Stantec

# Field Report

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|---|---|---|---|
| Project: | City of Wasilla WWTP Pilot Study | Field Crew: | John Marshall, Rose Hart, Jake Alward |
| File: | 204700415 | Date: | July 29,30,31, 2020 |

Subsurface☐ Surface☒ Vegetation Plot☐

**Reference: July Water Sampling Event**

## 1.1 BACKGROUND

July sampling events took place on the 29-31 and all surface sites were sampled. For surface water sampling a peristaltic pump was used. The weather was sunny, clear, and hot. Vegetation was in full bloom and especially thick near the three active discharges. The diffusers were continuing to flow approximately 300,000 gallons per day combined. No apparent effluent was backing up towards the access road. The berm has settled in areas but is still above water in all areas. There was no adverse odor to report.

## 1.2 SAMPLING EVENT HIGHLIGHTS

### SURFACE

Water levels in the wetland do not appear to drastically different than months past. There still appears to be slow surface flow from the discharge beds into the wetland. The discharge pipe of diffuser #6 is below effluent level. There is still apparent flow from the pipe and the algae has not taken over the small pond of water formed.

Flowing water was observed near SW9 and SW12, as in months past. The velocity of the water does not appear to be so fast as to cut deep channels. The start of the stream at the toe of the percolation beds is still flowing and appears unchanged from past months.

### BERM

The berm has settled in multiple areas but continues to hold approximately 2' above the water level.

### WEIR FLOW

**Weir 1 (SW17)**
Width: 2.21
Water Depth: 0.60 ft
Velocity: 0.58 ft/s
Calculated Flow: 0.77 CF/s

**Weir 2 (SW18)**
Width: 3.22
Water Depth: 0.62 ft
Velocity: 0.30 ft/s
Calculated Flow: 0.60 CF/s

**Reference: July Water Sampling Event**

**IMPROVEMENTS FOR FUTURE SAMPLING:**

An additional section of pipe needs to be added to diffuser #6 so that it discharges above water level.

## 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 | SW2 | SW3 | SW4 | SW5 | SW6 | SW7 | SW8 | SW9 | SW10 | SW11 | SW12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date Collected | 7/29/2020 | 7/29/2020 | 7/29/2020 | 7/29/2020 | 7/29/2020 | 7/29/2020 | 7/29/2020 | 7/30/2020 | 7/30/2020 | 7/30/2020 | 7/30/2020 | 7/30/2020 |
| Time | 11:05 | 11:37 | 12:21 | 14:33 | 14:50 | 13:15 | 12:56 | 14:28 | 14:45 | 15:04 | 10:25 | 10:55 |
| Sample Type | Surface | Surface | Surface | Surface | Surface | Surface | Surface | Surface | Surface | Surface | Surface | Surface |
| Water Temperature (°C) | 8.44 | 13.08 | 16.48 | 16.32 | 16.31 | 16.26 | 14.74 | 15.42 | 17.14 | 16 | 10 | 14.56 |
| Conductivity | 575 | 970 | 965 | 973 | 972 | 905 | 830 | 821 | 896 | 768 | 366 | 730 |
| pH | 5.63 | 6.62 | 8.09 | 8.3 | 8.38 | 8.23 | 7.57 | 8.54 | 9.79 | 8.99 | 8.05 | 8.73 |
| DO | 3.66 | 1.79 | 1.39 | 1.97 | 4.48 | 3.2 | 1.25 | 1.25 | 2.04 | 1.55 | 2.33 | 1.42 |
| Nitrate | ND(0.100) | ND(0.100) | ND(0.100) | 3.54 | 1.64 | ND(0.100) | ND(0.100) | ND(0.100) | ND(0.100) | ND(0.100) | ND(0.100) | ND(0.100) |
| 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) | ND(0.100) | ND(0.100) |
| Total Nitrate/Nitrite | ND(0.100) | 0.21 | ND(0.100) | 3.62 | 1.68 | ND(0.100) | ND(0.100) | ND(0.100) | ND(0.100) | ND(0.100) | ND(0.100) | ND(0.100) |
| TKN | 1.59 | 6.51 | 3.9 | ND(0.500) | 1.22 | 1.46 | 1.02 | ND(0.500) | ND(0.500) | 1.16 | ND(0.500) | ND(0.500) |
| Ammonia | 0.857 | 5.68 | 3.24 | 0.117 | 0.202 | 0.281 | ND(0.0500) | ND(0.0500) | 0.491 | 0.851 | ND(0.0500) | ND(0.0500) |
| Total P | 0.108 | 0.939 | 4.06 | 2.25 | 2.03 | 0.798 | 0.0803 | 0.124 | 0.224 | ND(0.0200) | 0.185 | 0.0662 |
| BOD | 4.8 | 3.72 | 5.66 | ND(2.00) | 3.7 | ND(2.00) | 3.78 | ND(2.00) | ND(2.00) | ND(2.00) | ND(2.00) | ND(2.00) |
| FC | ND(2) | 1270 | 6.7 | 1.7 | 550 | 22 | 180 | 1.7 | 48 | 5 | 1.7 | 540 |
| E. Coli | ND(1) | 20 | ND(10) | 10 | 910 | 10 | 60 | 1 | 22 | ND(1) | 18 | 1280 |
| TC | 816 | 2421 | 2140 | 3080 | 2421 | 3080 | 2421 | 1203 | 770 | 548 | 613 | 9760 |

| Site ID | SW13 | SW14 | SW15 | SW16 | SW17 | SW17.1 | SW18 | Shaw | Eff |
|---|---|---|---|---|---|---|---|---|---|
| Date Collected | 7/30/2020 | 7/30/2020 | 7/30/2020 | 7/30/2020 | 7/31/2020 | 7/31/2020 | 7/31/2020 | 7/30/2020 | 7/29/2020 |
| Time | 11:15 | 12:23 | 12:03 | 11:37 | 10:22 | 10:30 | 10:47 | 13:10 | 15:15 |
| Sample Type | Surface | Surface | Surface | Surface | Surface | Surface | Surface | Surface | Surface |
| Water Temperature (°C) | 14.69 | 13.99 | 13.36 | 13.47 | 11.69 | 11.69 | 11.89 | 16.36 | |
| Conductivity | 740 | 478 | 462 | 484 | 541 | 541 | 663 | 362 | |
| pH | 8.84 | 8.85 | 8.45 | 8.76 | 7.62 | 7.62 | 8.16 | 8.98 | |
| DO | 0.92 | 2.13 | 5.72 | 0.79 | 4.58 | 4.58 | | 2.76 | |
| Nitrate | ND(0.100) | ND(0.100) | ND(0.100) | ND(0.100) | | 0.605 | 0.647 | ND(0.100) | 23.4 |
| Nitrite | ND(0.100) | ND(0.100) | ND(0.100) | ND(0.100) | | ND(0.100) | ND(0.100) | ND(0.100) | 1.04 |
| Total Nitrate/Nitrite | ND(0.100) | ND(0.100) | ND(0.100) | ND(0.100) | 0.947 | 0.605 | 0.672 | ND(0.100) | 24.5 |
| 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) | 2.36 |
| Ammonia | ND(0.0500) | ND(0.0500) | ND(0.0500) | 0.102 | 0.103 | 0.103 | 0.116 | ND(0.0500) | 0.797 |
| Total P | ND(0.0200) | 0.0424 | ND(0.0200) | 0.1 | 0.126 | 1/0/1900 | 1/0/1900 | ND(0.0200) | 1/3/1900 |
| BOD | ND(2.00) | ND(2.00) | ND(2.00) | 2.66 | ND(2.00) | ND(2.00) | 9:50 | ND(2.00) | 14:24 |
| FC | 770 | 6.7 | 8.3 | 5700 | 17 | 6.7 | ND(10) | 112 | 210 |
| E. Coli | 1080 | 93 | ND(20) | 17330 | 20 | 18 | 11 | 122 | 260 |
| TC | 14140 | 1986 | 9220 | 24200 | 1553 | 1986 | 517 | 580 | 2421 |

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# July Photo Log

Photo 1:
SW1

Photo 4:
SW4

Photo 2:
SW3

Photo 5:
SW14

Photo 3:
SW17

Photo 6:
SW7