

December 9<sup>th</sup>, 2010

ECOWATER SYSTEMS  
MARGARET BICKING  
1890 WOODLANE DR  
WOODBURY MN 55125

GENERAL ELECTRIC COMPANY  
GE APPLIANCES  
MARGARET BICKING  
APPLIANCE PARK AP35-1312  
LOUISVILLE KY 40225

Re: Description: WATER TREATMENT DEVICE- SOFTENER  
Manufacturer: GENERAL ELECTRIC COMPANY  
Product Name: SMARTWATER WATER CONDITIONING SYSTEM (POE)  
Model Number(s): GNSH45E (POE)  
Product File No: 20100428

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters Comm 82 through 84, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an approval based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of December 2015.

This approval supersedes the approval issued on October 5<sup>th</sup> 2007 under product file number 20070340.

This approval is contingent upon compliance with the following stipulation(s):

- This product has undergone sufficient testing to document the product's ability to reduce only those contaminants and/or substances as specified in this approval letter when the product is installed and maintained in strict accordance with the manufacturer's published instructions.
- Where the Department of Natural Resources (DNR) has jurisdiction, a written approval may be required prior to installation of this product in a water supply system to reduce the concentration of a contaminant that exceeds the primary drinking water standards contained in ch. NR 809, Wis. Admin. Code, the enforcement standards contained in ch. NR 140, Wis. Admin. Code, or for a water supply system that is subject to a written advisory opinion by the DNR. For more information contact the DNR Section of Private Water Systems, P.O. Box 7921, Madison, WI 53707, telephone (608) 267-9787.
- If this approved device is modified or additional assertions of function or performance are made, then this approval shall be considered null and void, unless the change is submitted to the department for review and the approval is reaffirmed.
- These cation exchange water softeners shall be sized, installed, programmed and maintained such that wastewater volumes, total dissolved solids and chloride discharges are minimized.
- At the time of installation, these devices shall be provided with an effective means to warn the users when they are not performing their function. This shall be accomplished by one of the following:
  1. sounding and alarm or flashing a light, each connected to an acceptable power source;
  2. providing a sampling kit for analysis of hardness or other appropriate contaminants; or
  3. providing a hardness monitor.

**WATER SOFTENING CAPABILITIES  
PRODUCT FILE NUMBER 20100428  
TABLE 1 OF 1**

Model Numbers	Capacity*						Flow Rate
	Rating 1		Rating 2		Rating 3		
Smartwater Metered	Grains	Pounds	Grains	Pounds	Grains	Pounds	gpm @ psig
GNSH45E	13,300	2.6	35,500	9.8	45,100	17.0	9.5 @ 10.0

\* The softener capacity rating is based on grains of hardness, due to calcium and magnesium cations, removed (as calcium carbonate) while producing soft water between successive regenerations and is related to the pounds of salt required for each regeneration. The tests run to generate the hardness reduction data for table 1 were conducted in accordance with NSF Standard 44. The tests run to support the dissolved iron reduction claim were conducted by WQA.

This device is also approved for the reduction of barium up to a maximum concentration of 10.0 mg/l.

This device is also approved for the reduction of radium 226/228 up to a maximum concentration of 25 pCi/l.

This device is also approved for the reduction of dissolved iron up to a maximum concentration of 12.0 mg/l.

The department does not recommend the use of water softeners for reducing dissolved iron concentrations in excess of 3.0 mg/l. This is because applying water softeners in this way sacrifices long-term water softener performance and efficiency. The use of water softeners for reducing dissolved iron concentrations exceeding 3.0 mg/l also generates excessive, and otherwise avoidable, quantities of chloride and dissolved solids which are subsequently discharged to ground and/or surface water supplies. Once present in ground and/or surface water supplies, chloride and dissolved solids tend to remain in the water resource and may travel great distances from the original point source. Presently, there are no economically viable methods to remove chloride and dissolved solids from water supplies because available technologies generate waste streams of their own, further concentrating the problem. It has been established by the Wisconsin Department of Natural Resources that chloride is chronically toxic to representative aquatic organisms, including forage and sport fish, at 395 mg/l, and acutely toxic at 757 mg/l.

This device was tested under controlled laboratory, or field, conditions. The actual performance of this device for a specific end use installation will vary from the tested conditions based on local factors such as water pressure, water temperature and water chemistry.

The department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

Glen W. Schlueter  
Engineering Consultant-Plumbing Product Reviewer  
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Safety and Buildings Division  
Department of Commerce  
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GWS:gws