Guidelines for Irrigation Audits on WaterSense® Labeled New Homes

After the irrigation system is installed, a WaterSense irrigation partner must conduct an audit of the system. EPA prefers that the auditor be independent of the professional who designed and installed the system. If this is not the case, please indicate on the Version 1.1 WaterSense Labeled New Home Irrigation Audit Checklist what the irrigation partner's role was during design and installation. EPA recommends that the irrigation partner conduct the audit according to the Irrigation Association's Certified Landscape Irrigation Auditor Training Manual (2004). The audit shall include, but is not limited to, the following components:

A. Distribution Uniformity Calculation (Section 4.2.5)

The *Version 1.1. WaterSense New Home Specification* requires that irrigation systems achieve a lower quarter distribution uniformity (DU_{LQ}) of 65 percent or greater and that distribution uniformity be measured on the largest spray-irrigated area during the post-installation audit.

- Determine the DU_{LQ} of the system using the catch-can method. This test shall be conducted according to the Irrigation Association's *Recommended Audit Guidelines* located at http://www.irrigation.org/WorkArea/DownloadAsset.aspx?id=903. The test shall include areas of turfgrass only and shall be conducted on the largest spray-irrigated area. Verify that the $DU_{LQ} \geq 65\%$.

B. Irrigation System Design (Sections 4.2.3 through 4.2.10)

Conduct a visual inspection to verify the following specification criteria are met. The results of the visual inspection shall be recorded by the WaterSense irrigation partner on the irrigation audit checklist.

- The irrigation system operates without leaks (Criterion 4.2.3).
- There is no runoff or overspray from the irrigation system that leaves the property during a minimum operating duration determined to be appropriate for the system by the irrigation partner (Criterion 4.2.4).
- The irrigation system includes a technology that inhibits or interrupts operation of the irrigation system during periods of rainfall or sufficient moisture (e.g., rain sensors, soil moisture sensors) (Criterion 4.2.6).
- After June 1, 2013, the irrigation system is equipped with a WaterSense labeled weather-based irrigation controller or a soil moisture senor-based irrigation controller that contains the following capabilities in both smart and standard mode (Criterion 4.2.7):
    1. Preserves the contents of the irrigation program settings when the power source is lost without relying on external battery backup.
    2. Has independent, zone-specific programming or the ability to store a minimum of three different programs to allow for separate schedules for zones with different water needs.
    3. Indicates to the user when it is not receiving a signal or local sensor input and is not adjusting irrigation based on current weather or soil moisture conditions.
    4. Interfaces with a rainfall device.
    5. Accommodates watering restrictions as follows:

- Operation on a prescribed day(s)-of-week schedule (e.g., Monday-Wednesday-Friday, Tuesday-Thursday-Saturday; any two days; any single day).
- Either even-day or odd-day scheduling, or any day interval scheduling between two and seven days.
- The ability to set irrigation runtimes to avoid watering during a prohibited time of day (e.g., between 9:00 a.m. and 9:00 p.m.).
- Complete shutoff (e.g., on/off switch) to accommodate outdoor irrigation prohibition restrictions.

6. Includes a percent adjust (water budget) feature. The percent adjust (water budget) feature is defined as having the means to increase or decrease the runtimes or application rates for zones by means of one adjustment without modifying the settings for each individual zone.
7. Reverts to either a proxy of historical weather data or a percent adjust (water budget) feature if the primary source of weather or soil moisture information is lost.
8. Allows for a manual operation troubleshooting test cycle and automatic return to smart mode within some period of time as designated by the manufacturer, even if the switch is still positioned for manual operation.

- Prior to June 1, 2013, the irrigation system is equipped with a controller (weather-based or using soil moisture sensors) that contains the features listed above (Criterion 4.2.7).
- Sprinkler heads, other than as part of a microirrigation system, have a 4-inch or greater pop-up height and matched precipitation nozzles (Criterion 4.2.8).
- Sprinkler irrigation, other than as part of a microirrigation system, is not used to water plantings other than maintained turfgrass (Criterion 4.2.8).
- Sprinkler irrigation, other than as part of a microirrigation system, is not used on turfgrass strips less than 4 feet wide nor on slopes in excess of 4 feet of horizontal run per 1 foot vertical rise (4:1) (Criterion 4.2.8).
- Microirrigation systems include, at a minimum: pressure regulators, filters, and flush end assemblies (Criterion 4.2.9).
- Two schedules have been created and are posted by the irrigation controller (Criterion 4.2.10):

  1. A schedule for the initial grow-in phase
  2. A schedule for the established landscape

  Irrigation schedules shall vary according to the seasons, reflecting the varying irrigation needs throughout the year. In addition, schedules shall comply with local water restrictions.

C. Verification of Operating Pressure

Verify that the station or zone pressure based upon emission device or product being used (spray head, rotor head, drip emitter) is within +/- 10 percent of manufacturer-recommended operating pressure. Test this on a representative zone of each irrigation type (e.g., spray, rotor, drip, etc.).