

# MEMORANDUM

March 7, 2019

TO: Historical Memo

FM: Pete Carter / Steven Yee

RE: Vashon Wastewater Treatment Plant – February 2019

The Vashon Plant performed well in February 2019. Effluent Biochemical Oxygen Demand (BOD<sub>5</sub>) averaged 1.5-mg/l and Total Suspended Solids (TSS) averaged <2.1-mg/L. BOD<sub>5</sub> and TSS removals were both >98%. All required analytical testing was completed.

Influent flow averaged 0.236 million gallons per day (MGD). A total of 3.53-inches of precipitation fell in February as measured at the North Vashon rain gauge. The max-day precipitation (snow and rain) was 1.26-inches on Feb. 12 with a resulting daily flow of 0.431-MGD and a max-hour flow of about 0.514-MGD. This was also the highest daily influent flow for the Vashon Plant in February. A good portion of the precipitation in February was snow that fell during the first half of the month. According to Seatac Airport, a total of 4.62-inches of “water” fell in February. This total included 20.2-inches of snow, most of which fell Feb. 8 - 12.

The oxidation ditch was operated at an average sludge retention time of 22-days. The MLSS concentration was in the range of 4400-5200 mg/L. The sludge volume index (SVI), which measures the MLSS’s settling characteristics, averaged 161 mL/g. An estimated 2600 dry pounds of waste activated sludge (5 loads) were hauled to South Plant for further treatment in February. Effluent quality during the Feb. 12 high flow was excellent; effluent TSS was 2.9-mg/L.

One set of samples was collected this month (Feb. 6) for nutrient and alkalinity analysis. Total-N removal was 98%, with an effluent total inorganic nitrogen (N) level of <0.2-mg/L (<0.1-mg/L NH<sub>3</sub>-N and <0.1-mg/L NO<sub>2</sub>+NO<sub>3</sub> as N). Effluent phosphorus was 1.8-mg/L, resulting in a Total-P removal of 67%. No soda ash was added to the ditch in February for pH adjustment; the lowest effluent pH of the month was pH 6.9.

Both clarifiers were in service in February. The UV system operated with both stages in AUTO.

Other than a few freezing issues (tanker fill valve and hose bibs) early in the month, there were no exceptional operating conditions in February, e.g., power outages, loss of equipment, etc.

Vashon – February 2019  
 Process Summary

Table 1. Summary of Monthly Flow & Rain

Total Wastewater Treated, MG	Monthly Average Flow, MGD	Minimum Daily Flow, MGD	Maximum Daily Flow, MGD	Total Rainfall, Inches
6.619	0.236	0.147	0.431	3.53

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	1.5	99.4	30	<2.1	<98.9	200	<1.0

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	1.4	45	<2.0	400	<1
Week 2	45	1.6	45	<2.3	400	<1
Week 3	45	1.1	45	<2.0	400	<1
Week 4	45	1.7	45	<2.2	400	<1