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# Field Report

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|---|---|---|---|
| Project: | City of Wasilla WWTP Pilot Study | Field Crew: | Jake Alward, Austin Badger, John Marshall |
| File: | 204700415 | Date: | May 28 & 29, 2019 |

Subsurface☐ Surface☒ Vegetation Plot☐ Lagoon ☐

**Reference: April Water Sampling Event**

## 1.1 BACKGROUND

The May sampling event was for surface water only. All ice and frozen hummocks mentioned in the April, 2019 field report had thawed. All 19 sites were sampled with one duplicate at SW18.

The weather was mostly sunny and temperatures ranged from 50 to 70°F.

## 1.2 SAMPLING EVENT HIGHLIGHTS

**SURFACE**
Water was sampled at all 18 locations on the city property with one duplicate at SW18. Mr. Shaw's property was also sampled. All samples were taken using a peristaltic pump. The YSI was able to get readings at all locations as well.

Surface water at SW1,3,5,14,15,16,17 and the lagoon were tested for traces of human bacteria in order to distinguish between bacteria sources (wildlife vs. human).

There was no ice present and most trees had leaves. Grasses were green. Flowers had blossomed. As mentioned in the May, 2018 field report, the plant life in the area between the toe of the percolation bed slope and the creek was more abundant and greener than in the other areas of the wetland.

**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: 0.36 -ft/sec
Calculated flow: 0.56 -CF/sec

**Weir 2 (SW18)**

Width: 3.22 -ft
Water depth: 0.5 -ft

**Reference: April Water Sampling Event**

Velocity: 0.36 -ft/sec
Calculated flow: 0.58 -CF/sec

## 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 was one duplicate taken during the May 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **SW18** | 2.18 | ND | 2.23 | 10.2 | 3.25 | 2.22 | 1.48 | 7.08 | 6 | 8 | 276 |
| **Dup. 1** | 2.19 | ND | 2.23 | 10.1 | 2.84 | 2.23 | 1.47 | 7.23 | 3 | 6 | 387 |
| **% Diff** | **0.5%** | **0.0%** | **0.0%** | **-1.0%** | **-13.5%** | **0.4%** | **-0.7%** | **2.1%** | **-66.7%** | **-28.6%** | **33.5%** |

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# May Photo Log

Photo 1:
SW-1

Photo 4:
SW-9

Photo 2:
SW-6

Photo 5:
SW-11

Photo 3:
SW-7

Photo 6:
SW-17

| Site ID | SW1 | SW2 | SW3 | SW4 | SW5 | SW6 | SW7 | SW8 | SW9 | SW10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Event | May, 2019 | May, 2019 | May, 2019 | May, 2019 | May, 2019 | May, 2019 | May, 2019 | May, 2019 | May, 2019 | May, 2019 |
| Date Collected | 5/28/2019 | 5/28/2019 | 5/28/2019 | 5/28/2019 | 5/28/2019 | 5/28/2019 | 5/28/2019 | 5/28/2019 | 5/28/2019 | 5/28/2019 |
| Time | 10:32 | 10:58 | 11:16 | 12:54 | 13:11 | 12:37 | 12:20 | 14:20 | 14:06 | 13:52 |
| Sample Type | Surface | Surface | Surface | Surface | Surface | Surface | Surface | Surface | Surface | Surface |
| Water Temperature (°C) | 4.23 | 9.78 | 10.41 | 12.66 | 7.17 | 12.71 | 8.6 | 9.38 | 14.76 | 11.02 |
| pH | 6.72 | 6.34 | 6.84 | 7.04 | 7.03 | 7.13 | 6.74 | 6.7 | 7.15 | 6.67 |
| DO | 1.07 | 0.93 | 0.47 | 1.55 | 7.29 | 4.27 | 0.8 | 0.6 | 8.25 | 0.86 |
| TSS | 3.51 | 7.2 | ND(0.510) | ND(0.505) | 15.3 | ND(0.500) | ND(0.510) | 5.69 | 2.06 | ND(0.495) |
| Ammonia | ND(0.0500) | ND(0.0500) | ND(0.0500) | ND(0.0500) | ND(0.0500) | 0.125 | ND(0.0500) | ND(0.0500) | ND(0.0500) | ND(0.0500) |
| Total P | 0.061 | 0.0771 | 0.0218 | ND(0.0100) | ND(0.0100) | ND(0.0100) | ND(0.0100) | 0.0574 | ND(0.0100) | ND(0.0100) |
| BOD | 4.61 | 3.7 | ND(2.00) | ND(2.00) | 2.24 | ND(2.00) | ND(2.00) | ND(2.00) | ND(2.00) | ND(2.00) |
| FC | 1 | 3 | 1 | ND(1) | ND(1) | 1 | 11 | ND(1) | 1 | ND(1) |
| E. Coli | ND(1) | 5 | ND(1) | ND(1) | ND(1) | ND(1) | 4 | ND(1) | 10 | 1 |
| TC | 260 | 0 | 261 | 649 | 308 | 186 | 214 | 142 | 430 | 38 |

| Site ID | SW11 | SW12 | SW13 | SW14 | SW15 | SW16 | SW17 | SW18 | SW18.1 | Shaw |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Event | May, 2019 | May, 2019 | May, 2019 | May, 2019 | May, 2019 | May, 2019 | May, 2019 | May, 2019 | May, 2019 | May, 2019 |
| Date Collected | 5/29/2019 | 5/29/2019 | 5/29/2019 | 5/29/2019 | 5/29/2019 | 5/29/2019 | 5/29/2019 | 5/29/2019 | 5/29/2019 | 5/29/2019 |
| Time | 10:00 | 10:15 | 10:32 | 11:32 | 11:11 | 10:55 | 13:11 | 13:35 | 13:35 | 12:20 |
| Sample Type | Surface | Surface | Surface | Surface | Surface | Surface | Surface | Surface | Surface | Surface |
| Water Temperature (°C) | 6.45 | 8.55 | 8.39 | 9.37 | 9.32 | 4.04 | 10.15 | 10.18 | 10.18 | 9.32 |
| pH | 7.06 | 7.01 | 7 | 7.14 | 7.2 | 6.65 | 7.58 | 7.55 | 7.55 | 7.36 |
| DO | 3.96 | 1.44 | 1.58 | 3.74 | 4.61 | 2.96 | 9.12 | 7.16 | 7.16 | 7.71 |
| Nitrate | ND(0.100) | ND(0.100) | ND(0.100) | ND(0.100) | ND(0.100) | ND(0.100) | 1.16 | 2.18 | 2.19 | ND(0.100) |
| Total Nitrate/Nitrite | ND(0.100) | ND(0.100) | ND(0.100) | ND(0.100) | ND(0.100) | ND(0.100) | 1.16 | 2.23 | 2.23 | ND(0.100) |
| TSS | ND(0.490) | ND(0.495) | 1.8 | 7.47 | 13.6 | ND(0.490) | 4.46 | 10.2 | 10.1 | ND(0.490) |
| TKN | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | 3.25 | 2.84 | ND(0.500) |
| Ammonia | ND(0.0500) | ND(0.0500) | ND(0.0500) | ND(0.0500) | ND(0.0500) | 0.169 | ND(0.0500) | 2.22 | 2.23 | ND(0.0500) |
| Total P | 0.0643 | ND(0.0100) | ND(0.0100) | 0.0541 | 0.0235 | 0.0401 | 0.117 | 1.48 | 1.47 | ND(0.0100) |
| BOD | ND(2.00) | ND(2.00) | ND(2.00) | ND(2.00) | ND(2.00) | ND(2.00) | ND(2.00) | 7.08 | 7.23 | ND(2.00) |
| FC | ND(1) | 1 | ND(1) | ND(1) | ND(1) | ND(1) | ND(1) | 6 | 3 | 3 |
| E. Coli | ND(1) | ND(1) | ND(1) | ND(1) | 3 | ND(1) | 1 | 8 | 6 | 1 |
| TC | 214 | 548 | 84 | 84 | 1046 | 38 | 231 | 276 | 387 | 387 |