Stantec

Field Report

Project:	City of Wasilla WWTP Pilot Study	Field Crew:	Jake Alward, John Marshall
File:	204700415	Date:	December 18 to 19, 2019

Subsurface☒ Surface☒ Vegetation Plot☐

Reference: December Water Sampling Event

1.1 BACKGROUND

The December sampling event was for surface and subsurface water. The weather was cold and dry. The site was frozen with very few open water locations. The ice was approximately 10" thick in areas. Due to the frozen nature of the site, water was only collected at a few locations. Many of the monitoring wells were frozen as well. The surface water locations that were sampled required drilling through the ice and pump from below the ice using a peristaltic pump.

It was determined from the November sampling event that the lagoons were no longer nitrifying the ammonia, therefore nitrate levels in the effluent were zero. Being that there are no longer nitrates entering the system, our currents means of tracking effluent is no longer viable and therefore no *in-situ* testing was conducted on the water along the berm.

1.2 SAMPLING EVENT HIGHLIGHTS

SURFACE

Water was sampled at 6 locations as well as the raw effluent. SW17 was duplicated. Samples were all collected by use of peristaltic pump. Intrinsic data from the YSI was taken at all locations apart from the effluent sample.

SUBSURFACE

Water was sampled at 5 locations. Samples were collected with either peristaltic pump or bailer. All other locations were not sampled due to frozen conditions. Both artesian well locations were still flowing water.

Reference: December Water Sampling Event

WEIR FLOW

Weir 1 (SW17)
Width: 2.21 -ft
Water Depth: 0.62 -ft
Veoicty: 0.52 -ft/s
Flow: 0.71 -cf/s

Weir 2 (SW18)
Width: 3.22 -ft
Water Depth: 0.7 -ft*
Veoicty: 0.23 -ft/s
Flow: 0.52 -cf/s

*Flow meter was giving a code for out of temperature range

IMPROVEMENTS FOR FUTURE SAMPLING:

December sampling went smoothly.

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	B4	B11	MW6	MW10	MW15	SW3	SW5	SW9	SW15
Date Collected	12/18/2019	12/19/2019	12/18/2019	12/19/2019	12/19/2019	12/18/2019	12/18/2019	12/19/2019	12/19/2019
Time	14:28	11:34	13:51	13:40	13:50	12:02	14:11	11:00	12:14
Sample Type	Sub-surface	Sub-surface	Sub-surface	Sub-surface	Sub-surface	Surface	Surface	Surface	Surface
Water Temperature (°C)	3.93	3.75	3.18	4.09	4.61	-0.03	0.25	-0.01	0.1
Conductivity	583	501	254	510	411	1204	478	824	409
pH	6.02	5.43	6.13	6.68	6.66	4.92	6.45	4.81	5.99
DO	13.8	5.08	6.6	2.8	2.6	4.2	3.96	11.69	617
Nitrate	1.39	ND(0.100)	ND(0.100)	ND(0.100)	0.643	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)
Total Nitrate/Nitrite	1.39	ND(0.100)	ND(0.100)	ND(0.100)	0.814	ND(0.100)	ND(0.100)	0.231	ND(0.100)
TSS						103	4.49	ND(0.575)	14.7
TKN	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)	17.2	ND(0.500)	1.39	ND(0.500)
Ammonia	ND(0.0500)	0.162	ND(0.0500)	ND(0.0500)	0.207	15.2	ND(0.0500)	0.41	0.197
Total P						3.48	0.0385	0.068	0.0621
BOD						2.98	3.01	ND(2.00)	3.68
FC	ND(2)	ND(2)	ND(2)	ND(2)	ND(2)	15	1.7	ND(2)	ND(2)
E. Coli						25	1	ND(1)	4
TC						875	70	116	72

Site ID	SW17	SW17.1	SW18	Eff
Date Collected	12/19/2019	12/19/2019	12/19/2019	12/19/2019
Time	12:57	12:57	13:16	13:30
Sample Type	Surface	Surface	Surface	Surface
Water Temperature (°C)	0.32	0.32	0.07	
Conductivity	732	732	837	
pH	5.64	5.64	5.5	
DO	7.43	7.43	8.4	
Nitrate	4.75	4.72	5.82	ND(0.100)
Total Nitrate/Nitrite	4.79	4.76	5.87	ND(0.100)
TSS	1.35	2.04	5.89	
TKN	ND(0.500)	ND(0.500)	ND(0.500)	48.6
Ammonia	0.134	0.104	0.14	30
Total P	0.1	0.104	0.354	
BOD	ND(2.00)	ND(2.00)	ND(2.00)	
FC	3.3	3.3	1.7	36300
E. Coli	3	2	2	
TC	138	71	166	

Stantec

December Photo Log

Photo 1:
Berm

Photo 4:
Discharge Bed #1

Photo 2:
SW1

Photo 5:
SW15

Photo 3:
SW5

Photo 6:
SW17