

MEMORANDUM

April 13, 2021

TO: Historical Memo

FM: Matt Macdonald

RE: Vashon Wastewater Treatment Plant – March 2021

The Vashon Wastewater Treatment Plant effluent met all water quality requirements in March 2021. Effluent Biochemical Oxygen Demand (BOD₅) averaged 4.2-mg/l and Total Suspended Solids (TSS) averaged 6.8-mg/l. BOD₅ and TSS removals were 99% and 97% respectively. All required analytical testing was completed.

Influent flow averaged 0.179 million gallons per day (MGD) in March. A total of 4.2-inches of precipitation fell in March as measured at the North Vashon rain gage (the West Judd Creek gage was unavailable). The SeaTac Airport rain gauge measured 2.6-inches – less than the 3.8-inch historical average for SeaTac Airport in March. The max-day rainfall of 0.68-inches on March 28 resulted in the monthly maximum flows; max-day flow was 0.220-MGD and peak hourly flow was 0.410-MGD. Average effluent turbidity for the peak hour flow was <5-NTU. Effluent temperature average was 11.7°C in March.

The oxidation ditch was operated at an average SRT of 33-days. Mixed liquor TSS (MLSS) ranged from 4,270-mg/L to 5,600-mg/L. The sludge volume index (SVI) – which measures the MLSS's settling characteristics – averaged 71-mL/g. An estimated 1297 dry pounds of waste activated sludge were hauled to South Plant for further treatment in March. Both clarifiers were in service for the duration of the month and the UV system operated with both stages in AUTO.

A set of samples was collected on March 15 for nutrient and alkalinity analysis. Total nitrogen (N) removal was 91%, with an effluent total inorganic-N level of 4.7-mg/L (<0.1-mg/L NH₃-N and 4.6-mg/L NO₂+NO₃ as N). Effluent phosphorus (P) was 2.4-mg/L, resulting in a Total-P removal of 73%. No soda ash was added to the ditch in March for pH adjustment.

Vashon – March 2021
 Process Summary

Table 1. Summary of Monthly Flow & Rain

Monthly Total Flow Volume, MG	Monthly Average Flow, MGD	Minimum Daily Flow, MGD	Maximum Daily Flow, MGD	Total Rainfall, Inches
5.541	0.179	0.144	0.220	4.2

Table 2. Summary of Monthly Compliance/Exceptions

Biochemical Oxygen Demand 5-day			Total Suspended Solids			Fecal Coliform (no./100 mL)	
Permit mg/L	Actual mg/L	Rem %	Permit mg/L	Actual mg/L	Rem %	Permit	Actual
30	4.2	99	30	4.6	97	200	E1

Table 3. Summary of Weekly Compliance/Exceptions

	Biochemical Oxygen Demand (mg/L)		Total Suspended Solids (mg/L)		Fecal Coliforms (Organisms/100 mL)	
	Permit	Actual	Permit	Actual	Permit	Actual
Week 1	45	3.3	45	5.7	400	<1.0
Week 2	45	3.3	45	5.3	400	<1.0
Week 3	45	2.7	45	4.0	400	E0.8
Week 4	45	2.2	45	4.0	400	E1.0
Week 5	45	2.4	45	3.3	400	<1.0