Nodularin Report

Project: Central Davis Sewer District

Submitted to:	Leland Myers
Organization:	Central Davis Sewer District
Email:	ljmyers@cdsewer.org

Sample Receipt Date:	5 May 17
Sample Condition:	19.4 °C
Date Prepared:	5 May 17
Prepared by:	Kamil Cieslik/Mark Aubel
Report#	170504 – Central Davis Sewer District

Sample Identification	Description/Site	Sample Collection Date
FB1	Great Salt Lake	4 May 17
FB4	Great Salt Lake	4 May 17

Analytes: Nodularin (NOD)

Sample Preparation

Water Sample Ultrasonication

Samples were received and inverted for 60 seconds to mix. A subset was removed prior to dismembration for algal identification purposes. The remaining sample was sonicated to release toxins and prepared for analyses.

Solid Phase Extraction (SPE)

Preconditioned Strata X Polymeric SPE (200 mg) was loaded with 5 mL of sample, rinsed with 5% MeOH and eluted with 90% acetonitrile. Elutions were blown to dryness (N_2 at 60°C) and reconstituted in 5% MeOH/Deionized water (0.5 mL) providing a 10x preconcentration.

Quality Control

Table 1: LFSM/LFSMD QC sample prepared for analysis (unless otherwise noted)

Analyte	Concentration (ng/mL)	Sample ID(s)	Return
NOD	0.1	FB4	96%

Additional Quality Control/Quality Assurance checks included method blanks and a LFB.

Analytical Techniques

NOD

The method described in Foss and Aubel (2015) was modified to accommodate only nodularin. A Certified Reference Standard of NOD (1.0 ng/mL) was used to calibrate the method. Table 2 below shows the transitions monitored. A MDL was determined through standard addition (LFSM).

Table 2

Analyte	Precursor Ion (*m/z*)		Fragment Ions (*m/z*)
NOD	$[M+H]^+$	825.5	599, 674, 776, 781

Foss, A.J., Aubel, M.T., 2015. Using the MMPB technique to confirm microcystin concentrations in water measured by ELISA and HPLC (UV, MS, MS/MS). Toxicon 104, 91–101.

Summary of Results

Sample ID	NOD (ng/mL)
FB1	ND
FB4	ND
MDL (ng/ mL)	*0.05*
Analyst Initials	*MA*
Date Analyzed	*5/5/17*

Abbreviations:	
MDL	Method Detection Limit
MQL	Method Quantification Limit
ND	Not Detected above the MDL
Blank	Regent Water free from interferences
LFB	Lab Fortified Blank
LFSM	Lab Fortified Sample Matrix
LFSMD	Lab Fortified Sample Matrix Duplicate
LD	Lab Duplicate

Submitted by: 

Mark T. Aubel, Ph.D.

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