AECOM

Water Treatment

This page intentionally left blank.

Goal	KPI	Applicable System Type	Breakdown	Units
Ensure Adequate Capacity	Average Day Demand / Existing Water Licence Capacity	All Systems	Average Day Demand / Existing Water Licence Capacity	%
	Days Plant Operated above 100% Capacity	Conventional Filtration & Membrane Filtration & Direct Filtration & Unfiltered	Days Plant Operated above 100% Capacity	#
	Days Plant Operated above 90% Capacity	Conventional Filtration & Membrane Filtration & Direct Filtration & Unfiltered	Days Plant Operated above 90% Capacity	#
	Number of Well Systems	Groundwater System	Number of Production Wells	#
	Number of Production Wells	Groundwater System	Number of Well Systems	#
Meet Service Requirements with Economic Efficiency	Chemical Cost	All Systems	Chlorination	$ / ML Treated
			Coagulation	$ / ML Treated
			Corrosion Control	$ / ML Treated
			Dechlorination	$ / ML Treated
			Disinfection	$ / ML Treated
			Flocculation	$ / ML Treated
			Fluoridation	$ / ML Treated
			Iron Sequestering	$ / ML Treated
			Membrane Cleaning	$ / ML Treated
			Other	$ / ML Treated
			Ozone Generation	$ / ML Treated
			pH Control / Stabilisation	$ / ML Treated
			Phosphorus Removal	$ / ML Treated
			Pre-oxidation	$ / ML Treated
			Sludge Conditioning	$ / ML Treated
			Softening	$ / ML Treated
			Taste and Odour	$ / ML Treated
	Cost of Water Quality Monitoring relative to Volume Treated	All Systems	Cost of Water Quality Monitoring relative to Volume Treated	$ / ML
	Energy Consumed	All Systems	Diesel	kWh / ML Treated
			Electricity	kWh / ML Treated
			Natural Gas	kWh / ML Treated
			Oil	kWh / ML Treated
			Propane	kWh / ML Treated
	Energy Costs	All Systems	Diesel	$ / ML Treated
			Electricity	$ / ML Treated
			Natural Gas	$ / ML Treated
			Oil	$ / ML Treated
			Propane	$ / ML Treated
	FTEs relative to No. of Groundwater Wells	Groundwater System	O&M	FTEs / Groundwater Well
			Program Support / Clerical	FTEs / Groundwater Well
			Supervisor/ Management	FTEs / Groundwater Well
			Technical / Engineering	FTEs / Groundwater Well
	FTEs relative to Volume Treated	All Systems	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 Cost	All Systems	Capital Reinvestment	$ / ML Treated
			O&M	$ / ML Treated
	O&M Cost relative to No. of Groundwater Wells	Groundwater System	O&M Cost	$ ('000) / Groundwater Well
	O&M Cost relative to Volume Treated	All Systems	Chemicals	$ / ML Treated
			Energy	$ / ML Treated
			Equipment and Materials	$ / ML Treated
			External Contracted Services	$ / ML Treated
			Internal Contracted Services	$ / ML Treated
			Other	$ / ML Treated
			Staff Training	$ / ML Treated
			Wages	$ / ML Treated
Protect Public Health and Safety	Average Annual Treated Water Turbidity	All Systems	Treated Water Turbidity	NTU
	Average Free Chlorine Residual	All Systems	Average Free Chlorine Residual	mg / L
	Average Total Chlorine Residual	All Systems	Average Total Chlorine Residual	mg / L
	Average Treated Water Nitrates	All Systems	Average Treated Water Nitrates	mg / L
	Days in Turbidity Ranges for Raw Water	All Systems	Days < = 2 NTU	%
			Days > 15 NTU	%
			Days b/w 2 & 15 NTU	%
	Days over Group Nitrate Target of 10 mg/L for Treated Water	All Systems	Days of Treated Water over Group Nitrate Target of 10 mg/L	#
	Days over Group Turbidity Target for Treated Water	All Systems	Days of Treated Water over Group Turbidity Target	#
	Raw Water Dissolved Carbon	Conventional Filtration & Membrane Filtration & Direct Filtration	Raw Water Dissolved Carbon	mg / L
	Raw Water Total Organic Carbon	Conventional Filtration & Membrane Filtration & Direct Filtration	Raw Water Total Organic Carbon	mg / L
	Total Coliform Occurrences in Treated Water	All Systems	Total Coliform Occurrences in Treated Water	#
	Treated Water Dissolved Carbon	Conventional Filtration & Membrane Filtration & Direct Filtration	Treated Water Dissolved Carbon	mg / L
	Treated Water Total Organic Carbon	Conventional Filtration & Membrane Filtration & Direct Filtration	Treated Water Total Organic Carbon	mg / L
Protect the Environment	GHG Emissions from Energy Consumed	All Systems	Diesel	kg CO2e / ML Treated
			Electricity	kg CO2e / ML Treated
			Natural Gas	kg CO2e / ML Treated
			Oil	kg CO2e / ML Treated
			Propane	kg CO2e / ML Treated
	Percent Backwash Waste Treated	Conventional Filtration & Membrane Filtration & Direct Filtration	Percent Backwash Waste Treated	%
	Water Wasted During Treatment Process	Conventional Filtration & Membrane Filtration & Direct Filtration & Unfiltered	Water Wasted	%

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 / Total Maintenance Hours	All Systems	Reactive Maintenance Hours / Total Maintenance Hours	%
	Total Maintenance Hours	All Systems	Total Maintenance Hours	# / ML Treated
	Unit Filter Run Volume	Conventional Filtration & Membrane Filtration & Direct Filtration & Groundwater System	Unit Filter Run Volume	m3 / m2
	Unplanned Hours that Plant Could not Operate at Rated Capacity	All Systems	Unplanned Hours	#

About AECOM

AECOM is the world's trusted infrastructure consulting firm, delivering professional services throughout the project lifecycle — from planning, design and engineering to program and construction management. On projects spanning transportation, buildings, water, new energy and the environment, our public- and private-sector clients trust us to solve their most complex challenges. Our teams are driven by a common purpose to deliver a better world through our unrivaled technical expertise and innovation, a culture of equity, diversity and inclusion, and a commitment to environmental, social and governance priorities. AECOM is a Fortune 500 firm and its Professional Services business had revenue of $13.2 billion in fiscal year 2020. See how we are delivering sustainable legacies for generations to come at aecom.com and @AECOM.

For more information please contact:

Nancy Hill, P. Eng.
CIBI Project Manager
M +1-604-790-1637
nancy.hill@aecom.com