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July 3, 2014

Ms. Abigail Daken  
ENERGY STAR Water Heater Program Manager  
U.S. Environmental Protection Agency  
Ariel Rios Building  
1200 Pennsylvania Avenue, N.W.  
Washington, DC 20460

Dear Abigail:

We have the following comments on the Final Draft Version 3.0 specifications for the ENERGY STAR Program for residential water heaters presented in your June 19, 2014 letter.

#### Energy Factor (EF) Levels

In the case of gas storage models larger than 55 G, we agree with the modification to lower the minimum EF to .77. However, we reaffirm our comment that the criterion should vary by volume size. The results of the revised DOE efficiency test procedure will change EF values. But those results have no effect on the current relationship of EFs and volume that exists in the current test procedure, which is the one and only procedure used to establish compliance with these specifications. The relationship of storage volume and energy rating is addressed in Section 5.3 of the Engineering Analysis part of the Technical Support Document for the 2010 rulemaking on the revised residential water heater minimum efficiency standards:

“For residential storage-type water heaters, the tank volume significantly affects the energy consumed. That is, it takes more energy to heat a larger volume of water from a given temperature to a higher temperature. Additionally, the tank surface area increases as tank volume increases. Among other factors, the heat transfer rate is a function of surface area. Therefore, increased surface area increases the rate of heat transfer to the ambient air, which increases standby losses. This is reflected in the existing Federal energy conservation standards as the energy factor is a function of the tank storage volume for gas-fired, oil-fired, and electric storage water heaters.”

The concern that a simple formula may confuse consumers should not outweigh the technical fact that the test procedure produces lower EFs as the volume of the model increases. If EPA prefers not to specify the criterion in the form of an equation, a very simple table can be inserted in place of the single value specification.

Volume	Min EF
56 to 59	.78
60 to 72	.77
73 to 85	.76
86 to 97	.75
98 to 100	.74

This table clearly shows the Energy Star criteria for different sizes of water heaters. Any consumer that wants to look beyond the Energy Star mark will see that there are different criteria. The reason “Why” will matter no more than that for the current federal minimum EFs, which also vary by volume. On the other hand the water heater manufacturers who design and build water heaters to comply with the Energy Star criteria will recognize and appreciate the technical correctness of this specification.

#### Standby Loss for “Light Duty” Models

We reaffirm our recommendation that no change be made to the standby loss criterion for light duty EPA covered gas water heaters. The modified maximum standby loss criterion, which has been increased compared to the first draft, is about 16% less than the current requirement. For models in the 56 to 100 gallon range, it still unnecessarily eliminates many Energy Star models. The concept of specifying a standby loss criterion that provides a daily energy consumption comparable to a similar sized residential gas water heater is logical. However, in this case it should be reconsidered in a practical light. In view of the significant changes to efficiency ratings that will occur with the implementation of the recently finalized revised DOE water heater test procedures, we recommend that EPA defer any changes in the standby loss criterion for these models. In particular the revised test procedure will provide an EF rating for these models which will be a common basis of comparison to those other models currently identified as residential. There will be no need to estimate equivalency based on different test procedures. It has been recognized that this revised specification is necessary but that it will have a short life. The implementation of the new “Universal Efficiency Descriptor” test procedure will require revision of this Energy Star specification in one to two years. Rather than require these models to go through two significant changes in this short period, it would be more appropriate and less burdensome to manufacturers to revise the criterion when the shift to the new test procedure is incorporated into the Energy Star specification.

#### Connected Product Criteria

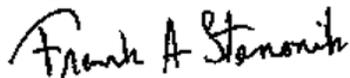
We agree with the decision to remove “Connected Product” criteria from the specification.

## Warranty Requirements

The first draft presented no proposed changes to the warranty requirements. We had commented that the warranty requirements for all models should be deleted from the Version 3.0 specification based on the fact that Energy Star specifications for other residential appliances and heating and cooling equipment do not include any requirement for a minimum warranty period. The final draft did not include any information addressing EPA's consideration of that comment. Yet, the final draft does propose to make the warranty requirements uniform for most, but not all, covered water heaters. In view of our general position on the inclusion of warranty requirements, we must object to this late change. Manufacturers had no previous information that such a change was under consideration and this brief review period is not an adequate opportunity to discuss a change that is not inconsequential. All current Energy Star listed gas instantaneous water heaters have had to comply with the 10 year "heat exchanger" and 5 years "parts" warranty requirement. The proposal reduces the "heat exchanger" warranty to 6 years which makes no difference to a currently qualified model. Also, on a practical basis it likely will not increase the number of new models that qualify. The proposal also increases the "parts" warranty to 6 years. That change will eliminate every model of gas instantaneous water heaters currently Energy Star listed. A modification of such significant consequence should not be implemented at the eleventh hour and it should not be implemented at any time without some compelling reason. If EPA will not remove the warranty requirements, we request that they not be changed unless experience and other compelling information indicates that a change in these requirements is necessary.

We appreciate the opportunity to comment on this draft of the Version 3.0 Residential Water Heaters Specification. If you have any questions, please do not hesitate to call me.

Respectfully submitted,



Frank A. Stanonik  
Chief Technical Advisor