Summary of WaterSense® Specification Review Webinar for Plumbing Fixtures Manufacturers

May 9, 2019, 1:00 to 3:00 p.m. Eastern

Meeting Summary

The U.S. Environmental Protection Agency (EPA) WaterSense program is considering revising the *WaterSense Specification for Tank-Type Toilets* and/or the *WaterSense Specification for Flushing Urinals*. The EPA organized this meeting with industry and manufacturer partners as part of the revision determination process.

The main objectives for this meeting were to:

- Present information the EPA has collected as part of its specification review.
- Summarize issues and considerations the EPA must address if it decides to revise a specification.
- Review public comments WaterSense has received to date on its *Notice of Specification Review*, as they relate to plumbing fixtures.
- Solicit additional feedback and information from manufacturer stakeholders.

The EPA did not intend to make a determination as to whether to move forward with specification revisions during this meeting.

A PDF of this presentation can be viewed on the WaterSense website at www.epa.gov/watersense/product-specification-review. A full list of the attendees and a list of presenters are provided in Appendix A. The presentation discussion and participant questions and comments are summarized below.

1.0 Introduction

Stephanie Tanner, the EPA WaterSense program's lead engineer, welcomed everyone to the meeting, clarified how to use the webinar software, and reviewed the meeting agenda and purpose. The purpose of this meeting was not to determine whether to revise the specifications, but rather to present data and solicit feedback about whether the EPA has collected enough information to make a determination.

The EPA intends to conduct the specification review analysis during summer 2019 and develop recommendations by December 31, 2019. Therefore, feedback must be submitted by June in order to be considered in the EPA's review. Ms. Tanner also requested that stakeholders refrain from submitting comments or information that they have already brought to the EPA's attention.

2.0 Tank-Type Toilet Specification Considerations

Robbie Pickering of Eastern Research Group, Inc. (ERG), a WaterSense contractor, summarized background on the *WaterSense Specification for Tank-Type Toilets,* including certification trends and the number of products certified to date. Mr. Pickering provided an overview of the current toilet specification requirements. The WaterSense specification allows a maximum flush volume of 1.28 gallons per flush (gpf). All toilets must: pass the flush

performance criteria based on the waste extraction test protocol in ASME A112.19.2/CSA B45.1 *Ceramic Plumbing Fixtures*; conform to applicable requirements within ASME A112.19.1/CSA B45.2 and ASME A112.19.14 *Six-Liter Water Closets Equipped with a Dual Flushing Device* (for dual flush); and be marked with the flush volume.

Water Efficiency Considerations

Mr. Pickering explained that, due to new regulations adopted by various states and municipalities, the EPA is considering reducing the maximum flush volume criteria below 1.28 gpf. The EPA is also considering revising the dual flush requirements, as many utilities have expressed concern that the current requirements may not be achieving water savings commensurate with the WaterSense goal of 20 percent. Furthermore, WaterSense labelled dual flush toilets do not save any water when compared to the requirements of ASME A112.19.14, which is the national standard for dual-flush toilets. For each water efficiency consideration, Mr. Pickering provided an overview of related studies that the EPA has identified and will consider when making a specification revision determination.

Participant Questions and Comments

Q: Where did the 2:1 ratio of reduced flushes to full flushes used for the effective flush volume calculation come from?

A: Ms. Tanner responded that she would have to confirm by reviewing the background materials from the initial development of the toilet specification. She believes it was a threshold agreed upon by the EPA and the industry. Kim Wagoner of ERG responded that it was also based on the products that were available on the market at the time, and since then, the market has shifted.

Q: Is EPA WaterSense “cherry-picking” studies? What information was relied upon during the initial adoption of the WaterSense specification for these fixtures?

A: Mr. Pickering responded that this webinar provided an overview of all studies that have been conducted in the United States and Canada related to dual flush toilets, and the EPA is not cherry-picking studies. There are a few international studies that support very similar conclusions, and the EPA can provide those if anyone is interested. In general, studies show that the 2:1 ratio is not being achieved. Ms. Tanner responded that the EPA feels that WaterSense did a thorough review of existing research; however, if any attendees are aware of studies that they think the EPA has not reviewed or considered, they should bring them to the agency’s attention.

Q: What is the ratio for dual-flush toilets in Australia?

A: Mr. Pickering responded that it differs among studies. He knows of one study conducted in Yarra Valley of Australia, where the results were consistent with those presented in other dual-flush studies mentioned during this webinar.

Performance Considerations

Mr. Pickering provided an overview of potential performance considerations that the EPA may develop or improve if the agency decides to revise the tank-type toilet specification. These include a greater waste quantity threshold for the waste extraction test and new performance criteria to ensure adequate bowl cleansability.

Mr. Pickering reviewed public comments received to date regarding potential revisions to the tank-type toilet specification. He provided a list of outstanding questions the EPA would still like feedback on related to toilets and invited participants to ask questions.

Participant Comments

Comment: I would like to comment on the cleansability issue. It seems that comments here are more speculative. The ASME standard does include the dye test to address water exchange, ink line tests to address water distribution around the bowl circumference, and floating media tests to address cleansability. This should not be overlooked and is the appropriate balance to the sinking bulk tests.

Comment: One additional consideration is the Plumbing Efficiency Research Coalition (PERC) study in the context of going below 1.28 gpf. PERC did not test toilets, but rather relied upon a water ejector that could replicate initial flush and trailing water. There is no way of knowing where a tank-type toilet will be installed. Therefore, the conclusions of PERC with respect to volumes at 1.0 gpf or lower could lead to erratic drainline behavior and must be looked at in the context of WaterSense not knowing if the toilet will be installed in a residential or commercial setting. These fixtures are used in commercial settings as well.

Poll Questions

Mr. Pickering polled attendees on whether they believe WaterSense has enough information to determine whether to revise its specification for tank-type toilets. The results are shown in Figure 1.

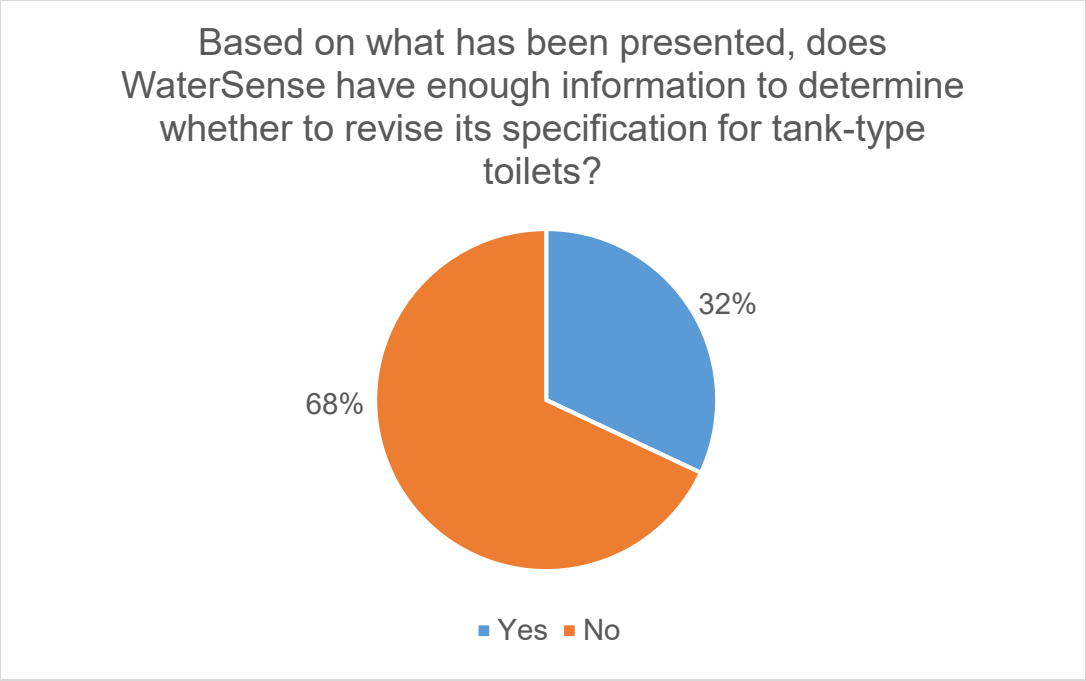

Figure 1. Poll Question #1

Ms. Tanner asked attendees to provide feedback about what information they think the EPA needs to consider before moving forward with a determination. Mr. Pickering polled attendees on whether they think the EPA should revise the water efficiency criteria of the toilet specification. Results of the poll are shown in Figure 2.

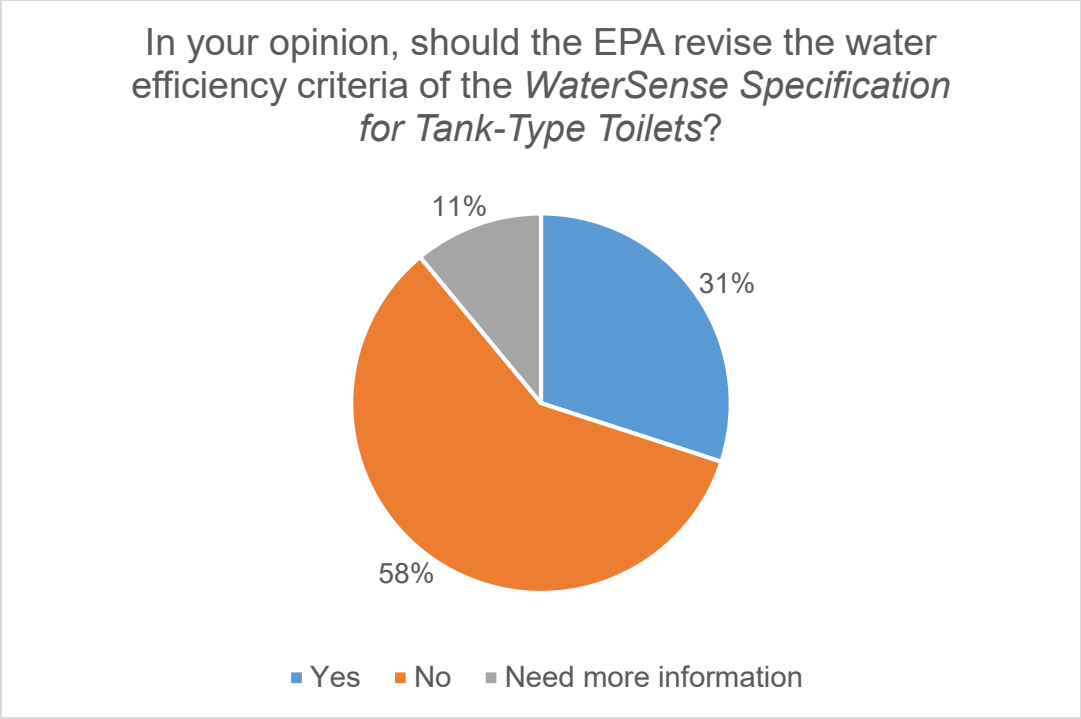

Figure 2: Poll Question #2

Mr. Pickering polled attendees on whether WaterSense should eliminate the effective flush calculation for dual-flush toilets. Results of the poll are shown in Figure 3.

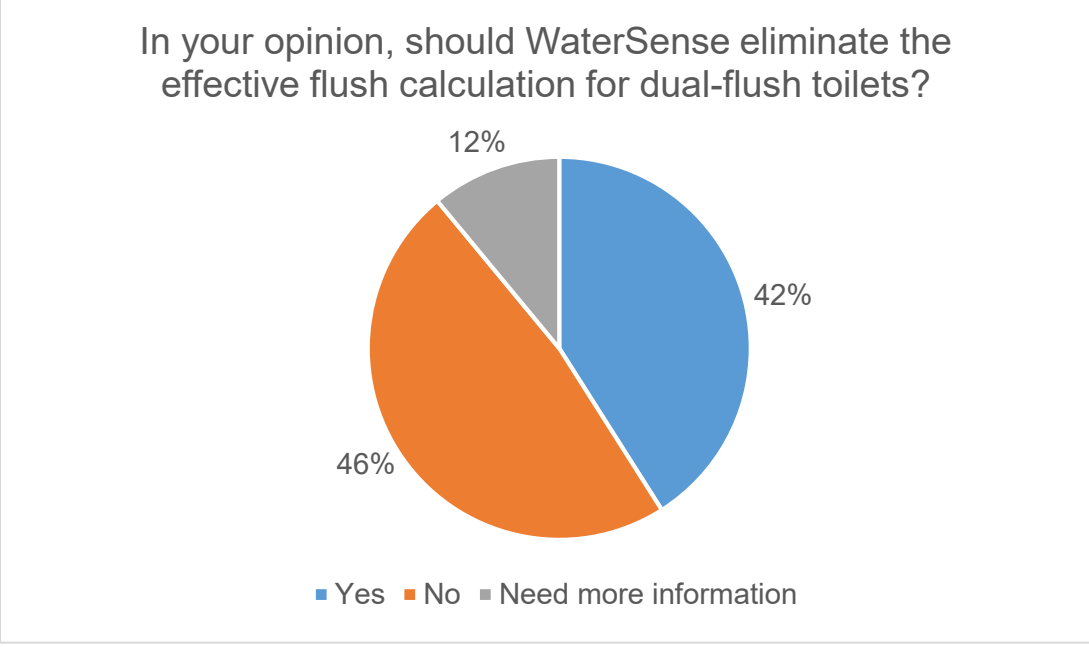

Figure 3. Poll Question #3

Ms. Tanner asked attendees to submit any related information or existing studies that were not discussed in this webinar. Mr. Pickering polled attendees on whether the EPA should revise the performance criteria of the toilet specification. Results of the poll are shown in Figure 4.

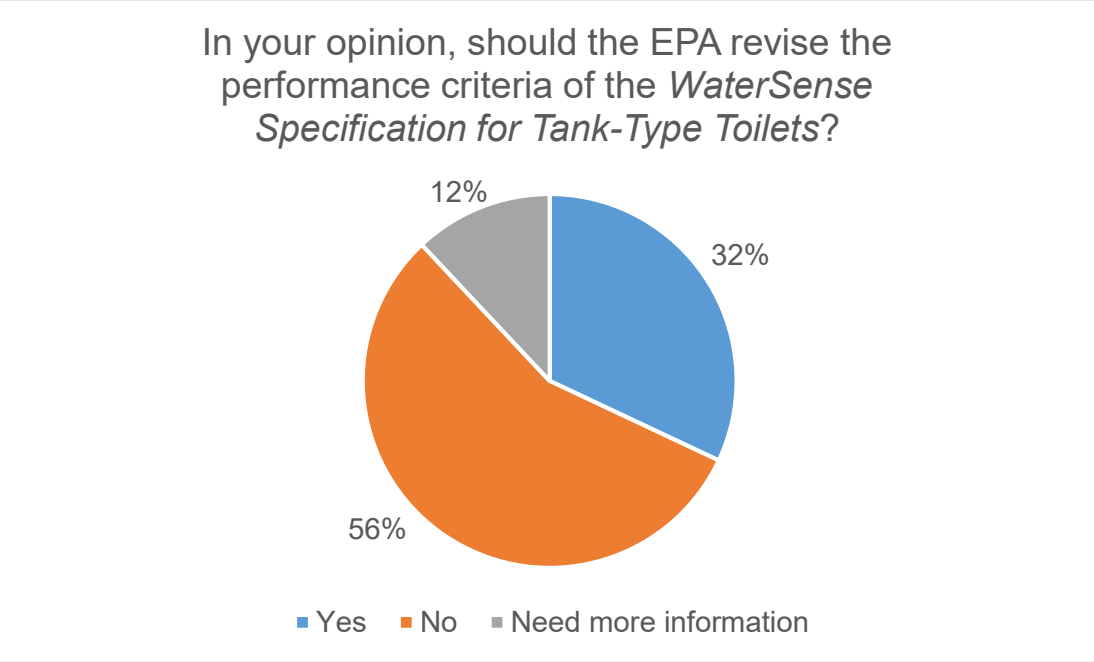

Figure 4. Poll Question #4

3.0 Flushing Urinal Specification Considerations

Ms. Tanner provided an overview of the current *WaterSense Specification for Flushing Urinals* and summarized information that WaterSense has collected regarding WaterSense labeled urinals in the current market. The specification allows for an average maximum flush volume of 0.5 gpf. All WaterSense labeled urinals must conform to the applicable ANSI standards and be properly marked. Flushing devices must not contain a flush volume adjustment that allows the flush volume to vary more than 0.1 gpf, and pressurized flushing devices must conform to ASSE Standard 1037.

Scope Considerations

Ms. Tanner explained that the scope of the current specification includes flushing urinals but does not include non-water urinals or hybrid urinals (non-water urinals with drain-cleansing action). The EPA is considering revising the specification to include these types of urinals.

Water Efficiency and Performance Considerations

Ms. Tanner explained that, due to new regulations adopted by various states and municipalities, the EPA is considering reducing the maximum flush volume below 0.5 gpf. Ms. Tanner then summarized the savings calculations that the EPA performed to estimate potential water

savings associated with a 0.25 gpf and 0.125 gpf WaterSense maximum flush volume. The EPA does not have any indication of performance issues associated with the current specification. Ms. Tanner summarized relevant performance studies that the EPA has identified.

Ms. Tanner provided an overview of the public comments received to date on the *Notice of Specification Review* regarding urinals. She reviewed outstanding questions the EPA would still like feedback on related to urinals and invited participants to ask questions.

Participant Questions and Comments

Q: Is there such a thing as hybrid urinals?

A: Ms. Wagoner responded that this is more of a colloquial term. They are technically defined as a "urinal with drain-cleansing action," but yes, hybrid urinals do exist in the market.

Q: Non-water urinals with a drain cleansing feature use water for each fixture. Would the EPA be open to considering these fixtures in light of the previous noted comments from the initial specification, which states that there is no way to distinguish non-water urinals as they are all inherently efficient? We do think this has merit as these fixtures meet all of the EPA criteria.

A: Ms. Tanner responded that yes, the EPA is open to considering including these fixtures. The market has transformed since the initial specification was released, and the EPA believes that this may be a potential area for revision. Mr. Pickering responded that the current specification references ASME A112.19.2/CSA B45.1, whereas the non-water urinals with a drain cleansing action are captured under ASME A112.19.19. This, therefore, limits them from being included in the current specification.

Q: Is the EPA aware of female urinals?

A: Ms. Tanner responded that yes, the EPA is aware of female urinals, and the agency is open to considering including them in the specification. However, they do not occupy a significant sector of the market.

Q: Because water is injected into the trap for hybrid urinals, they will not pass the WaterSense criteria.

A: Ms. Tanner responded that the EPA will look into that further.

Poll Questions

Ms. Tanner polled participants on whether they believe WaterSense has enough information to determine whether to revise its specification for urinals. Results of the poll are shown in Figure 5.

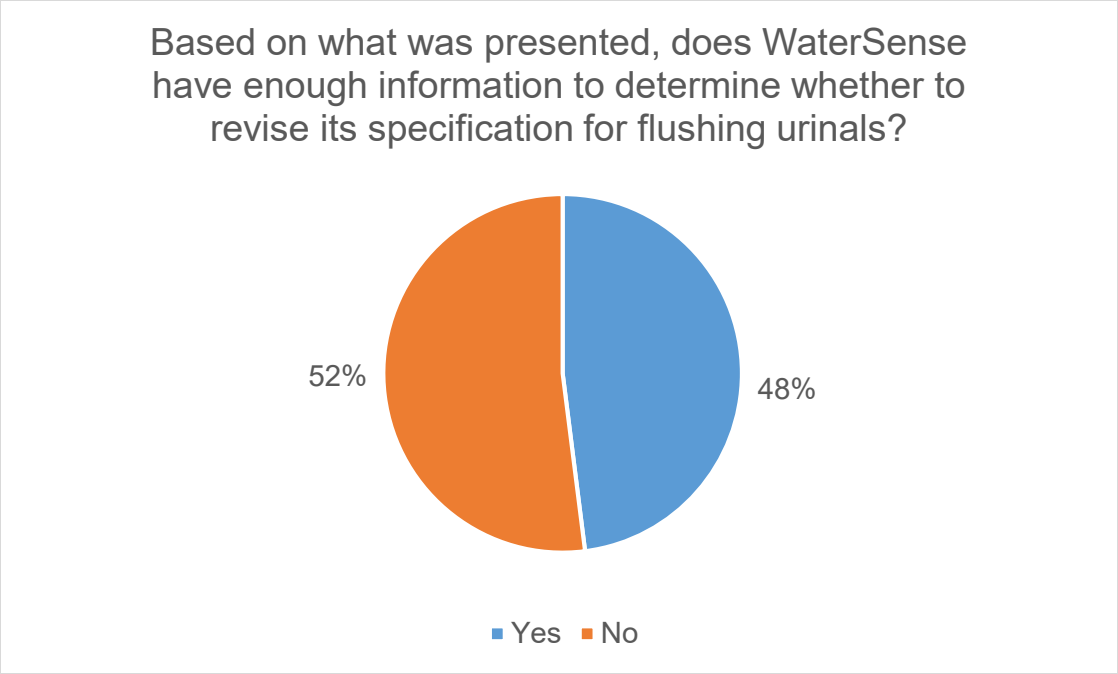

Figure 5: Poll Question #5

Ms. Tanner requested that partners who think WaterSense does not have enough information please reach out with comments and suggestions explaining what information the EPA needs. She then polled attendees on whether the EPA should revise the water efficiency criteria of the specification for urinals. Results of the poll are shown in Figure 6.

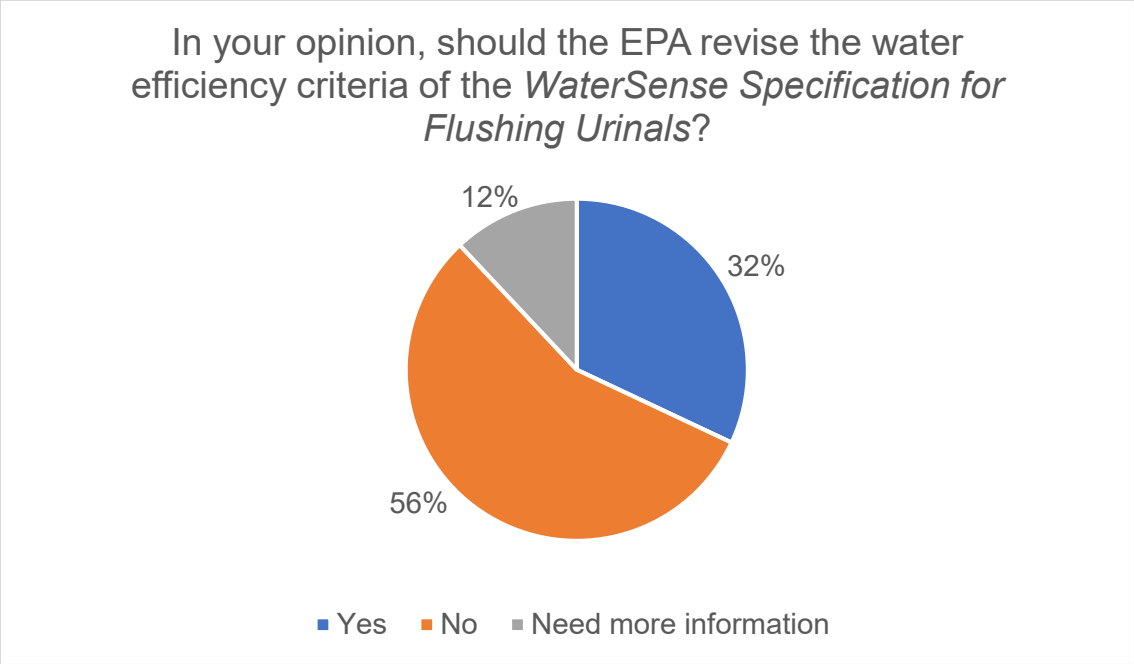

Figure 6: Poll Question #6

Ms. Tanner then polled attendees on what product categories WaterSense should expand the scope of the urinal specification to include. Results are shown in Figure 7.

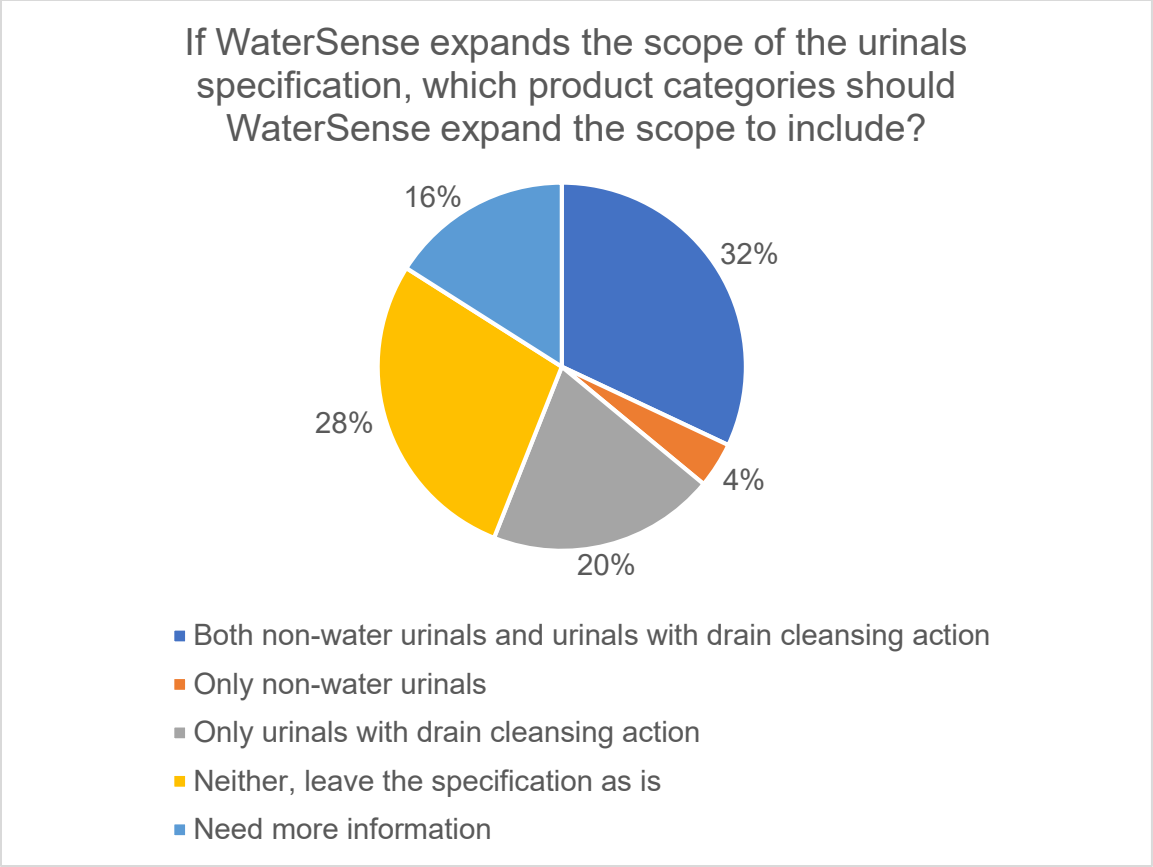

Figure 7: Poll Question #7

4.0 General Water Efficiency Considerations

Ms. Tanner summarized three studies that Plumbing Manufacturers International (PMI) brought to the EPA's attention that examine how utilities adapted to reductions in water use and identify potential health risks associated with declining water usage and flows. Ms. Tanner also summarized a collaborative effort among WaterSense, the National Institute of Standards and Technology (NIST) and the Water Research Foundation (WRF) to organize a workshop in August 2018 focused on research needs to inform premise plumbing design, installation and maintenance. The workshop synthesis report was released in December 2018 and can be viewed here: https://nvlpubs.nist.gov/nistpubs/gcr/2019/NIST.GCR.19-020.pdf

Participant Comments

Comment: Regarding urinals, the percentage of fixtures and flush valves certified separately that are rated between 0.25 gpf and 0.5 gpf make up approximately half of certified models. However, you can see that the percentage goes down for combination systems rated between 0.25 gpf and 0.5 gpf, and the percentage of combination system\s at 0.125 goes up. At lower flush volumes, combinations become important, because consumers have to match the appropriate valve with the appropriate fixture, and that may address some of the drainline buildup issues that were mentioned in this presentation. Because there is still more

than 50 percent of fixtures and flush valves separately listed at 0.5 gpf to 0.25 gpf, I would caution going any lower because it does not seem like there has been significant market transformation.

5.0 Future Stakeholder Meetings and Next Steps

Ms. Tanner reviewed the schedule for upcoming product-specific industry webinars scheduled in May and June 2019 and noted that these meetings are open to everyone, but they are each targeted for specific audiences. Attendees are welcome to register at www.epa.gov/watersense/product-specification-review#webinars.

Ms. Tanner reminded attendees to submit comments, data and questions on this product review process to watersense-products@erg.com. She asked that attendees try not to repeat old comments or suggest studies that were already discussed during this meeting.

Ms. Tanner adjourned the meeting by encouraging those with outstanding questions to contact the WaterSense Helpline at watersense@epa.gov or (866) WTR-SENS (987-7367). She thanked everyone for their participation.

Appendix A: Meeting Participants

Attendee	Organization
Jacob Adili	Underwriters Laboratories (UL LLC)
Joseph Benson	EcoSense Solutions
John Bertrand	Fortune Brands Global Plumbing Group
Celeste Calhoun Johnson	Sloan
Maribel Campos	International Code Council Evaluation Service (ICC-ES)
Shirley Dewi	International Association of Plumbing and Mechanical Officials (IAPMO) Research and Testing (R&T) Lab
Fernando Fernandez	Toto USA Inc.
Mark Fish	Zurn Industries, LLC
Rob Furioso	Symmons Industries
Jeffrey Gerbick	Delta Faucet Company
Mark Gibeault	Kohler Co.
Daniel Gleiberman	Sloan
Larry Himmelblau	Chicago Faucets
Jonathan Hole	Masco Canada
Parker Johnson	T&S Brass and Bronze Works, Inc.
Kevin Kennedy	Niagara Conservation
John Lauer	Sloan
CJ Lagan	LIXIL Water Technology Americas
Karel Lysy	Belanger-UPT
Martin Marsic	Waxman Consumer Products
Ramiro Mata	American Society of Plumbing Engineers
Chris McDonald	Fortune Brands Global Plumbing Group
Cambria McLeod	Kohler Co.
Andrew Morris	Metropolitan North Georgia Water Planning District
Bob Neff	Delta Faucet Company
Ada Poon	Delta Faucet Company
Wendy Pratt	Zurn Industries, LLC
Stephanie Radebaugh	Mansfield Plumbing Products
Shabbir Rawalpindiwala	Kohler Co.
Sanjay Ray	Truesdail Laboratories, Inc.
Ravishankar Sampangiramaiah	T&S Brass and Bronze Works, Inc.
Farhad Shahriary	Acorn Engineering Co.
Matt Sigler	PMI
Suzan Somo	NSF International
Jon Vann	IAPMO

Attendee	Organization
Kerri Ann Wright	Waterworks

Presenter	Organization
Stephanie Tanner	U.S. EPA
Robbie Pickering	ERG
Kim Wagoner	ERG
Karina Hendren	ERG