Adda Microcystins/Nodularins Report

Project: Spicer Group

Submitted to:	Emily Short
Organization:	Spicer Group
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Sample Receipt Date:	23 August 19
Sample Condition:	21.6 ºC upon arrival
Report#	190731-190820_City of Seaford
Date Prepared:	26 August 19
Prepared by:	Kamil Cieslik

Table 1: Sample analyzed

Description/Site	Collection Date	Collection Time
AG 1	31 July 19	1355
AG 4	31 July 19	1345
AG 5	31 July 19	0950
AG 6	20 August 19	1725

Analytes: Adda Microcystins/Nodularins (Adda MCs/NODs)

Sample Preparation

Water Sample Freeze-Thaw

The samples were received and inverted for 60 seconds to mix. A subset from each sample was removed prior to cell lysis for algal identification purposes. A second subset from each sample was transferred to a 15 mL vial. Three freeze-thaw cycles were employed prior to additional sample preparation and subsequent analysis.

Analytical Techniques

Enzyme-Linked Immunosorbent Assay (ELISA)

Adda MCs/NODs
A microcystins/nodularins Adda ELISA (Abraxis) was utilized for the quantitative and sensitive congener-independent detection of Adda MCs/NODs (US EPA Method 546 & Ohio EPA DES 701.0). The current method reporting limit is 0.30 ng/mL (ppb) based on kit sensitivity, dilution factors and initial demonstration of capability.

Quality Control

Table 2: QA/QC samples prepared for analyses.

Analyte	Concentration (ng/mL)	Sample ID	QC Type	Return
MC-LR	1.0	AG 1	LFSM	91%

Additional Quality Control/Quality Assurance checks included method blanks, LFBs, and standard curves.

Table 3: Adda MC-ELISA Quality Control Value Table

Date Analyzed:	**26 August 19**	**Requirement**	**Pass/Fail**
R^2 value:	0.998	≥0.98	PASS
%CV range STDs:	0.0-5.3%	≤15%	PASS
LFB (1ppb) Recovery:	80%	±40% True Value	PASS
%CV range LFB:	15.9%	<20%	PASS
Low CV (0.15 ppb) recovery:	73%	±50% True Value	PASS
LRB	<0.08	<0.08	PASS

Qualifier	Flag
CL	Analytical result is estimated due to ineffective quenching.
J	Analyte was positively identified; the associated numerical value is estimated.
PT	The reported result is estimated because the sample was not analyzed within required holding time.
B	Analytical result is estimated. Analyte was detected in associated reagent blank as well as the samples.
E	Analytical result is estimated. Values achieved were outside calibration range.
N	Spiked sample control was outside limits
T	The reported result is estimated because the sample exceeded temperature threshold when received

Summary of Results

Table 4: Summary of results in ng/mL

Sample ID	Adda MCs/NODs (ng/mL)
AG 1	ND
AG 4	ND
AG 5	ND
AG 6	ND
MRL (ng/mL)	*0.30*
Analyst Initials	*KC*
Date Analyzed	*8/26/19*

Abbreviations

NA	Not Applicable	LFSM	Lab Fortified Sample Matrix
MDL	Method Detection Limit	LFSMD	Lab Fortified Sample Matrix Duplicate
MQL	Method Quantification Limit	LD	Lab Duplicate
ND	Not Detected above the MDL	IS	Internal Standard
Blank	Regent Water free from interferences	—	Not Analyzed
LFB	Lab Fortified Blank	MRL	Method Reporting Limit

Interpretations:

Adda microcystins/nodularins were not detected above the MRL in the submitted samples.

Submitted by: Mark T. Aubel, Ph.D.

Date: August 26, 2019

The results in this report relate only to the samples listed above.
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Spicer Group

ADDA MICROCYSTINS/NODULARINS RESULTS

Tested on: 8/26/2019
Method: Enzyme-Linked ImmunoSorbent Assay (ELISA)
Analyte: Adda Microcystins/Nodularins (MCs/NODs)
Analyzed by: Kamil Cieslik

Sample ID/ Date Collected	Initial Conc. Factor	Assay Value (ng/mL)	Dilution Factor	Avg. LFB Recovery	Avg. LFSM Recovery	Final Concentration (ng/mL)	Average (ng/mL)
AG 1	1x	0.00	1	80%	91%	<0.30	**ND**
7/31/2019	1x	0.00	1			<0.30	
AG 4	1x	0.00	1	80%	---	<0.30	**ND**
7/31/2019	1x	0.00	1			<0.30	
AG 5	1x	0.00	1	80%	---	<0.30	**ND**
7/31/2019	1x	0.03	1			<0.30	
AG 6	1x	0.04	1	80%	---	<0.30	**ND**
8/20/2019	1x	0.06	1			<0.30	

ND = Not detected above MRL
MRL = 0.30 ng/mL
LFB = 1.0 ng/mL MC-LR
LFSM = 1.0 ng/mL MC-LR

Submitted by: Amanda Foss
Amanda Foss, M.S.
Date: 8/26/2019

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