WaterSense® Public Meeting

Draft Specification for Flushometer-Valve Water Closets

January 15, 2015

Housekeeping

- All participants will be muted until called upon.
- Press *6 to unmute your line. When finished speaking, press *6 to mute your line.
- Do not place the call on hold.
  - If you need to take a call, please disconnect from the conference line and call back when you are finished.
- Ask questions between sections or type your name in the “questions” box to the right to be called upon.

Meeting Agenda

- Introduction to WaterSense
- Flushometer-Valve Water Closets Background and Specification Development Process
- Draft Specification for Flushometer-Valve Water Closets
  - Scope
  - Water Efficiency Criteria
  - General Water Closet Fixture Requirements
  - General Flushometer Valve Requirements
  - Flush Performance Criteria
  - Product Marking
- Certification and Labeling
- Next Steps

Part 1:

Introduction, Background, and Specification Development

Stephanie Tanner, EPA

What is WaterSense?

- Voluntary partnership and labeling program launched by EPA in 2006 designed to reduce municipal water use across the country
- Simple way for consumers to identify products that use 20 percent less water *and* perform well
- WaterSense aims to increase the adoption of water-efficient products and services by consumers and organizations
- A label with integrity—third-party certified for water efficiency and performance

WaterSense Product Evaluation Factors

WaterSense uses several factors in determining which products to label.

- Products must:
  - Offer equivalent or superior performance
  - Be about 20 percent more water-efficient than standard models
  - Realize water savings on a national level
  - Provide measurable results
  - Achieve water efficiency through several technological options
  - Be effectively differentiated by the WaterSense label
  - Be independently certified

Flushometer-Valve Water Closets Background

- Flushometer-valve water closets (flushometer-valve toilets):
  - Tankless fixtures comprised of a wall- or floor-mounted fixture attached to a flushometer valve
  - Typically found in commercial, industrial, and other public restrooms
- Approximately 27 million flushometer-valve toilets installed in the United States

Flushometer-Valve Water Closets Background

- Energy Policy Act (EPAct) of 1992 set maximum flush volume of 1.6 gallons per flush (gpf) or 6.0 liters per flush (lpf).
  - Many older, pre-EPAct models flush as much as 3 to 7 gpf.
- High-efficiency models flush at 1.28 gpf (4.8 lpf) or less.
  - Americans could save approximately 41 billion gallons of water annually by replacing all inefficient, flushometer-valve toilets with WaterSense labeled models.

Flushometer-Valve Water Closets Background

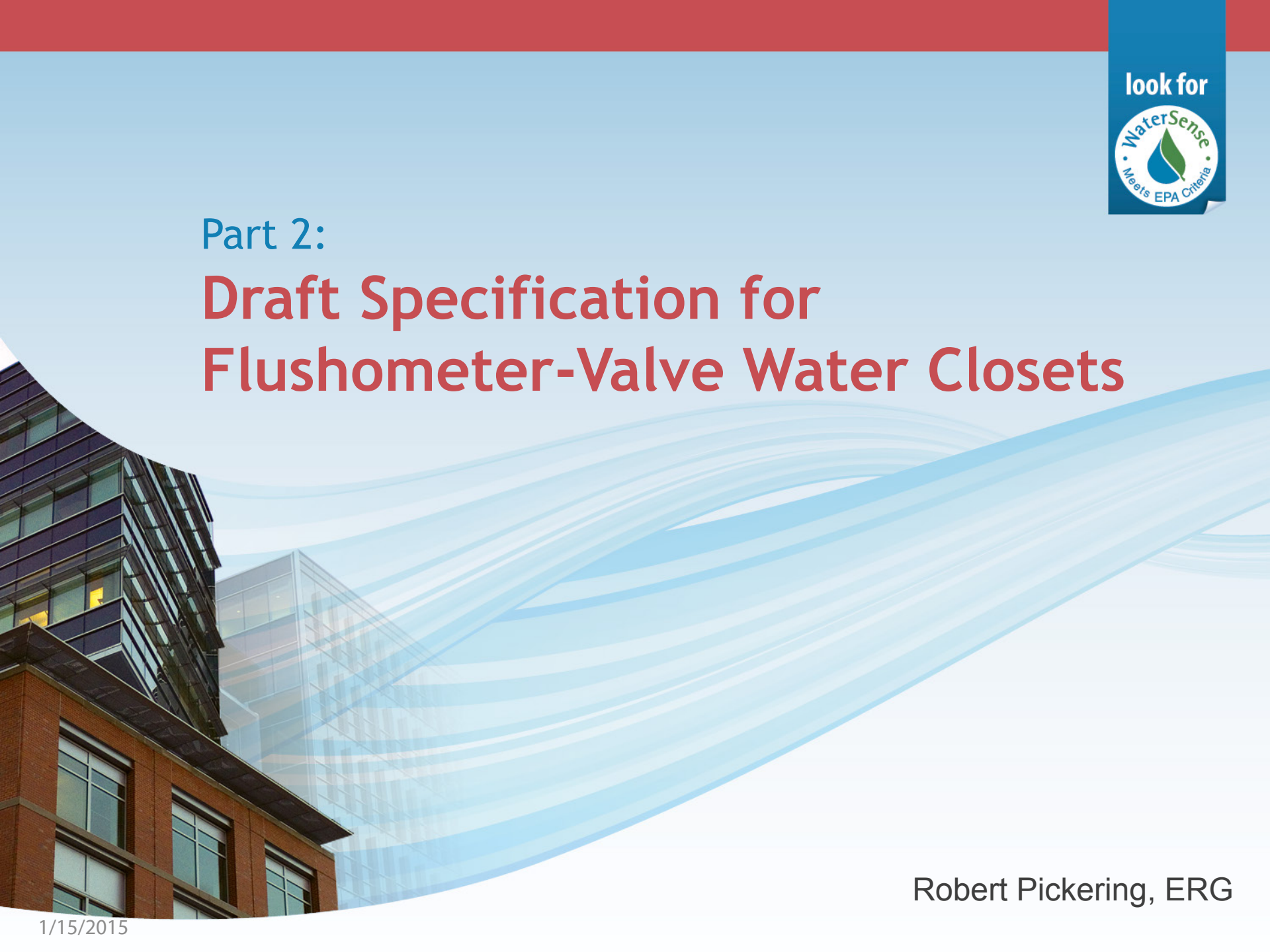
- Flushometer-valve water closets are made up of a flushometer valve and water closet fixture (e.g., bowl).
- Both play an integral role in ensuring water efficiency and performance.
  - Flushometer valve: A valve attached to a pressurized water supply pipe, designed so that when actuated, opens the line for direct flow into the fixture at a rate and quantity to properly operate the fixture and then gradually close in order to avoid water hammer.
  - Fixture: A device that receives water, waste matter, or both and directs these substances to the drainage system.

Support from the PERC Study

- November 2012 Plumbing Efficiency Research Coalition (PERC) drainline carry study
  - Investigated waste transport through drainline lengths up to 135 feet for flush volumes varying from 0.8 gallons to 1.6 gallons
  - Media successfully cleared from drainline apparatus for all 1.28-gallon test runs
- PERC supports WaterSense specification for flushometer-valve water closets with a maximum flush volume of 1.28 gpf

Flushometer-Valve Water Closets Specification Development Process

- Published Notice of Intent (NOI) in August 2013 outlining potential requirements and outstanding issues for a draft specification
- Held a public meeting on September 12, 2013, to discuss feedback on the NOI
- Evaluated public feedback and resolved outstanding issues
- Published draft specification in December 2014



Part 2:

Draft Specification for Flushometer-Valve Water Closets

Robert Pickering, ERG

Scope

- The draft specification criteria for high-efficiency flushometer-valve water closets applies to:
  - Water closet fixtures (e.g., bowls) receiving liquid and solid waste and use water from a flushometer valve to convey the waste through a trap seal into a gravity drainage system
  - Single- and dual-flush flushometer valves
  - Any other flushometer-valve-type technology meeting the specification criteria
- The draft specification **does not apply to**:
  - Tank-type Toilets
  - Blow-out Toilets
  - Retrofit or aftermarket devices or systems (e.g., flushometer-valve handles)

Water Efficiency Criteria

- Manufacturers must specify a “rated” flush volume for the flushometer valve or water closet fixture, which must be equal to or less than 1.28 gpf.
  - Reduces flush volume by 20 percent over the federal maximum
  - Is consistent with widely accepted definition of high-efficiency toilet

Water Efficiency Criteria

- For flushometer valves with dual-flush capabilities, the 1.28-gpf maximum flush volume established by the specification applies to the full-flush mode.
  - Setting the maximum full-flush volume at 1.28 gpf guarantees 20 percent water savings from dual-flush toilets. Water savings for dual-flush toilets in commercial settings are:
    - Typically based on user behavior and can be influenced by lack of education, as well as design considerations.
    - Mainly limited to women's restrooms, as men's restrooms typically have urinals for liquid waste.
- WaterSense hopes to drive the market to offer more options with even greater water efficiency.

Water Efficiency Criteria

- Flush volume shall be tested in accordance with the applicable ANSI Standards:
  - *ASME A112.19.2/CSA B45.1 Ceramic Plumbing Fixtures*
  - *ASME A112.19.3/CSA B45.4 Stainless Steel Plumbing Fixtures*
  - *IAPMO/ANSI Z124.4 Plastic Plumbing Fixtures*
- The water consumption, determined through testing, is compared to the rated flush volume to determine compliance.
  - The maximum flush volume identified through testing shall not exceed the manufacturer specified flush volume when evaluated in accordance with 10 CFR 429.30.

Scope and Water Efficiency Criteria Questions/Discussion

- Questions/discussion?

General Water Closet Fixture Requirements

- Except as otherwise indicated, water closet fixtures must conform to the applicable requirements in *ASME A112.19.2/CSA B45.1*, *ASME A112.19.3/CSA B45.4, or IAPMO/ANSI Z124.4*.
  - Testing shall be conducted with representative flushometer valves from three different manufacturers with the same rated flush volume.
- For water closet fixtures marked with a dual-consumption or consumption range marking, the fixture shall *also* be tested at the **lowest flush volume marked on the water closet**.

General Flushometer Valve Requirements

- Except as otherwise indicated in the specification, flushometer valves must conform to *ASSE 1037/ASME 112.1037/CSA B125.37* (upon its release) and must also:
  - Have a non-hold-open actuator
  - Not be adjustable beyond 10 percent of its rated flush volume
  - Be designed not to intentionally accept replacement or maintenance parts that would override the rated flush volume

Flush Performance Criteria: Single-Flush Water Closets

- Flush performance testing shall be conducted according to the waste extraction test protocol in Section 7.10 of *ASME A112.19.2/CSA B45.1*.
- WaterSense has added **additional test media** and procedural steps to address the use of seat covers:
  - Unwaxed toilet seat cover shall be used in addition to soy paste and toilet paper indicated in the standard
  - Seat cover should be added to the fixture immediately following addition of the toilet paper
  - Following addition of seat cover, water closet shall be flushed
- Inclusion of a seat cover is a likely and normal occurrence for commercial toilets.

Flush Performance Criteria: Dual-Flush Water Closets

- Full-flush mode tested in accordance with the modified waste extraction test protocol, with the inclusion of the seat cover, as described for single-flush water closets
- Reduced-flush tested in accordance with the toilet paper test protocol in ASME A112.19.14, with additional test media and procedural steps to address the use of seat covers
  - Unwaxed toilet seat cover shall be used in addition to toilet paper indicated in the standard
  - Seat cover should be added to the fixture immediately following addition of toilet paper
  - Following addition of seat cover, the water closet shall be flushed using reduced-flush mode

Performance Requirements Questions/Discussion

- Are the testing requirements for bowls intended to be marked for compatibility with multiple flush volumes adequate in ensuring the fixture performs at all flush volumes indicated?
- Are the procedures for adding a seat cover to the testing requirements for both single- and dual-flush water closets clear?
- Other questions/discussion?

Product Marking for Water Closet Fixtures

- Water closet fixtures shall be marked in accordance with *ASME A112.19.2/CSA B45.1*, with one exception.
  - Fixtures **cannot** be marked with the words “or less.”
- Fixtures intended to be used with various flush volumes shall be marked with a dual-consumption or consumption range marking.
- The rated flush volume for the water closet, which must be equal to or less than 1.28 gpf, must fall within this range/consumption marking
- Examples:
  - 1.1 to 1.6 gpf
  - 1.1, 1.28, and 1.6 gpf

Product Marking for Flushometer Valves

- Flushometer valves shall be marked in accordance with *ASSE 1037/ASME A112.1037/CSA B125.37* (upon its release).
- Flushometer valves shall not be packaged, marked, or provided with instructions directing the user to an alternative flush volume setting that would override the rated flush volume.
- Product documentation shall clearly identify specific maintenance and replacement parts to maintain the rated flush volume.

Product Marking Questions/Discussion

- Questions/discussion?

Part 3:
Certification and Labeling

Stephanie Tanner, EPA

Product Certification and Labeling

- Water closet fixtures and flushometer valves can be labeled as:
  - Separate parts
  - A complete system
- If labeled separately, the manufacturer must clearly indicate on product documentation that the fixture or flushometer valve must be used with a corresponding WaterSense labeled counterpart that has a compatible flush volume.

Product Certification and Labeling

- Manufacturers must sign a partnership agreement with EPA in order to have their products labeled.
- All products must be certified by an EPA-licensed certifying body (LCB).
  - Approved list of LCBs will be posted on WaterSense website with the release of the final specification.
- Manufacturers will apply to an LCB of their choice.
- LCBs will certify product in accordance with the WaterSense specification and authorize manufacturers to use WaterSense label.
  - LCBs provide manufacturers with graphic artwork of label.
- Use of the WaterSense label on product packaging is required.

Certification and Labeling Questions/Discussion

- Questions/discussion?

Part 4:
Next Steps

Stephanie Tanner, EPA

Next Steps

- Submit written comments to watersense-products@erg.com by February 20, 2015.
- Submit data claimed as CBI to:

  Eastern Research Group, Inc.

  Attn: WaterSense Helpline

  2300 Wilson Boulevard, Suite 350

  Arlington, VA 22201
- EPA will make public the comments received during the comment period.
- Final specification issued after evaluation of public comments.
- The final specification is anticipated in Summer/Fall 2015.

Contact Us

General Email: watersense@epa.gov

Comment Submission Email: watersense-products@erg.com

Website: www.epa.gov/watersense

WaterSense Helpline: (866) WTR-SENS (987-7367)