Comments on WaterSense® Notice of Intent (NOI) to Revise the Specification for Tank-Type Toilets

August 2023

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Commenter: Brett Little
Affiliation: Green Home Institute
Comment Date: June 6, 2023

Email Text:

Please require 0.8 Gallons per flush on average (using formula on dual flush) to be required to meet water sense.

Thank you.

Commenter: Allan Dietemann
Affiliation: N/A
Comment Date: July 18, 2023

Email Text:

1) I support the maximum flush of 1.28 gallons for all WaterSense® toilets, whether they be single flush, dual flush, or variable volume flush. No technical studies or references have been shown by EPA that confirm their use of a 2 to 1 formula for WaterSense® dual flush.

2) I support development of a lab "allowable" leakage test for all WaterSense® toilets. The test should use harsh chemicals like chlorine, toilet tank cleaners, rust and grit, and other common water system components, including hard water and utility additives. The lab test should be designed to simulate water conditions and product flushing repetition for a minimum duration of at least ten years. WaterSense® toilets that consistently leak water from the tank and bowl into the drain line in the simulation test should not be allowed to carry the WaterSense® label. The rational is simple, after ten years in service, many toilets lose more water annually from leaks than is saved by reducing the flush volume from 1.6 gpf to 1.28 gpf. WaterSense® can save much more water from toilet leak reduction than by further reducing the flush volume a small increment below 1.28 gpf. The flushing designs of many WaterSense® labeled toilets don't allow for easy consumer leak repair. Insuring that WaterSense® toilets don't leak is preferable to repairing (or not repairing) leaks.

3) WaterSense® has consistently labeled products that use "less" potable drinking water than "standard" products. Yet flushing and transporting waste does not require the use of potable water. It is past time that WaterSense® begin to label products that do not require large amounts of potable water to transport waste. Second use not only saves potable drinking water, but it also reduces wastewater volumes. Examples of residential non potable water that could be used to flush waste from toilets and urinals include: discharges from washing machines, baths, showers, water softeners, pool and hot tub draining, rainwater capture, and many others. Many other opportunities exist in some commercial and industrial applications. In some coastal locations salt water or treated municipal wastewater should be an option. Second use of "wastewaters" for transporting waste may require some additional storage and treatment, but EPA should be encouraging these new second use technologies, not ignoring or discouraging them. Consider the amount of federal money going into upgrades of water and wastewater utilities, and balance the federal interest to fund options with the least cost to the environment and to the taxpayers.

submitted by Al Dietemann July 18, 2023

Commenter: Ryan Bailey
Affiliation: California Department of Water Resources
Comment Date: August 4, 2023

Email Text:

Hello, the California Department of Water Resources is pleased to submit the attached comments on the US EPA WaterSense Notice of Intent to Revise the Specification for Tank-Type Toilets. If possible, please confirm receipt. Thanks! - Ryan

Ryan Bailey, MPPA, REHS *(he/him/his)*
Water Use Efficiency Branch Manager
DWR | Division of Regional Assistance
916.902.7713

Email Attachment:

Template for Public Comment Submission on WaterSense Documents

Commenter Name: Ryan Bailey

Commenter Affiliation: California Department of Water Resources (DWR)

Date of Comment Submission: August 3, 2023

Topic: EPA is seeking feedback on its intention to eliminate the effective flush calculation and establish a maximum flush volume criterion for both single-flush toilets and the full-flush mode of dual-flush toilets. (AWE #1)

Comment: DWR supports elimination of the effective flush calculation and establishment of a maximum flush volume criterion for both single-flush toilets and the full-flush mode of dual-flush toilets.

Rationale: As a result of interested parties' feedback, an evaluation of user behavior pattern studies, and shifting efficiency requirements for dual-flush toilets, EPA has decided to reevaluate the effective flush volume calculation and maximum flush volume requirements for dual-flush toilets to earn the WaterSense label.

Several studies have attempted to assess whether users are confused about how to activate the reduced-flush mode compared to the full-flush mode, which is a commonly cited reason that dual-flush toilets may not achieve their intended water savings. Thames Water conducted a study that indicated more than 75 percent of

people identified the incorrect flush mode. Another study found that only 28 percent of the 1,200 customers surveyed said they knew which button on their own toilet produced a reduced flush. Even well-intentioned individuals may not be using the correct flush mode when using a dual-flush toilet, thereby potentially negating water savings. The EPA compiled studies, https://www.epa.gov/system/files/documents/2023-06/ws-products-toilets-v2-noi.pdf, evaluating dual-flush tank-type toilets. Dual-flush toilets are rarely shown to achieve the 2:1 ratio that is assumed when calculating the effective flush volume.

EPA is considering establishing a singular maximum flush volume requirement (i.e., a maximum flush of 1.28 gpf, or a lower flush volume as determined during the specification revision process) for both single-flush toilets and the full-flush of dual-flush toilets, which would provide assurance of water savings irrespective of user behavior. This alleviates an arbitrary flush ratio that relies on user behavior to achieve water savings.

Suggested Change (or Language): None

Topic: EPA requests feedback on whether there are design and/or leakage concerns specific to dual-flush toilets in the United States, like those reported in the United Kingdom.

Comment: DWR is not aware of design and leakage concerns specific to dual-flush toilets in the United States, like those reported in the United Kingdom. DWR would therefore support studies of both the water loss from leaks and continuously flowing toilets that exceed the amount of water the dual-flush toilet design should be saving. DWR also supports studies of both the water loss from leaks and continuously flowing toilets that exceed the amount of water single flush toilets should be saving.

Rationale: EPA is aware of concerns with leaks from dual-flush toilets in the United Kingdom. Thames Water reported that water loss from leaks and continuously flowing toilets is exceeding the amount of water the dual-flush toilet design should be saving. The Bathroom Manufacturers Association, a United Kingdom-based trade group, acknowledged that drop valve systems, frequently used within dual-flush toilets, are more prone to leakage.

Suggested Change (or Language): None

Topic: EPA requests feedback on its intent to remove the reference to ASME A112.19.14 within the water efficiency section of its specification and otherwise align the requirements of the specification, to the extent practicable, with the WaterSense Specification for Flushometer-Valve Water Closets.

Comment: DWR supports removal of the reference to ASME A112.19.14 within the water efficiency section of its specification and otherwise align the requirements of

the specification, to the extent practicable, with the WaterSense Specification for Flushometer-Valve Water Closets.

Rationale: A subsequent study contracted by the Plumbing Manufacturers Institute focused on California found only 23 percent operated at 1.28 gpf or less. Toilets have a relatively long useful life, sometimes exceeding 30 years, so full replacement of existing toilets can take time. Further, because of feedback obtained during EPA's WaterSense specification review, many raised concerns regarding whether higher-efficiency toilets, such as those operating a 1.0 gpf or less, could offer the same level of performance and maintain the efficacy of the sewer drainline system in residential and commercial buildings.

Suggested Change (or Language): None

Topic: EPA requests feedback on its intent to whether it should consider reducing the maximum allowable effective flush volume criteria to improve water efficiency beyond the current WaterSense specification and potentially further transform the market. If so, what threshold should EPA consider? To the extent possible, EPA requests supporting data to inform that decision.

Comment: DWR supports reducing the maximum allowable effective flush volume criteria to 1.1 Gallons per flush or less to improve water efficiency beyond the current WaterSense specification and potentially further transform the market. According to the US EPA at: file:///C:/Users/dtodd/AppData/Local/Microsoft/Windows/INetCache/Content.Outlook/FGOVRVBN/2023-06-07-MaP_PREMIUM-HETs-Avail_California.pdf, there are over 400 premium toilet models on the market as of July 6 2023 that meet the Maximum Performance (MaP) of "Premium" toilet models, and are U.S. EP WaterSense-qualified (certified & listed).

Rationale: Many utility conservation programs now only rebate toilets operating at a lower flush volume. For example, there are multiple utility conservation programs (e.g., Metropolitan Water District of Southern California, the Saving Water Partnership, Metropolitan North Georgia Water Planning District) that rebate or otherwise incentivize toilets operating at 1.1 gpf or less, which would represent a 14 percent water savings compared to the current 1.28 gpf threshold. Similarly, MaP PREMIUM, which multiple WaterSense utility partners depend on to guide their rebate programs, requires an effective flush volume of 1.1 gpf or less. Further, at least one municipality (West Hollywood, California) mandates that new toilets have an effective flush volume of 1.1 gpf or less.

Suggested Change (or Language): None

Topic. EPA does not intend to revise the specification's performance criteria; however, it is seeking feedback on whether there are necessary or recommended modifications to the performance criteria and requirements that would result in improved performance of WaterSense labeled tank-type toilets.

Comment: DWR does not have specific recommendations on the revision of the specification's performance criteria. However, it does recommend that the specification identify the flush volume at which efficiencies will be achieved.

Rationale: Some single and dual flush toilets may use more water per flush than their rated flush volume. Because there may be some toilets that do meet their rated efficiencies, there may be additional design, specifications, and requirements that could improve their ability to meet their rated volume.

Suggested Change (or Language): None.

Topic. EPA requests feedback on an appropriate transition period before Version 2 of the specification takes effect. What factors should EPA consider in setting an appropriate transition time? What, if any, transition guidance should EPA develop for retailers and distributors?

Comment: DWR supports a transition period of six to 12 months before Version 2 of the specification will become effective. This timeline is in alignment with other EPA and U.S. Department of Energy product certification programs and would permit the sale of current inventories of labeled models.

Rationale: EPA does not intend to require manufacturers to destroy existing products, product packaging, or other printed materials that bear the WaterSense label and will consider a pause on brand monitoring activities during and immediately following the transition period.

Suggested Change (or Language): None

Commenter: Kevin McJoynt
Affiliation: Globe Union
Comment Date: August 9, 2023

Email Text:

Thank you for the opportunity to comment on this subject. My input will be included in the submission from our trade association – Plumbing Manufacturers International (PMI).

Regards,
Kevin

GERBER
gerber-us.com

Kevin McJoynt
Director of Product Management - Fixtures

C: 224-766-6500
kevin.mcjoynt@globeunion.com

Globe Union North American Group
2500 Internationale
Pky. | Woodridge, IL 60517

GLOBE UNION
IDEAS IN MOTION

Commenter: Andrew Morris
Affiliation: Alliance for Water Efficiency
Comment Date: August 9, 2023

Email Text:

Dear WaterSense Team,

Please find the Alliance for Water Efficiency's comments attached.

Best Regards,

Andrew D. Morris| **Senior Manager of Policy and Programs**
Alliance for Water Efficiency
e: andrew@a4we.org
p: 770-906-1888
w: www.allianceforwaterefficiency.org

Email Attachment:

See pages 9 through 11.

Submitted via email to watersense-products@erg.com

August 9, 2023

WaterSense
U.S. Environmental Protection Agency
Office of Wastewater Management (4204M)
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Re: WaterSense® Notice of Intent to Revise the Specification for Tank Type Toilets

Dear WaterSense Staff:

The Alliance for Water Efficiency ("AWE") is a stakeholder-based 501(c)(3) organization with more than 500 member organizations dedicated to the efficient and sustainable use of water. AWE provides a forum for collaboration around policy, information sharing, education, and stakeholder engagement. AWE appreciates the opportunity to provide comments on this Notice of Intent to Revise the Specification for Tank Type Toilets ("NOI"). These comments were developed by AWE's WaterSense-Water Efficient Products Advisory Committee, which is comprised of representatives from AWE member utilities, businesses, and other industry partners; the comments were then approved by a vote of AWE's Board of Directors.

AWE welcomes this opportunity to comment on the proposed revisions to the WaterSense specification regarding tank-type toilet efficiency, which have the potential to further improve water efficiency. Particularly important is the replacement of inefficient, legacy toilets with WaterSense labeled toilets, which creates significant water savings. AWE has been working to ensure existing federal programs and funding can be used for replacing these legacy toilets, and AWE has also been advocating for new federal legislation to provide dedicated grant funding for water efficiency programs that include toilet retrofit among many other things. AWE welcomes the continued assistance of its members and partners on these retrofit efforts, and AWE encourages EPA and other federal agencies to do whatever is within their existing authorities to provide funding to state and local governments for this important work.

AWE also wants to acknowledge that according to language passed as part of the America Water Infrastructure Act of 2018, WaterSense may review specifications "***not more frequently than every 6 years*** after **adoption or major revision** of any WaterSense performance criteria." See 42 U.S.C. 6294b(b)(4), emphasis added. In this NOI, WaterSense indicates that "[b]ecause modifications to the specification would likely impact the certification status of currently labeled tank-type toilet models, EPA considers the intended revisions to constitute a major revision . . ." However, it seems that if the current revisions only address dual flush toilets, then this would be a major revision only as to dual flush toilets and would not be a major revision as to single-flush toilets. AWE is requesting clarification and, as appropriate, confirmation relating to the scope of any final major revision.

Based on the six-year limit on major revisions, AWE urges WaterSense to consider any and all supported and substantiated proposed revisions to enhance water efficiency by AWE and

Alliance for Water Efficiency
OFFICE (773) 360-5100
TOLL-FREE (866) 730-A4WE
FAX (773) 345-3636
allianceforwaterefficiency.org
home-water-works.org

others in this current update process. Additionally, AWE understands that this six-year limit would not apply if the federal standard were to be reduced from 1.6 gpf to 1.28 gpf or less nationwide as this would trigger a process by which EPA would have to consider a wholly new specification for tank-type toilets.

Regarding this NOI and tank-type toilet efficiency, AWE's comments are as follows:

1. For dual flush toilets, AWE supports eliminating the 2:1 effective flush volume and establishing a max flush volume of 1.28 gpf. Based on the existing research on user behavior, AWE agrees that many users either misunderstand how to use the full flush versus reduced flush mechanisms or intentionally choose the full flush option more often than necessary. This means the 2:1 effective flush volume is likely incorrect and the water savings anticipated from using this effective flush volume (2 reduced flushes per 1 full flush) are not being realized. Furthermore, single-flush toilets with a max flush of 1.28 gpf have an excellent track record in terms of performance, user satisfaction, and water savings, and adopting this as a max flush for dual-flush toilets makes sense from a water savings and technical perspective. AWE is not aware of any body of research that would support maintaining the current 2:1 effective flush calculation or a 1.6 gpf max flush.

2. AWE recommends that WaterSense and interested parties conduct additional research on the possibility of a 1.1 gpf max flush for single-flush toilets for WaterSense in order to address data gaps. AWE's members have a range of perspectives on the feasibility, impacts, and desirability of WaterSense requiring tank-type toilets with flush volumes of 1.1 gpf or less, which are sometimes referred to as ultra-high efficiency toilets ("UHETs"). There is broad agreement among our members that data is lacking on a variety of questions related to the potential advantages and disadvantages of changing the WaterSense max flush specification to 1.1 gpf or less.

A. *Locate and Publish Information on the Share of Tank-Type Toilets Installed in single-family and multi-family residential buildings versus other building types.* A view widely held by AWE members is that UHETs are more appropriate in residential buildings with smaller and simpler premise plumbing designs and more supplemental flows into the drain lines, like those from showers and clothes washers. AWE is not aware of any published data on the share of new tank-type toilets being sold that are installed in single and multi-family residential buildings versus non-residential building types. WaterSense and other interested parties should work to obtain and publish this information so it can be considered in discussions about the use of UHETs. Additionally, this information should be supplemented by an analysis or explanation of when tank-type toilets are allowed in non-residential settings under applicable building and plumbing codes compared to common examples of when tank-type toilets may be being installed contrary to applicable codes.

B. *Better Data Should Be Gathered and Analyzed from Utility Programs on Customer and Property Owner Experience*. Many AWE members require the use of UHETs in their residential rebate, direct install, and incentive programs for residential water efficiency. In this context, AWE members have shared anecdotally that UHETs appear to have generated very few negative comments from users and property owners participating in these programs. However, no comprehensive effort has been undertaken to gather information about these programs, evaluate the number and type of UHETs being used, and survey customers and property owners about any performance or property maintenance issues that may have arisen as a result. A focus should be placed on asking about any drainline carry and blockage issues.

C. *Gather and Analyze Information on UHETs being installed in new single and multi-family residential buildings.* UHETS are often used in new residential buildings that participate in voluntary

green building programs, and data may be available on UHET usage from these programs. For example, WaterSense could request summary data from the Home Certification Organizations that facilitate implementation of the WaterSense home program to evaluate UHET performance. Additionally, at least one local government requires UHETs for new residential construction and there are discussions in at least one state where a code change is being considered to require 1.1 gpf toilets in all new residential construction. Information from these programs and initiatives should be gathered, analyzed, and shared.

D. Retail *customer satisfaction data should be gathered and analyzed on UHETS*. Most major retailers allow and include customer ratings for all products that they sell. An effort should be made to gather and analyze customer rating information from these sources on a wide range of UHETs and then compare these to customer ratings on 1.28 gpf toilets.

E. *Calculating Changes to Flows and Waste Concentrations to Evaluate Potential for Sewer Collection and Treatment Impacts*. An effort should be made to calculate with specificity the changes in flow and waste concentrations at the building and sewer system level that would result is the market share for UHET grows because the WaterSense specification changes and/or state or local governments were to require at the point of sale or through code that all new tank-type toilets be UHETs. These calculations could include a range of hypothetical systems including customer mix and rainfall patterns, which results in changes in inflow and infiltration. While some qualitative surveys have been conducted, an evaluation should be made using quantitative data as to whether the changes in flow and concentration are within the collection and treatment system design parameters.

In conclusion, AWE supports advancing the water efficiency of dual flush toilets now by requiring a max flush of 1.28 gpf and by continuing research for potential future revisions to the WaterSense specification that would require 1.1 gpf or less for all tank-type toilets.

Sincerely,

Ron Burke
President and CEO
Alliance for Water Efficiency

Commenter: Elizabeth Kieran
Affiliation: General Public
Comment Date: August 11, 2023

Email Text:

Topic: Public comment on WaterSense

Comments:
- I support EPA elimination of effective flush volume calculation, instead establishing a singular maximum flush volume requirement for both single-flush and full-flush modes of dual-flush toilets. I recommend no more than 1.28 gpf be adopted for this requirement (please see next comment).
- I encourage EPA consideration of reducing the maximum allowable effective flush volume criteria to improve water efficiency beyond the current WaterSense specification to further transform the market. I recommend 1.0 gpf be established as the new standard.
- I recommend a transition period of 6 months before version 2 of the specification will become effective if 1.28 gpf is elected. I recommend a transition period of 12 months before version 2 of the specification will become effective if my recommended 1.0 gpf is elected, or if any value greater than 1.0 gpf but less than 1.28 gpf is elected. I recommend a transition period of
- I support the intent to remove the reference to ASME A112.19.14 within the water efficiency section of its specification and otherwise aligning the requirements of the specification to the extent practicable, with the WaterSense Specification for Flushometer-Valve Water Closets.

Commenter: Kyle Thompson
Affiliation: Plumbing Manufacturers International
Comment Date: August 11, 2023

Email Text:

Dear EPA WaterSense,

PMI's responses to the input requested on revising the Tank-Type Toilet Specification is attached.

Please let me know if you have any questions.

All the best,
- Kyle

Email Attachment:

Template for Public Comment Submission on WaterSense Documents

Commenter Name: Kyle Thompson

Commenter Affiliation: Plumbing Manufacturers International (PMI)

Date of Comment Submission: August 11, 2023

Topic 1: EPA is seeking feedback on its intention to eliminate the effective flush calculation and establish a maximum flush volume criterion for both single-flush toilets and the full-flush mode of dual-flush toilets.

Comment: PMI supports EPA's intention to establish a flush rate of 1.28 gpf for both single flush and the full-flush mode of dual-flush toilets.

Rationale: A flat flush rate of 1.28 gpf for both single and dual flush toilets will standardize the requirements. Given a flat flush rate of 1.28 gpf for all toilets the "reduced flush mode" provided by a dual flush toilet would be a beneficial aspect to a standardized product.

Suggested Change (or Language):

Topic 2: EPA requests feedback on whether there are design and/or leakage concerns specific to dual-flush toilets in the United States, similar to those reported in the United Kingdom.

Comment: There are no concerns with leakage of dual-flush toilets in the United States. Products that are in the scope of EPA WaterSense Specification are subject to standards that address these leakage concerns.

Rationale: Manufacturers are continually improving and innovating the technology in their product offerings. Currently available EPA WaterSense compliant toilets leak much less than legacy toilets. In addition, flush valve seal technology has improved, and current products must meet ASME A112.19.5/CSA B45.15 as a base requirement including an accelerated chemical resistance and leak rate test to ensure longevity of flush valve seals. This test has been part of the standard requirements since at least the 2011 edition was published, and the water closets subject to this test procedure have proven to be robust and exhibit reductions in toilet leaks. Older water closets that are still in use do tend to leak and require routine maintenance of the flushing mechanism to stop or prevent leaks. New technology is available in tank trim and replacement of these older legacy water closets (those using 1.6 gpf or more) with EPA WaterSense compliant 1.28 gpf models would significantly address any potential toilet leaks and should be a priority.

Suggested Change (or Language):

Topic 3: EPA requests feedback on its intent to remove the reference to ASME A112.19.14 within the water efficiency section of its specification and otherwise align the requirements of the specification, to the extent practicable, with the WaterSense Specification for Flushometer-Valve Water Closets.

Comment: PMI supports the EPA's intent to remove the reference to ASME A112.19.14.

Rationale: The working draft of ASME A112.19.2/CSA B45.1 has been updated to incorporate the requirements for dual flush water closets that were previously referenced to ASME A112.19.14. The next edition of ASME A112.19.2/CSA B45.1 is on track to be published in mid-2024. However, we note that the removal of the ASME A112.19.14 standard from this WaterSense Specification should be done after the 2024 edition of ASME A112.19.2/CSA B45.1 is published to be certain that the drafted changes are included in the published document.

Suggested Change (or Language):

Topic 4: EPA is again interested in feedback on whether it should consider reducing the maximum allowable effective flush volume criteria to improve water efficiency beyond the current WaterSense specification and potentially further transform the market. If so, what threshold should EPA consider? To the extent possible, EPA requests supporting data to inform that decision.

Comment: EPA should not reduce the flush rate requirement below 1.28 gpf.

Rationale:
There has been a significant market transformation since this specification was first published and to get to the point where 1.28 gpf water closets are the norm. However, PMI agrees with the EPA that there is a significant opportunity to replace the stock of installed legacy toilets that use 1.6 gpf and higher with newer efficient ones.

The current sizing of water supply and drain waste piping in the U.S. is still based on fixture unit calculations using Hunter's Curve, a methodology that was developed and put into practice in the 1930's. Today, highly efficient plumbing fixtures and fittings are being installed with significantly lower flush and flow rates than those in place when the water supply and waste piping design methodology was established. The extent and magnitude of how improved water efficiency has and will impact the water supply and waste systems is still being discovered.

There are known issues with drain clogging and transportation of solids out of the building and into the sewer with reduced flush volumes. Typically, the lower the flush volume of water closets the more these issues are exacerbated. Commercial buildings can have extensive runs of drain line pipe from the building to the sewer main connection and issues with the drain line carry of solids leading to blockages increases in commercial settings due to the length of the drain line and incorporation of low-flow fixtures and fittings including low-flow water closets into existing buildings. The PERC 2.0, 2016[1] study notes a significant decrease in drainline transport performance between the 1.28 gpf and 1.0 gpf flush volumes and includes the following statement:
"*PERC does not recommend the use of 3.8 Lpf / 1.0 gpf toilets (or less) in commercial applications that have long horizontal drains and that do not provide additional long duration flows from other sources to assist with the drainline transport of solid waste*."

Before further moving the market to flush volumes lower than 1.28 gpf, it is important to allow enough time for the installation of 1.28 gpf toilets to penetrate to the point where the number of installed 1.28 gpf toilets outweighs the number of installed legacy 1.6 gpf or more toilets. This allows time to continue to gather and study information regarding the impact of the current low-flow plumbing fixtures and fittings on existing infrastructure, to redesign the methodology used for sizing water supply and drain waste piping, and to generally meet the substantially lower demand and discharge of water from what was experienced in the 1930's to what is true in the present. A complete overhaul of the supply and wastewater infrastructure at a replacement rate of 2% per year would take 50 years to complete.

As noted in the analysis by EPA, the 2019 PMI commissioned GMP Research study determined that only 16.8 percent installed tank-type toilets in the U.S. were WaterSense labeled (see Note 1). Further, the PMI commissioned 2022 GMP Research study found that only 23% of currently installed toilets in California are 1.28 gpf or less (see Note 2). California adopted the 1.28 gpf maximum for water closets in its appliance efficiency regulations (Title 20) in 2015 in Docket 15-AAER-1. The GMP research study findings demonstrate the need to maintain 1.28 gpf under the EPA

WaterSense program until a much higher percentage of legacy 1.6 gpf or higher toilets are replaced with 1.28 gpf efficient models.

Some of the unintended consequences of extreme water conservation methods are already being seen in California. At a recent *California State Water Resources Control Board (State Board) Rulemaking Analysis* workshop about implementation of 2018 legislation (SB 606/ AB 1668) "Making Conservation a California Way of Life", State Board staff reported that the impacts of declining flows are estimated to be approximately $2.5 billion.
In response to CEC Docket # 22-AAER-05[2], Appliance Efficiency Regulations for Water Closets, the Inland Empire Utilities Agency – A Municipal Water District in California noted the following:
Since 2009, per capita water use in IEUA' s service area has been reduced by 38 percent – that is typical of statewide water use trends. The impacts of declining flows are generally still manageable today, albeit increasingly challenging to do so. However, as per capita indoor water use continues to decline, we believe it is important to recognize the level to which wastewater systems and recycled water production is negatively impacted and for the CEC's analysis to be in sync with that of the State Board.

Footnotes:
[1] Plumbing Efficiency Research Coalition (PERC 2.0), The Drainline Transport of Solid Waste in Buildings – Phase 2.0, September 2015, Revised March 2016.
https://plumbingefficiencyresearchcoalition.org/wp-content/uploads/2016/04/PERC-2-0_2-1-FINAL.pdf

[2]CEC Docket #22-AAER-05 website:
https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=22-AAER-05

Note 1: The 2019 GMP research study also found that WaterSense-certified bathroom sink faucets have a 40.1% market penetration, and WaterSense-certified showerheads have a 45.4% market penetration. Flushometer-valve toilets and flushing urinals were introduced much later into the WaterSense program (flushing urinals in 2010 and flushometer-valve toilets in 2016) and consequently have low single digit market penetration rates.
Note2: The 2022 GMP Research study also found that around 44% of showerheads are 1.8 gpm or less, 53.7% of kitchen faucets are 1.8 gpm or less and 53.5% of bathroom faucets are 1.2 gpm or less in compliance with the current Title 20 regulations in California.

Suggested Change (or Language):

Topic 5: EPA does not intend to revise the specification's performance criteria; however, it is seeking feedback on whether there are necessary or recommended modifications to the performance criteria and requirements that would result in improved performance of WaterSense labeled tank-type toilets.

Comment: PMI supports EPA's intent to keep the specification's performance criteria as is.

Rationale:

Suggested Change (or Language):

Topic 6: Aside from the removal of the clarifying language prohibiting the use of "or less," EPA intends to keep the Product Marking section of the specification the same.

Comment: PMI supports EPA's decision to remove the clarifying language prohibiting the use of "or less" and its intent to keep the Product Marking section of the specification the same. The clarifying language has served its purpose and the prohibition from the use of "or less" is clearly understood by industry.

Rationale:

Suggested Change (or Language):

Topic 7: EPA is seeking feedback on the intended inclusion of these clarifications into Appendix A of the specification.

Comment: PMI supports EPA's intent to include the three clarifications (TT-1216-1, TT-0617-1 and TT-0617-2) into Appendix A of the specification.

Rationale:

Suggested Change (or Language):

Topic 8: EPA requests feedback on an appropriate transition period before Version 2 of the specification takes effect. What factors should EPA consider in setting an appropriate transition time? What, if any, transition guidance should EPA develop for retailers and distributors?

Comment: PMI appreciates EPA's recognition that it takes time to make changes in production, conduct testing, update product labels, and certify new products to meet updated requirements. PMI recommends a 24-month transition period between the publishing of Version 2 and the effective date of the specification for products manufactured after the effective date.

Rationale:
As noted in Table 2 of the NOI, the change to 1.28 gpf flat flush rate will effectively delist 74.2% of WaterSense labeled dual-flush tank-type toilets. Due to the significant impact of these changes on the products' availability, PMI is requesting a 24-month transition period between the publishing of the new specification and its effective date.

A 24-month transition period is consistent with other rulemakings such as efficiency standards under the U.S. DOE - Energy Independence and Security Act of 2007 where manufacturers are given at least two years to meet the new standard.

In addition, to clarify EPA's intent to allow sell through of existing inventory EPA should provide a guidance document for producers, retailers, and distributors that the effective date of the specification coincides with the manufacturing date of the product. Meaning that products manufactured before the effective date of the specification should be exempt from the new requirements allowing sell through of existing products. Products manufactured on or after the effective date of the specification should be compliant with the new requirements.

Commenter: Adam Carpenter
Affiliation: American Water Works Association (AWWA)
Comment Date: August 14, 2023

Email Text:

Dear EPA Veronica and ERG support,

Please find comments from the American Water Works Association on the Notice of Intent to Revise the Specification for Tank-Type Toilets. Do not hesitate to reach out should you have any questions or if there's any other way AWWA can be of assistance.

Sincerely,

Adam T. Carpenter, PhD (he / him / his)
Manager of Energy and Environmental Policy
American Water Works Association
Direct +1 202.326.6126
acarpenter@awwa.org | www.awwa.org
LinkedIn profile

American Water Works Association

Email Attachment:

See pages 20 through 22.

American Water Works Association
Dedicated to the World's Most Important Resource™

Government Affairs Office
1300 Eye Street NW
Suite 701W
Washington, DC 20005-3314
T 202.628.8303
F 202.628.2846

August 14, 2023

Veronica Blette
Chief, WaterSense Branch
Environmental Protection Agency
1200 Pennsylvania Ave, NW
Washington, DC 20460

RE: Notice titled "WaterSense Notice of Intent to Revise the Specification for Tank-Type Toilets" (June 2023)

Dear Ms. Blette:

The American Water Works Association (AWWA) appreciates the opportunity to comment on the Notice of Intent (NOI) titled "WaterSense Notice of Intent to Revise the Specification for Tank-Type Toilets"[1]

Support for aligning the standards for single and dual-flush toilets

As discussed on page 3 of the NOI in "Modification of Dual-Flush Toilet Flush Volume Requirements," EPA is considering revising the standard to align the requirements for single and dual-flush toilets such that the "full flush" will require the same maximum flush volume of 1.28 gallons per flush (gpf) as single flush models. This is accomplished through the elimination of the "effective flush calculation." The current differing requirements between single and dual-flush toilets complicate the administration of utility conservation programs because the savings expected from dual flush models are less certain than those from single flush models. EPA describes the many studies (Table 3 on page 5 of the NOI), which have differing results based upon a number of factors including the place of installation. Alignment of the maximum flush volume would prevent the need to exclude all or some dual-flush toilet models from conservation programs by assuring that dual-flush models provide at least the same (or possibly more) water savings. Additionally, the removal of the reference to ASME A112.19.14 because applicable requirement are being incorporated into a different ASME standard and this change is consistent with aligning single and dual-flush toilet specifications.

Maximum flush volume specification should be changed only if market conditions allow for it

The current standard of 1.28 gpf provides considerable savings over 5 and 3.5 gpf toilets and moderate but important savings over new "standard" Department of Energy standards compliant 1.6 gpf toilets that do not meet WaterSense requirements. As shown in Table 1 of the NOI, relatively few models (roughly 27%) on the market could currently meet a more stringent performance standard of 1.1 gpf or less.

[1] EPA. June 2023. WaterSense Notice of Intent to Revise the Specification for Tank-Type Toilets. https://www.epa.gov/system/files/documents/2023-06/ws-products-toilets-v2-noi.pdf.

Likewise, as noted in the NOI, there are some conservation programs that provide rebates only for toilets rated for lower maximum flush volumes. However, lowering flush volume for WaterSense labeling completely would potentially have unintended effects, such as: considerably reducing the number of labeled products on the market (which may backfire in terms of conservation overall), and potentially impacting drain line and sewer performance in some non-residential situations.

It is not clear from the information provided if the market would currently be capable of fulfilling demand should the maximum WaterSense flush volume be lowered by 20%. Consumers should have many choices from a variety of manufacturers and utility conservation programs should have flexibility in how they administer their programs.

Thus, WaterSense should consider two complimentary actions:

- First, WaterSense should instead assure there are clear ways to provide a marking that indicates proven efficiency beyond the label's minimum requirements. This could include labeling that identifies flow rates and displays that information is prominent manner. This will facilitate both consumer choice and conservation program activity that seeks to use models with lower flush volumes. WaterSense could consider giving that greater performance a specific name (similar to other performance-based rating systems that use terms such as bronze, silver, and gold).

- Second, WaterSense should investigate the possibility of reducing the maximum flush volume, but in doing so, it should consider factors such as: whether there sufficient models available from a variety of manufacturers and available nationally and what unintended effects such a change would have.

Thank you for the opportunity to comment on this WaterSense Notice of Intent. If you have any questions regarding this correspondence or if AWWA can be of assistance in some other way, please contact Adam Carpenter at (202) 326-6126 or acarpenter@awwa.org.

Best regards,

FOR THE AMERICAN WATER WORKS ASSOCIATION

G. Tracy Mehan, III
Executive Director, Government Affairs

Who is AWWA?

The American Water Works Association (AWWA) is an international, nonprofit, scientific and educational society dedicated to providing total water solutions assuring the effective management of water. Founded in 1881, the Association is the largest organization of water supply professionals in the world. Our

membership includes more than 4,500 utilities that supply roughly 80 percent of the nation's drinking water and treat almost half of the nation's wastewater. Our 50,000-plus total membership represents the full spectrum of the water community: public water and wastewater systems, environmental advocates, scientists, academicians, and others who hold a genuine interest in water, our most important resource. AWWA unites the diverse water community to advance public health, safety, the economy, and the environment.

Commenter: Christoph Lohr
Affiliation: IAPMO
Comment Date: August 14, 2023

Email Text:

To Whom It May Concern:

Please see IAPMO's comments to EPA's NOI for WaterSense Issues NOI to Revise Tank-Type Toilet Specification, attached. Please let us know if you have any questions.

Respectfully,

Christoph Lohr, P.E.
CPD, LEED AP BD+C, ASSE 12080
Vice President of Technical Services and Research
Phoenix, Arizona | www.iapmo.org
D: 909-731-0219 |M: 248-736-4940
Christoph.Lohr@iapmo.org
LinkedIn | Twitter
LICENSED IN AZ, CA, CO, FL, GA, NV, TX, UT

Email Attachment:

See pages 24 through 27.

International Association of
Plumbing and Mechanical Officials

4755 East Philadelphia Street
Ontario, California – USA 91761-2816

Ph: 909.472.4100 | Fax: 909.472.4150
http://www.iapmo.org

Commenter Name: Christoph Lohr, PE, CPD, ASSE 12080, LEED AP BD+C (Vice President of Technical Services and Research)

Commenter Affiliation: International Association of Plumbing and Mechanical Officials (IAPMO)

Date of Comment Submission: August 14, 2023

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1. ***Topic 1:*** *EPA is seeking feedback on its intention to eliminate the effective flush calculation and establish a maximum flush volume criterion for both single-flush toilets and the full-flush mode of dual-flush toilets.*
    a. **IAPMO Response:** IAPMO is neutral on this topic.

2. ***Topic 2:*** *EPA requests feedback on whether there are design and/or leakage concerns specific to dual-flush toilets in the United States, similar to those reported in the United Kingdom.*
    a. **IAPMO Response:** IAPMO is not aware of any studies in the US that indicated dual flush water closets were not effective in water conservation or contributed to leakage. The most common toilet leakage concerns occur due to the flapper not setting properly, allowing water to flow out of the tank while the refill valve remains open. This common issue could happen with either dual- or single-flush toilets.

3. ***Topic 3:*** *EPA requests feedback on its intent to remove the reference to ASME A112.19.14 within the water efficiency section of its specification and otherwise align the requirements of the specification, to the extent practicable, with the WaterSense Specification for Flushometer-Valve Water Closets.*
    a. **IAPMO Response:** ASME A112.19.14 applies to dual flush tank or dual flush flushometer water closets while ASME A112.19.2 applies to all water closets. IAPMO recommends the EPA wait until the ASME 112.19.2 standard is updated, then update the reference to the revised standard as opposed to moving ahead of the standard development/revision process.

4. ***Topic 4:*** *EPA is again interested in feedback on whether it should consider reducing the maximum allowable effective flush volume criteria to improve water efficiency beyond the current WaterSense specification and potentially further transform the market. If so, what threshold should EPA consider? To the extent possible, EPA requests supporting data to inform that decision.*
    a. **IAPMO Response:** EPA should not reduce the maximum allowable flush volume criteria below 1.28 gpf without specific research into the impact on water distribution and sanitary waste piping systems inside the built environment.

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IAPMO believes that the extent and magnitude of how improved water efficiency impacts the water supply and waste systems is still being discovered. The current sizing of water supply and drain waste piping in the U.S. is still based on fixture unit calculations using Hunter's Curve, a methodology that was developed and put into practice in the 1940's. Today's highly efficient plumbing fixtures and fittings are being installed with significantly lower flush rates than those in place when the water supply and waste piping design methodology was established. Moreover, the Hunter's Curve also assumed that every building had queuing lines at every plumbing fixture like a sports-stadium at halftime. While revolutionary in 1940, this queuing line assumption increased the calculated peak water flow rate, which has had a significant impact on oversizing of water mains.

There are known issues with drain clogging and transportation of solids out of the building and into the sewer with reduced flush volumes. Typically, the lower the flush volume of water closets the more these issues are exacerbated. For example, commercial buildings can have extensive runs of drain line pipe from the building to the sewer main. The potential for blockage issues increases in commercial settings due to the drain line length and incorporation of low flow fixtures and fittings like low flow water closets. The (PERC 2.0, 2016)[1] study notes a significant decrease in drainline transport performance between the 1.28 gpf and 1.0 gpf flush volumes and includes the following statement:

It is specifically noted that "*PERC does not recommend the use of 3.8 Lpf / 1.0 gpf toilets (or less) in commercial applications that have long horizontal drains and that do not provide additional long duration flows from other sources to assist with the drainline transport of solid waste*."

Additionally, there is growing concern that reduction in flow rates may be causing public health issues. As flow rates and volumes are decreased, water age is increasing. This increase in water age is reducing disinfectant levels as the most commonly used disinfectants dissipate over time. As no disinfectant technology is 100% effective, and as disinfectant levels decrease over time, the conditions for waterborne pathogen amplification occurs, and the potential for waterborne related illnesses increasing, which can incur $3.33 billion in direct healthcare costs[2]. This concern of lower flow rates is noted in the National Academy of Sciences Engineering and Medicine (NASEM) Consensus Study Report[3] on the Management of Legionella in Water Systems: *"Low-flow fixtures should not be allowed in hospitals and long-term care facilities because of these buildings' high-risk occupant populations. Low-flow fixtures have been promoted to conserve water and, in some cases, energy. Because of their lower flow, however, these fixtures,*

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primarily low flow faucets but also showers, increase water age and restrict disinfectant levels, including the disinfection provided by elevated water temperatures. As such, low-flow fixtures present a greater risk for Legionella development in the plumbing systems that feed them."

It is worth noting that Legionella and other opportunistic plumbing pathogens (OPP's) impact healthcare, long-term care, hospitality, multi-family, university, schools, and other buildings. As such, IAPMO recommends prior to any further reductions in plumbing fixture flow rates extensive research on proper sizing of water and sanitary piping systems and the unintended consequences is completed. These studies could be performed by governmental organizations, such as NIST, which has plumbing research laboratories ongoing, and/or via industry research through volunteer committees/groups such as IAPMO with the development of the Water Demand Calculator and PERC studies. This research needs to be completed to holistically improve water conservation while not negatively impacting public health and safety.

[1] Plumbing Efficiency Research Coalition (PERC 2.0), The Drainline Transport of Solid Waste in Buildings – Phase 2.0, September 2015, Revised March 2016. https://plumbingefficiencyresearchcoalition.org/wp-content/uploads/2016/04/PERC-2-0_2-1-FINAL.pdf

[2] Estimate of Burden and Direct Healthcare Cost of Infectious Waterborne Disease in the United States, January 2021. https://pubmed.ncbi.nlm.nih.gov/33350905/

[3] Management of Legionella in Water Systems,2019. https://www.nationalacademies.org/our-work/management-of-legionella-in-water-systems

5. ***Topic 5:*** *EPA does not intend to revise the specification's performance criteria; however, it is seeking feedback on whether there are necessary or recommended modifications to the performance criteria and requirements that would result in improved performance of WaterSense labeled tank-type toilets.*
    a. **IAPMO Response:** The performance requirements should be in accordance with the standards. IAPMO supports the performance criteria in the standards listed today.

6. ***Topic 6:*** *Aside from the removal of the clarifying language prohibiting the use of "or less," EPA intends to keep the Product Marking section of the specification the same.*
    a. **IAPMO Response:** IAPMO agrees that there is no reason to change this.

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7. ***Topic 7:*** *EPA is seeking feedback on the intended inclusion of these clarifications into Appendix A of the specification.*
    a. **IAPMO Response:** IAPMO has no concern with the inclusion of these existing clarifications into Appendix A of the specification.

8. ***Topic 8:*** *EPA requests feedback on an appropriate transition period before Version 2 of the specification takes effect. What factors should EPA consider in setting an appropriate transition time? What, if any, transition guidance should EPA develop for retailers and distributors?*
    a. **IAPMO Response:** IAPMO recommends a minimum 24-month transition period between the publishing of version 2 and the effective date of the specification for products manufactured after the effective date. This proposed change will have a significant effect on dual flush WaterSense labeled products. A 24-month transition period is consistent with the U.S. DOE - Energy Independence and Security Act of 2007. Any amended standards apply to products manufactured on or after two years of the DOE publishing of an updated final rule.

Commenter: Kevin Kennedy
Affiliation: Niagara
Comment Date: August 14, 2023

Email Text:

Hello,

Attached please find comment submittal regarding the tank-type toilets NOI.

Best Regards,
Kevin

Kevin Kennedy *Sr. Engineering Product Manager*
45 Horse Hill Road, Suite 101 | Cedar Knolls, NJ 07927
O: 888.733.0197 x 1200 | F: 973.829.1400
niagaracorp.com

Email Attachment:

Template for Public Comment Submission on WaterSense Documents

Commenter Name: Kevin Kennedy

Commenter Affiliation: Niagara Conservation Corp.

Date of Comment Submission: 8/14/2023

Topic: NOI to Revise the Specification for Tank-Type Toilets

Comment: While Niagara supports the efforts of the EPA Watersense program to improve specifications to guide manufacturers to provide more efficient products, we feel there are several points which need to be addressed on the proposed changes to the Specification for Tank-Type Toilets.

- **By eliminating the effective volume calculation and instead establishing a singular maximum flush volume, there is the potential for creating future line carry issues which could lead to catastrophic stoppages and**

clogging issues in the system. The existing full flush volume of 1.6 Gpf provides ample force and volume to assist with line carry from the lower half flushes initiated by consumers. Lower flush volume toilets typically use special technology such as vacuum or pressure to ensure proper line carry. Further studies are warranted before proceeding with a specification change.

- **With the proposed changes, the difference between the full flush and the half flush water volumes on siphonic toilets will be negligible. Most consumers will see no point in purchasing a dual flush for this reason and move towards a single flush 1.28 Gpf toilet. This will undermine the success and water savings of dual flush models in the market.**
- **The industry is still feeling the shockwaves from Covid 19 and the continual interest rate hikes in the financial sector. There is substantial inventory and work in process of existing dual flush models which will need ample time to be sold into the market. The industry will need at least 12-24 months to achieve the change in standards as requested by the EPA.**

Commenter: Tia Fleming
Affiliation: California Water Efficiency Partnership
Comment Date: August 14, 2023

Email Text:

Attached, please find a comment letter for the WaterSense® Notice of Intent to Revise the Specification for Tank Type Toilets, dated June 2023 from the California Water Efficiency Partnership. Thank you for your work on this important issue.

Tia Fleming
Executive Director, External Affairs
California Water Efficiency Partnership
o. (916) 475-1204 (direct)
c. (310) 963-0789
Visit our website
Follow us on Twitter

Email Attachment:

See pages 31 through 33.

CALIFORNIA WATER EFFICIENCY PARTNERSHIP

A Chapter of the Alliance *for* Water Efficiency

Submitted via email to watersense-products@erg.com

August 14, 2023

WaterSense®
U.S. Environmental Protection Agency
Office of Wastewater Management (4204M)
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Re: WaterSense® Notice of Intent to Revise the Specification for Tank Type Toilets, Dated June 2023

Dear WaterSense Staff:

The California Water Efficiency Partnership (CalWEP) wishes to comment on WaterSense's Notice of Intent to Revise the Specification for Tank-Type Toilets. We are a non-profit organization with a mission to maximize urban water efficiency and conservation throughout California by supporting and integrating innovative technologies and practices; encouraging effective public policies; advancing research, training, and public education; and building collaborative approaches and partnerships. We are a chapter of the Alliance for Water Efficiency (AWE).

As you know, the State of California has long been a partner in advocating for and regulating the efficiency of toilets. On January 1, 1992, California began requiring that in all new construction toilets, both tank type and flushometer, flush at no more than 1.6 gallons per flush. This was before the same standard was adopted nationally in the Federal Energy Policy Act of 1992. The State continued to be concerned about the efficiency that could be achieved in well-functioning toilets because of its continually recurring drought, and thus our predecessor non-profit, the California Urban Water Conservation Council, began working cooperatively with the Maximum Performance Testing Program to develop a program in 2002. (See the list of the participating funders.) The Uniform North American Standard for tank type toilets developed during this time also became the underpinnings of the first WaterSense Label toilet specification.

Thus, the California Water Efficiency Partnership is pleased to provide its comments on this Notice of Intent (NOI). We have divided our comments into the questions posed in the Summary of Information Requests:

Water Efficiency:

1. Should EPA eliminate the 2:1 effective flush calculation and establish a maximum flush volume criterion for both single-flush toilets and the full-flush mode of dual-flush toilets? Yes. **We strongly support this proposal.** The maximum flush in the dual flush toilet should be equal to the flush required in the single flush tank type models, certainly no more than 1.28 gallons in the max flush. We concur with the feedback EPA has been receiving that consumer patterns of behavior have been negating the benefits of the dual flush models because of customer confusion and possible assumptions that a full flush was needed at all times. The study data show that the 2:1 effective flush calculation is not borne out in the customer behaviors. We believe that projected water savings should be realized by the fixture itself, not based on consumer behavior, and thus we strongly support lowering the dual flush max flush to 1.28. The California Energy Commission is currently considering a docket that would do just that in an adopted standard throughout the State.

2. Do leakage concerns such as those identified in the United Kingdom exist for dual flush toilets in the United States? No. We have found no evidence that the 'drop valve' type flush valves in Dual Flush toilets sold in the U.S. are more prone to leakage than the conventional flapper-type flush valves. Thus, we do not believe that this is a concern that needs to be addressed by WaterSense.

3. Should EPA remove the reference to ASME A112.19.14 within the water efficiency section of its specification and otherwise align the requirements of the specification, to the extent practicable, with the WaterSense Specification for Flushometer-Valve Water Closets? Yes. We support this proposal.

4. Should EPA reduce the maximum allowable effective flush volume criteria below 1.28 gpf to improve water efficiency beyond the current WaterSense specification criteria and further transform the market? Yes, EPA should consider researching this issue. Back in 2012 and 2015 the Plumbing Efficiency Research Coalition conducted two phases of research on the topic of drain line carry, specifically to examine how low flush volumes could go before the reduced flow would cause drain line blockages. The research showed that blockages began to occur at 1 gallon and lower. But the research was aimed at the commercial sector where additional water flows in commercial buildings were usually not available to flush out toilet waste. Consequently, we would recommend that EPA conduct research specifically in the residential sector to determine what a suitable lower max flush volume threshold could be in the future for those fixtures.

Clearly, water suppliers in California are already rebating fixtures at this lower flush volume (called Ultra High Efficiency Toilets or UHETs), and WaterSense could provide an important service by gathering data and information on the functioning and performance issues of these UHETs in the field. This information base would be very useful for WaterSense to evaluate if a lower volume threshold would be practical and should be considered. CalWEP is especially concerned about potential impacts to the sanitary waste lines and wastewater treatment processes that might occur as a result of these reduced flows, and EPA research on this issue would be welcome.

We are very please to submit our comments and would be happy to answer any questions that you might have.

Sincerely yours,

TC Fleming

Tia Fleming
Co-Executive Director
California Water Efficiency Partnership

Commenter: Edward Osann
Affiliation: Natural Resource Defense Council
Comment Date: August 14, 2023

Email Text:

Please accept the attached comments submitted on behalf of the Natural Resources Defense Council. Please confirm receipt of these comments.

Edward R. Osann
Senior Policy Analyst
NRDC

Email Attachment:

Template for Public Comment Submission on WaterSense Documents

Commenter Name: Edward R. Osann

Commenter Affiliation: Natural Resources Defense Council

Date of Comment Submission: August 14, 2023

Topic: Characterization as a major revision.

Comment: If the revision is confined to revision of the full-flush volume for dual-flush toilets, such revision should be deemed a minor revision.

Rationale: The description of the proposal in the NOI would apply more stringent criteria to a fraction of a fraction of tank-type toilet models on the market today, and have quite limited impacts on water use in the aggregate. Adoption of a "major revision" could foreclose consideration of more meaningful revisions to the specification for tank-type toilets for 6 years. If a more comprehensive review of the specification – namely a revision of the maximum flush volume for all tank-type toilets -- takes more time, the agency should take the time necessary. The water savings likely to result from the proposal in the NOI do not warrant action that would preclude far greater savings for an additional six years.

Suggested Change (or Language):

Topic: Flush Volume for Labeled Toilets
Comment: EPA should most certainly consider revision to the maximum flush volume for tank-type toilets. Consideration should be given to 1.1 gpf, 1.0 gpf, and 0.8 gpf.

Rationale: With more than 15% of single-flush Water-Sense labeled toilets flushing at 1.1 gallons or less, ample products are available today to offer consumers a range of choices of toilets that achieve greater efficiency. Although (or because) the market has not yet fully shifted to a performance level more stringent that current WaterSense, a revised flush volume specification would restore the WaterSense label as a meaningful differentiator of products in the marketplace. MaP Premium lists 413 models from some 50 brands with stronger extraction performance than required by the current WS specification while using 14% less water. We note that a 20% improvement in performance of WaterSense labeled product over standard products is not a statutory requirement, and the increment of savings at this level need not rule out consideration of a 1.1 gpf specification. Utilities have experience offering rebates for units with maximum flush volumes of 0.8 gpf, and could be a source of useful data for EPA's analysis.

Suggested Change (or Language):