

# MEMORANDUM

August 13, 2021

TO: Historical Memo

FM: Matt Macdonald

RE: Vashon Wastewater Treatment Plant – July 2021

The Vashon Wastewater Treatment Plant effluent met all water quality requirements in July 2021. Effluent Biochemical Oxygen Demand (BOD<sub>5</sub>) averaged 4.0-mg/l and Total Suspended Solids (TSS) averaged 3.1-mg/l. BOD<sub>5</sub> and TSS removals were 99% and 99%, respectively. All required analytical testing was completed.

Influent flow averaged 0.090 million gallons per day (MGD) in July. A total of 0.01-inches of precipitation fell in July as measured at the Judd Creek rain gage; SeaTac airport weather station reported trace rainfall. The maximum daily flow of 0.107-MGD occurred on July 31 resulting in a peak hourly flow of 0.162-MGD. Average effluent turbidity for the peak hour flow was <5-NTU. Effluent temperature average was 21.1°C in July.

The oxidation ditch was operated at an average SRT of 27-days. Mixed liquor TSS (MLSS) ranged from 4,300-mg/L to 4,800-mg/L. Clarifier 1 was in service for the duration of the month; two clarifiers are not needed during the dry season so one is removed from service for maintenance and energy savings.

The sludge volume index (SVI) – which measures the MLSS's settling characteristics – averaged 140-mL/g. An estimated 3,900 dry pounds of waste activated sludge were hauled to South Plant for further treatment in July.

The UV system operated with both stages in AUTO for the duration of July.

A set of samples was collected on July 5 for nutrient and alkalinity analysis. Total nitrogen (N) removal was 96%, with an effluent total inorganic-N level of 1.3-mg/L (0.3-mg/L NH<sub>3</sub>-N and 1.0-mg/L NO<sub>2</sub>+NO<sub>3</sub> as N). Effluent phosphorus (P) was 2.7-mg/L, resulting in a Total-P removal of 72%. No soda ash was added to the ditch in July for pH adjustment.

Vashon – July 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
2.80	0.090	0.073	0.107	0.01

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	4.0	99	30	3.1	99	200	E1.0

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	3.7	45	3.0	400	<1.0
Week 2	45	4.4	45	3.3	400	<1.0
Week 3	45	3.2	45	3.0	400	E0.8
Week 4	45	4.9	45	2.7	400	E2.0