

WaterSense® Specification Review Webinar for Plumbing Fittings Manufacturers Summary

April 24, 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 Showerheads* and/or the *WaterSense High-Efficiency Lavatory Faucet Specification*. The EPA organized this meeting with industry and manufacturer partners as part of the revision determination process.

The main objectives for this meeting were as follows:

- 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 received to date on the *Notice of Specification Review*, as they relate to plumbing fittings.
- Solicit additional feedback and information from manufacturer stakeholders.

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

A PDF of this presentation can be reviewed 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 Lavatory Faucet Specification Considerations

Robbie Pickering of Eastern Research Group, Inc. (ERG), a WaterSense contractor, summarized background on the *WaterSense High-Efficiency Lavatory Faucet Specification*, including certification trends and the number of products certified to date. Mr. Pickering provided an overview of the current lavatory faucet specification requirements. The WaterSense

specification allows a maximum flow rate of 1.5 gallons per minute (gpm) at 60 pounds per square inch (psi). All faucets and faucet accessories must: conform to applicable requirements within ASME A112.18.1/CSA B125.1 *Plumbing Supply Fittings*; have a minimum flow rate of 0.8 gpm at 20 psi; and be marked with the maximum flow rate.

Water Efficiency and Performance Considerations

Mr. Pickering explained that, due to changes in the market and new regulations adopted by various states and municipalities, the EPA is considering reducing the maximum flow rate criteria below 1.5 gpm. The EPA has identified several savings studies to evaluate the water savings potential of lowering the maximum flow rate of lavatory faucets. The EPA would consider revising the minimum flow rate requirement, which may be more difficult to meet if the maximum flow rate requirement is reduced. Lowering the minimum flow rate will likely drive incorporation of pressure compensation rather than fixed orifice flow control.

Mr. Pickering reviewed outstanding questions the EPA would still like feedback on related to lavatory faucets and invited participants to ask questions. No questions or comments were submitted at this point.

Poll Questions

Ms. Tanner polled attendees on whether they believe WaterSense has enough information to determine whether to revise its specification for lavatory faucets. The results are shown in Figure 1.

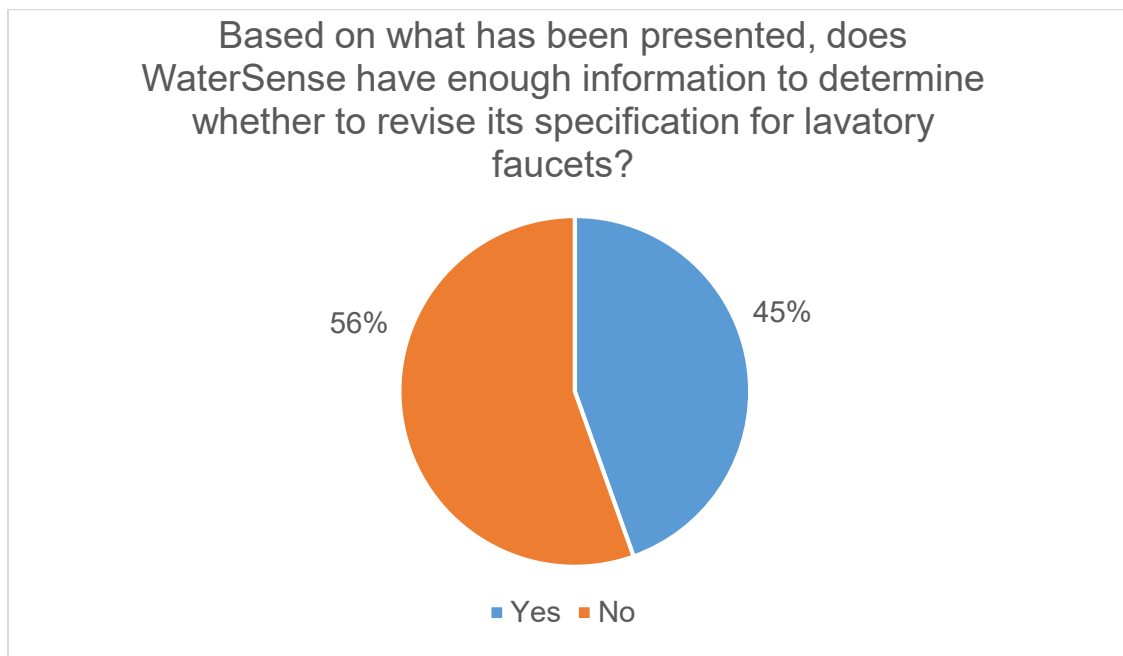


Figure 1. Poll Question #1

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

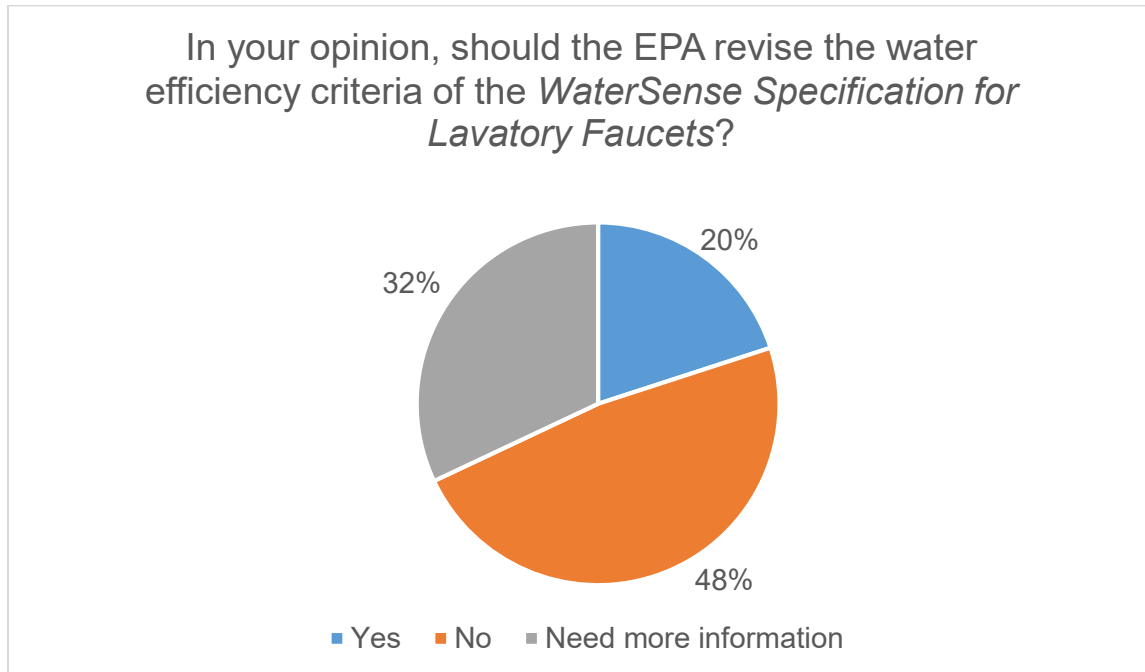


Figure 2: Poll Question #2

Ms. Tanner explained that, due to the recent shift in the market towards 1.2 gpm faucets, the 1.5 gpm WaterSense threshold no longer seems to serve a purpose. However, based on feedback from this poll, it appears that stakeholders are generally unsupportive of a revised specification. Therefore, it may be time to consider retiring the faucet specification. Ms. Tanner said that this is something she would like to hear more feedback about from attendees.

Participant Questions and Comments

Q: What is the EPA changing exactly?

A: Ms. Tanner explained that at this point, the EPA has not identified any intended changes. The purpose of this meeting was to examine existing data and determine whether more information is needed before the EPA decides whether or not to revise the specifications. Some specifications may not require changes due to the current market behavior, while others may benefit from revisions. If the EPA decides that a revision is necessary, the agency will move forward into the analysis stage, where decisions about specific changes will be made and stakeholders will have an opportunity to provide additional feedback.

Q: Is the California information for water savings based on actual measurements, or is it an estimate or calculated value based on assumption?

A: Mr. Pickering responded that the California Energy Commission (CEC) estimate is based on assumptions. The CEC used some preliminary data from existing studies, but most of the calculations are theoretical. WaterSense performed its own estimate and used a more conservative approach to determine potential savings. However, there are no existing real-world data to assess specific water savings from switching to 1.2 gpm or 1.0 gpm lavatory faucets.

Q: I am confused about the data included in the specification review document and the chart that Mr. Pickering presented. Is it not true that about 50 percent of WaterSense products are still between 1.5 and 1.2 gpm? If so, how can you say that there has been market transformation?

A: Mr. Pickering responded that more recently, most products are being certified at 1.2 gpm or 1.0 gpm, which is evidence that the market is beginning to shift in that direction. Ms. Tanner also mentioned that the data only show the number of models being certified, not the total number of products being purchased and shipped. Therefore, it is possible that 1.2 gpm faucets are being sold at higher rates than 1.5 gpm (or vice versa). WaterSense does not have this type of data.

Q: Eliminating the lavatory faucet specification would have a larger affect due to several authorities having jurisdiction (AHJs) requiring products be WaterSense labeled, not just compliant with the maximum flow rate criteria. Does the EPA have a list of the AHJs requiring this?

A: Ms. Tanner responded that the EPA does not have a list at the local level, but only receives this information if the AHJs tell them specifically. Mr. Pickering said that beyond the state level, there are a few municipalities in the metro Washington DC and Chicago areas, but it is generally localized, so the EPA only hears about it by word of mouth.

One attendee commented that the study by Georgia only inspected retail stores. Manufacturers have to change to 1.2 gpm because they can't control what gets shipped to California. The commenter asked that EPA not make decisions based on this study.

Q: WaterSense criteria is voluntary. Is there any effort in making it mandatory?

A: Ms. Tanner responded that the WaterSense program is voluntary by nature, and the EPA does not intend to make it mandatory. Also, this would require the U.S. Department of Energy (DOE) to change its requirements, and the EPA has not received any indication that the DOE is interested in doing so.

Q: The 2016 Residential End Uses of Water study indicated that water use barely changed and water use for each event was 0.48 gpm. Given this data, is the specification even necessary?

A: Mr. Pickering clarified that 0.48 gpm was the average flow rate of most (62.6 percent) events. However, there were still many events recorded at higher flow rates (31.9 percent of events had an average flow rate of 1.39 gpm) where savings could be realized if WaterSense lowered its maximum flow rate.

Q: Did Metropolitan North Georgia Water Planning District's study take into account products that are available at stores, online, or both?

A: Mr. Pickering responded that this was just an in-store assessment and acknowledged that the online retail market may be different.

Scope Considerations

Mr. Pickering summarized the scope of the current WaterSense faucet specification, which applies to bar sink and lavatory faucets and accessories in private use and excludes metering faucets, lavatory faucets in public use and kitchen faucets.

i. Kitchen Faucets

Mr. Pickering explained that, due to changes in the market and inquiries from WaterSense manufacturer and promotional partners, the EPA is considering expanding the scope of the faucet specification to include kitchen faucets. Mr. Pickering then provided details about the current market and existing water savings data that the EPA has collected regarding kitchen faucets. In addition to establishing a flow rate threshold, the EPA would also identify performance considerations (e.g. temporary override feature, minimum flow rate) to ensure adequate functionality and customer satisfaction.

Participant Questions and Comments

Q: Can you confirm that the intent is for all modes to meet the 1.8 gpm target?

A: Mr. Pickering responded that, as Ms. Tanner had previously stated, the EPA is not deciding on a threshold at this point. The intent of this meeting was to summarize the information that the EPA collected regarding potential savings and the current state of the market.

Q: It was stated that most kitchen faucet models don't have an override function. Is this based on manufacturer callouts on specification sheets or their websites?

A: Mr. Pickering responded that the EPA examined specification sheets, reviewed retail websites and interviewed multiple manufacturers during the data collection process to draw this conclusion. There are many products that do include this feature; however, research shows that the large majority do not. Based on feedback from utility and manufacturer partners, there has not been any significant user pushback regarding 1.8 gpm or 1.5 gpm kitchen faucets.

Q: Why develop a kitchen specification that, it appears, would only duplicate the market?

A: Ms. Tanner responded that over the years, WaterSense has received many requests from manufacturers and other partners to develop a WaterSense kitchen faucet specification. Therefore, the EPA felt that the agency should investigate whether this would be a worthwhile scope expansion, or if the market has shifted such that a kitchen faucet specification is no longer necessary.

ii. Metering Faucets

Mr. Pickering explained that the EPA is also considering expanding the scope of the faucet specification to include metering faucets. This consideration is driven by the fact that metering faucets do not have a regulated maximum flow rate or cycle length, contrary to other public lavatory faucets. Also, the EPA has received reports that WaterSense labeled aerators are being used on metering faucets to claim that they are WaterSense labeled. Mr. Pickering then provided details about the current market and existing water savings data that the EPA has collected regarding metering faucets. In addition to establishing a flow rate threshold, the EPA would also identify performance considerations (e.g. life cycle testing, minimum flow rate) to ensure adequate functionality and customer satisfaction.

Mr. Pickering summarized comments received to date on the *Notice of Specification Review* related to lavatory faucets, kitchen faucets and metering faucets. He also reviewed outstanding questions the EPA would still like feedback on related to kitchen and metering faucets.

Participant Questions and Comments

Q: Do you have any thoughts on metering faucets now also being infrared controlled? In fact, infrared for us is by far the largest market share.

A: Mr. Pickering responded that the WaterSense labeling criteria typically avoids stipulating activation methods of products. If WaterSense were to develop a metering faucet specification, it would encompass all modes of activation, including infrared.

Q: Thank you for showing the definitions from various sources and for pointing out that there are some data points (ADA and LEED) for cycle time but no industry guidelines or accepted hard information about cycle times. However, what should be considered is that the definitions and their application still have an analog approach, meaning that they have a traditional spring loaded or mechanical faucet that requires some type of user interface in all of these approaches. That is old technology and an outdated approach, so if WaterSense does look at adding these to an existing specification or a new one, the distinction between these older technologies and new ones must be considered.

A: Ms. Tanner said that she agrees with that statement. Mr. Pickering responded that within the ASME/CSA committee, there has been an ongoing discussion about refining definitions related to metering faucets vs. self-closing faucets vs. other public lavatory faucet types. There remains some confusion within the industry about the definition of these faucets, but hopefully new definitions within the ASME A112.18.1/CSA B125.1 standard help to resolve it. If WaterSense were to pursue a metering faucet specification, the agency would work with the industry to make that distinction.

Poll Questions

Ms. Tanner polled attendees on what product categories WaterSense should expand the scope of its faucet specification to include. Results of the poll are shown in Figure 3.

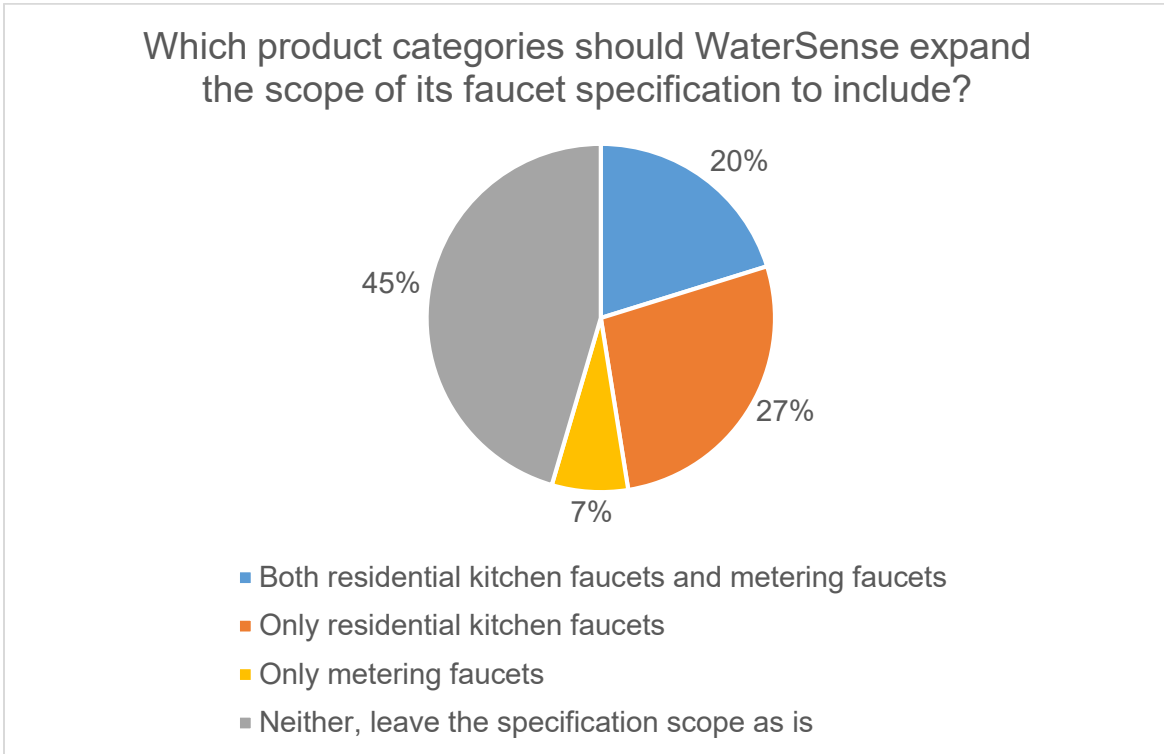


Figure 3: Poll Question #3

3.0 Showerhead Specification Considerations

Kim Wagoner of ERG provided an overview of the current *WaterSense Specification for Showerheads* and summarized information that WaterSense has collected regarding high-efficiency showerheads in the current market. The current specification allows for a maximum flow rate of 2.0 gpm and must also conform to performance requirements included in the *ASME A112.18.1/CSA B125.1 Plumbing Supply Fittings* standard, including requirements related to minimum flow rate, spray force and spray coverage. The EPA has not identified any areas for potential scope expansion; however, there could be potential for water efficiency and performance revisions.

Water Efficiency and Performance Considerations

Ms. Wagoner explained that, due to changes in the market and new regulations adopted by various states and municipalities, the EPA is considering reducing the maximum flow rate below 2.0 gpm. Ms. Wagoner then summarized the savings studies that the EPA has identified to evaluate potential water savings associated with lower showerhead flow rates. The EPA is also considering revising the showerhead performance criteria. However, the agency has no data to suggest that users are dissatisfied with the current performance of labeled showerheads. Ms. Wagoner then reviewed potential health and safety concerns that have been associated with lower flow showerheads (e.g., thermal shock, scalding).

Ms. Wagoner summarized comments received to date on the *Notice of Specification Review* related to showerheads. She also reviewed outstanding questions the EPA would still like feedback on related to showerheads.

Participant Questions and Comments

Q: Have you considered the amount of time related to soft water and hard water?

A: Ms. Wagoner responded that no, none of the studies have specifically looked at the impact that water hardness has on shower length.

Q: Why doesn't WaterSense include body sprays?

A: Ms. Tanner responded that the EPA feels that body sprays are inherently inefficient devices because they are a luxury product intended to supplement a typical showerhead; therefore, the EPA does not intend to include them in the WaterSense program.

Q: There are significant savings opportunities available by saving the hot water that is wasted during warm up. Has WaterSense considered adding those types of products to a certification program?

A: Ms. Tanner responded that WaterSense is always looking for new products and that those devices are a potential area of expansion. If attendees have any details or further information on this topic, or want to submit a suggestion in written comments, that would be appreciated. Mr. Pickering mentioned that, if the commenter is referring to thermostatic shutoff valves, those can be integrated within the showerheads and are therefore eligible for the current specification. However, standalone devices/add-ons are not currently eligible.

Q: One commenter suggested that the EPA look at Amazon reviews of 1.8 gpm showerheads because there is a large number of people complaining about reduced performance or force.

A: Ms. Tanner responded that she has seen these reviews. User dissatisfaction is especially concerning when people start removing restrictors from their showerheads to improve performance, and this is a major concern of water utilities.

Q: The original concern regarding scalding still exists due to the replacement market. How will the EPA alleviate those concerns if the flow rate is decreased?

A: Ms. Wagoner responded that the EPA would revisit harmonization efforts between the fittings and automatic compensating valves standards, but that to our knowledge, there are marking requirements within each standard to ensure a showerhead can be matched with a compensating valve rated at the same flow rate. Ms. Tanner said that yes, this is a concern. The valve standards are supposed to be tested at 45 psi, as are WaterSense labeled showerheads. In theory, there may be valves at lower flow rates than 2 or 2.5 gpm. Therefore, customers would still be able to match their showerhead with the valve when they replace it. However, this would require replacement of the whole system, not just the showerhead, which isn't always done.

- Q: There is a large difference in the stated flow rate and actual flow rate. How does WaterSense take this into consideration when looking at performance? For example, a 1.8 gpm showerhead flows more like 1.5 gpm. We are getting to a point where consumers are not going to like their showers.
- A: Ms. Wagner responded that when the showerhead is tested, it is required to be within a range of its rated flow rate and properly marked. In the market, the showerheads might not flow at 60 psi, which is why WaterSense established a pressure compensation requirement, so that the flow rate at different water pressures is a certain percentage of the maximum in order to guarantee a minimum level of satisfaction. Ms. Tanner said that WaterSense can only set performance criteria to a certain extent. There is a wealth of other information that is available to consumers (e.g., Amazon reviews), but is outside the scope of the WaterSense performance requirements. Because people's preferences are individualized, it would be very difficult to set criteria to ensure user satisfaction. WaterSense tries to include minimum criteria within the performance requirements of the specification; however, there are many performance aspects that are outside of WaterSense's control.
- Q: Are you considering gunk build up? If you reduce the flow rate and then add to that the gunk build up, wouldn't that be a concern because it will reduce the actual flow rate even more?
- A: Ms. Tanner responded that yes, this is a possible outcome of lower flow rates. However, even at the current flow rates, people have a responsibility to maintain their fixtures and remove buildup when it starts to affect performance.
- Q: How do you address educating the public about matching replacement shower heads/hand showers to the original shower valves/faucets flow rates to avoid potential thermal shock or anti-scald? There are standards that address this topic, but the general public is mostly not aware of this issue.
- A: Ms. Wagoner responded that WaterSense has tried to educate the public in the past and will likely need to put more effort into this if the flow rate is lowered. Ms. Tanner responded that this would be handled on the outreach side. The EPA has required that information about matching valves be included on showerhead packaging. Lowering the flow rate would require more coordination with utility partners regarding rebates and retail partners, as well as more discussion with the industry about how to convey this information to the public (particularly plumbers).
- Q: For combination products (that included a fixed showerhead plus a handheld showerhead), would it be possible to change the requirement for the handheld showerhead to have an exception for the spray coverage test as long as the fixed showerhead would meet the spray coverage requirement?
- A: Ms. Wagoner responded that that is something WaterSense could consider if the EPA decides to revise the specification. Ms. Tanner responded that some handheld showers are sold separately from showerheads, so she would like to ensure that the handheld shower does not get used in place of the showerhead and therefore fails to meet the WaterSense showerhead requirements. In cases where the showerhead is removeable and becomes a

handheld device, the EPA would like for the handheld/showerhead to still meet all performance criteria.

Q: I am a technical consultant in the plumbing industry and can tell you by firsthand experience that most people will not know the flow rate of older valves, and I feel this topic is of great importance, especially when a plumber or professional is not involved.

A: Ms. Tanner responded that she agrees with this statement completely.

Q: Most consumers do not know the rating of their shower valve, so decreasing the flow rate will create more potential scalding situations. What is the EPA's position with respect to product liability?

A: Ms. Tanner responded that she does not believe the EPA takes on additional product liability; however, that's a question that she does not think she's able to answer. There are plenty of products already in the marketplace at these low flow rates. Liability should not fall to WaterSense when these flow rates are already in widespread use in the marketplace.

Q: Can you clarify your previous statement about handheld showerheads being sold in combination packages?

A: Ms. Tanner summarized the previous question regarding potential performance requirement relief for handheld showerheads sold as a bundle with fixed showerheads. She then clarified her response to that question, stating that it is possible for those handheld showerheads to be sold both in a combination package and individually. In this case, individually sold handheld showerheads would need to meet all performance criteria to be WaterSense labeled. Mr. Pickering clarified that in an instance where the handheld showerhead and fixed showerhead are one product and cannot be sold separately, this device could be captured as a multi-modal showerhead, in which case all modes (fixed showerhead and handheld showerhead) must meet the maximum flow rate requirement, but only one mode (likely the fixed showerhead) is subject to meet all of the performance requirements. Ms. Tanner said that this depends on how the product is marketed and defined.

Q: Please clarify whether or not handheld showers are considered "showerheads" in the WaterSense criteria.

A: Ms. Tanner confirmed that WaterSense does consider handheld showerheads to be showerheads for specification and labeling purposes.

Q: One commenter suggested that it might be helpful to partner with manufacturers (not including third-party certifiers) to sell a standardized version of the spray force test protocol apparatus (see Figure 1 of *Explanation of Performance Testing Under the WaterSense Specification for Showerheads*). Perhaps the material used on the individual parts affects the testing result.

A: Mr. Pickering responded that the current ASME A112.18.1/CSA B125.1 standard includes engineering design drawings for certifying bodies/manufacturers to use when creating the

testing apparatus. Ideally, these drawings will be followed precisely to ensure that testing is consistent.

Poll Questions

Ms. Tanner polled participants about whether they think WaterSense has enough information to determine whether to revise its specification for showerheads. Results of the poll are shown in figure 4.

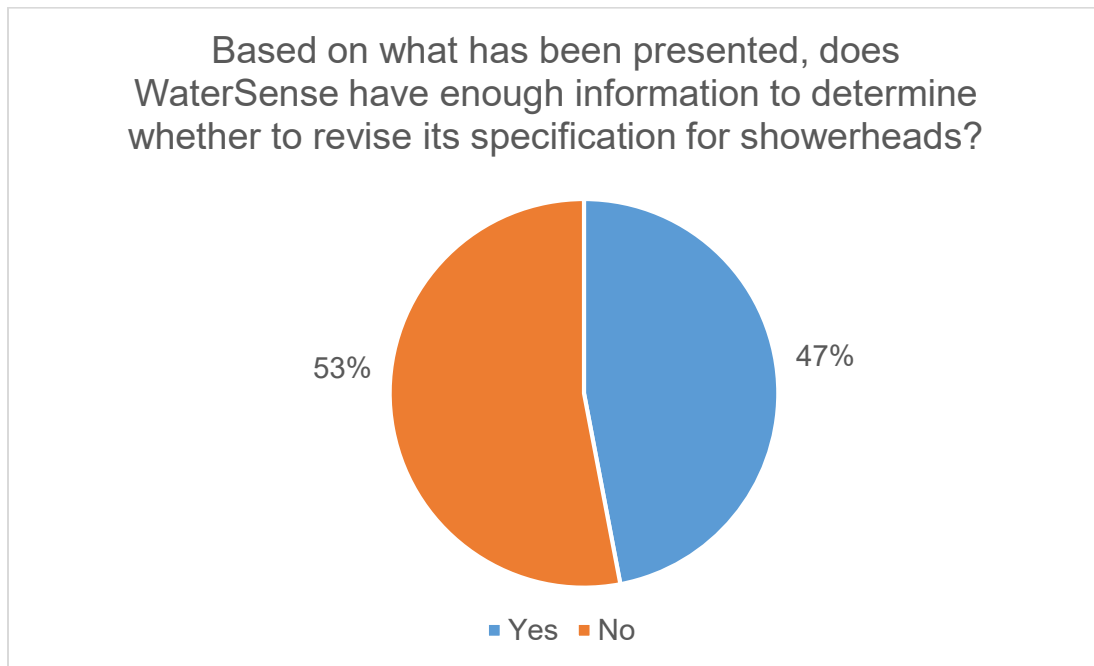


Figure 4: Poll Question #4

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. One attendee suggested that the EPA consider the impacts of water hardness.

Ms. Tanner then polled attendees on whether they think the EPA should revise the water efficiency criteria of the *WaterSense Specification for Showerheads*. Results of the poll are shown in Figure 5.

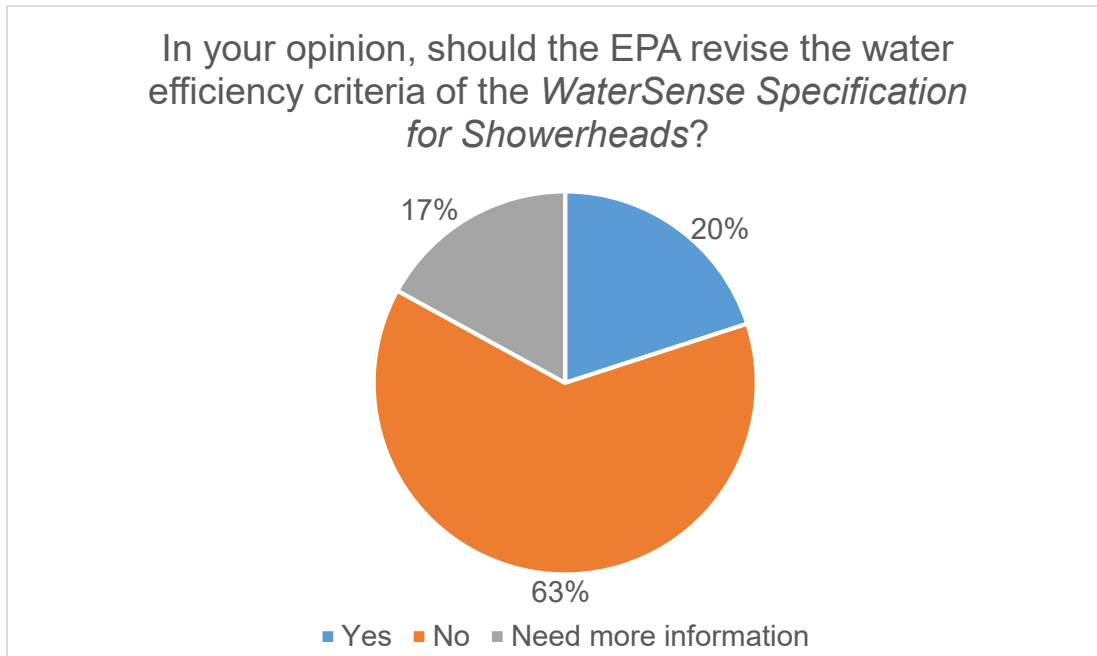


Figure 5: Poll Question #5

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 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 Questions and Comments

One commenter recommended that the EPA contact Gary Klein about the CEC’s study *Code Changes and Implications of Residential Low Flow Hot Water Fixtures*. Ms. Tanner responded that that study has been recommended to WaterSense before; however, it has not been published yet, so the EPA cannot draw any information from it.

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.

Participant Questions and Comments

Q: In estimation, when will the changes, if any, take place?

A: Ms. Tanner responded that the EPA will decide in December 2019 whether to revise any of the WaterSense specifications. If necessary, the revision process would begin in early 2020 and would include further discussions with industry and promotional partners. The revised specifications could be completed as early as December 2020, though this may be an optimistic timeline, and WaterSense would establish a transitional period to allow manufacturers to shift their products to the new criteria.

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) and thanking everyone for their participation.

Appendix A: Meeting Participants

Attendee	Organization
Jordan Acton	American Association for Laboratory Accreditation (A2LA)
Jacob Adili	Underwriters Laboratories (UL LLC)
Abbie Batog	National Sanitation Foundation (NSF) International
John Bertrand	Fortune Brands Global Plumbing Group
Arthur Binder	EcoSense Solutions
Debra Burden	Citrus County, Florida Utilities
Terry Burger	NSF International
Celeste Calhoun Johnson	Sloan
Maribel Campos	International Code Council Evaluation Service (ICC-ES)
Olivia Caracostea	Moen
Frederick Desborough	Technical Consultant with Plumbing Manufacturers International (PMI)
Kevin Ernst	OS&B
Donna Estrada	International Association of Plumbing and Mechanical Officials (IAPMO) Research and Testing (R&T) Lab
Gene Faasse	T&S Brass and Bronze Works, Inc
Frank Foster	Symmons Industries
Fred Fraise	Neoperl
Jeff Gerbick	Delta Faucet Company
Mark Gibeault	Kohler Co.
Daniel Gleiberman	Sloan
Tom Graves	Water Pik, Inc.
Fred Grewen	Matco-Norca
Larry Himmelblau	Chicago Faucets
Katie Hayes	Gerber/Danze
Jonathan Hole	Masco Canada
Brian Jennings	Waterworks
Parker Johnson	T & S Brass and Bronze Works
Kevin Kennedy	Niagara Conservation
Keiko Koami	Lota USA
John Koeller	Koeller and Company
Louis Ku	Foremost Groups, Inc.
Robert Laflamme	L'Image Home Products inc.
Duncan Liang	CSA Group
Sean Liu	Pioneer Industries
Kurt Markshausen	BITS Smart Strip, LLC
Mark Malatesta	Lixil Water Technology

Attendee	Organization
Jon Manoj	NCH Corp
Matthew Marble	NSF International
Martin Marsic	Waxman Consumer Products
Ramiro Mata	American Society of Plumbing Engineers (ASPE)
Chris McDonald	Fortune Brands - Global Plumbing Group
Cambria McLeod	Kohler Co.
Andrew Morris	Metropolitan North Georgia Water Planning District
Abraham Murra	Abraham Murra Consulting
J. David Musselwhite	International Accreditation Service (IAS)
Bob Neff	Delta Faucet Company
Ron Orlowski	Component Hardware
Ada Poon	Delta Faucet Company
Wendy Pratt	Zurn Industries, LLC
Carrie Roberts	IAPMO
Stephanie Salmon	PMI
J'aime Salvatore	Neoperl
David Schwartzkopf	Willoughby Industries
Danira Serrano	Pfister
Farhad Shahriary	Acorn Engineering Co.
Troy Sherman	Evolve Technologies
Matt Sigler	PMI
Vince Vu	Brasstech Inc.
Abby Williams	Kearns Improvement District
Tracy Wilson	Symmons Industries
Roberto Zanola	CSA Group

Presenter	Organization
Stephanie Tanner	U.S. EPA
Amanda Forsey	ERG
Robbie Pickering	ERG
Kim Wagoner	ERG