



Water Quality Results Certificate

Client: Geotechnical & Environmental Associates

Broadwater Lake

Certificate reference:

ALG-GEA-22082022

Report date:

30/08/2022

Analysis start date:

24/08/2022

Sample 1			
Algae species	Algae type	No of colonies or filaments/1ml	No of Cells/ml
Microcystis flosaquae (Phylum: Cyanobacteria, Order: Chroococcales)	'Blue-green' Colonies (50 cells)	309	15,450
Dolichospermum circinale (Phylum: Cyanobacteria, Order: Nostocales)	'Blue-green' filaments (20 cells)	15	300
Aphanizomenon flosaquae (Phylum: Cyanobacteria, Order: Nostocales)	'Blue-green' filaments (40 cells)	101	4,040
Gloeotrichia echinulata (Phylum: Cyanobacteria, Order: Nostocales)	'Blue-green' colonies of filaments (ave 20000 cells)	<1	100
Woronichinia naegeliana (Phylum: Cyanobacteria, Order: Synechococcales)	'Blue-green' Colonies (500 cells)	4	2,000
Pseudanabaena endophytica (Phylum: Cyanobacteria, Order: Synechococcales)	'Blue-green' filaments (6 cells)	<1	0
Aphanocapsa sp. (Phylum: Cyanobacteria, Order: Synechococcales)	'Blue-green' Colonies (100 cells)	<1	0
		Total cells/ml:	21,890
		WHO rating:	Moderate (Warning Threshold)

Sample 2			
Algae species	Algae type	No of colonies or filaments/1ml	No of Cells/ml
Microcystis flosaquae (Phylum: Cyanobacteria, Order: Chroococcales)	'Blue-green' Colonies (50 cells)	138	6,900
Dolichospermum circinale (Phylum: Cyanobacteria, Order: Nostocales)	'Blue-green' filaments (20 cells)	<1	0
Aphanizomenon flosaquae (Phylum: Cyanobacteria, Order: Nostocales)	'Blue-green' filaments (40 cells)	15	600
Gloeotrichia echinulata (Phylum: Cyanobacteria, Order: Nostocales)	'Blue-green' colonies of filaments (ave 20000 cells)	<1	100
Woronichinia naegeliana (Phylum: Cyanobacteria, Order: Synechococcales)	'Blue-green' Colonies (500 cells)	<1	0
Aphanocapsa sp. (Phylum: Cyanobacteria, Order: Synechococcales)	'Blue-green' Colonies (100 cells)	4	400
		Total cells/ml:	8,000
		WHO rating:	Relatively Low

Sample 3			
Algae species	Algae type	No of colonies or filaments/1ml	No of Cells/ml
Microcystis flosaquae (Phylum: Cyanobacteria, Order: Chroococcales)	'Blue-green' Colonies (50 cells)	452	22,600
Dolichospermum circinale (Phylum: Cyanobacteria, Order: Nostocales)	'Blue-green' filaments (20 cells)	4	80
Aphanizomenon flosaquae (Phylum: Cyanobacteria, Order: Nostocales)	'Blue-green' filaments (40 cells)	753	30,120
Gloeotrichia echinulata (Phylum: Cyanobacteria, Order: Nostocales)	'Blue-green' colonies of filaments (ave 20000 cells)	<1	100
Woronichinia naegeliana (Phylum: Cyanobacteria, Order: Synechococcales)	'Blue-green' Colonies (500 cells)	7	3,500
Aphanocapsa sp. (Phylum: Cyanobacteria, Order: Synechococcales)	'Blue-green' Colonies (100 cells)	<1	0
		Total cells/ml:	56,400
		WHO rating:	Moderate (Warning Threshold)

Sample 4			
Algae species	Algae type	No of colonies or filaments/1ml	No of Cells/ml
Microcystis flosaquae (Phylum: Cyanobacteria, Order: Chroococcales)	'Blue-green' Colonies (50 cells)	91	4,850
Dolichospermum circinale (Phylum: Cyanobacteria, Order: Nostocales)	'Blue-green' filaments (20 cells)	<1	0
Aphanizomenon flosaquae (Phylum: Cyanobacteria, Order: Nostocales)	'Blue-green' filaments (40 cells)	1,043	41,720
Gloeotrichia echinulata (Phylum: Cyanobacteria, Order: Nostocales)	'Blue-green' colonies of filaments (ave 20000 cells)	<1	100
Woronichinia naegeliana (Phylum: Cyanobacteria, Order: Synechococcales)	'Blue-green' Colonies (500 cells)	<1	0
Aphanocapsa sp. (Phylum: Cyanobacteria, Order: Synechococcales)	'Blue-green' Colonies (100 cells)	<1	0
		Total cells/ml:	46,670
		WHO rating:	Moderate (Warning Threshold)

Sample 5			
Algae species	Algae type	No of colonies or filaments/1ml	No of Cells/ml
Microcystis flosaquae (Phylum: Cyanobacteria, Order: Chroococcales)	'Blue-green' Colonies (50 cells)	170	8,500
Dolichospermum circinale (Phylum: Cyanobacteria, Order: Nostocales)	'Blue-green' filaments (20 cells)	<1	0
Aphanizomenon flosaquae (Phylum: Cyanobacteria, Order: Nostocales)	'Blue-green' filaments (40 cells)	10	400
Gloeotrichia echinulata (Phylum: Cyanobacteria, Order: Nostocales)	'Blue-green' colonies of filaments (ave 20000 cells)	0	0
Woronichinia naegeliana (Phylum: Cyanobacteria, Order: Synechococcales)	'Blue-green' Colonies (500 cells)	5	2,500
Aphanocapsa sp. (Phylum: Cyanobacteria, Order: Synechococcales)	'Blue-green' Colonies (100 cells)	<1	0
		Total cells/ml:	11,400
		WHO rating:	Relatively Low

Sample 6			
Algae species	Algae type	No of colonies or filaments/1ml	No of Cells/ml
Microcystis flosaquae (Phylum: Cyanobacteria, Order: Chroococcales)	'Blue-green' Colonies (50 cells)	68	3,400
Dolichospermum circinale (Phylum: Cyanobacteria, Order: Nostocales)	'Blue-green' filaments (20 cells)	10	200
Aphanizomenon flosaquae (Phylum: Cyanobacteria, Order: Nostocales)	'Blue-green' filaments (40 cells)	366	14,640
Gloeotrichia echinulata (Phylum: Cyanobacteria, Order: Nostocales)	'Blue-green' colonies of filaments (ave 20000 cells)	<1	100
Woronichinia naegeliana (Phylum: Cyanobacteria, Order: Synechococcales)	'Blue-green' Colonies (500 cells)	<1	0
Aphanocapsa sp. (Phylum: Cyanobacteria, Order: Synechococcales)	'Blue-green' Colonies (100 cells)	<1	0
		Total cells/ml:	18,340
		WHO rating:	Relatively Low



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Comments

The samples were examined for the presence of Cyanobacteria at x400 magnification.

200ml of the sample was then filtered to concentrate the algal cells and then examined at up to x600 magnification.

Six species of cyanobacteria were found. Ranging from Relatively Low to Moderate Levels.

Microcystis is known to produce hepatotoxins as cells break down in blooms and scums. Aphanizomenon is known to produce neurotoxins in some blooms. The toxins produced by these cyanobacteria species may be harmful to humans, dogs and livestock.

The World Health Organisation (WHO Rating) above indicates levels of algae present in the sample(s), against WHO guidance values.

Please visit www.swim-safety.co.uk/results-guidance/ for more info on results thresholds.