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Field Report

Project:	City of Wasilla WWTP Pilot Study	Field Crew:	Jake Alward, John Marshall
File:	204700415	Date:	February 1, 2020

Subsurface☒ Surface☒ Vegetation Plot☐

Reference: February Water Sampling Event

1.1 BACKGROUND

February sampling events took place on the 5th and 27th and were for surface water and subsurface water, including along the containment berm, where it could be accessed through the ice. The weather was cold and dry. The site was covered in approximately 6 inches of snow. The ice thickness was determined to be greater than 24 inches. There appeared to be no open water apart from the stream along the toe of the percolation beds, and even that stream was frozen in most locations. Water was only able to be sampled from three monitoring wells and four surface locations, including the effluent.

The berm was completely frozen over to at least the depth of the gravel. There were indications of significant overflow across a broad front from west of the berm to east of the point of discharge.

1.2 SAMPLING EVENT HIGHLIGHTS

SURFACE

February 5th

Surface water was only collected at the Shaw property. This sample indicated elevated levels of BOD and phosphorus, most likely the result of disturbing the peat substrate with the ice auger during sample collection. Nitrate and ammonia concentrations were below 1.0mg/L and within background levels.

February 27th

Water was collected at the effluent discharge point, at SW5, and at one point just east of the berm where an active lead could be observed beneath the ice (near B2). This location was chosen to determine if effluent was potentially flowing under the ice to the berm.

Of the most interest in the effluent were the levels of nitrate and ammonia, which were 0.1mg/L and 36.3mg/L, respectively.

The sample along the berm (B2) had 35.6mg/L ammonia, indicating that effluent was flowing under the ice to the berm. SW5 had less than 1.0mg/L ammonia.

Reference: February Water Sampling Event

SUBSURFACE

February 5th

Water was sampled at MW14a, MW14b, and MW20 by use of bailers. Intrinsic data was not taken at either location. Results for all three wells were within background levels.

BERM

The berm is completely frozen to the gravel. Overflow is common on the berm and effluent is flowing to the berm under the ice.

IMPROVEMENTS FOR FUTURE SAMPLING:

Further sampling west of berm, if possible, to evaluate potential elevated levels of ammonia.

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	SW5	Berm 2	Eff
Date Collected	2/27/2020	2/27/2020	2/27/2020
Time	12:54	10:25	15:01
Sample Type	Surface	Surface	Effluent
Nitrate	ND(0.100)		ND(0.100)
Nitrite	ND(0.100)		ND(0.100)
Total Nitrate/Nitrite	ND		ND
TSS	45.3		35
TKN	1.19	43.5	44.9
Ammonia	0.611	35.6	36.3
Total P	0.06	6.19	5.95
BOD	6.84		32.9
FC	ND(6)		740
E. Coli	ND(1)		620
TC	10		24200

Site ID	MW14A	MW14B	MW20	Shaw
Date Collected	2/5/2020	2/5/2020	2/5/2020	2/5/2020
Time	12:29	12:35	10:32	11:18
Sample Type	Sub-surface	Sub-surface	Sub-surface	Surface
Water Temperature (°C)				
Conductivity				
pH				
DO				
Nitrate	ND(0.100)		ND(0.100)	ND(0.100)
Nitrite	ND(0.100)		ND(0.100)	ND(0.100)
Total Nitrate/Nitrite				
TSS				
TKN	ND(0.500)	ND(0.500)	ND(0.500)	11
Ammonia	ND(0.100)	0.18	ND(0.100)	0.562
Total P				6.22
BOD				11
FC	ND(2)		ND(2)	91
E. Coli				40
TC				640

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February Photo Log

Photo 1:
overflow on berm

Photo 2:
SW5 sample collection

Photo 4:
Discharge Bed #1 on Feb. 5

Photo 3:
Discharge Bed #1 on Feb. 27