (72%) | 70 (49%) | 38 (57%) | 121 (58%) | 1,078 (53%) | 61 (62%) | 1,148 (53%) |
| Other | 0 | 2 (1%) | 4 (6%) | 6 (3%) | 38 (2%) | 4 (4%) | 40 (2%) |
| NA | 0 | 6 (5%) | 3 (4%) | 9 (4%) | 142 (7%) | 3 (3%) | 148 (7%) |
| *Aerobic Treatment Unit Makes*** | | | | | | | |
| Bio-Microbics | 18 (56%) | 79 (56%) | 34 (51%) | 105 (50%) | 955 (47%) | 52 (53%) | 1,034 (48%) |
| Delta Environmental (Whitewater) | 8 (25%) | 26 (18%) | 25 (37%) | 90 (43%) | 896 (44%) | 33 (33%) | 922 (42%) |
| Other | 6 (19%) | 37 (26%) | 6 (9%) | 13 (6%) | 131 (6%) | 12 (12%) | 168 (8%) |
| NA | 0 | 0 | 2 (3%) | 2 (1%) | 52 (3%) | 2 (2%) | 52 (2%) |
| *Maintenance History* | | | | | | | |
| Time since last inspection [months]*** | 4.0 (4.4 ± 4.5, 0.2-18) NA=1 | 4.1 (7.1 ± 12, 0.1-76) NA=13 | 7.5 (6.7 ± 3.6, 0.4-13) NA=0 | 6.8 (6.5 ± 3.8, 0.3-17) NA=0 | 6.5 (6.8 ± 4.5, 0.1-35) NA=35 | 5.4 (6.0 ± 4.1, 0.2-18) NA=1 | 6.3 (6.8 ± 5.2, 0.1-76) NA=48 |
| Time since last UV bulb cleaning [months]*** | 4.1 (5.4 ± 5.4, 0.2-18) NA=2 | 4.1 (7.8 ± 11, 0.1-76) NA=23 | 9.9 (16 ± 19, 0.3-78) NA=3 | 8.6 (16 ± 19, 0.3-78) NA=16 | 9.3 (18 ± 21, 0.1-82) NA=235 | 7.4 (13 ± 17, 0.2-78) NA=5 | 8.9 (17 ± 20, 0.1-82) NA=258 |
| Time since last UV bulb replacement [months]*** | 16 (25 ± 16, 13-65) NA=12 | 17 (24 ± 15, 4-90) NA=52 | 31 (32 ± 23, 1.6-80) NA=24 | 32 (34 ± 23, 0.4-80) NA=77 | 31 (32 ± 21, 0.2-81) NA=781 | 25 (30 ± 21, 2-80) NA=36 | 30 (32 ± 21, 0.2-90) NA=833 |
| Last inspection included cleaning** | 20 (67%) NA=2 | 78 (66%) NA=23 | 28 (44%) NA=3 | 101 (52%) NA=16 | 873 (49%) NA=235 | 48 (51%) NA=5 | 973 (50%) NA=258 |
| *Operational Permit Status*** | | | | | | | |
| Issued | 6 (19%) | 33 (23%) | | | | | |
| In Review | 13 (41%) | 76 (54%) | | | | | |
| In Violation | 13 (41%) | 30 (21%) | | | | | |
| NA | 0 | 3 (2%) | | | | | |

*Descriptive statistics include mean ± SD, (min-max)
**Descriptive statistics include count and %
***Descriptive statistics include median, (min ± SD, min-max)

The representativeness of the study samples was examined by comparing variable means or proportions in the sample to those in the target population. When the variable of interest was continuous, the differences between the study sample and the target population were assessed using a two-sided, one-sample t-test with unequal variance. A one-sample chi-squared proportions test was used to assess the differences for categorical variables. Because of the large number of similar tests being performed on the same dataset, the p-values were then corrected using the Bonferroni correction. For the Bonferroni correction, the test p-values were multiplied by the number of tests (17) and capped at 1. Based on this analysis, the study sample represents well the age and models of the total OSSs in both counties. On average, the OSSs included in the sample have been maintained slightly more recently than the average maintenance time for all OSSs with UVD units. Because of this, the results from the study may underestimate the proportion of UVD units that are currently malfunctioning.

**Table G.5. P-values of t-tests and chi-squared proportions tests to determine representativeness of studied OSSs**

|  | All Studied (n=99) | All (n=2,176) | T-test or Chi²-test p-value | Bonferroni corrected p-value |
|---|---|---|---|---|
| Age of OSS [years]* | 11.1 ± 4.9 (1-24) NA=6 | 11.3 ± 4.3 (0-31) NA=129 | 0.593 | 1 |
| *Ultraviolet Disinfection Unit Makes*** | | | | |
| Salcor 3G | 31 (31%) | 840 (39%) | 0.166 | 1 |
| The Disinfector | 61 (62%) | 1,148 (53%) | 0.096 | 1 |
| Other | 4 (4%) | 40 (2%) | 0.209 | 1 |
| NA | 3 (3%) | 148 (7%) | 0.197 | 1 |
| *Aerobic Treatment Unit Makes*** | | | | |
| Bio-Microbics | 52 (53%) | 1,034 (48%) | 0.370 | 1 |
| Delta Environmental (Whitewater) | 33 (33%) | 922 (42%) | 0.086 | 1 |
| Other | 12 (12%) | 168 (8%) | 0.147 | 1 |
| NA | 2 (2%) | 52 (2%) | 1 | 1 |
| *Maintenance History* | | | | |
| Time since last inspection [months]*** | 5.8 (4.1, 0.3-20) NA=1 | 6.3 (8.0, 0.1-152) NA=43 | 0.0533 | 0.906 |
| Time since last UV bulb cleaning [months]*** | 6.3 (17, 0.3-78) NA=5 | 8.9 (20, 0.1-99) NA=257 | 0.0128 | 0.218 |
| Last inspection included cleaning** | 48 (51%) NA=5 | 903 (50%) NA=258 | 0.84 | 1 |
| Time since last UV bulb replacement [months]*** | 25 (21, 1-80) NA=36 | 30 (21, 0.2-92) NA=833 | 0.524 | 1 |
| *Operational Permit Status*** | | | | |
| Issued | 6 (19%) | 33 (23%) | 0.711 | 1 |
| In Review | 13 (41%) | 76 (54%) | 0.214 | 1 |
| In Violation | 13 (41%) | 30 (21%) | 0.012 | 0.204 |
| NA | 0 | 3 (2%) | 0.833 | 1 |

*Descriptive statistics include mean ± SD, (min-max)
**Descriptive statistics include count and %
***Descriptive statistics include median, (SD, min-max)

Appendix G from https://www.doh.wa.gov/Documents/Pubs/337-155.pdf.