



**BIOLOGICAL CONSULTING SERVICES**  
*OF NORTH FLORIDA, INC.*

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August 26, 2014

Mr. Dennis Brown  
Aquamira Technologies, Inc.  
917 West 600 North Ste 105  
Logan, Utah 84321  
P: (360) 306-5586

RE: Testing of provided Aquamira CR (BLU Line) filters; BCS 1408010, 1408011, and 1408012.

Dear Mr. Brown,

We have conducted the requested filtration efficacy study on the provided Aquamira CR (BLU Line) filters received on August 05, 2014. The testing was conducted according to the protocol designed to assess the filter's efficacy for the removal of the algal Microcystin toxin. The microcystin challenge concentration used was approximately 10 parts per billion (ppb). The concentration is ten times the concentration of 1 ppb that the US EPA deems hazardous to human health. The tested filters removed the Microcystin toxin effectively to non- detectible levels.

Following, you will find our report on the results of the challenge study. Should you have any questions, please do not hesitate to contact me.

Sincerely,

George Lukasik, Ph.D.  
Laboratory Director

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BCS LABORATORIES INC.-GAINESVILLE  
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[WWW.MICROBIOSERVICES.COM](http://WWW.MICROBIOSERVICES.COM)

FL DOH LABORATORY #E82924, EPA# FL01147

THIS REPORT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE WRITTEN CONSENT OF BCS LABORATORIES.  
FILE: AQUAMIRA BLU LINE MICROCYSTIN FILTRATION EFFICACY BCS 1408010-012 EOL FINAL.DOC

**Project:** Aquamira Filters – Algal Toxin  
**Study Sponsor:** Aquamira  
**Sample(s):** Aquamira CR (BLU Line); BCS 1408010, 1408011, & 1408012, received August 05, 2014.  
**Test:** Filtration Efficacy – Initial Efficacy\*  
**Test Parameter:** Microcystin Toxin – pH 8.0  
**Performed by:** George Lukasik, Ph.D. & Kintin Ng; August 07, 2014  
**Analyzed By:** GreenWater Laboratories/CyanoLab, 205 Zeagler Drive, Suite 302, Palatka, FL 32177

Influent Water Concentration	Filter #1 Effluent BCS 1408010		Filter #2 Effluent BCS 1408011		Filter #3 Effluent BCS 1408012		Cumulative % Reduction
	Concentration (ppb)	% Reduction	Concentration (ppb)	% Reduction	Concentration (ppb)	% Reduction	
10.4 ppb	None detected**	>98.6%	None detected**	>98.6%	None detected**	>98.6%	>98.6%

\*\* The limit of detection and quantification is 0.15 ppb.

\* Chemical filtration challenge study description: Initially, three liters of City of Gainesville municipal drinking water were passed through each of the provided filters using 2.0 PSI of pressure. Microcystin toxin obtained from Greenwater Laboratories was added to City of Gainesville Municipal water. The water was homogenized. The pH of the water was 8.0. The spiked water was used to fill each of the provided bottles. The bottle filter top was replaced. The bottle was then connected to a 2.0 PSI pressure source and the water was passed through the filter. The effluent water was collected in plastic container and sealed. The flow rate was validated using a NIST traceable timer and was measured to be approximately 0.5 L/min. A sample of the influent was removed prior to the beginning of the challenge study and at the end of the study and placed into a plastic bottle. The collected influent and effluent samples were shipped immediately preserved to Greenwater laboratories for toxin analysis. A microcystins enzyme linked immunosorbent assay (ELISA) was utilized for the quantitative and sensitive congener-independent detection of MCs. The current assay is sensitive down to a LOD/LOQ of 0.15 µg/L for total MCs. All quality control data was provided and validated results.

**Project:** Aquamira Filters – Algal Toxin  
**Study Sponsor:** Aquamira  
**Sample(s):** Aquamira CR (BLU Line); BCS 1408010, 1408011, & 1408012, received August 05, 2014.  
**Test:** Filtration Efficacy – Efficacy following the passage of 100 gallons of City of Gainesville municipal drinking water\*  
**Test Parameter:** Microcystin Toxin – pH 8.0  
**Performed by:** George Lukasik, Ph.D. & Kintin Ng; August 18, 2014  
**Analyzed By:** GreenWater Laboratories/CyanoLab, 205 Zeagler Drive, Suite 302, Palatka, FL 32177

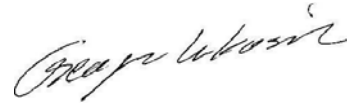
Influent Water Concentration	Filter #1 Effluent BCS 1408010		Filter #2 Effluent BCS 1408011		Filter #3 Effluent BCS 1408012		Cumulative % Reduction
	Concentration (ppb)	% Reduction	Concentration (ppb)	% Reduction	Concentration (ppb)	% Reduction	
11.5 ppb	0.54	95.3%	None detected**	>98.7%	None detected**	>98.7%	>97.6%

\*\* The limit of detection and quantification is 0.15 ppb.

\* Chemical filtration challenge study description: After the initial challenge, 100 gallons of City of Gainesville municipal drinking water were passed through each of the provided filters using 2.0 PSI of pressure. Microcystin toxin obtained from Greenwater Laboratories was added to City of Gainesville Municipal water. The water was homogenized. The pH of the water was 8.1. The spiked water was used to fill each of the provided bottles. The bottle filter top was replaced. The bottle was then connected to a 2.0 PSI pressure source and the water was passed through the filter. The effluent water was collected in plastic container and sealed. The flow rate was validated using a NIST traceable timer and was measured to be approximately 0.4 L/min. A sample of the influent was removed prior to the beginning of the challenge study and at the end of the study and placed into a plastic bottle. The collected influent and effluent samples were shipped immediately preserved to Greenwater laboratories for toxin analysis. A microcystins enzyme linked immunosorbent assay (ELISA) was utilized for the quantitative and sensitive congener-independent detection of MCs. The current assay is sensitive down to a LOD/LOQ of 0.15 µg/L for total MCs. All quality control data was provided and validated results.

**Project:** Aquamira Filters – Algal Toxin  
**Study Sponsor:** Aquamira  
**Sample(s):** BLU line Aquamira CR; BCS 1408010, 1408011, & 1408012, received August 05, 2014.  
**Test:** Filtration Efficacy – Microcystin removal through 100 gallons  
**Test Parameter:** Microcystin Toxin – pH 8.0  
**Performed by:** George Lukasik, Ph.D. & Kintin Ng; August 07, 2014 and August 18, 2014  
**Analyzed By:** GreenWater Laboratories/CyanoLab, 205 Zeagler Drive, Suite 302, Palatka, FL 32177

Study data are summarized in the provided table(s). The results presented pertain only to the study conducted on the test articles/samples provided by the client (or client representative). The study was authorized and commissioned by the client. The results presented pertain only to the samples analyzed and identifier number(s) indicated. The data provided is strictly representative of the study conducted using the material/samples/articles provided by the client (or client's representative) and its (their) condition at the time of test. The study and data are obtained under laboratory conditions and may not be representative or indicative of a real-life process and/or application. Positive, negative, and neutralization controls were performed as outlined in the method and as per Good Laboratory Practices. All analyses were performed in accordance with laboratory practices and procedures set-forth by our NELAP/TNI accreditation standards (ISO 17025) unless otherwise noted. BCS makes no claims with regards to the express or implied warranty regarding the ownership, merchantability, safety or fitness for a particular purpose of any such property or product.



August 26, 2014

Signature of Laboratory Director/Authorized Rep. \_\_\_\_\_ Date: \_\_\_\_\_

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