Stantec

# Field Report

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|---|---|---|---|
| Project: | City of Wasilla WWTP Pilot Study | Field Crew: | Jake Alward, Riley Bronga, Ryan Cooper |
| File: | 204700415 | Date: | October 23 &30, 2018 |

Subsurface☐ Surface☒ Vegetation Plot☐ Lagoon ☐

**Reference: October Water Sampling Event**

## 1.1 BACKGROUND

The October sampling event was for surface water only. The two sampling days were a week apart. The first day of sampling was warm and slightly rainy. The second day was cold and dry. The wetland was beginning to freeze up, but not enough to make travel any easier. There was a few inches of snow on the ground the second sampling day.

All surface water locations were sampled including Mr. Shaw's property.

## 1.2 SAMPLING EVENT HIGHLIGHTS

**SURFACE**
All 18 surface water locations and Mr. Shaw's property were sampled. The first sampling day, all samples were taken using a peristaltic pump. The second day, the peristaltic pump was attempted to be used, however it was too cold, and the tube would freeze up. Therefore, all samples the second day were collected by dipping bottles.

It continues to be difficult to move through the site, with almost all time spent in water to the knee or waist.

**IMPROVEMENTS FOR FUTURE SAMPLING:**

If samples are taken on cold days, the peristaltic pump will not be useful. Sampling will try to be done on moderate days. Once the wetland freezes, bottles will no longer be able to be dipped into the pools of water.

## 1.3 OTHER ACTIVITIES

**WEIR 1 (SW17)**

Width: 2.21 -ft
Water depth: 0.81 -ft
Velocity: 0.22-ft/sec
Calculated flow: 0.39 -CF/sec

**WEIR 2 (SW18)**

Width: 3.22 -ft
Water depth: 0.60 -ft

**Reference: October Water Sampling Event**

Velocity: 0.23 -ft/sec
Calculated flow: 0.44 -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 were two duplicates taken during the October sampling event for surface. TC looks alarming for both set, however both TC indicate small amounts of bacteria.

| Site ID | Nitrate | Nitrite | TSS | TKN | Ammonia | Total P | BOD | FC | E. Coli | TC |
|---|---|---|---|---|---|---|---|---|---|---|
| **SW8** | ND | ND | ND | 1.09 | ND | ND | 0.029 | ND | 1 | 2 |
| **SW8.1** | ND | ND | ND | 1.76 | ND | ND | 0.0297 | ND | ND | 1 |
| **% Diff** | **0.0%** | **0.0%** | **0.0%** | **47.0%** | **0.0%** | **0.0%** | **2.4%** | **0.0%** | **NA** | **-66.7%** |
| | | | | | | | | | | |
| **SW17** | 1.6 | ND | 1.6 | 413 | ND | ND | 3.4 | 6.22 | 69 | 3 |
| **SW17.1** | 1.64 | ND | 1.64 | 368 | ND | ND | 2.21 | 5.54 | 200 | 8 |
| **% Diff** | **2.5%** | **0.0%** | **2.5%** | **-11.5%** | **0.0%** | **0.0%** | **-42.4%** | **-11.6%** | **97.4%** | **90.9%** |

**Attachment: Photo Log**

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# October Photo Log

Photo 1:
SW-7

Photo 4:
SW-6

Photo 2:
SW-8

Photo 4:
SW-9

Photo 3:
SW-13

Photo 4:
SW-16

## Attachment: Results Summary Table

Detectable Results Summary Table

October-2018

| Site ID | SW1 | SW2 | SW3 | SW4 | SW5 | SW6 | SW7 | SW8 | SW8.1 | SW9 | SW10 | SW11 | SW12 | SW13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date Collected | 10/23/18 | 10/23/18 | 10/23/18 | 10/23/18 | 10/23/18 | 10/23/18 | 10/23/18 | 10/23/18 | 10/23/18 | 10/23/18 | 10/23/18 | 10/30/18 | 10/30/18 | 10/30/18 |
| Time | 10:37 | 10:53 | 11:10 | 12:24 | 12:45 | 12:10 | 11:54 | 14:02 | 14:02 | 13:30 | 13:32 | 10:11 | 10:37 | 10:57 |
| Sample Type | Surface | Surface | Surface | Surface | Surface | Surface | Surface | Surface | Surface | Surface | Surface | Surface | Surface | Surface |
| Water Temperature (°C) | 5.72 | 4.7 | 6.53 | 5.58 | 5.47 | 5.49 | 5.47 | 6.13 | 6.13 | 5.49 | 5.64 | 1.9 | 1.78 | 0.66 |
| Conductivity | 178 | 142 | 280 | 278 | 233 | 285 | 150 | 160 | 160 | 250 | 152 | 213 | 207 | 130 |
| pH | 0 | 4.5 | 5.9 | 6.42 | 6.25 | 6.13 | 6.67 | 6.33 | 6.33 | 6.48 | 6.3 | 5.04 | 5.85 | 5.27 |
| DO | 4.6 | 6.38 | 3.98 | 2.7 | 1.96 | 5.76 | 5.63 | 2.86 | 2.86 | 3.89 | 3.71 | 5.7 | 5.01 | 8.38 |
| TSS | 4.13 | 1.88 | 4.95 | 13.7 | 15.1 | 2.32 | 2.5 | 1.09 | 1.76 | 8.57 | 3.33 | 49.9 | 4.85 | 10.9 |
| Total P | 0.0552 | 0.0248 | 0.0263 | 0.074 | 0.067 | 0.0354 | ND(0.0100) | 0.029 | 0.0297 | ND(0.0100) | ND(0.0100) | 0.0714 | 0.049 | 0.151 |
| BOD | 2.67 | 2.04 | ND(2.00) | 2.9 | 4.75 | ND(2.00) | ND(2.00) | ND(2.00) | ND(2.00) | ND(2.00) | 4.57 | ND(2.00) | ND(2.00) | ND(2.00) |
| FC | 1 | ND(1) | 37 | 0 | 36 | 0 | 10 | 1 | ND(1) | ND(1) | 2 | ND(1) | 2 | 77 |
| E. Coli | 3 | ND(1) | 46 | 16 | 8 | 23 | 16 | 2 | 1 | ND(1) | 10 | ND(1) | ND(1) | 34 |
| TC | 387 | 613 | 727 | 2420 | 1046 | 186 | 488 | 649 | 488 | 54 | 1553 | 285 | 201 | 613 |

| Site ID | SW14 | SW15 | SW16 | SW17 | SW17.1 | SW18 | Shaw |
|---|---|---|---|---|---|---|---|
| Date Collected | 10/30/18 | 10/30/18 | 10/30/18 | 10/30/18 | 10/30/18 | 10/30/18 | 10/30/18 |
| Time | 11:43 | 11:29 | 11:12 | 13:19 | 13:19 | 13:40 | 12:41 |
| Sample Type | Surface | Surface | Surface | Surface | Surface | Surface | Surface |
| Water Temperature (°C) | 0.6 | 1.8 | 3.44 | 1.06 | 1.06 | 1.75 | 0.73 |
| Conductivity | 234 | 193 | 208 | 318 | 318 | 396 | 234 |
| pH | 5.53 | 5.93 | 4.99 | 7.19 | 7.19 | 7.44 | 5.99 |
| DO | 4.06 | 8 | 4.4 | 9.36 | 9.36 | 14.2 | 4.4 |
| Nitrate | ND(0.0500) | ND(0.0500) | ND(0.0500) | 1.6 | 1.64 | 7.08 | ND(0.0500) |
| Nitrite | ND(0.0500) | ND(0.0500) | ND(0.0500) | ND(0.0500) | ND(0.0500) | ND(0.0500) | ND(0.0500) |
| Total Nitrate/Nitrite | ND | ND | ND | 1.6 | 1.64 | 7.08 | ND |
| TSS | 286 | 156 | 392 | 413 | 368 | 448 | 43.4 |
| TKN | ND(0.500) | ND(0.500) | 1.19 | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| Ammonia | ND(0.0500) | ND(0.0500) | ND(0.0500) | ND(0.0500) | ND(0.0500) | 0.137 | ND(0.0500) |
| Total P | 0.25 | 1.89 | 0.405 | 3.4 | 2.21 | 4.13 | 0.21 |
| BOD | 8.9 | 4.54 | 4.29 | 6.22 | 5.54 | 10.5 | ND(2.00) |
| FC | 17 | 360 | ND(1) | 69 | 200 | 30 | ND(1) |
| E. Coli | 6 | 10 | ND(1) | 3 | 8 | 30 | 3 |
| TC | 59 | 488 | 133 | 649 | 517 | 2380 | 49 |