

2020

CANADIAN NATIONAL BENCHMARKING INITIATIVE

Wastewater Treatment Framework



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Goal	KPI	Applicable System Type	Breakdown	Units
Ensure Adequate Capacity	Maximum Day Flow / Average Dry Weather Flow	All Systems	MDF/ADWF	
	Peak Wet Weather Flow / Average Dry Weather Flow	All Systems	PWWF/ADWF	
	Percent of Design AAF Capacity Utilized	All Systems	Percent of Design AAF Capacity Utilized	%
Have Satisfied and Informed Customers	Odour Complaints	All Systems	Odour Complaints	# / 1,000 People Served
Meet Service Requirements with Economic Efficiency	Chemical Costs	All Systems	Dechlorination	\$ / ML Treated
			Denitrification	\$ / ML Treated
			Dewatering/Thickening	\$ / ML Treated
			Disinfection	\$ / ML Treated
			Flocculation	\$ / ML Treated
			Nitrification	\$ / ML Treated
			Odour Control	\$ / ML Treated
			Other	\$ / ML Treated
			pH Control	\$ / ML Treated
			Phosphorous Removal	\$ / ML Treated
	Energy Consumed relative to BOD Removed	Secondary or BNR & Tertiary	Energy Consumed	kWh / kg BOD
	Energy Consumed relative to TSS Removed	Primary	Energy Consumed	kWh / kg TSS
	Energy Consumed relative to Volume Treated	All Systems	Biogas	kWh / ML Treated
			Diesel	kWh / ML Treated
			Electricity	kWh / ML Treated
			Natural Gas	kWh / ML Treated
			Oil	kWh / ML Treated
			Propane	kWh / ML Treated
	Steam	kWh / ML Treated		
	Energy Costs relative to BOD Removed	Secondary or BNR & Tertiary	Energy Costs	\$ / kg BOD
Energy Costs relative to TSS Removed	Primary	Energy Costs	\$ / kg TSS	
Energy Costs relative to Volume Treated	All Systems	Energy Costs	\$ / ML Treated	
FTEs relative to TSS Removed	Primary	Laboratory	FTEs / 1M kg TSS Removed	
		O&M	FTEs / 1M kg TSS Removed	
		Program Support / Clerical	FTEs / 1M kg TSS Removed	
		Supervisor / Management	FTEs / 1M kg TSS Removed	
		Technical / Engineering	FTEs / 1M kg TSS Removed	

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Goal	KPI	Applicable System Type	Breakdown	Units
Meet Service Requirements with Economic Efficiency	FTEs relative to Volume Treated	All Systems	Laboratory	FTEs / 1,000 ML Treated
			O&M	FTEs / 1,000 ML Treated
			Program Support / Clerical	FTEs / 1,000 ML Treated
			Supervisor / Management	FTEs / 1,000 ML Treated
			Technical / Engineering	FTEs / 1,000 ML Treated
	O&M Cost + Capital Reinvestment	All Systems	Capital Reinvestment	\$ / ML Treated
			O&M	\$ / ML Treated
	O&M Cost relative to BOD Removed	Secondary or BNR & Tertiary	O&M Cost	\$ / kg BOD
	O&M Cost relative to TSS Removed	Primary	O&M Cost	\$ / kg TSS
	O&M Cost relative to Volume Treated	All Systems	Chemicals	\$ / ML Treated
			Energy	\$ / ML Treated
			Equipment & Materials	\$ / ML Treated
			External Contracted Services	\$ / ML Treated
Internal Contracted Services			\$ / ML Treated	
Other			\$ / ML Treated	
Staff Training			\$ / ML Treated	
Wages	\$ / ML Treated			
Protect the Environment	BOD Discharged to Environment	All Systems	BOD Discharged to Environment	kg / capita
	Bypasses	All Systems	Primary	#
			Raw	#
			Secondary	#
	GHG Emissions from Energy Consumed in Operation of the Treatment Plant	All Systems	GHG Emissions	kg CO ₂ eq / ML Treated
	Non-Compliances	All Systems	Non-Compliances	#
	Percent of Days in Compliance	All Systems	Percent of Days in Compliance	%
	Solids Disposal or Reuse	All Systems	Agricultural Land Fertilisation	%
			Demonstration Project	%
			Forest Fertilisation	%
			Incineration	%
			Landfill Cover	%
Landfill Disposal			%	
Landscaping			%	
Market Sale			%	
Other	%			
Site Reclamation	%			
Surcharges (Uncontrolled Spills) Reported to the Regulator	All Systems	Surcharges Reported	#	

Goal	KPI	Applicable System Type	Breakdown	Units
Provide a Safe and Productive Workplace	Cost of Overtime Hours	All Systems	Cost of Overtime Hours	\$ / O&M FTE
	Field Accidents with Lost Time	All Systems	Field Accidents with Lost Time	# / 1,000 O&M Labour Hours
	Lost Hours due to Field Accidents	All Systems	Lost Hours	# / 1,000 O&M Labour Hours
	Sick Days Taken	All Systems	Sick Days Taken	# / O&M Employee
	Total Overtime Hours / Total Paid O&M Hours	All Systems	Total Overtime Hours / Total Paid O&M Hours	%
	Unavailable O&M Hours / Total Paid O&M Hours	All Systems	Expended Banked Time	%
			Long Term Leave	%
			Other	%
			Other Training	%
			Safety Training	%
Sick Time			%	
Union Paid Time			%	
Vacation	%			
Provide Reliable Service and Infrastructure	Capital Reinvestment / Replacement Value	All Systems	Capital Reinvestment / Replacement Value	%
	Reactive Maintenance Hours (Unscheduled Maint. Hours / Total Maint. Hours)	All Systems	Reactive Maintenance Hours	%
	Total Maintenance Hours	All Systems	Total Maintenance Hours	Hours / ML

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