Microcystin, Cylindrospermopsin, & Saxitoxin Report

Project: Utah DEP – Division of Water Quality

Sample ID	Site	Date Collected
5931234	Scofield Res Madsen Bay	8/2/16
5931015	Scofield Res. Frandsen Boy Scout Camp	8/2/16
4985200	Farmington Bay	7/29/16

Toxins – microcystins/nodularins (MC/NOD), cylindrospermopsin (CYN), saxitoxin (STX),

Sample Prep

The samples were ultra-sonicated to lyse cells and release toxins. Duplicate samples were spiked (lab fortified matrices, LFMs) with CYN (1 µg/L) and STX (0.2 µg/L) and MC-LR (1.0 µg/L).

Analytical Methodology

MC

The Adda (Abraxis) microcystins enzyme linked immunosorbent assay (ELISA) was utilized for the quantitative and sensitive congener-independent detection of MCs and NOD. The current assay is sensitive to down to a LOD/LOQ of 0.15 µg/L for total MCs. The average recovery of a laboratory fortified blank (LFB) spiked with 1 µg/L MC-LR was 121%.

CYN

A cylindrospermopsin ELISA (Abraxis) was utilized for the quantitative detection of CYN. The current assay is sensitive down to a LOD/LOQ limit of 0.10 µg/L for CYN. The average LFB recovery was 108%.

STX

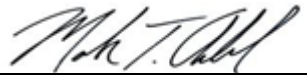
A saxitoxin enzyme linked immunosorbent assay (ELISA) was utilized for the quantitative detection of STX. The current assay is sensitive down to a LOD/LOQ limit of 0.05 µg/L STX. The average LFB recovery was 90%.

Summary of Results

Sample	MC/NOD levels (µg/L)	CYN levels (µg/L)	STX levels (µg/L)
5931234	**3.41**	**ND**	**ND**
5931015	**193**	**ND**	**ND**
4985200	**244**	**0.29**	**0.17**
Detection Limits (µg/L)	*0.15*	*0.10*	*0.05*

ND = Not detected above the detection limit

Since nodularin is present in Farmington Bay, it will contribute significantly to the high levels of microcystin, due to both its presence and exaggerated level of cross reactivity to the ELISA.

Submitted by: 

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Date: 8/5/16