Stantec

Field Report

Project:	City of Wasilla WWTP Pilot Study	Field Crew:	Jake Alward, John Marshall
File:	204700415	Date:	March 1 & 26, 2020

Subsurface☒ Surface☒ Vegetation Plot☐

Reference: March Water Sampling Event

1.1 BACKGROUND

March sampling events took place on the 3rd and 26th and were for surface water and subsurface water, where it could be accessed through the ice, and would be informative in determining the extent of elevated ammonia levels. The weather was cold and dry. The site was covered in approximately 18 inches of snow. The ice thickness was determined to be greater than 24 inches. There appeared to be no open water apart from the stream along the toe of the percolation beds, and even that stream was frozen in many locations. Water was sampled from five surface water locations on the 3rd, and from seven monitoring wells and two surface locations on the 26th.

On site testing for ammonia levels indicated effluent overflow had moved west of the containment berm near the property boundary, thus the there was a decision to cease effluent discharge to the wetland on March 6th.

The berm was completely frozen over to at least the depth of the gravel. There were indications of significant overflow across a broad front from west of the berm to east of the point of discharge.

1.2 SAMPLING EVENT HIGHLIGHTS

SURFACE

March 3rd

Surface water was collected at SW1, SW9, SW15, SW17, and SW18. Ammonia was detected at 1.57mg/L and 1.46mg/L at SW1 and SW15, respectively, indicating that ammonia levels extend nearly the full length of the wetland within the effluent flow path. Ammonia was detected at 23.2mg/L at SW9, which is likely to be within the major flow path year-round. SW17 and SW18 both had low levels of ammonia, with nitrate levels around 2-3mg/L.

March 6th – Effluent discharge to the wetland ceased.

March 26th

Surface water was collected at SW17 and SW18. The results for ammonia, nitrate, and FC were very similar to the results from March 3rd.

Reference: March Water Sampling Event

SUBSURFACE

March 26th

Water was sampled at monitoring wells B4, MW6, B11, MW10, MW14b, and MW20 by use of bailers or peristaltic pump. Intrinsic data was not collected. Monitoring well B4 continues to have nitrate around 1.4mg/L, but no ammonia or FC. For all other wells sampled ammonia and nitrate levels were very low, or not detected. FC was not detected in any well. RCRA 8 metals plus Cu and Zn were also analyzed for all monitoring wells, with the results being consistent with previous sampling events.

BERM

The berm was reinforced with geofabric and gravel the over its full length, bringing up its elevation approximately 2-3 feet.

IMPROVEMENTS FOR FUTURE SAMPLING:

Continued monitoring to evaluate potential elevated levels of ammonia.

1.3 SAMPLE RESULT

The attached tables summarize detected analytes. All other were below detectable limits. Complete results can be found in the SGS reports.

Site ID	SW1	SW9	SW15	SW17	SW18
Date Collected	3/3/2020	3/3/2020	3/3/2020	3/3/2020	3/3/2020
Time	12:50	14:01	11:15	10:45	10:11
Sample Type	Surface	Surface	Surface	Surface	Surface
Nitrate	ND(0.100)	ND(0.100)	ND(0.100)	2.33	3.36
Nitrite	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)
Total Nitrate/Nitrite	ND(0.100)	ND(0.100)	ND(0.100)	2.36	3.36
TSS				1.55	1.1
TKN	2.23	15.3	2.94	ND(0.500)	ND(0.500)
Ammonia	1.57	23.2	1.46	0.585	0.446
Total P	0.559	3.37	0.544	0.0778	0.199
BOD	13.5	8.1	18.3	2.84	ND(2.00)
FC	ND(17)	ND(9)	ND(9)	ND(1)	ND(1)
E. Coli	3	1	7	ND(1)	ND(1)
TC	32	69	205	29	44

Site ID	B4	B11	MW6	MW10	MW14A	MW15	MW20	SW17	DUP1	SW18
Date Collected	3/26/2020	3/26/2020	3/26/2020	3/26/2020	3/26/2020	3/26/2020	3/26/2020	3/26/2020	3/26/2020	3/26/2020
Time	12:17	13:05	12:15	11:40	10:45	11:55	10:05	13:30	13:07	14:00
Sample Type	Sub-surface	Sub-surface	Sub-surface	Sub-surface	Sub-surface	Sub-surface	Sub-surface	Surface	Surface	Surface
Nitrate	1.38	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	0.319	2.54	2.58	3.32
Nitrite	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)
Total Nitrate/Nitrite	1.38	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	0.346	2.57	2.61	3.36
TSS								3.74	ND(0.500)	3.47
Ammonia	ND(0.0500)	0.187	0.121	ND(0.0500)	ND(0.0500)	0.308	ND(0.0500)	0.646	0.679	0.617
Total P								0.0917	0.0865	0.344
BOD								2.35	2.29	2.65
FC	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(2)	ND(1)	2	ND(1)	ND(1)
E. Coli								ND(1)	1	2
TC								53	28	66
Arsenic	ND(3.00)	7.87	11.8	ND(3.00)	ND(3.00)	ND(15.0)	ND(3.00)	ND(3.00)	ND(3.00)	ND(3.00)
Barium	22.4	64.6	14.8	47.3	11	550	9.85	22.8	20.9	22.8
Chromium	ND(5.00)	ND(5.00)	ND(5.00)	ND(5.00)	ND(5.00)	166	ND(5.00)	ND(5.00)	ND(5.00)	ND(5.00)
Copper	8.29	16.8	ND(3.00)	ND(3.00)	ND(3.00)	209	ND(3.00)	9.4	9.64	18.3
Lead	1.67	2.07	ND(0.500)	ND(0.500)	ND(0.500)	25.4	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)
Zinc	43	48.7	35.6	39.1	49.8	412	41.2	35.2	38.3	39.7

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March Photo Log

Photo 1:
SW1

Photo 2:
SW9

Photo 3:
SW17

Photo 4:
SW15

Photo 5:
SW15

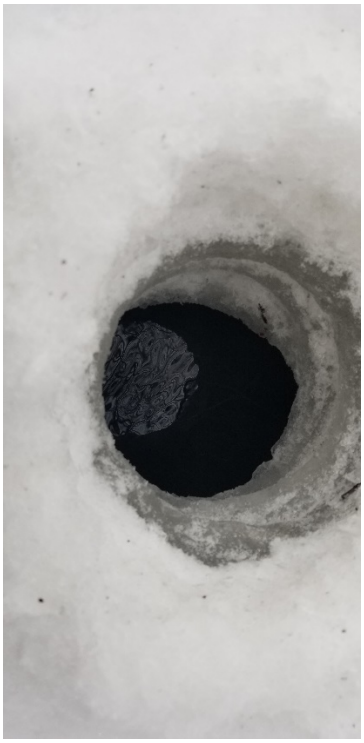

Photo 6:
SW18