

# MEMORANDUM

January 10, 2018

TO: Historical Memo

FM: Peter Carter

RE: Vashon Wastewater Treatment Plant – December 2017

The Vashon Plant performed well in December 2017. It met all of its discharge permit requirements. Effluent Biochemical Oxygen Demand (BOD<sub>5</sub>) averaged 2.0-mg/l and Total Suspended Solids (TSS) averaged <2.3-mg/L. BOD<sub>5</sub> and TSS removals were 99.3% and 99.1%, respectively. All required analytical testing was completed.

Influent flow averaged 0.210 million gallons per day (MGD). Monthly rainfall totaled 6.2-inches (local rain gage). The maximum day flow was 0.563 MGD on Dec. 29 when 1.72-inches of rain fell. The 0.563 MGD was the sixth largest daily flow in 2017; the peak day flow for 2017 was 0.641 MGD on Feb. 5.

The oxidation ditch was operated at an average sludge retention time of 20-days. The MLSS concentration was in the range of 4250-4800 mg/L. The sludge volume index (SVI), which measures the MLSS's settling characteristics, averaged 129 mL/g (a SVI of 80-150 mL/g indicates good settling). An estimated 5100 dry pounds of waste activated sludge were hauled to South Plant for further treatment in December.

One set of samples was collected this month (December 5) for nutrient and alkalinity analysis. Total-N removal was 79%, with effluent inorganic nitrogen (N) levels of <0.1-mg/L NH<sub>3</sub>-N and 6.2-mg/L NO<sub>2</sub>+NO<sub>3</sub> as N. Effluent phosphorus was 1.6-mg/L, resulting in a Total-P removal of 67%. 100 lbs of soda ash was added to the ditch in December for pH adjustment; the lowest effluent pH of the month was pH 6.4.

Both clarifiers were in service in December. The new UV system operated in AUTO for most of the month. However, one UV bank was run in "HAND" at times due to problems with the UV controls that resulted in the loss of remote monitoring. Fortunately, the UV control system failures always resulted in all of the UV bulbs coming on. Thus, there was never a disinfection failure during these control system failures.

Vashon – December 2017  
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
6.502	0.210	0.134	0.563	6.2

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	2.0	99.3	30	<2.3	99.1	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	1.9	45	<2.0	400	<1
Week 2	45	2.1	45	<2.1	400	<1
Week 3	45	2.1	45	<2.4	400	<1
Week 4	45	1.7	45	2.6	400	<1