MEMORANDUM

November 13, 2017

TO: Historical Memo

FM: Peter Carter

RE: Vashon Wastewater Treatment Plant – October 2017

The Vashon Plant performed well in October 2017. It met all of its discharge permit requirements. Effluent Biochemical Oxygen Demand (BOD_5) averaged 5.4-mg/l and Total Suspended Solids (TSS) averaged 5.7-mg/L. BOD_5 and TSS removals were 99% and 98%, respectively. All required analytical testing was completed.

Influent flow averaged 0.100 million gallons per day (MGD). The maximum day flow was 0.165 MGD on October 18 when 2.08-inches of rain fell that day. Monthly rainfall totaled 5.6-inches (local rain gage).

The oxidation ditch was operated at an average sludge retention time of 16-days. The MLSS concentration was usually in the range of 2700-3500 mg/L. The sludge volume index (SVI), which measures the MLSS's settling characteristics, averaged 86 mL/g (a SVI of 80-150 mL/g indicates good settling). An estimated 4900 dry pounds of waste activated sludge were hauled to South Plant for further treatment in October.

One set of samples was collected this month (October 10) for nutrient and alkalinity analysis. Total-N removal was 88%, with effluent inorganic nitrogen (N) levels of <0.1-mg/L NH_3-N and 5.6-mg/L NO_2+NO_3 as N. Effluent phosphorus was 5.0-mg/L, resulting in a Total-P removal of 51%. 100 lbs of soda ash was added to the ditch in October for pH adjustment; the lowest effluent pH of the month was pH 6.4.

One clarifier was in service in October; flows were not high enough to require two clarifier in service. The new UV system operated in AUTO for most of the month, although one UV bank ran in "HAND" at times to avoid call outs due to problems with the UV controls. (The UV control system failures always resulted in all of the UV bulbs coming on, so there was never a disinfection failure. However, the SCADA system could not monitor the UV system during these events which would result in a call out.)

There was one call out in October, the result of an overflow. On October 21, 2017, an estimated 21,000 gallons of storm water and wastewater overflowed from a City of Vashon manhole just upstream from the plant. The overflow was the result of high flows and a blockage in the pipeline just upstream of the King County Vashon Treatment Plant's influent structure (i.e., splitter box). Details of this overflow were reported to the Department of Ecology in a letter dated October 26.

Vashon – October 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
3.088	0.100	0.079	0.165	5.6

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	5.4	99.0	30	5.7	98.4	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	6.0	45	5.7	400	<1
Week 2	45	6.1	45	6.5	400	<1
Week 3	45	4.9	45	6.0	400	<1
Week 4	45	4.6	45	4.4	400	<1