

MEMORANDUM

July 9, 2020

TO: Historical Memo

FM: Pete Carter / Steven Yee

RE: Vashon Wastewater Treatment Plant – June 2020

The Vashon Plant performed well in June 2020. Effluent Biochemical Oxygen Demand (BOD₅) averaged 3.0-mg/l and Total Suspended Solids (TSS) averaged 4.2-mg/L. BOD₅ and TSS removals were 99.3% and 98.9% respectively. All required analytical testing was completed.

Influent flow averaged 0.103 million gallons per day (MGD). A total of 1.55-inches of precipitation fell in June as measured at the West Judd Creek rain gauge; the Seatac Airport rain gage measured 1.87-inches. The max-day precipitation of 0.60-inches occurred on June 9 resulting in the June max day flow of 0.132-MGD. The peak hour flow on June 9 was 0.254-MGD. No flow equalization was necessary in June. Effluent turbidities remained low (<5 NTU) during the high flows.

The oxidation ditch was operated at an average sludge retention time of 20-days. The MLSS concentration was in the range of 3,380 to 4,240 mg/L. The sludge volume index (SVI), which measures the MLSS's settling characteristics, averaged 90 mL/g. An estimated 5200 dry pounds of waste activated sludge were hauled to South Plant for further treatment in June.

One set of samples was collected this month (June 15) for nutrient and alkalinity analysis. Total nitrogen (N) removal was 80%, with an effluent total inorganic-N level of <5.6-mg/L (<0.1-mg/L NH₃-N and 5.5-mg/L NO₂+NO₃ as N). Effluent phosphorus (P) was 5.0-mg/L, resulting in a Total-P removal of 32%. No soda ash was added to the ditch in June for pH adjustment. The lowest effluent pH of the month was pH 7.0.

One clarifier (#2) was in service the entire month of June. Two clarifiers are not needed during the dry season so one is removed from service for maintenance and energy savings. The UV system operated with both stages in AUTO.

Vashon – June 2020
 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
3.09	0.103	0.084	0.132	1.55

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	3.0	99.3	30	4.2	98.9	200	<1

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	2.9	45	3.3	400	<1
Week 2	45	3.4	45	4.3	400	E0.6
Week 3	45	2.7	45	4.3	400	<1
Week 4	45	2.7	45	4.3	400	E0.6