NSF Standard(s) Impacted: NSF350 – 2017a

Background:
Provide a brief background statement indicating the cause and nature of concern, the impacts identified relevant to public health, public understanding, etc, and any other reason why the issue should be considered by the Committee. Reference as appropriate any specific section(s) of the standard(s) that are related to the issue.

A problem that has existed for all systems smaller than 200 gpd is it is not possible to break up the dosing into the pattern required in the standard and still maintain the individual dose volume between 10 and 15 gallons.

Another issue is that 3 wash loads are applied as a portion of 60% of design flow at the end of the vacation stress. How should the test agency handle this when 3 wash loads represents more than 60% of design flow? This issue paper proposes smaller individual influent doses for the water efficiency stress and a way to manage the wash load issue at the end of vacation stress.

Recommendation:
Clearly state what action is needed: e.g., recommended changes to the standard(s) including the current text of the relevant section(s) indicating deletions by use of strike-out and additions by highlighting or underlining; e.g., reference of the issue to a Task Group for detailed consideration; etc.

Revisions are needed for the individual dose volume requirements when testing systems with a hydraulic capacity less than 333 gpd. The water efficiency stress requires reducing daily flow to the treatment system to 60% of design capacity. Note that 60% of 333 is 200. This is the reason that systems treating less than 333 gpd will run into the dose volume issue during water efficiency stress.

Example: A 300 gpd system would be dosed with 180 gpd during water efficiency. In order to meet the 40%/35%/25% dosing period requirements, a minimum of 20 individual doses would be required (9 gallons per dose).

End of the vacation stress is completed by dosing the system with 60% of design capacity, including 3 wash loads.

Example: Sixty percent of daily hydraulic capacity for a 100 gpd system would be 60 gallons. Three wash loads would add 90 gallons.

Test requirements should allow smaller individual dose volumes when needed to meet the individual dosing period percent requirements during stress events. I suggest we allow adjustment of dose volume for all systems during water efficiency because I believe that meets the intent of
the water efficiency stress (lower volume at higher concentration). Test requirements should address the issue of the number of wash loads added following vacation stress.

8.1.2.2.2.3 Vacation stress

On the day that the non-loading stress is initiated, systems treating combined greywater shall be dosed at 40% of its daily hydraulic capacity between 7:00 a.m. and 10:00 a.m. and at 35% between 11:00 a.m. and 2:00 p.m. A system treating bathing water shall be dosed at 50% of its daily hydraulic capacity between 7:00 a.m. and 10:00 a.m. and at 25% between 11:00 a.m. and 2:00 p.m. A system treating laundry water shall be dosed at 100% of its daily hydraulic capacity between 7:00 a.m. and 10:00 a.m. Dosing shall be discontinued for 8 consecutive days, beginning the day after initiating the stress (power shall continue to be supplied to the system). Between 6:00 p.m. and 9:00 p.m. of the ninth day, the system shall be dosed with 60% of its daily hydraulic capacity. This shall include 3 wash loads (each wash load equal to 114 L [30 gal]) for systems designed to treat more than 100 gpd combined greywater. This shall include 2 wash loads (each wash load equal to 114 L [30 gal]) for systems designed to treat more than 50 gpd combined greywater. This shall include 1 wash load (each wash load equal to 114 L [30 gal]) for systems designed to treat 50 gpd or less combined greywater.

<table>
<thead>
<tr>
<th></th>
<th>7:00 a.m. - 10:00 a.m.</th>
<th>11:00 a.m. - 2:00 p.m.</th>
<th>Following 8 days</th>
<th>Ninth day</th>
</tr>
</thead>
<tbody>
<tr>
<td>combined &gt;100 gpd</td>
<td>40% of daily capacity</td>
<td>35% of daily capacity</td>
<td>No dosing</td>
<td>60% from 6:00 a.m. to 9:00 p.m., including 3 wash loads</td>
</tr>
<tr>
<td>combined &gt;50 gpd</td>
<td>40% of daily capacity</td>
<td>35% of daily capacity</td>
<td>No dosing</td>
<td>60% from 6:00 a.m. to 9:00 p.m., including 2 wash loads</td>
</tr>
<tr>
<td>combined &lt;50 gpd</td>
<td>40% of daily capacity</td>
<td>35% of daily capacity</td>
<td>No dosing</td>
<td>60% from 6:00 a.m. to 9:00 p.m., including 1 wash load</td>
</tr>
<tr>
<td>bathing</td>
<td>50% of daily capacity</td>
<td>25% of daily capacity</td>
<td>No dosing</td>
<td>60% from 6:00 a.m. to 9:00 p.m.</td>
</tr>
<tr>
<td>laundry</td>
<td>100% of daily capacity</td>
<td>No dosing</td>
<td>No dosing</td>
<td>60% from 6:00 a.m. to 9:00 p.m.</td>
</tr>
</tbody>
</table>

Rationale: This would mean some systems would receive more than 60% of design flow at the end of vacation stress. For example a 110 gpd system would still receive three washloads or 82% of design flow. This still seems fair and it keeps us from adding partial washloads to hit exactly 60%.

8.1.2.2.2.4 Water efficiency stress

The water efficiency stress test shall consist of 1 wk (7 d) of loading with challenge water at 1.4 times the normal strength (see 8.1.2.1.1, 8.1.2.1.2, and 8.1.2.1.3 for normal strength challenge water, as applicable), and a 40% reduction in the rated daily hydraulic capacity of the design loading (see 8.1.2.2.1.1, 8.1.2.2.1.2, and 8.1.2.2.1.3, as applicable).

Individual doses shall be 6 – 15 gal unless the dosing system is based on continuous flow. Individual doses or continuous flow dosing shall be uniformly applied over the dosing periods. For systems with a rated
capacity less than 200 gpd, individual doses may be adjusted to less than 6 gallons in order to meet the dosing schedule requirements.

Rationale: This adjusts the minimum individual dose volume for the water efficiency stress to reflect the higher strength, lower volume graywater. It will allow the test agency to adjust the individual dose volume by 40% instead of adjusting the dosing pattern during this stress. Leaving the upper limit at 15 gallons means that anything already tested will not face the potential of retesting requirements at the 7-year review.

Supplementary Materials (photographs, diagrams, reports, etc.): If not provided electronically, the submitter will be responsible to have sufficient copies to distribute to committee members.

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Is this a revision of a previous Issue Paper (if yes put original issue number): 
Submission Date: ______________________

Please submit to: Joint Committee Secretariat, Jason Snider at jsnider@nsf.org

*Type written name will suffice as signature