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California IOUs Comment on Proposed Regulatory Language

Additional submitted attachment is included below.

Spray Sprinkler Bodies

Codes and Standards Enhancement (CASE) Initiative
For PY 2019: Title 20 Standards Development

Comments on Proposed Regulatory
Language
Spray Sprinkler Bodies
19-AAER-01

June 7, 2019

Prepared for:



PACIFIC GAS & ELECTRIC COMPANY



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1. Purpose

The Codes and Standards Enhancement (CASE) initiative presents recommendations to support the California Energy Commission’s (Energy Commission) efforts to update California’s Appliance Efficiency Regulations (Title 20) to include new requirements or to upgrade existing requirements for various technologies. Three California Investor-Owned Utilities— Pacific Gas and Electric Company (PG&E), San Diego Gas and Electric (SDG&E), and Southern California Edison (SCE) – sponsored this effort (herein referred to as the Statewide CASE Team). The program goal is to prepare and submit proposals that will result in cost-effective enhancements to improve the energy and water efficiency of various products sold in California. This document describes the Statewide CASE Team’s comments on the Energy Commission’s proposed regulatory language for spray sprinkler bodies. In this document, the Energy Commission proposed language is indicated by single underline and the Statewide CASE Team’s recommended revisions to the Energy Commission proposal are marked by double underline for additions and ~~strikeout~~ for deletions.

2. Statewide CASE Team Comments

2.1 General Comments and Support of the Proposed Standard

The Statewide CASE Team strongly supports the Energy Commission’s proposed standard for spray sprinkler bodies. The standard would provide significant statewide water savings as well as utility bill cost savings to California consumers. The Statewide CASE Team agrees with the Energy Commission’s proposed approach of incorporating the United States Environmental Protection Agency WaterSense® spray sprinkler body test method by reference, adopting a performance level in harmony with Version 1.0 of the WaterSense® Specification for Spray Sprinkler Bodies, and adopting specific compliance requirements necessary for implementing a Title 20 Standard. We recommend considering the minor revisions for clarity listed below if they can be accomplished without further delay to the implementation of the proposed standard; otherwise, we recommend adopting the Energy Commission’s proposal without additional revisions.

2.2 Comments on Proposed Definitions

The Statewide CASE Team recommends a minor clarifying revision to the definition of “spray sprinkler” in Section 1602(y)(1):

“Spray sprinkler” means a device used to irrigate landscape that:

- (1) consists of a spray sprinkler body and a nozzle or orifice, and
- (2) discharges water through the air at a minimum flow rate of 0.5 gallons per minute when operated at an inlet pressure of 30 pounds per square inch or more; and when used with a full-circle pattern nozzle with the largest area of coverage available for the nozzle series ~~using a full-circle pattern.~~

2.3 Comments on Test Method for Spray Sprinkler Bodies

The Statewide CASE Team strongly supports the adoption of the WaterSense® test method for spray sprinkler bodies. The WaterSense® Specification for Spray Sprinkler Bodies Version 1.0 dictates that products shall be sampled and selected in accordance with the American Society of Agricultural and Biological Engineers/International Code Council Landscape Irrigation and Sprinkler and Emitter Standard

(ASABE/ICC 802-2014) Section 301.1.1, which states that a minimum of five samples, selected at random from a lot of at least 25 units, shall be tested individually.

The Statewide CASE Team suggests considering a requirement for more representative sampling based on the requirements in the Irrigation Association Smart Water Application Technologies™ (SWAT) Pressure Regulating Spray Head Sprinklers Testing Protocol Version 3.0. This protocol requires that spray sprinkler body test samples be chosen at random from *three lots with different manufacturer date codes*. Adding this provision would provide more assurance that the samples are representative even if some variations occur between manufacturing lines or a given manufacturing line over time. Although representative sampling is not yet required by the WaterSense® program, it is fully compatible with the WaterSense® test method that the Energy Commission has proposed adopting. Similar revisions are also under consideration for updates to the ASABE/ICC 802 Standard. A sample addition to Section 1604(y)(1)(A) is below:

Nine sprinklers of each tested sprinkler model shall be selected from three lots with different manufacturer date codes. These devices shall be obtained as “off-the-shelf-purchases” from authorized irrigation distributors to create a test lot. One sprinkler shall be selected at random from each of the three manufacturer date code lots, with two additional sprinklers selected at random from the remaining manufacturer date code lots for a total test batch of five sprinklers of the same model subject to testing.

2.4 Comments on State Standards for Non-Federally-Regulated Appliances

In general, the Statewide CASE Team supports the Energy Commission’s effort to standardize regulatory language with the WaterSense® specification and test method with the goal of providing consistency for stakeholders. The following changes are suggested for clarity, but they are not meant to deviate from the process laid out in the WaterSense specification and test method.

In the proposed regulatory language Section 1605.3(y)(1)(A), the term “selected samples” is used in the descriptions of “Maximum flow rate at any tested pressure level,” “Average flow rate across all tested pressures,” and “Minimum outlet pressure.” If this term is used, the Statewide CASE Team recommends adding a definition for this term to clarify what is meant by “selected samples.” We recommend clarifying that the “selected samples” are the test batch of five spray sprinkler bodies, selected in accordance to Section 1604(y)(1)(A) (i.e., they are not a selection of samples from the test batch of five spray sprinkler bodies, but rather they include all five sprinklers in the test batch).

Additionally, the Statewide CASE Team suggests the use of the term “percent change” instead of “percent difference” to quantify the change in flow rate from the initial calibration flow rate to the measured maximum flow rate and from the initial calibration flow rate to the average flow rate across all tested pressures. The term “percent difference” is commonly used to describe a difference of values divided by the average of the values. The term “percent change” could better represent the equation in the draft regulatory language, which aims to quantify the percentage of a value greater than or less than the initial calibration value.¹

The proposed regulatory language could be revised for clarity in some areas to facilitate reader understanding. For example, for “Maximum flow rate at any tested pressure level” the formula in the

¹ Percent difference is often defined as (difference of values)/(average of values). Percent change would capture what is desired here, i.e., the percentage greater than the initial value. <https://www.mathsisfun.com/data/percentage-difference-vs-error.html>

proposed regulation dictates that users are to calculate the percent change between the flow rate at the initial calibration pressure and the maximum flow rate at any pressure for each sample, and then they should take an average of these percent changes across all tested samples, which shall not exceed ± 12.0 percent. The following suggested change to the proposed regulatory language explains this process more clearly. Similar changes could be made to the language in Table X – Data Submittal Requirements in Section 1606.

1. Maximum flow rate at any tested pressure level. The average across all tested samples of the percent difference change between the initial calibration flow rate for a sample, as determined by the test method in section 1604(y)(1)(A), and the maximum flow rate for a sample at any tested pressure level, averaged for the selected samples at the test pressure levels where the maximum flow rate occurred, shall not exceed ± 12.0 percent.

Similarly, according to the formula given for average flow rate across all tested pressures, for each sample tested, readers should calculate the percent change between the average flow rate across all tested pressures and the flow rate at the initial calibration pressure. Then, they should take an overall average of these percentage changes across all samples, which shall not exceed ± 10.0 percent. The following suggested change explains this process more clearly. Similar changes could be made to the language in Table X – Data Submittal Requirements in Section 1606.

2. Average flow rate across all tested pressures. The average across all tested samples of the percent difference change between the initial calibration flow rate for a sample, as determined by the test method in section 1604(y)(1)(A), and the average flow rate across all tested pressure levels for a sample at each tested pressure level, averaged across all pressure levels and all selected samples, shall not exceed ± 10.0 percent.

For the minimum outlet pressure, we suggest the following minor addition to clarify the given formula.

3. Minimum outlet pressure. The average outlet pressure at the initial calibration point, as determined by the test method in section 1604(y)(1)(A), of the selected samples shall not be less than two-thirds of the regulation pressure.

The average outlet pressure of the selected samples shall be calculated per the following equation:

2.5 Comments on Marking of Appliances

The Statewide CASE Team supports the proposed product marking requirement in Section 1607. Our understanding is that the proposed requirement is consistent with current standard industry practice.