



**Comments on WaterSense® Notice of
Intent (NOI) to Develop a Draft Specification
for Bath and Shower Diverters**

July 7, 2017

Table of Contents

Greg Chick, Ramona’s Plumber	2
Tom Burke, Victoria + Albert Baths Ltd.....	3
Mark Malatesta, LIXIL Water Technology America	5
Marianne Balfe, Marriott International.....	7
Russ Horner, Water Management Inc.	8
David Schwartzkopf, Willoughby Industries, Inc.	9
Matt Sigler, Plumbing Manufacturers International	10
Alan Work, Evolve Technologies LLC.....	13
Cambria McLeod, Kohler Co.	14

Commenter: Greg Chick
Affiliation: Ramona's Plumber
Comment Date: December 13, 2016

Email Text:

Please excuse my blunt comment, cheap die cast tub spouts corrode and leak. The public's perception of what a diverter spout has been selling for is likely to curtail a price/cost increase. And without regular replacement of corroded and thus leaky spouts, the issue has challenges. Mandating better spouts to be made for new installs is fine, but those spouts, regardless of a new positive seal need to be made from something better than die cast pot metal.

I am not in any way connected with the Delta company but they make a durable relatively cheap diverter spout. 100% seal and I have not seen troubles with them. Again, I am just a service repair plumber that has seen failure and want to suggest the best option and the list the failure of poor materials.

Thank you for your indulgence.
Greg Chick, Ca. Lic. 315036, C-36, LEED AP, ARCSA AP, CWA, owner
diyplumbingadvice.com having over 10 million viewers who want to save water & fix leaks.

Commenter: Tom Burke
Affiliation: Victoria + Albert Baths Ltd
Comment Date: February 3, 2017

Email Text:

Dear Watersense

Let me begin by advising that we wholly support an improvement to the current ASME A112.18.1/CSA B125.1 standard in regards to reducing the leak rates

VII. Summary of Information Requests

Scope.

1. Yes, the definition is acceptable
2. No, the definitions here are not good enough, a tub-to-shower diverter is not restricted to only being embedded into the wall
3. Yes, use the same definitions for marketing to avoid confusion for the consumer

Marking and Product Documentation

1. Current bath and shower diverters are not marked to communicate any information about a leak rate and this is correct and should remain. If we begin to mark for leak rates we will end up covering the products in varying flow rates and references that a consumer will not be able to understand without a copy of the standard. Many consumers will not know if a 0.1gpm leak is acceptable and they will solely rely on the standards being written to ensure products that are inferior cannot pass the standards. It can also lead to customers confusing flow rate from the showerhead to the leak rate at the diverter. To summarise, we do **not** believe marking diverters should be a practice.

With the information shown in the research in for the NOI we would support a change to the ASME A112.18.1/CSA B125.1 standard to reduce the current allowable leak rates from the diverters.

Thanks Tom



volcanic limestone baths

Tom Burke, Product Development Manager

Victoria + Albert Baths Ltd, Unit B, Hortonwood 37, Telford, Shropshire, TF1 7XT, UK

tburke@vandabaths.com

t: +44 (0)1952 221100 m: +44 (0)7825 327976 f: +44 (0)1952
221111 www.vandabaths.com

Please consider the environment: do you really need to print this email?

Confidentiality - This message contains confidential information and is intended only for the individual named. If you are not the named addressee you should not disseminate, distribute or copy this e-mail. Please notify the sender immediately by e-mail if you have received this e-mail by mistake and delete this e-mail from your system. E-mail transmission cannot be guaranteed to be secure or error-free as information could be intercepted, corrupted, lost, destroyed, arrive late or incomplete, or contain viruses. The sender therefore does not accept liability for any errors or omissions in the contents of this message or any attached documents or for any damage suffered by your computer system caused by any errors or viruses contained within this e-mail message or any attached documents. VAT No. GB 884 2502 16



Commenter: Mark Malatesta
Affiliation: LIXIL Water Technology America
Comment Date: February 8, 2017

Email Text:

Lixil Water Technologies America - LWTA (American Standard, DXV and Grohe) has been a loyal partner with the EPA WaterSense program since its inception. LWTA values this partnership because the basis of the WaterSense Program is to conserve water while still providing consumers with high performing products. And LWTA appreciates the fact that the EPA has always valued LWTA input as a manufacturer. LWTA appreciates the manner in which the EPA develops their specifications and allows all stakeholders the opportunity to comment on their proposals. With that in mind I would like to provide the following comments on behalf of LWTA in advance of the February 8, 2017 webinar.

1. The NOI introduction clearly identifies the main cause for leaking bath and shower diverters to be “old leaky diverters” or “products ... used for many years beyond the typical life cycle”. Developing a new specification that can only address new products does not affect previously installed product. EPA mentions that this specification will bring attention to this product type which may cause consumers to change out old bath and shower diverters. Studies on existing WaterSense certified products, like toilets and showerheads, indicate low percentages (~20%) of consumer install base have actually converted to WaterSense certified products. WaterSense specifications for toilets and showerheads have existed for 10 and 7 years, respectively. If consumers have not converted to WaterSense certified toilets and showerheads, we find it hard to believe they will convert their bath and shower diverters.
2. One of the EPA’s main arguments for going to “0-0” rated diverters is that 1,150 models are listed in the CEC database. Unfortunately, the CEC database does NOT identify if any of the 1,150 diverters are “bath and shower automatic reset diverters”. This is vital information as the proposed WaterSense specification is referencing the ASME A112.18.1/CSA B125.1-2012 testing requirements. Clause 5.6.1.5.2 requires automatic reset diverters to reset itself to the tub position. From a design perspective it is extremely difficult to design an automatic reset diverter to have 0-0 leakage and rest itself to the tub position. The CEC does require manufacturers to list all types of bath and shower diverters and some have positive shut-off. The positive shut-off diverter will result in 0-0 leakage rate, but it does NOT automatically reset. Please note that Pull Type, Push Type, Turn Type, etc. is not an indicator of an automatic reset diverter.
3. We believe this specification will have a very small effect on water conservation. This is based on the fact that this specification only affects brand new product, and most manufacturers design product to meet the CEC requirements of 0.01 gpm leakage rate.
4. The 0-0 requirement will force many manufacturers to implement very expensive design changes, because manufacturers do not want to lose the WaterSense certification on existing bath & shower trims sets that include WaterSense certified showerheads. The alternative would be to drop the WaterSense

- certification on such trims, because the 0-0 requirement cannot be achieved on the existing automatic reset diverters. The result of this would be many existing WaterSense certified showerhead models being dropped from listing and the loss of the annual sales numbers for all of those models.
5. As a manufacturer LWTA values and participates in all of the other applicable WaterSense specifications, because we see an advantage to marketing those products with the WaterSense mark. LWTA does not see any value in the development of a specification for bath and shower diverters. LWTA expects significant costs to redesign our products and to certify and maintain another certification files. At the same time LWTA believes that bath and shower diverters represent a minimal piece of the market. It does not seem logical to focus significant resources here, that will result in limited impact on water conservation.

Regards,

Mark Malatesta

Sr. Product Compliance Engineer, LIXIL Water Technologies
American Standard Brands
865 Centennial Avenue, Piscataway, NJ 08854
Tel: 732-369-4061 | Mobile: 732-425-1556
E-mail: malatestam@lixilamericas.com
www.americanstandard.com | www.dxv.com

Commenter: Marianne Balfe
Affiliation: Marriott International
Comment Date: February 8, 2017

Email Text:

Hello, Veronica,

It is nice to hear from you, thanks for reaching out!

Diverters are certainly a water waste problem for us, particularly when properties install inexpensive plastic diverters instead of investing in more durable/reliable metal diverters.

I already have another call from 1-2p ET but if I can wrap it up early and join your call, I will. Otherwise, I will review the NOI and respond back through your system.

I look forward to catching up one of these days. Next time I have extra time on a HQ (MD) trip, I'll reach out!

Best regards,

Marianne

Marianne Balfe | Director of Energy and Environmental Sustainability | The Americas |
Marriott International | phone 415-377-1362

Commenter: Russ Horner
Affiliation: Water Management Inc.
Comment Date: February 8, 2017

Email Text:

Veronica –

Great to hear from you. I will be out today, but Tom will be able to join the call. Interesting topic – we run across problems with diverters all the time. The problem seems to be getting a little bigger now that more back pressure is created as a result of lower flow showerheads.

Thanks again for reaching out. I hope we can talk or see each other soon.

Best Regards,

Russ Horner



W: 703-370-9070 x113

Cell: 703-989-0089

Commenter: David Schwartzkopf
Affiliation: Willoughby Industries, Inc.
Comment Date: February 8, 2017

Email Text:

Thanks for the informative webinar and fielding my questions and concerns today as you did. I am open to review further if it is useful.

I also wanted to let you know that I have transitioned into a semi-retired mode where I am only in the office two days a week (typically Tuesdays and Wednesdays), so I may not be in the office if you call. However, my schedule is fairly flexible, so feel free to reach me at other contact points where I am more frequently available and responsive:

Cell Phone: 317-416-8210

Email: david@schwartzkopf.org (cc'd on this email)

Also, I will be in the DC area visiting grandkids in Vienna, VA, toward the end of the week. I do not know if you are open to face-to-face meetings and giving tours of your facility while my grandkids are at school; but I'd be open for that. If that is not possible or feasible, the phone and email channels are fine.

David Schwartzkopf
Engineering Assistant
Willoughby Industries, Inc.
5105 W. 78th Street
Indianapolis, IN 46268
Phone 317-875-0830



WILLOUGHBY

"Willoughby Industries' products are made in the USA"

<http://www.willoughby-ind.com>

Commenter: Matt Sigler
Affiliation: Plumbing Manufacturers International
Comment Date: February 17, 2017

Email Text:

EPA Staff –

Please accept PMI's comment letter in regards to the EPA WaterSense NOI to develop a draft specification for bath and shower diverters. If you have any questions, please feel free to contact me at your convenience.

Regards,

Matt Sigler
Plumbing Manufacturers International
Technical Director
847-217-7212
Email: msigler@safep plumbing.org
www.safep plumbing.org

Safe, responsible plumbing. Always.

[Mission Statement](#)

Follow, like and share SafePlumbing messages on [Twitter](#), [Facebook](#) and [Google+](#). On LinkedIn, follow, like and share [SafePlumbing](#) and [PMI](#).

Email Attachment: Letter to EPA – Draft Specification for Bath and Shower Diverters FINAL.pdf

February 17, 2017

U.S. Environmental Protection Agency
Office of Water – WaterSense Program
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460
watersense-products@epa.gov

RE: EPA WATERSENSE® DRAFT SPECIFICATION FOR BATH AND SHOWER
DIVERTERS

Dear EPA Office of Water:

Plumbing Manufacturers International (PMI) appreciates this opportunity to provide comments to the U.S. Environmental Protection Agency (EPA) regarding the WaterSense® Draft Specification for Bath and Shower Diverters. PMI is the international, U.S.-based trade association representing 90% of U. S. plumbing products sold in the

United States. We have made the promotion of water safety and efficiency a top priority and have included this in our mission statement¹. PMI's members are industry leaders in producing safe, reliable and innovative water efficient plumbing technologies and have supported the WaterSense® program since its inception. In addition, PMI and our member companies are longstanding partners in EPA's WaterSense® program.

In regards to EPA's notice of intent (NOI) to develop a draft specification for bath and shower diverters, PMI and our members oppose the draft specification for the following reasons:

- Since the EPA WaterSense® program has matured to include a wide variety of water efficient products, EPA and industry should now focus on accelerating the replacement of older installed products versus developing a new specification that will result in little to no savings and not address the root cause of tub spout leakage, as detailed below. Based on the July 2015 study, titled "U.S. Market Penetration of WaterSense® Shower Heads, Lavatory Faucets and Toilets," the market penetration rates of WaterSense® products throughout the United States are fairly low. According to the study, the following percentages of U.S. homes have WaterSense® products installed²:
 - Lavatory faucets = 25.4%
 - Showerheads = 28.7%
 - Water closets = 7.0%
- The proposed "0-0" pre- and post-life cycle requirement is a potential safety hazard as there must be a slight amount of leakage out of a tub spout in order for the diverter to automatically reset. Otherwise, the diverter will remain activated, resulting in a possibly dangerous thermal shock situation as the shower is activated by the next bather.
- The draft specification does not account for the natural water quality variation effects on long-term diverter performance, such as calcium build-up due to hard water conditions. These conditions, which require regular attention by the homeowner, are the root cause as to why diverters leak over time, not current manufacturing practices.
- EPA has identified in the NOI that the volume of wasted water per household per year, based on the California Energy Commission's (CEC) Appliance Efficiency Regulations, is 53 gallons pre-life cycle and 264 gallons post-life cycle. It should be noted that most manufacturers comply with the requirements of the CEC since they sell diverters in California and don't generally carry different stock keeping units (SKUs) of diverters based on U.S. regions. Therefore, the difference in water saved per CEC regulations and the proposed values in the draft specification equate to a

¹ PMI's Mission: To promote the water efficiency, health, safety, quality and environmental sustainability of plumbing products while maximizing consumer choice and value in a fair and open marketplace. To provide a forum for the exchange of information and industry education. To represent openly the members' interests and advocate for sound environmental and public health policies in the regulatory/legislative processes. To enhance the plumbing industry's growth and expansion.

² US Market Penetration of WaterSense Shower Heads, Lavatory Faucets and Toilets, GMP Research Industry Report commissioned by PMI, July 2015, pg. 5.

yearly savings of only 21 cents to \$1.06 per household based on an average cost of \$0.004 per gallon of tap water³.

- The EPA is considering requiring both bath/shower trim and bath/shower diverters to be individually third-party certified in order for combination models to bear the WaterSense® label. PMI is greatly concerned about this requirement for the following reasons:
 - Manufacturers now will be required to third-party certify not only the diverter itself but also, separately, the associated trim that comes with the diverter. The current WaterSense® Specification for Showerheads already requires showerheads and the associated trim that comes with the showerhead, which may include a diverter, to be certified. This proposed requirement is overly burdensome to manufacturers, and would have a negative impact on the number of products that manufacturers choose to have WaterSense® certified. This is because manufacturers will be required to have the same tub/shower models listed in two WaterSense® files, thereby doubling certification costs. Furthermore, when annual audit samples are collected, both manufacturers and certification agencies will have to ensure that duplicate testing is not done which is costly and burdensome.
 - The proposed “0-0” diverter performance requirement would needlessly require delisting of many current WaterSense® combination models even though the diverters already meet the stringent CEC standards. More than half the diverter models (54%) in the MAEDBS database do not meet this slight efficiency increase, yet they already provide significant water savings. This “all or none” approach would have a negative impact on the number of products that manufacturers choose to have WaterSense® certified.

In summary, PMI continues to support the WaterSense® voluntary efficiency program. However, we do not support the draft specification for the reasons outlined above. PMI believes EPA and industry should concentrate on encouraging the installation of existing WaterSense® products rather than on developing a new specification that will result in minimal water savings, while possibly risking public safety.

Sincerely,

Matt Sigler
Technical Director
Plumbing Manufacturers International
Office 847-217-7212
msigler@safeplumbing.org

cc: PMI Board of Directors

³ “You Are Paying 300 Times More for Bottled Water than Tap Water”, Business Insider, July 12, 2013,
http://www.slate.com/blogs/business_insider/2013/07/12/cost_of_bottled_water_vs_tap_water_the_difference_will_shock_you.html

Commenter: Alan Work
Affiliation: Evolve Technologies LLC
Comment Date: March 24, 2017

Email Text:

Tessa,

Thank you for the spreadsheet. I think one of the biggest challenges with addressing tub spouts is going to be convincing people that there is a problem. In my experience, diverter leaks are so ubiquitous that people don't even realize they are generating waste or that they don't have to leak.

If Evolve can assist in any way please let me know. We're obviously very interested in the work you're doing, and I very much appreciate you sharing this data with me. If there are other opportunities to speak or participate in future workshops, etc., please keep us in mind. My contact information is below.

Alan

enjoy more. use less.

Alan Work
Director of Business Development | [Evolve Technologies LLC](#)
President, SW Chapter | [AESP](#)
480.215.3061 | alan.work@thinkevolve.com
15354 N 83rd Way | Scottsdale, AZ | 85260
www.thinkevolve.com

We've updated our company name, URL and email addresses to more accurately reflect who we are. Please update your records.

Commenter: Cambria McLeod
Affiliation: Kohler Co.
Comment Date: June 29, 2017

Email Text:

Dear EPA,

Kohler Co. is submitting the attached comment letter in response to the NOI Draft Specification for Bath and Shower Diverters. We appreciate you taking our comments into consideration.

Regards,

Cambria McLeod
Staff Engineer- Codes & Standards
KOHLER COMPANY
949.278.9121

Email Attachment: Kohler Comments re EPA NOI Draft Specification for Bath and Shower Diverters.pdf

June 29, 2017
U.S. Environmental Protection Agency
Office of Water – WaterSense Program
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460
watersense-products@epa.gov

RE: WaterSense® Notice of Intent (NOI) to Develop a Draft Specification for Bath and Shower Diverters

Dear EPA Office of Water,

Kohler Co. deeply values sustainable water use in our operations, the home and the community. As long standing partner with EPA's Water Sense Program, a nine-time Water Sense award winner and as the leading U.S. brand in plumbing fixtures for residential and commercial applications, Kohler Co. has helped consumers use less water without sacrificing the performance they expect in their kitchens and bathrooms. We believe in responsible conservation of resources while keeping human health and safety a top priority for this and future generations. believe.kohler.com Kohler therefore appreciates the opportunity to provide the below comments regarding the EPA's NOI Draft Specification for Bath and Shower Diverters.

1. Human Health and Safety

The Draft Specification for Bath and Shower Diverters is intended to “reduce or eliminate water wasted through shower events.” However, a zero leakage requirement has the potential to create a hazardous, thermal shock situation for the user.

- If the tub spout diverter leakage requirements are lowered to zero, there will be no relief of operating pressure which means the column of water behind the diverter will have no way to escape. This could create a hydraulically locked situation and automatic reset diverters will be difficult to undivert. In this state, the diverter would not be able to reset itself to tub mode which is a condition in ASME A112.18.1, section 5.6.1.5.2. All U.S. plumbing codes require the product be compliant with ASME A112.18.1. If the diverter remains activated, there is potential for thermal shock to the next user as the configuration will have the showerhead turned on first instead of the tub spout.
- A hydraulically locked situation is also likely to cause accelerated wear on the sealing member resulting in earlier leaking of the seal. Therefore regardless of the testing requirements, water would be wasted in the field, negating any theoretical savings.
- Furthermore, based on the nature of plumbing systems and components, there is often residual water within the system and its components. This residual water needs to drain and the amount of water will not be reduced by changing the requirements of the tub spout diverter itself.

2. Water Savings

The NOI states that the intent of the specification would be to “improve the water efficiency of bath and shower diverters.” Because the actual the performance of products is highly dependent on both water quality and the consumer’s actions, we believe that going to a zero leakage rate will not provide the anticipated water savings. Water quality and low replacement rates are the root causes of in-field tub spout diverter leaks. Changing manufacturers’ testing requirements will not affect the root causes.

- The in-field leak rate the NOI used to “illustrate the magnitude of water wasted by leaking bath and shower diverters” is extracted from statistically insignificant studies which were not substantial enough to represent the Nation. The studies referenced in the NOI represented only four small areas of the United States. Water quality varies greatly in and across regions and because poor water quality can have a negative impact on product performance, the assumption that these regions are representative of the entire U.S. cannot be upheld unless water quality reports were also analyzed or additional studies with various water sources are included in the EPA’s substantiation.

The 0.29 gpm average leakage rate which the EPA has determined to be representative of the data from these studies is not complete. The Taitem study did not provide field data on diverters that leaked 0.1gpm or less and only provided data on those that leaked more than 0.1gpm. Because the overall mean is unknown, it would be irresponsible to assume an overall average from this study. The Fort Carson study was not available publicly and only the resulting data was provided in EPA’s comments. Therefore, it should not be concluded that there is an average 0.29 gpm leakage rate, which is what the EPA has used to make the claim of annual “water wasted for a utility serving 200,000 homes amounts to nearly 309 million

gallons.” Also, the test method, installation, water quality, and other important parameters such as tub spout age were unknown in some of these studies. If a tub spout diverter that exceeded its useful life was included in these studies, or if the water quality was poor and therefore decreased the useful life of the product, it could skew the savings calculations.

We appreciate that EPA has recognized this in the NOI, stating “over time, the magnitude of these diverter leaks can increase, sometimes substantially, resulting in significant water waste passed down the drain with every shower.” As indicated earlier, water quality and low replacement rates are the root causes of in-field tub spout diverter leaks. Changing the manufacturers’ testing requirements will have no effect on the root causes.

- The California Energy Commission (CEC) has implemented leakage rates that are stricter than the ASME requirements. According to Plumbing Manufacturers International, the majority of plumbing manufacturers do not keep a separate stock of CEC compliant product but have converted products across their U.S. portfolio to comply with CEC. Kohler Co. is one of these manufacturers and agrees with this statement. Therefore, the projected water savings should not assume the ASME leak rate as the baseline since any tub spout diverter in the U.S. is highly likely to be replaced with a CEC compliant product. Note that even if an outdated product is replaced, the new product’s field performance is directly related to water quality.
- Most importantly, we have found that the replacement rate of tub spout diverters as a singular product sku is an insignificant fraction of sales compared to that of a combination product which would contain a valve, showerhead or trim for example. This leads us to believe that the typical replacement rate of tub spout diverters is in line with a remodel. Therefore, even if a product meets the ASME requirements, the CEC requirements or meets a zero leakage requirement, if a consumer is using the product with poor quality water, it may leak and if so, we believe that consumers still will not replace it unless they are completing a full remodel. Furthermore, we have seen a significant increase in replacement of tub/shower combinations with shower-only installations which further reduces the potential water savings calculations for tub spout diverters as it is not a one-to-one replacement rate.

3. Consumer Impact

The NOI claims that this specification “can help heighten consumer and utility awareness about the potential to decrease water waste and increase water efficiency associated with bath and shower diverters.” We disagree that this specification will have a positive impact in the market as we have not seen any evidence that a Water Sense tub spout diverter specification would increase awareness to the point that there would be an upsurge in tub spout diverter replacement in the field.

- In addition to the sales data previously mentioned, the market saturation of Water Sense toilets is an indication that replacement rate of tub spout diverters would not be influenced by this specification. According to the 2015 GMP Research study, “US

Market Penetration of Water Sense Shower Heads, Lavatory Faucets and Toilets,”⁴ only 7% of toilets installed in the U.S. are Water Sense toilets. Even with legislation requiring high efficiency and/or Water Sense toilets in new installations, product sales, and real estate transactions and even with programs to monetarily incentivize consumers, there are still millions of outdated products installed. If water closets, which are more visible to the consumer in terms of aesthetics, number of uses per day, water consumption and sanitary importance, are not being replaced, there is no basis to assume that a tub spout diverter would be replaced.

- We believe that this specification may have an adverse effect on water savings and the Water Sense program by inadvertently reducing the number of Water Sense labeled showerheads on the market. Many showerheads are packaged together in combination with a tub spout diverter and if the Water Sense specification requires that both the tub spout diverter and the showerhead meet their respective specifications, it could mean removal of the label from a Water Sense qualified showerhead. Kohler Co. has a significant amount of product skus that contain both a showerhead and a tub spout diverter. We have worked diligently to reengineer showerheads to comply with the EPA’s Water Sense Specification for Showerheads. If a combination sku contains a 2.0gpm Water Sense labeled showerhead and a tub spout diverter with 0.01gpm leakage, we would have to remove the Water Sense label. This tradeoff undermines the NOI’s intent to increase consumer awareness. Furthermore, the added cost of the additional listing is an economic burden for the manufacturers. Manufacturers may choose to opt out, reducing the awareness of the program, or may choose to pass the cost burden to the consumer, reducing the incentive for product replacement even further.

As a long term partner of the EPA Water Sense program, Kohler Co. supports meaningful change that can truly make an impact. Unfortunately, the Draft Specification for Bath and Shower Diverters does not promote this type of change. The result of our findings is that the assumed water savings is inaccurately overestimated and the negative impacts regarding safety, economic burden and potential reduction of Water Sense labeled products far outweigh any benefits. We will continue to champion the role of smart and sustainable design because this vision aligns with our legacy, our values and our business and we look forward to continuing our partnership with the EPA.

Sincerely,
Cambria McLeod
Staff Engineer – Codes and Standards
Kohler Co.
cambria.mcleod@kohler.com

⁴ “US Market Penetration of WaterSense Shower Heads, Lavatory Faucets and Toilets,” July 2015:
https://www.safeplumbing.org/files/safeplumbing.org/documents/press_release_downloads/9-15-15-WaterSense-market-penetration-study.pdf