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 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 *2009 WaterSense Single-Family 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/Resources/Audit_Guidelines.aspx. 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 - 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).
- Irrigation controllers contain the following features (Criterion 4.2.7):
    1. Multiple programming capabilities – shall be capable of storing a minimum of three different programs to allow for separate schedules.
    2. Multiple start times (cycling, cycle/soak, stackable start times) – shall be capable of a minimum of three different start times to allow for multiple irrigation cycles on the same zone for areas prone to runoff.

3. Variable run times – shall be capable of varying run times, for example, from one minute to one hour.
4. Variable scheduling – shall be capable of interval scheduling (minimum of 14 days) to allow for watering on even day scheduling, odd day scheduling, calendar day scheduling, and interval scheduling.
5. Percent adjust (water budget) feature – shall include a "Percent Up/Down Adjust" feature (or "Water Budget" feature) such as a button or dial that permits the user to increase or decrease the run times or application rates for each zone by a prescribed percentage, by means of one adjustment, without modifying the settings for that individual zone.
6. Capability to accept external soil moisture and/or rain sensors.
7. Non-volatile memory or self-charging battery circuit.
8. Complete shutoff capability for total cessation of outdoor irrigation.

- 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).

- Verify that two schedules have been created and are posted by the irrigation controller (Criterion 4.2.10):
  - A schedule for the initial grow-in phase.
  - 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.).