



# COMMONWEALTH of VIRGINIA

Department of Health  
P O BOX 2448  
Richmond, VA 23218

Cynthia C. Romero, MD, FAAFP  
State Health Commissioner

TTY 7-1-1 OR  
1-800-828-1120

September 23, 2013

Calvin Locker, National Sales Director  
Ecological Tanks, Inc.  
2247 Hwy 151 North  
Downsville, Louisiana 71234

VIA ELECTRONIC AND REGULAR MAIL

Dear Mr. Locker:

We have completed our review of your request for listing of Aqua Safe Model AS500, AS500L, AS600, AS600L, AS750, and AS800L wastewater treatment units as "Evaluation Completed" under the Virginia Department of Health's (VDH's) GMP #147. We have also evaluated your request for compliance with the Treatment Level 3 (TL-3) general approval requirements in the Regulations for Alternative Onsite Sewage Systems (12 VAC5-613, AOSS Regulations).

The complete submittal for review consisted of the following:

1. Manufacturer Agreement; Memorandum of Understanding and Agreement, dated April 26, 2010
2. Professional Engineer's system performance and Operation and Maintenance Manual certification letter, dated August 11, 2009
3. Operation and Maintenance Manual, dated 2002
4. Technical plan sheets: Models AS500, AS500L, AS500L-C (concrete tank), AS600, AS600L, AS600L-C/AS800L-C, AS750, and AS800L, received March 13, 2012
5. GMP 147 Application Checklist, received March 13, 2012
6. E-mail from M. Degen to C. Locker extending the GMP 147 evaluation period and outlining the conditions of that extension, dated June 27, 2012
7. E-mail from C. Locker to M. Degen providing justification for installation/use of Aqua Safe treatment units without an effluent filter to control solids bulking, dated July 2, 2012
8. Cover e-mail from C. Locker to M. Degen submitting and summarizing the final test results, dated July 26, 2013
9. Document titled "Aqua Safe Certification Results.pdf", dated July 19, 2013
10. Excel workbook titled "Aqua Safe Certification\_DataSets (Excell format).xlsx" providing both the raw test data and the data following clean-up per the protocol provided in GMP 147

Mr. Locker  
September 23, 2013  
Page two

The submittal was reviewed in accordance with the attached memorandum. Based on our review, VDH approves Aqua Safe Model AS500, AS500L, AS600, AS600L, AS750, and AS800L wastewater treatment units, without effluent filters, for listing as "Evaluation Completed" under GMP #147 and as "Generally Approved" for TL-3 effluent treatment under the AOSS Regulations.

If I can be of more help, please feel free to call me at (804) 387-1883.

Sincerely,

A handwritten signature in cursive script that reads "Marcia J. Degen". The signature is written in black ink and is positioned above the typed name and title.

*Marcia J. Degen, Ph.D., P.E.*  
Technical Services Administrator  
Division of Onsite Sewage, Water Services,  
Environmental Engineering & Marina Programs

Cc: Dwayne Roadcap, Acting Division Director  
K. Loyd

**Virginia Department of Health**  
**Office of Environmental Health Services**  
*Technical Services – Wastewater Engineering*

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To: Marcia Degen, Ph.D., P.E. – Technical Services Manager, OEHS  
From: C. Kemper Loyd, P.E. – Technical Services Engineer, OEHS  
Date: September 10, 2013  
RE: Ecological Tanks, Inc.  
***Approval of Aqua Safe Treatment Units for “Evaluation Completed” Listing under GMP 147***  
Cc: Dwayne Roadcap – OEHS

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Ecological Tanks, Inc. has completed their GMP 147 testing in accordance with their April 26, 2010 Manufacturer Agreement; Memorandum of Understanding and Agreement, as extended by e-mail dated June 27, 2012. The treatment units for which GMP 147 approval is being requested are Models AS500, AS500L, AS600, AS600L, AS750, and AS800L.

A testing extension was requested and granted due to substandard performance of the tested Aqua Safe units during the initial four quarters of testing. Ecological Tanks attributed that substandard performance to effluent filters that this Department required to be installed in the test units. The suspect effluent filters were allowed to be removed for an additional two to four quarters of testing.

As a condition of that extension, Ecological Tanks was required to provide this Department with justification for the installation and use of Aqua Safe treatment units without effluent filters to control solids bulking. That justification was provided by e-mail dated July 2, 2012.

The submittal was reviewed to determine if the test data supported the request to list Aqua Safe treatment units as “Evaluation Completed” under GMP 147. The results of the statistical analyses performed by this reviewer are provided in the table below.

Test Period	N	Upper 99%* BOD5 (mg/L)	Upper 99%* TSS (mg/L)
4 Quarters with Effluent Filters	84	15.94**	12.66
4 Quarters without Effluent Filters	80	8.45	8.86
All Quarters	164	10.67	9.77

\* Log-transformed upper 99<sup>th</sup>-percentile confidence interval converted back to native units.

\*\* The submittal reported a value of 16.61 mg/L. The applicant’s statistical analyses were not included in the submitted Excel workbook; therefore, the origin of that value could not be determined.

In accordance with the terms of the June 27, 2012 testing extension, Ecological Tanks has elected to use only the final four quarters of testing – without effluent filters – as the basis for their approval request.

In light of the above, this reviewer believes that Ecological Tanks, Inc., Aqua Safe treatment units have met the GMP 147 requirements for listing as “Evaluation Completed”.