WaterSense®

Draft Specification for Commercial Pre-Rinse Spray Valves

Public Meeting
March 20, 2013

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 ‘question’ box to the right to be called on

Meeting Agenda

- Introduction to WaterSense
- Commercial Pre-Rinse Spray Valves Background and Specification Development Process
- Draft Specification for Commercial Pre-Rinse Spray Valves
  - Scope
  - General Requirements
  - Water Efficiency
  - Performance
  - Marking
- Certification and Labeling
- Other Issues and Next Steps

Part 1

INTRODUCTION, BACKGROUND, AND SPECIFICATION DEVELOPMENT

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% 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 tested and certified, not only for efficiency, but for performance too

WaterSense Product Evaluation Factors

WaterSense uses the following factors in determining which products to label

Product must:

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

Commercial Pre-Rinse Spray Valves (PRSVs) Background

- Commercial PRSVs are used to remove food waste from dishes prior to dishwashing
  - Use nearly one-third of water used in the dish room
  - Use energy from heating hot water
- EPAct 2005 set the maximum flow rate for PRSVs at 1.6 gpm at 60 psi
- *ASTM F2324* is the existing standard test method for PRSVs
  - Performance is measured by “cleanability” or the time it takes for the PRSV to rinse tomato paste from a plate
  - EPAct 2005 does not include a cleanability requirement

PRSVs Background (cont.)

- During WaterSense's initial evaluation of PRSVs, some stakeholders expressed concern that
  - High-efficiency PRSVs are used longer in the field and users are not satisfied, even though they score well on the cleanability test
  - High-efficiency PRSVs may not save water if they are used longer
- WaterSense needed to evaluate these issues to ensure high-efficiency PRSVs would save water and perform well

PRSVs Specification Development Process

2009

- Published NOI in July 2009
- Held public meeting to discuss NOI/outstanding issues in September 2009
- Drafted field study scope in October 2009
- Began working with ASME/CSA project team on water-efficient PRSVs

2010-2011

- Conducted field study January through June 2010
- Published final field study report in March 2011
- Continued working with ASME/CSA project team on water-efficient PRSVs

2011-2012

- ASME/CSA project team developed force test; conducted round robin testing; provided recommendations

2013

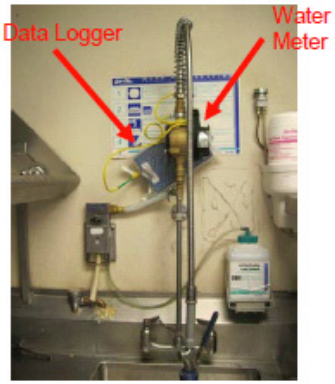
- Published Draft specification in February 2013

EPA's PRSV Field Study

- In 2010, EPA conducted a field study to determine if:
  - High-efficiency PRSVs save less water than expected because users spend more time rinsing dishes
  - Users are less satisfied with high-efficiency PRSVs
  - The existing ASTM F2324 cleanability test method provides an indication of PRSV performance in the field

Study Scope

- EPA monitored PRSVs at 10 commercial and institutional kitchens in Boston, MA, and Washington, DC
- The 10 participating facilities included four university dining halls, one high school cafeteria, and five restaurants
- Facilities ranged from a small, 1,200-customers-per-week restaurant to a 35,000 customers-per-week university dining hall



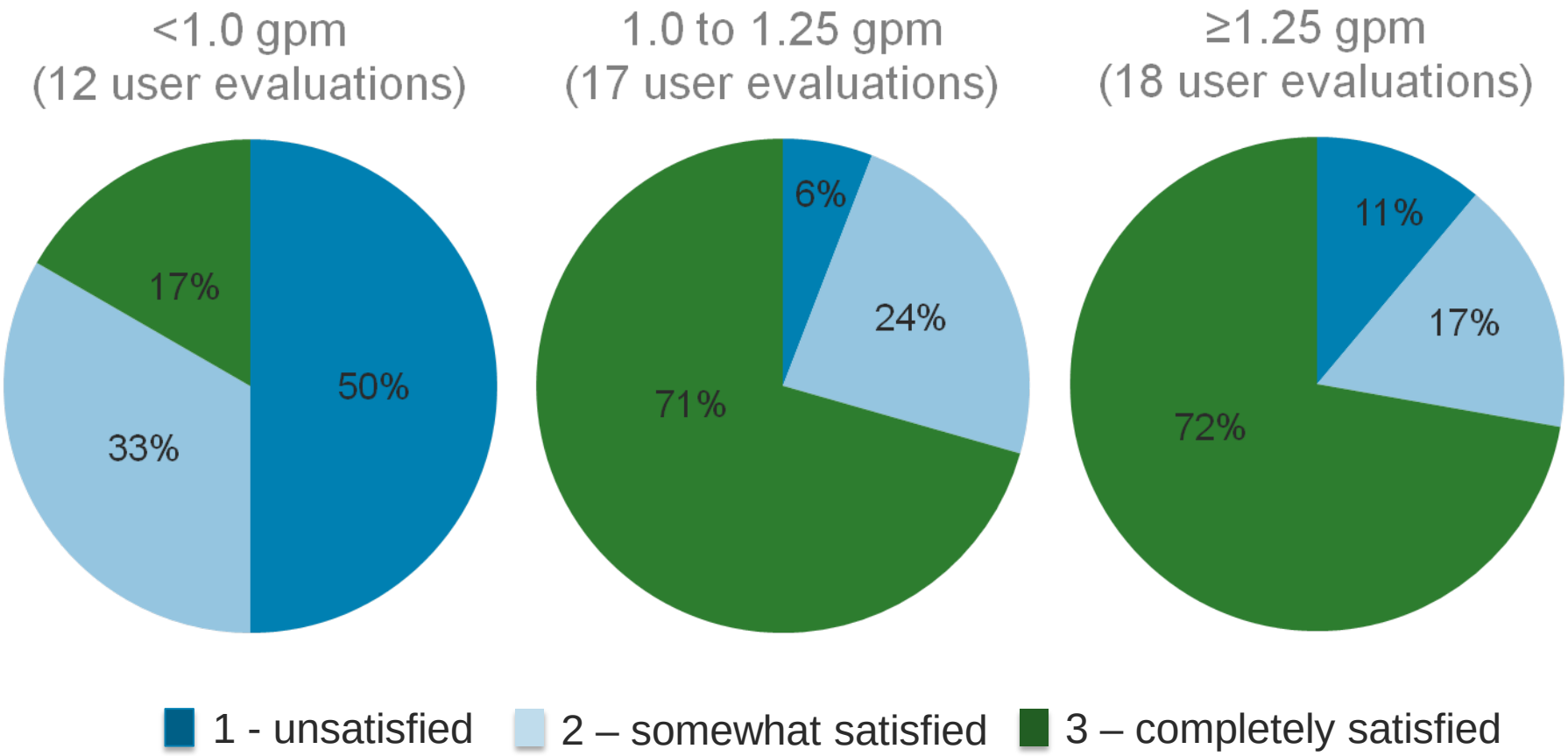
Study Scope

- Each facility's existing pre-rinse spray valve was monitored for three weeks

- Three new spray valves were also installed and monitored for three weeks each (one from each category, installed at random)
  - In total 14 pre-rinse spray valve models were monitored in the field
  - Each individual spray valve model was tested at two or more facilities

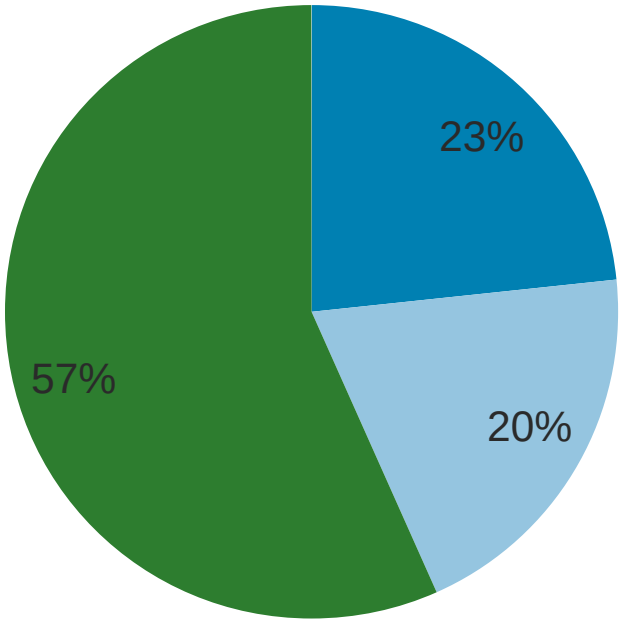
Category	Flow Rate Range	Number of Models
1	≥ 1.25 – 1.6 gpm	3
2	≥ 1.0 – <1.25 gpm	5
3	< 1.0 gpm	6

Study Observations: User Satisfaction vs Flow Rate

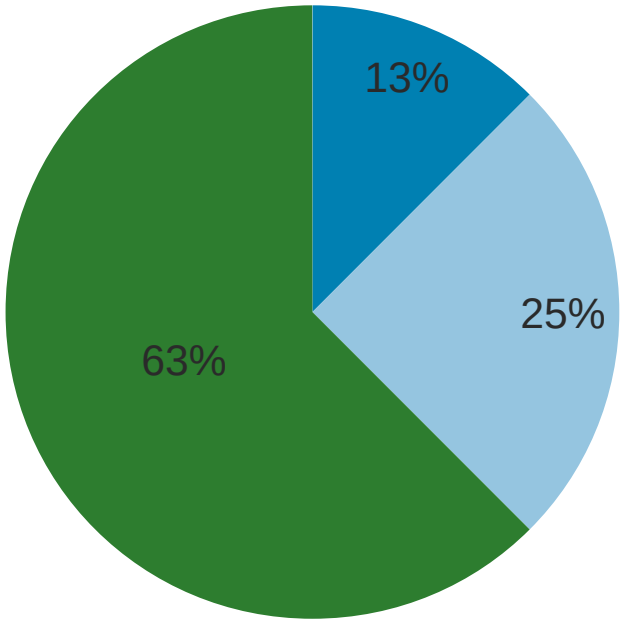


Study Observations: User Satisfaction vs Lab Cleanability Time

Cleanability:17-21 sec/plate



Cleanability:22-25 sec/plate



1 - unsatisfied 2 – somewhat satisfied 3 – completely satisfied

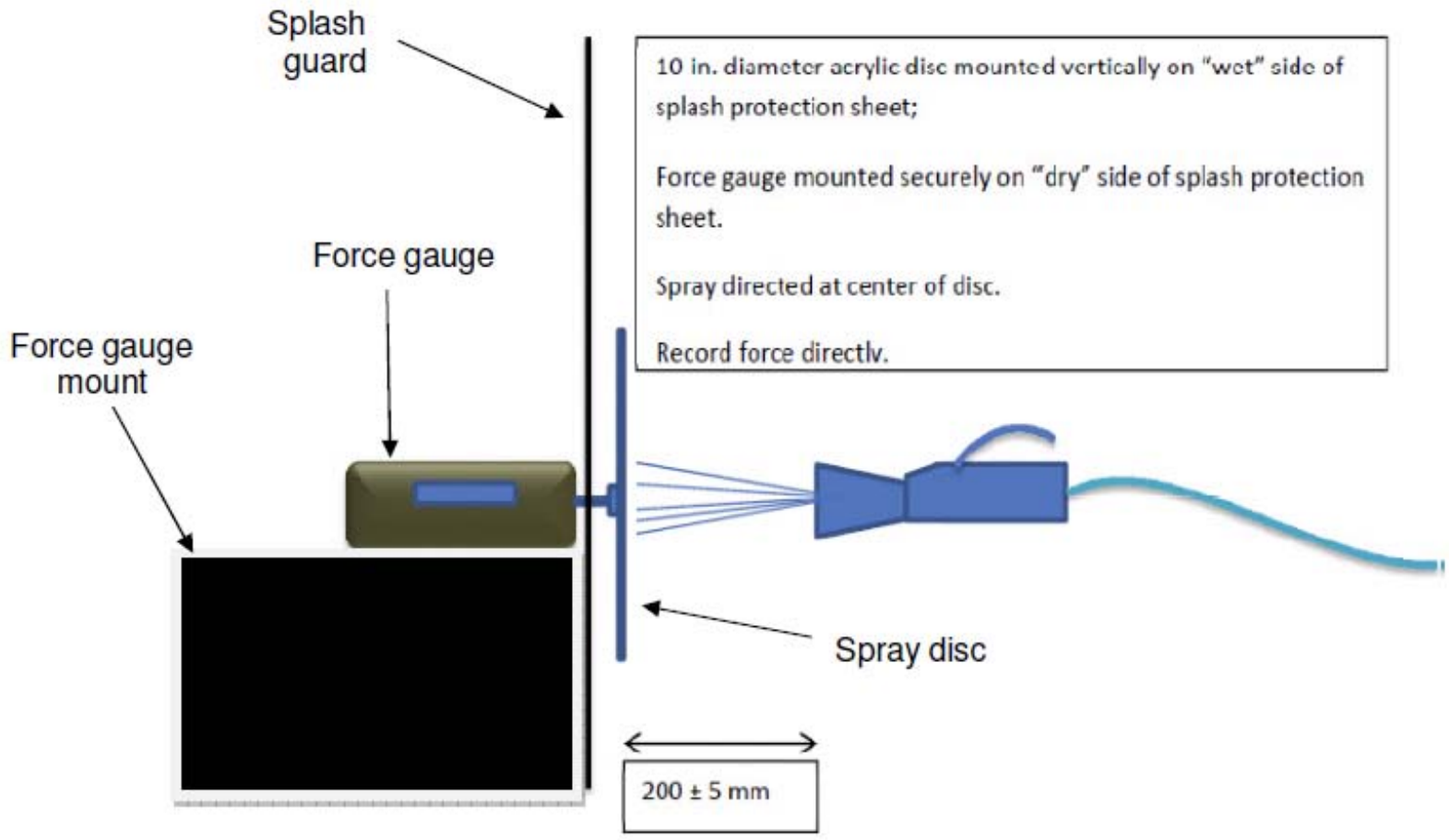
Study Observations

- In general, high-efficiency PRSVs saved water and energy
  - Users did not use high-efficiency PRSVs for significantly longer than higher flow models
  - Use time did not have a perceivable impact on user satisfaction
- Another lab test may be needed to differentiate performance
  - The cleanability test did not provide an accurate indicator of user satisfaction or correlate to actual use time in the field
- Users were less satisfied with PRSVs with operating flow rates lower than 1.0 gpm
  - Several users indicated pressure (i.e., spray force) as a reason for dissatisfaction
- Several models leaked or otherwise malfunctioned during the three-week testing period

Path to a Draft Specification

- A new measure for performance:
  - WaterSense suggested setting a minimum flow rate as the performance measure, but the project team did not support this idea
  - The project team suggested evaluating spray force as the performance metric, since users cited it as a reason for dissatisfaction
  - The project team developed a new force test method based on the concepts for testing force outlined in the WaterSense Specification for Showerheads
  - The project team performed several iterations of round robin testing by multiple independent laboratories to refine the force test protocol

PRSV Force Testing



PRSV Force Testing

Path to a Draft Specification

- The project team compared force against the user satisfaction survey data from EPA's field study
  - Determined spray force correlated better to user satisfaction than cleanability time
  - Provided a recommendation for the minimum spray force that is included in the draft specification

- ASTM is revising the F2324 test protocol to include the new spray force method and remove the cleanability method from the body of the test protocol

PRSVs Specification Development Process

- Questions?

Part 2

DRAFT SPECIFICATION FOR COMMERCIAL PRE-RINSE SPRAY VALVES

Scope and Objective

- The draft specification applies to commercial PRSVs:
  - Handheld devices designed and marketed for use with commercial dishwashing and warewashing equipment and applications that spray water on dishes, flatware, and other food service items for the purpose of removing foot residue before cleaning the items

- The draft specification **does not apply to**:
  - Spray fittings used for pot and kettle filling
  - Pet grooming
  - Grocery produce and meat cleaning
  - Residential dish rinsing
  - Retrofit devices, including aftermarket flow control devices

General Requirements

- PRSV must conform with applicable requirements in *ASME A112.18.1/CSA B125.1 Plumbing Supply Fittings*
- For PRSVs sold with multiple modes:
  - All modes must meet the maximum flow rate requirement
  - At least one mode, as specified by the manufacturer, must meet all the requirements outlined in the specification
- The manufacturer cannot provide instructions directing the user to an alternative water-use setting that would override the maximum flow rate
- Any maintenance instructions must direct the user how to return the product to its intended flow rate

Water Efficiency Criteria

- Manufacturers must specify a maximum “rated” flow rate of the PRSV equal to or less than 1.28 gpm
  - Reduces flow rate by 20% over the federal maximum
- The flow rate must be tested in accordance with *ASTM F2324 Standard Test Method for Prerinse Spray Valves*
- The maximum flow rate determined through testing is compared to the rated flow rate to determine compliance
  - The maximum flow rate identified through testing shall not exceed the manufacturer specified flow rate when evaluated in accordance with 10 CFR 429.51

Performance Criteria: Spray Force

- The tested minimum spray force must not be less than 5.0 ounces
  - Minimum spray forced identified by comparing force data with user satisfaction data from WaterSense's field study
- The spray force must be tested in accordance with *ASTM F2324 Standard Test Method for Prerinse Spray Valves*
  - The draft specification references the revised draft ASTM F2324 test method, currently out for ballot
  - WaterSense intends to reference the final revised ASTM F2324 test method in its final specification

Performance Criteria: Life Cycle

- The life cycle must be tested in accordance with *ASME A112.18.1/CSA B125.1*
- The pre-rinse spray valves must perform for 500,000 cycles
  - The ASME/CSA plumbing fittings standard requires 150,000 cycles for self-closing nozzles
  - Based upon the high occurrence of breakage and leakage observed during the field study, the project team recommended increasing the life cycle testing requirements
  - Based on WaterSense's assumptions and calculations, 500,000 cycles would more realistically approximate the anticipated useful life of PRSVs

Questions/Discussion

- Questions/Discussion?

Part 3

CERTIFICATION AND LABELING

Product Marking

- Products must be marked in accordance with requirements in *ASME A112.18.1/CSA B125.1*
- Product and product packaging and/or product literature must be marked with the manufacturer-specified maximum flow rate in gpm and Lpm
- The product packaging and/or product literature must be marked with the tested spray force

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 apply to an LCB of choice
- LCB certifies product in accordance with WaterSense specification and authorizes manufacturer to use WaterSense label
  - Provides manufacturer with graphic artwork of label
- LCB conducts periodic surveillance
  - Factory visits
  - Product retesting
  - Label policing

Certification and Labeling

- Questions/Discussion?

Part 4

OTHER ISSUES AND NEXT STEPS

Other Issues

- When EPA released its NOI, WaterSense and ENERGY STAR were considering a dual label for PRSVs
- EPA has decided that PRSVs will only be eligible for the WaterSense label; however, ENERGY STAR will continue to play an active role in promoting WaterSense labeled PRSVs
- This is a conscious decision to provide a streamlined process and ensure that undue burden is not placed on manufacturers seeking to label their products

Draft Specification Public Comments

- Since the release of the draft specification, WaterSense has received public comments related to:
  - WaterSense not taking comments on the ASTM F2324 test method
  - The minimum force of 5.0 oz
  - Reducing the number of cycles for the life cycle test

- ASTM F2324 Test Method
  - Commenter asked why WaterSense was not taking comments on the ASTM test method and whether the program was going to accept anything ASTM comes up with
  - Further comments/discussion?

Draft Specification Public Comments

- Minimum force of 5.0 oz
  - Commenters indicated that a minimum force of 5.0 ounces may unintentionally exclude some lower flowing PRSVs that are satisfactory in many applications
  - Commenters submitted proposal for new PRSV category:
    - Ultra-low flow PRSVs: A minimum spray force of 4 oz for commercial PRSVs with flow rates less than 0.8 gpm
  - Stakeholders should provide quantitative user satisfaction data to inform changes to the proposed performance level
    - Use EPA's field study user satisfaction form
    - Describe survey population and survey method
    - Send data to watersense-products@erg.com for consideration
  - Further comments/discussion?

Draft Specification Public Comments

- Life cycle
  - Commenter indicated that 500,000 cycle requirement is arbitrary and suggested changing back to 150,000 cycles required in the ASME/CSA standard
  - Further comments/discussion?

Other Issues

- Any additional questions, comments, or concerns?

Next Steps

- Submit written comments to watersense-products@erg.com by April 8
- 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
- Final specification anticipated later this year

More Information

General E-mail: watersense@epa.gov

E-mail for Comment Submissions: watersense-products@erg.com

Web site: www.epa.gov/watersense

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