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Project:	City of Wasilla WWTP Pilot Study	Field Crew:	Jake Alward, Riley Bronga, Jakob Keldsen
File:	204700415	Date:	April 29 & 30, 2019

Subsurface  Surface  Vegetation Plot  Lagoon

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**Reference:** April Water Sampling Event

## 1.1 BACKGROUND

The April sampling event was for surface water only. The site has mostly thawed out from the winter months. There are still small shelves of ice under 12 to 18 inches of water throughout the site. Many of the tussocks are also partially frozen. All 19 sites were sampled along with 2 duplicates. Although the site was mostly thawed, it was relatively dry compared to summer months.

The weather was both cloudy and sunny and temperatures ranged from 45 to 60°F.

## 1.2 SAMPLING EVENT HIGHLIGHTS

### SURFACE

Water was sampled at all 18 locations on the city property along with 2 duplicates. Mr. Shaw's property was also sampled. The site was relatively easy to maneuver as things appeared a little more dry than normal. It also helped that the tussocks were still slightly frozen.

SW9 and SW17 were both duplicated. All samples were taken using a peristaltic pump. The YSI was able to get readings at all locations as well. Based on last April's filed report, the site is much more thawed than last year.

### IMPROVEMENTS FOR FUTURE SAMPLING:

No improvements needed, this sampling event went very smoothly.

## 1.3 OTHER ACTIVITIES

### Weir 1 (SW17)

Width: 2.21 -ft  
Water depth: 0.7 -ft  
Velocity: 0.14 -ft/sec  
Calculated flow: 0.22 -CF/sec

### Weir 2 (SW18)

Width: 3.22 -ft  
Water depth: 0.6 -ft  
Velocity: 0.14 -ft/sec  
Calculated flow: 0.27 -CF/sec

**Design with community in mind**

**Reference: April Water Sampling Event**

## 1.4 SAMPLE RESULTS

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

## 1.5 DATA QUALITY

There were two duplicates taken during the April sampling event. The duplicate and original sample all tested very similar with no alarming differences. See below for results:

Site ID	Nitrate	Nitrite	Total Nitrate /Nitrite	TSS	TKN	Ammonia	Total P	BOD	FC	E. Coli	TC
<b>SW9</b>	ND	ND	ND	1.22	ND	ND	ND	ND	1	2	248
<b>Dup. 1</b>	ND	ND	ND	1.22	ND	ND	ND	ND	1	1	308
<b>% Diff</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>66.7%</b>	<b>21.6%</b>
<b>SW17</b>	1.44	ND	1.44	5.25	ND	ND	0.0881	ND	ND	1	58
<b>Dup. 2</b>	1.44	ND	1.44	3.44	ND	ND	0.11	ND	ND	ND	83
<b>% Diff</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>41.7%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>22.1%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>n/a</b>	<b>35.5%</b>

## April Photo Log



Photo 1:  
SW-1



Photo 4:  
SW-10



Photo 2:  
SW-7



Photo 5:  
SW-11



Photo 3:  
Access Berm



Photo 6:  
SW-18

Detectable Results Summary Table

April-2019

Site ID	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8	SW9	SW9.1	SW10
Sample Event	April, 2019	April, 2019	April, 2019	April, 2019	April, 2019	April, 2019	April, 2019	April, 2019	April, 2019	April, 2019	April, 2019
Date Collected	4/29/19	4/29/19	4/29/19	4/29/19	4/29/19	4/29/19	4/29/19	4/29/19	4/29/19	4/29/19	4/29/19
Time	10:14	10:21	11:00	12:10	12:33	11:56	11:38	14:20	14:00	14:00	13:45
Sample Type	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Water Temperature (°C)	1.67	1.65	2.93	2.4	2.65	4.14	3.15	6.68	4.18	4.18	5.67
pH	5.69	4.93	5.74	6.43	6.59	6.5	5.75	6.41	6.96	6.96	6.68
DO	5.81	5.29	2.85	6.58	3.78	6.34	4.37	2.61	3.66	3.66	6.65
TSS	16	3.37	1.35	2.24	3.09	1.44	1.43	6.94	1.22	1.22	3.61
TKN	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)	1.17	ND(0.500)	ND(0.500)	ND(0.500)
Ammonia	0.155	ND(0.0500)	ND(0.0500)	0.106	ND(0.0500)	ND(0.0500)	ND(0.0500)	ND(0.0500)	ND(0.0500)	ND(0.0500)	ND(0.0500)
Total P	0.275	0.0502	ND(0.0100)	ND(0.0100)	ND(0.0100)	ND(0.0100)	ND(0.0100)	0.114	ND(0.0100)	ND(0.0100)	0.0377
BOD	10.1	3.35	ND(2.00)	4.08	ND(2.00)	ND(2.00)	ND(2.00)	3.29	ND(2.00)	ND(2.00)	2.06
FC	ND(1)	ND(1)	ND(1)	ND(1)	1	ND(1)	ND(1)	ND(1)	1	1	ND(1)
E. Coli	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	1	ND(1)	1	2	1	ND(1)
TC	4110	54	71	16	517	261	345	179	248	308	345

Site ID	SW11	SW12	SW13	SW14	SW15	SW16	SW17	SW17.1	SW18
Sample Event	April, 2019	April, 2019	April, 2019	April, 2019	April, 2019	April, 2019	April, 2019	April, 2019	April, 2019
Date Collected	4/30/19	4/30/19	4/30/19	4/30/19	4/30/19	4/30/19	4/30/19	4/30/19	4/30/19
Time	9:45	9:54	10:16	11:05	10:58	10:33	11:48	11:48	12:17
Sample Type	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Water Temperature (°C)	4.05	3.24	2.28	3.39	2.65	5.69	5.48	5.48	6.05
pH	5.7	6.4	6.7	7.12	6.72	6.68	7.36	7.36	7.11
DO	6.76	10.27	5.92	2.78	4.61	4.55	7.89	7.89	8.22
Nitrate	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	1.44	1.44	2.44
Total Nitrate/Nitrite	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	1.44	1.44	2.47
TSS	66	3.2	ND(0.500)	5.87	1.21	19.1	5.25	3.44	192
TKN	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)	3.14
Ammonia	ND(0.0500)	0.124	ND(0.0500)	0.435	ND(0.0500)	ND(0.0500)	ND(0.0500)	ND(0.0500)	3.68
Total P	ND(0.0100)	0.0485	ND(0.0100)	0.28	ND(0.0100)	0.0367	0.0881	0.11	2.85
BOD	14	2.19	ND(2.00)	3.93	ND(2.00)	3.25	ND(2.00)	ND(2.00)	4.17
FC	ND(1)	ND(1)	ND(1)	ND(1)	1	1	ND(1)	ND(1)	2
E. Coli	ND(1)	ND(1)	ND(1)	ND(1)	2	ND(1)	1	ND(1)	12
TC	49	26	33	36	172	579	58	83	91