

# Pre-Rinse Spray Valves Research Needs Meeting

Webinar and Teleconference  
Public Meeting  
September 30, 2009





# Meeting Agenda

- EPA Program and Specification Development Process Overview
- EPA Pre-Rinse Spray Valves NOI
- Remaining Issues and Research Needs
- Detailed Research Study Scope
- Update on Programs and Field Experiences
- Conducting Field Research
- Next Steps

Part 1:  
EPA Program and Specification  
Development Overview





# What Is WaterSense?

**A partnership program  
sponsored by the U.S. EPA**

Promotes the value of water and helps Americans make smart decisions regarding water use and water-using products.

Aims to increase the adoption of water-efficient products and services by consumers and organizations.





# What Is ENERGY STAR?

A partnership program sponsored by  
the U.S. EPA and the U.S. DOE

- Protects the environment through superior energy efficiency
- No tradeoffs in performance or quality
- Cost effective
- Source of authority
- Government-backed symbol providing valuable, unbiased information
- Binary (Y/N)
- Power of the individual to make a difference



# What is ENERGY STAR?

## Residential

- Labeled Products
  - 60+ categories
  - 10-60% more efficient
- Labeled New Homes
  - 20-30% more efficient
- Home Improvement Services
  - Beyond products
  - Ducts/home sealing
  - Whole home retrofits

## Commercial/Industrial

- Corporate energy management
  - Benchmarking, goals, upgrades, management & systems (not widgets)
  - Whole building label for excellence
  - Technical Assistance
- Labeled Products
- Industrial
- Small business Initiative

<b>PRODUCTS</b> ▶	
 Change the world, take the ENERGY STAR Pledge.	<b>Explore Products &gt;</b> <ul style="list-style-type: none"><li>Appliances</li><li>Heating &amp; Cooling</li><li>Home Electronics</li><li>Lighting</li><li>Office Equipment</li><li>Store Locator</li><li>Rebate Finder</li></ul>
 ENERGY STAR HOME ADVISOR Get Customized Recommendations	<b>Explore Home Improvement &gt;</b> <ul style="list-style-type: none"><li>Common Home Problems</li><li>Home Energy Audits</li><li>Air Seal &amp; Insulate</li><li>Heat &amp; Cool Efficiently</li><li>Home Performance with ENERGY STAR</li><li>For Contractors</li></ul>
<b>NEW HOMES</b> ▶	
 ENERGY STAR Qualified Homes Take A Tour Behind the Walls	<b>Explore Qualified New Homes &gt;</b> <ul style="list-style-type: none"><li>Find an ENERGY STAR Builder</li><li>ENERGY STAR New Home Features</li><li>Benefits for Homeowners</li><li>For Residential Professionals</li></ul>
<b>BUILDINGS &amp; PLANTS</b> ▶	
 Bring your GREEN to work	<b>Explore Buildings &amp; Plants &gt;</b> <ul style="list-style-type: none"><li>Guidelines for Energy Management</li><li>Tools &amp; Resources Library</li><li>Expert Help</li><li>Commercial Building Design</li><li>Green Buildings</li></ul>



# WaterSense Product Evaluation Factors

**WaterSense uses the following factors in determining which products to label. Products 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.



# ENERGY STAR Product Evaluation Factors

## Criteria weighed when developing or revising ENERGY STAR product specifications:



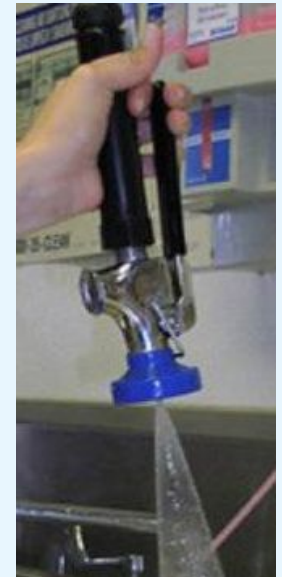
- Significant energy (GHG) savings will be realized on a national basis.
- Product energy consumption and performance can be measured and verified with testing.
- Product performance will be maintained or enhanced.
- Purchasers of the product will recover any cost difference within a reasonable time period.
- Specifications do not unjustly favor any one technology.
- Labeling will effectively differentiate products to purchasers.
- Typically top 25 % of product models (not sales) but key criteria can trump that goal.
- Use a well documented, transparent process.





# WaterSense and ENERGY STAR Working Together

- High-efficiency pre-rinse spray valves save significant water and energy
- Collaborating and leveraging both programs, EPA hopes to achieve maximum market transformation for this product category





# Specification Development

- Issued NOI in July 2009
  - Outlines potential scope, efficiency, and performance criteria
  - Identifies outstanding questions
- Work to resolve outstanding questions through
  - Stakeholder input
  - Field research (using detailed research study scope)
- Issue Draft Specification
  - Public comment period
  - EPA response to comments
- Build third-party certification infrastructure
- Issue Final Specification
- Labeled pre-rinse spray valves on the market!

Part 2:  
EPA Pre-Rinse Spray Valves  
NOI





# Pre-Rinse Spray Valve Background

- Estimated 1.35 million pre-rinse spray valves installed in the U.S.
  - Up to 50% may be inefficient, exceeding federal requirements
- Energy Policy Act (EPAAct) of 2005 sets a national standard for flow rate (1.6 gpm) but does not address performance
- ASTM F2324-03 was developed to compare product flow rates and performance (cleanability)
  - Groups such as CUWCC and CEC specify specific target cleanability requirements in terms of seconds/plate cleaned



## Scope

- EPA is looking to develop a specification for high-efficiency pre-rinse spray valves
- May apply to EPA Act 2005 definition for commercial pre-rinse spray valve:
  - “A handheld device designed and marketed for use with commercial dishwashing and ware washing equipment that sprays water on dishes, flatware, and other food service items for the purpose of removing food residue before cleaning the items.”
- May exclude pot and kettle fillers and pre-rinse spray valve retrofit kits



# Efficiency Criteria

- **Potential Efficiency Requirement**
  - The goal of the WaterSense program is to label products that are at least 20% more efficient than their standard counterparts
  - The goal of the ENERGY STAR program is to label products that represent the top quartile of products available in the market
  - Efficiency criteria for pre-rinse spray valves will be dictated by flow rate in gallons per minute (gpm)
  - The flow rate selected must meet both the stated WaterSense and ENERGY STAR program goals for efficiency
  - Potential requirement still under evaluation – EPA is seeking field research to inform the decision



# Performance Criteria

- Performance Criteria
  - Labeled products must perform as well or better than their standard counterparts on the market
  - EPA is interested in referencing an existing test method such as ASTM F2324-03, but is evaluating whether the ASTM cleanability results correlate to product performance in the field
  - Potential requirement still under evaluation – EPA is seeking field research to inform the decision

Part 3:  
Remaining Issues and Research  
Needs







# Correlating Field Data and Lab Data

- Limited data suggest that usage time may increase with ultra high-efficiency pre-rinse spray valves (<1.0 gpm)
  - These spray valves are achieving cleanability ratings equal to or better than standard models.
- Based on the available data EPA is concerned about the field performance of some products and the ability to represent performance in the lab
- EPA is looking for parties to assist them with research using its detailed research study scope



# Repeatability and Reproducibility

- The specification must be repeatable by any lab and the results reproducible
- Some stakeholders are concerned about the repeatability and reproducibility of the ASTM F2324-03 performance test method
  - Inconsistency of test media
  - Subjective determination of a “clean” plate
  - Lack of specificity of room conditions
- Other stakeholders point out that the test method requires 60 iterations and results in statistically significant data
- Only one laboratory tests pre-rinse spray valves using the ASTM F2324-03 performance test method
- EPA is seeking data to inform these issues, particularly testing data from other laboratories



# Pressure Fluctuations

- Some high efficiency pre-rinse spray valves installed in establishments with low water pressure might not clean plates quickly enough
  - May negate energy and water savings
- Some high-efficiency pre-rinse spray valves installed in establishments with high water pressure may cause overspray and splashing
- Both may impact user satisfaction
- Some data suggests that high-efficiency pre-rinse spray valves are less susceptible to pressure fluctuations and other data indicate the opposite
- EPA seeks more data on this issue and suggestions on how to address this issue it in a specification



# Appropriate Performance Level

- ASTM provides a test method but does not establish specific target performance levels products must meet
- Several groups have specified testing in accordance with ASTM and established various performance levels
  - CEC sets 30 seconds/plate
  - CUWCC sets 21 seconds/plate
  - FEMP and the NY State Energy and Research Development Authority set 26 seconds/plate
- After field research is completed and a performance test has been agreed upon, EPA will need to set performance levels for the draft specification



## Questions on the NOI

- Questions?
- Send questions, comments, and data to assist with the outstanding issues to [watersense-products@epa.gov](mailto:watersense-products@epa.gov)

Part 4:  
Detailed Research Study Scope





# Why is Research Needed?

- New products introduced with rated flow rates  $<1.0$  gpm and ASTM-tested cleanability times equal to or better than standard models
- Little research exists to determine how these products perform in the field and if lab performance (cleanability) correlates to field usage time
- EPA is interested in evaluating all pre-rinse spray valves on the market, not just ultra high-efficiency valves
  - To gauge the range of performance and user satisfaction
  - To establish a baseline for product performance
  - To develop meaningful efficiency and performance criteria



# Why is Usage Time Important?

- Usage time dictates water and energy consumption
- Increasing the duration of use can impact user satisfaction
- Cleanability is currently the lab indicator of usage time





# How are Efficiency and Performance Related?

- Due to the unknowns, it isn't clear whether lower flowing products require longer usage times in the field
- Efficiency criteria cannot be determined without understanding usage time (performance) and associated energy and water savings



# Detailed Research Study Scope

- EPA's research study scope seeks to answer these questions:
  - How do water usage and time usage vary among pre-rinse spray valves currently on the market?
  - Do usage times in the field correlate to cleanability times achieved using the ASTM F2324-03 test method?
  - How do flow rate, actual field usage time, and ASTM-tested cleanability time correlate to user satisfaction?



# Detailed Research Study Scope

- Detailed research study scope presentation



# Detailed Research Study Scope

- Open discussion, comments, questions on study scope?

Part 5:  
Update on Programs and Field  
Experiences





# Update on Programs and Experiences

- Bing Tso from SBW Consulting
- Other Participants?
  
- EPA is interested in hearing about your experiences:
  - Collecting data (flow rate, usage time, etc.) in the field
  - Issues with and/or suggestions for contacting establishments for direct install participation
  - Experiences working with high-efficiency pre-rinse spray valves in general

Part 6:  
Conducting Field Research





# Conducting Field Research

- EPA intends to conduct field research at approximately 10 establishments in DC and Boston
- EPA would like additional data from interested parties that address other parts of the country and more establishments
- Are any parties interested in conducting additional field research and providing data?





# Conducting Field Research

- EPA is looking for advice on establishment recruitment for its field work
- How have you successfully recruited establishments for previous direct-installs or research endeavors?
- Do you know of establishments that may be interested in participating in a field study in the DC and/or Boston areas?



# Conducting Field Research

- EPA is looking for advice on data collection materials and products for use in field research
- Are you interested in providing product (pre-rinse spray valves) for the study?
- Do you have suggestions on which usage counters/totalizers work? Are you interested in providing usage counters/totalizers?

Part 7:  
Next Steps





# Field Research and Remaining Issues

- Field Research
  - Conduct field research this fall and winter
  - Finalize results in Spring 2010, seek additional data by that time
- Remaining Issues and Research Needs from the NOI
  - EPA is seeking and welcomes data at anytime
  - Please contact us at [watersense-products@erg.com](mailto:watersense-products@erg.com)



# ASME/CSA Pre-Rinse Spray Valves Task Force

- EPA has agreed to collaborate with ASME/CSA and ASTM to develop performance and efficiency criteria that will inform an EPA specification for spray valves
- The goal is to involve a broad set of interested stakeholders through a joint committee process to develop test procedures and specifications that deliver water and energy efficiency while ensuring product performance and quality
- EPA expects this joint effort to result in a proposal and final specification that will meet the program principles of both the ENERGY STAR and WaterSense programs



# ASME/CSA Pre-Rinse Spray Valves Task Force

- Task force kick-off meeting in Las Vegas in conjunction with WaterSmart Innovations Conference and via web conference – October 6, 2009, 8:30am – 12pm PDT
  - To register email [watersense@epa.gov](mailto:watersense@epa.gov)
- Task force will meet regularly in person and via web conference
- EPA encourages all interested ENERGY STAR and WaterSense stakeholders to participate in the ASME/CSA committee process, which is open to all



# Additional Questions and Comments

- Additional Questions, Comments, or Feedback?



## More Information

- **WaterSense Information:**
  - Web site: [www.epa.gov/watersense](http://www.epa.gov/watersense)
  - WaterSense Pre-rinse Spray Valves Web site: <http://www.epa.gov/watersense/pp/prsv.htm>
  - E-mail: [watersense-products@epa.gov](mailto:watersense-products@epa.gov)
  - Toll-free Helpline: (866) WTR-SENSE
- **ENERGY STAR Information:**
  - Web site: [www.energystar.gov](http://www.energystar.gov)
  - Christopher Kent, EPA
  - Tel: 202-343-9046
  - E-mail: [kent.christopher@epa.gov](mailto:kent.christopher@epa.gov)



