Supplemental Guidance for WaterSense® Certification and Labeling of Weather-Based Irrigation Controllers

1.0   Introduction

EPA requires *all* products bearing the WaterSense label to be independently certified to conform to the relevant WaterSense product specification. To guide this certification process, EPA has developed the *WaterSense Product Certification System* Version 2.0 (product certification system), available on the WaterSense website at http://www.epa.gov/watersense/partners/certification.html. The product certification system describes the application, production process inspection, product testing, and ongoing surveillance requirements to ensure products conform and continue to conform to WaterSense specifications.

As this certification and labeling process is new and unfamiliar to some weather-based irrigation controller (controller) manufacturers, EPA has developed the following guidance to provide clarification and specific direction as to how the process works and will apply to the certification and labeling of such controllers. This guidance is supplemental to the *WaterSense Specification for Weather-Based Irrigation Controllers* (specification). In addition, the following documents are indispensable in the application of the WaterSense certification and labeling process for controllers:

- *WaterSense Product Certification System*
- WaterSense manufacturer partnership agreement
- *WaterSense Program Guidelines*
- *WaterSense Program Mark Guidelines*

Manufacturers should read each of these documents to have a complete understanding as to how product certification and labeling works under the WaterSense program.

The following documents will also be helpful in fully understanding the testing and certification of products to earn the WaterSense label.

- WaterSense Performance Test Protocol Program for Weather-Based Irrigation Controllers (software available from WaterSense to aid in implementing the test protocol portion of the specification).
- ISO/IEC Guide 65, *General requirements for bodies operating product certification systems.*
- ISO/IEC 17025, *General requirements for the competence of calibration and testing laboratories.*

2.0   Background

WaterSense developed its product certification system as a mechanism to protect and maintain the integrity of the WaterSense label. Certification provides a means of evaluating product conformity with WaterSense specifications, not only when the product is initially tested, but on an ongoing basis after the product is being sold to consumers. Certification is a process demanded by stakeholders such as utilities looking to help

consumers identify water-efficient, high-performing products. It also brings value to the WaterSense label and is an accepted and established practice in other industries.

EPA released its *WaterSense Product Certification System* for public comment in May 2007 and received public comments, including many from irrigation controller manufacturers. After carefully considering the comments, EPA made appropriate revisions, and in March 2009 released and began implementing the *WaterSense Product Certification System.*

Based on its experience implementing the *WaterSense Product Certification System* and in preparation for the inclusion of weather-based irrigation controllers under the product certification process, WaterSense revised its product certification system in September 2011. The revisions in part were designed to make the program more affordable and accessible to manufacturers of all sizes and to streamline and reduce delays in the certification process. To date, more than 4,000 products have been successfully certified and labeled under this process. The *WaterSense Product Certification System* and materials supporting its development and revision can be viewed on the WaterSense website at
http://www.epa.gov/watersense/partners/certification.html.

To further facilitate industry readiness to support the WaterSense certification and labeling process, WaterSense hosted a meeting in September 2008 with controller manufacturers and potential licensed certifying bodies. During this meeting, EPA reviewed the benefits of third-party certification, discussed the balance between accessibility of the process and the rigor of the requirements, listened to industry concerns, and initiated dialogue between controller manufacturers and potential licensed certifying bodies. A summary of this certification and labeling meeting can be found on the WaterSense website at
http://www.epa.gov/watersense/partners/controller_background.html.

In the months since this meeting, EPA has worked to help the industry build the third-party certification infrastructure for controllers by providing training to interested licensed certifying bodies and testing laboratories on how to conduct the testing in accordance with WaterSense criteria.

The goal of this guidance is to further create a clear and transparent process for manufacturers to understand and obtain product certification and authorization to use the WaterSense label in a timely, cost-effective manner.

3.0 Product Certification

EPA is providing specific guidance for the certification and labeling of controllers based on the specification and general requirements outlined in the WaterSense Product Certification System, including:
- Application to a licensed certifying body
- Initial production inspection and product testing
- Product evaluation
- Product certification listing

- Authorization to use the WaterSense label
- The process for listing products on the WaterSense labeled product registry
- Ongoing surveillance
- Label use suspension or withdrawal

3.1   Application to a Licensed Certifying Body

3.1.1   WaterSense Partnership

Manufacturers seeking certification and the WaterSense label for their controllers must first apply for WaterSense partnership with EPA, http://www.epa.gov/watersense/partners/manufacturer.html. This partnership is free. Manufacturers of components such as weather stations, additional sensors, or weather services, are not eligible for partnership on this basis alone.

3.1.2   Application

The second step is to apply directly to an EPA licensed certifying body that has been approved to certify controllers. This list of approved licensed certifying bodies is posted on the WaterSense website at http://www.epa.gov/watersense/about_us/cert_bodies.html#lcb. The manufacturer must pay the licensed certifying body for its certification services. WaterSense has no role in establishing or overseeing fees that are charged for certification services.

The licensed certifying body will provide an application for certification, which will require the manufacturer to provide certain product information as indicated on the controller product notification template that is available on the WaterSense website at http://www.epa.gov/watersense/partners/certification.html. As applicable, the information provided in the application shall match product identifying information on the product packaging or other point-of-purchase materials purchasers will see.

3.1.3   Private Labeling

At the time of application, if a manufacturer intends to have its products privately labeled or rebranded under a separate organization/brand name, it must inform the licensed certifying body. The manufacturer must provide the licensed certifying body with the same type of product information for the privately labeled product as it provided for its original product, and as required by the controller product notification template. Private labelers must also sign a WaterSense partnership agreement if they sell the WaterSense labeled product under their own brand name.

Often, private labeling arrangements are made after the initial certification of products. The manufacturers should notify the licensed certifying body and update its records accordingly if at any time it intends to have its products privately labeled. Private labelers may open their own certification files, but the licensed certifying body must keep track of the private labeler's relationship to the original manufacturer and be able to provide WaterSense with this information upon request.

3.2 Initial Production Inspection and Product Testing

3.2.1 Initial Production Inspection

An initial production inspection is an optional requirement under the WaterSense Product Certification System. It is an assessment of the production process and quality management system of the manufacturing facility. Its purpose is to help the licensed certifying body determine if the manufacturer has the capability to mass produce products that will consistently meet the requirements of the specification. For controllers, EPA anticipates that most licensed certifying bodies will include this production inspection in their initial evaluation, because they do not have a prior relationship with manufacturers or a thorough understanding of their capability to produce products that continue to conform to the specification requirements. The licensed certifying bodies have facilities and personnel capable of completing this inspection anywhere in the world where the products may be manufactured.

3.2.2 Initial Product Testing

3.2.2.1. General Testing Requirements

3.2.2.1.1 Test Period

In accordance with the SWAT protocol, the test period shall be 30 consecutive days. The test may run past the initial 30 days until a 30-day period occurs where the rainfall and evapotranspiration (ET) requirements are met. The licensed certifying body shall use the first valid 30-day test period to calculate irrigation adequacy and irrigation excess. If the performance requirements for irrigation adequacy and excess are not met and the manufacturer wishes to continue testing, the licensed certifying body shall restart the test. This requirement aims to ensure that selection of the 30-day test period is consistent between licensed certifying bodies.

3.2.2.4 Supplemental Capability Requirements

As part of the product testing, the licensed certifying body will evaluate the controller to verify that it has the required supplemental capabilities in both smart and standard modes. This verification may be done through either a physical examination of the product or through evaluation of the product's documentation to confirm that it has each capability.

3.2.2.1.2 Sampling

The licensed certifying body will select one sample product at random from the entire inventory of the manufacturer's packed production. The sampled product must be representative of the models to be certified and made using the components, subassemblies, and production tools and equipment identical to those used in production. Sampling in this manner will ensure that the controller is representative of

the product sold to purchasers and that it meets the specification's packaging and product documentation requirements that dictate product configuration and testing.

3.2.2.1.3 Testing Laboratories

The licensed certifying body will determine how it will conduct the testing. It can use its own testing laboratory or outsource the testing to an external laboratory, including an independent testing laboratory, or to the manufacturer, under either a witnessed manufacturer testing laboratory program or a supervised manufacturer testing laboratory program. The licensed certifying body will evaluate any testing laboratories it uses for their ability to comply with ISO/IEC 17025, *General requirements for the competence of calibration and testing laboratories*. For more information on the laboratory testing options and qualifications, please review the WaterSense Product Certification System at http://www.epa.gov/watersense/partners/certification.html. Note that EPA does not anticipate that the supervised manufacturer's testing laboratory program will be available to most controller manufacturers initially. To be eligible to participate in such a program, the manufacturer must have a contractual relationship with the licensed certifying body and participate in a witnessed manufacturer's testing laboratory program for at least 2 years.

3.2.2.1.4 Base Models

It is important to note that EPA does not require every individual model to be tested. Instead, the licensed certifying body may test a base model that is representative of other models that have the same performance, but that may have other attributes that do not affect performance, such as station count or product finish. The licensed certifying body has discretion as to what constitutes products covered by a base model and whether a specific model must be tested. The certification decision will apply to the base model and any other models that the base model represents.

3.2.2.2. General Controller Testing Configuration

This specification applies to stand-alone controllers, add-on devices, and plug-in devices. EPA provides specific direction in Appendix A of the specification as to how each of these product types must be configured for testing. Specifically, all controllers—stand-alone controllers, add-on devices, and plug-in devices—must be supplied and tested with all weather stations, sensors, rainfall devices, or services that the manufacturer deems necessary to meet the requirements of the specification. Manufacturers must have no interaction with the product during testing, and the licensed certifying body is allowed only to use the list of settings provided in the product's instruction manual in order to properly set up the device for testing. The intent in specifying these configuration requirements is to make it clear to the licensed certifying body which components the controller must be tested with and which settings shall be used for the testing.

The performance test for these products includes six virtual zones, requiring a product to have at least six stations in order for the product to undergo the test. For products that

have less than six stations, the licensed certifying body will work with the manufacturer to set up the product for testing.

3.2.2.3.   Add-on and Plug-in Device Testing Configuration

WaterSense evaluates whether a product can deliver both water efficiency and performance. If a retrofit or component product that is designed to modify or control the water use of a base product cannot ensure the expected level of performance of the base product, it is not a candidate for the WaterSense label. All labeled products must be able to deliver all the efficiency and performance criteria established in the WaterSense specification. Therefore, add-on and plug-in devices must be tested with each base controller with which the manufacturer intends it to be connected to meet the requirements of the specification. As a unit, the base controller and the add-on or plug-in device must meet all of the requirements contained in the specification in order for the add-on or plug-in device to be certified.

It is important to note that this testing configuration requirement does not necessarily mean that the add-on or plug-in device must be tested with every individual base controller model available. The licensed certifying body may group base controller models based on models that provide the same functionality and performance, but that have non-performance related differences (e.g., only the station count varies). Based on its engineering judgment, the licensed certifying body may test the add-on or plug-in device with only one of the base controller models in a specific group, but may certify the add-on or plug-in device for use with any of the base controller models in that same group.

3.2.3   Product Packaging and Documentation Evaluation

To ensure product efficiency and performance (and to provide guidance for testing), the specification outlines specific product documentation requirements with which manufacturers must comply. Specifically, the licensed certifying body will evaluate and verify that:

- The product is packaged with all of the components or attributes it was tested with to meet the requirements of the specification. This includes weather stations, sensors, rainfall devices, and, for signal based-controllers, instructions on acquiring the proper weather signal. This does not include modules that add station capabilities to the product. These may be packaged and sold separately from the controller.
- The product is packaged with an instruction manual that lists the settings and specific parts used during the performance test, including the maximum number of stations for the product. The licensed certifying body will use this information to guide the programming and testing of the controller.
- The product is not packaged or marked in any way that encourages operation in standard mode. Any instructions for maintenance must direct the user on how to return the controller to smart mode.

In addition, as a requirement for any product that bears the WaterSense label, and as indicated in Appendix B of the specification, the licensed certifying body will verify that product documentation for add-on and plug-in devices lists the base controller models with which the devices were certified. The documentation must contain a statement to the effect that the device is only WaterSense labeled when used in combination with a base controller on the provided list. The intent of this requirement is to ensure that the purchaser is able to identify the combination(s) of base controller and add-on or plug-in device that will deliver the efficiency and performance required by the specification.

3.3 Product Evaluation

In addition to the production inspection and product testing, the licensed certifying body will also complete a comprehensive review of the quality management documentation, product literature, and schematics to determine if the product can be manufactured in accordance with the specification.

In summary, the evaluation and ultimate certification decision will be based on a review of the following components, *all* of which must be met to the satisfaction of the licensed certifying body:
- Signed partnership agreement with EPA (for the original manufacturer and any private labelers who rebrand and sell the products);
- Initial production inspection (if required);
- Initial product testing;
- Product packaging and documentation review; and
- Quality management, product literature, and schematic review.

The licensed certifying body can work with the manufacturer to correct minor deficiencies before issuing the final certification decision. As part of the evaluation, the licensed certifying body may also require the manufacturer to submit a sample or describe how it intends to use the WaterSense label on the product and/or product packaging.

3.4 Product Certification Listing

The licensed certifying body is required to maintain a WaterSense labeled product listing (certification listing) for each manufacturer, which lists information for each product it has successfully certified. The certification listing must contain, at a minimum, all of the information that is required to be displayed on the certification listing as indicated in the controller product notification template available on the WaterSense website, http://www.epa.gov/watersense/partners/certification.html.

For add-on and plug-in devices, the certification listing must also include each base controller model (or group of models) with which the device was certified. The add-on or plug-in device product documentation must also list each base controller model with which it was certified (i.e., the base controllers included on the certification listing).

This certification listing will not include specific test data or results, nor will it list any products that were not successfully certified. It is simply a public record to indicate that

the listed products meet the minimum requirements contained in the specification and are authorized to bear the WaterSense label.

Manufacturers are responsible for ensuring that the certification listing is accurate and complete. This is an important step, because the licensed certifying body may charge a fee for any changes to the certification listing. To help facilitate the listing process and avoid delays or extra charges, EPA is providing tips in the following subsections.

3.4.1. Naming Conventions

It is critical to ensure that the brand name, model name, and model number for each product included on the certification listing matches how the product is packaged and advertised to the purchaser. WaterSense must be able to trace and verify each product's certification, so EPA might review the manufacturer's website or request sample product packaging to ensure the information matches.

3.4.2 Additional Models Covered by a Base Model

In some cases, models may come with various attributes or options that do not affect product performance. In these instances, the licensed certifying body may certify a base model, covering the additional models with these various attributes, as described in Section 3.2.2.1.4 above.

If the models covered by a base model share a common base model number, the base model number may be identified on the certification listing with prefix or suffix characters to indicate the additional models covered, so that each model does not have to be individually listed. If base models are listed in this manner, the certification listing must also contain a legend or key denoting the meaning of the associated prefixes or suffixes that may be added to the base model number. The licensed certifying body will report and EPA will identify on its WaterSense labeled product registry (product registry) the base model number and any prefixes and suffixes, so that consumers and other purchasers can easily identify labeled products.

If the models covered by a base model do not share a common base model number, each individual model covered by the base model must be listed on the certification listing. In these instances, the licensed certifying body will report and EPA will identify on its product registry each individual model covered by the base model so that consumers and other purchasers can easily identify labeled products.

Regardless of how the products are listed on the certification listing and reported to EPA, the licensed certifying body will keep track of all models covered by a base model for the purpose of determining the number of models that are eligible for surveillance testing as described in Section 3.7 below.

3.4.3 Private Labeled Products

For products that are privately labeled, the certification listing must also contain all of the information that is required to be displayed on the certification listing as indicated in the

controller product notification template available on the WaterSense website. The private labeler may request a separate certification listing from the manufacturer, provided the licensed certifying body keeps a record of the linkage between the two listings, so EPA can track a product's certification back to the original manufacturer, if necessary.

3.5   Authorization to Use the WaterSense Label

Once a product has been certified to meet the specification, the licensed certifying body, not EPA, will authorize the manufacturer to use the WaterSense label and provide the label graphic artwork. The label will be provided in color and black and white and in various file types to suit different advertising media. It will also contain the words "Certified by [Name of Licensed Certifying Body]" underneath. **It is important that the manufacturer does not alter the label artwork provided.** Specifically, do not remove the "Certified by [Name of Licensed Certifying Body]", change the label color or fonts, or skew the image. The manufacturer must use this label in accordance with the *WaterSense Program Mark Guidelines* available on the WaterSense website at http://www.epa.gov/watersense/docs/WaterSenseProgramMarkGuidelines_Combined_6-29-2011_508.pdf. The licensed certifying body, as part of its surveillance, will evaluate and ensure the label's proper use.

Private labelers may also be authorized to use the WaterSense label, provided they are WaterSense partners and are included on a certification listing. The label use authorization and graphic artwork may be obtained either from the licensed certifying body or from the original manufacturer, as dictated by the licensed certifying body's policies. The original manufacturer is responsible for ensuring that its private labelers use the WaterSense label properly.

3.6   Process for Listing Products on the WaterSense Labeled Product Registry

Once a month, the licensed certifying body will automatically report to EPA all of the controllers that it has certified and labeled. Reports will be developed using the controller product notification template available on the WaterSense website. EPA will use the information contained in the product notification template to update its product registry, http://www.epa.gov/watersense/product_search.html. Note that EPA will only display on the product registry the product information on the controller product notification template that is indicated in the columns denoted with "Display on Product Registry." For add-on and plug-in devices, for example, EPA does not intend to list on its product registry each base controller model with which the device was certified. It will, however, collect and keep track of this information should a question ever arise about which specific combinations of add-ons or plug-in devices and base controllers are certified. It is incumbent upon the manufacturer to ensure that the information provided to the licensed certifying body that is subsequently reported to WaterSense is accurate.

3.7   Surveillance

3.7.1   Production Inspection

The licensed certifying body will audit the production process and quality management system each year to ensure that the manufacturer continues to have the capability to produce products that conform to the specification. As issues are identified, the licensed certifying body may work with the manufacturer to ensure that appropriate actions are taken to correct deficiencies.

3.7.2   Product Retesting

Every year, the licensed certifying body will retest at least 15 percent of the controllers it has certified to ensure that they continue to meet specification requirements. Note that this means that not every manufacturer will have models retested each year.

As described in Section 6.6.2 of the WaterSense Product Certification System, not every individual certified model will be eligible for or included in the annual product retesting under the 15 percent requirement. EPA has provided guidance on how to determine which products are eligible for retesting, taking into consideration recently tested models, privately labeled models, and individual models covered by a base model. EPA has also provided an example annual market surveillance sampling scheme in Appendix A of the product certification system to facilitate understanding of the annual market surveillance process. For the purpose of identifying the number of controller models eligible for retesting, the licensed certifying body shall consider each certified add-on or plug-in device as an individual model and shall not count each combination of add-on or plug-in device and corresponding base controller model as an individual model.

When an add-on or plug-in device is selected for retesting, the licensed certifying body will select at random and use a minimum of *one* of the model base controllers with which the add-on device was certified. At its discretion, the licensed certifying body can choose to retest the add-on or plug-in device with additional base controller models, as appropriate and limited to those base controller models with which the add-on or plug-in device was originally certified, to ensure that the products continue to conform to the specification.

For retesting, an inspector appointed by the licensed certifying body will select sample products from the manufacturer's warehouse, or retail outlet/distribution center where the product is being sold. If the product cannot be obtained from any of these sources, the inspector may select sample products from off-the production line. The manufacturer must pay for the product if it must be purchased by the inspector. This is to ensure that the product retested is representative of what is being sold to purchasers.

3.7.3   Label Use Surveillance

The licensed certifying body will also assess proper use of the WaterSense label on product packaging and advertising materials for all products selected for annual retesting.

3.8   Label Suspension or Withdrawal

Based upon its surveillance activities, the licensed certifying body can suspend or withdraw use of the WaterSense label, if the manufacturer's products do not continue to conform to the specification, or for improper label use. In most cases, the licensed certifying body will work with the manufacturer to correct minor deficiencies, which would not result in a suspension or withdrawal of the WaterSense label or reporting to EPA.

4.0   Testing Software

WaterSense has prepared software that the licensed certifying bodies will use to perform the performance test protocol as described in the specification. Manufacturer partners may request a copy of the software by contacting the WaterSense Helpline at watersense@epa.gov or 866 WTR SENSE (987-7367). Please note that EPA only provides technical support for the software to its licensed certifying bodies as part of the certification process