

# MEMORANDUM

January 9, 2019

TO: Historical Memo

FM: Pete Carter / Steven Yee

RE: Vashon Wastewater Treatment Plant – December 2018

The Vashon Plant performed well in December 2018. Effluent Biochemical Oxygen Demand (BOD<sub>5</sub>) averaged <1.4-mg/l and Total Suspended Solids (TSS) averaged <2.0-mg/L. BOD<sub>5</sub> and TSS removals were both 99%. All required analytical testing was completed.

Influent flow averaged 0.200 million gallons per day (MGD). A total of 9.88-inches of precipitation fell in December as measured at the North Vashon rain gauge. The max-day rainfall was 1.13-inches on Dec. 11 with a resulting daily flow of 0.224-MGD and a max-hour flow of about 0.329-MGD. The highest daily influent flow was 0.35-MGD on Dec. 23 when 1.09-inches fell. The max-hour flow on Dec. 23 was about 0.48-MGD.

The oxidation ditch was operated at an average sludge retention time of 22-days. The MLSS concentration was in the range of 4400-5100 mg/L. The sludge volume index (SVI), which measures the MLSS's settling characteristics, averaged 171 mL/g. An estimated 3200 dry pounds of waste activated sludge were hauled to South Plant for further treatment in December.

One set of samples was collected this month (Dec. 5) for nutrient and alkalinity analysis. Total-N removal was 91%, with an effluent total inorganic nitrogen (N) level of <3.5-mg/L (<0.1-mg/L NH<sub>3</sub>-N and 3.4-mg/L NO<sub>2</sub>+NO<sub>3</sub> as N). Effluent phosphorus was 3.7-mg/L, resulting in a Total-P removal of 50%. No soda ash was added to the ditch in December for pH adjustment; the lowest effluent pH of the month was pH 6.7.

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

There were no exceptional operating conditions in December, e.g., power outages, loss of equipment, etc.

Vashon – December 2018  
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
6.199	0.200	0.116	0.349	9.88

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	<1.4	99.5	30	<2.0	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	1.8	45	<2.0	400	<1
Week 2	45	1.3	45	<2.0	400	<1
Week 3	45	1.3	45	<2.0	400	<1
Week 4	45	<1.2	45	<2.0	400	<1