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EPCOR Water Services Inc.
Gold Bar Wastewater Treatment Plant
Edmonton, Alberta

2018
Wastewater Treatment Annual Report

SUBMITTED TO:

The Province of Alberta

Alberta Environment and Parks (AEP)

As per requirements of

APPROVAL TO OPERATE NO. 361975-00-00

Feb - 2019

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2018 Overview

The Gold Bar Wastewater Treatment Plant (WWTP) located on the banks of the North Saskatchewan River in Edmonton, Alberta successfully passed the ISO 14001 (Environmental Management System) surveillance audit and registered for ISO 45001 (Occupational Health and Safety Management System) for its Integrated Management System. A number of Major capital projects focusing on improving foul air treatment and collection were completed (EPT clarifier covers, East scrubber stack extension, balancing of foul air collection, addition of redundant chemical pumps for foul air treatment along with improved instrumentation). There was only one significant wet weather event with inflows to the plant greater than 1200 million litres per day (MLD). The plant received a peak flow of 1457 MLD on June 10.

The Gold Bar WWTP final effluent discharge limits of Approval to Operate 361975-00-00 are summarized in Table 1 and the monitoring requirements are outlined in Table 2. The Gold Bar WWTP Effluent Limit Performance (WELP*) index for 2018 is 27.2% (Figure 1). The 2018 index is higher than the five year running average of 22.5% (Figure 2) impacted primarily by a large number of wet weather events (snow melt) during the months of March-April and a number of secondary clarifier chain failures.

Table 1: Approval to Operate 361975-00-00 Limits for Treated Wastewater

Parameter	Limit
Carbonaceous Biochemical Oxygen Demand (5-day) - $CBOD_5$	20 mg/L monthly arithmetic mean of daily composite samples
Total Suspended Solids - TSS	20 mg/L monthly arithmetic mean of daily composite samples
Total Phosphorus - TP	1.0 mg/L monthly arithmetic mean of daily composite samples
Total Ammonia - Nitrogen (December 1 to May 31)	10 mg/L monthly arithmetic mean of daily composite samples
Total Ammonia - Nitrogen (June 1 to November 30)	5.0 mg/L monthly arithmetic mean of daily composite samples
Escherichia coli counts	126 counts per 100 mL/monthly geometric mean of daily grab samples
pH	6.5 to 8.5 pH units

* **WELP Index**: The index calculates a percentage value representing the percentage of the discharge limit for each parameter measured in the final effluent. Each value is given equal weighting in the calculation of the index

Table 2: Approval to Operate 361975-00-00 Monitoring Requirements

Parameter	Frequency (Minimum)	Sample Type	Sampling Location
UNTREATED WASTEWATER			
pH	Once per day	Composite	Untreated Wastewater entering the wastewater treatment plant
BOD_5			
TSS			
Total Phosphorus			
Total Ammonia-Nitrogen			
Volume of Flow	Continuous, recorded daily	Calculated	
TREATED WASTEWATER			
pH	Once per day	Composite	Wastewater treated plant effluent prior to release to the North Saskatchewan River
$CBOD_5$			
TSS			
Total Phosphorus			
Total Ammonia-Nitrogen			
Acute Toxicity	Monthly	Grab	
Chronic Toxicity	Quarterly	Grab	
Volume	Continuous, recorded daily	Calculated	
E.coli counts	Once per day	Grab	After ultraviolet (UV) disinfection
EFFLUENT REUSE WATER			
Volume of reuse water	Continuous, recorded daily	Calculated	Reuse water transmission main
WASTEWATER PLANT BYPASS AND UNAUTHORIZED RELEASE			
Release Volume	Continuous during bypass event , recorded daily	Calculated	Primary and Secondary treatment bypass of wastewater at the wastewater treatment plant Unauthorized release point
pH	Any bypass event lasting > 2 hours	Composite	
BOD_5			
TSS			
Total Phosphorus			
Total Ammonia-Nitrogen			
E.coli counts		Grab	
SLUDGE DISPOSAL			
Sludge Volume	Total Volume	Estimated	Prior to leaving the wastewater treatment plant

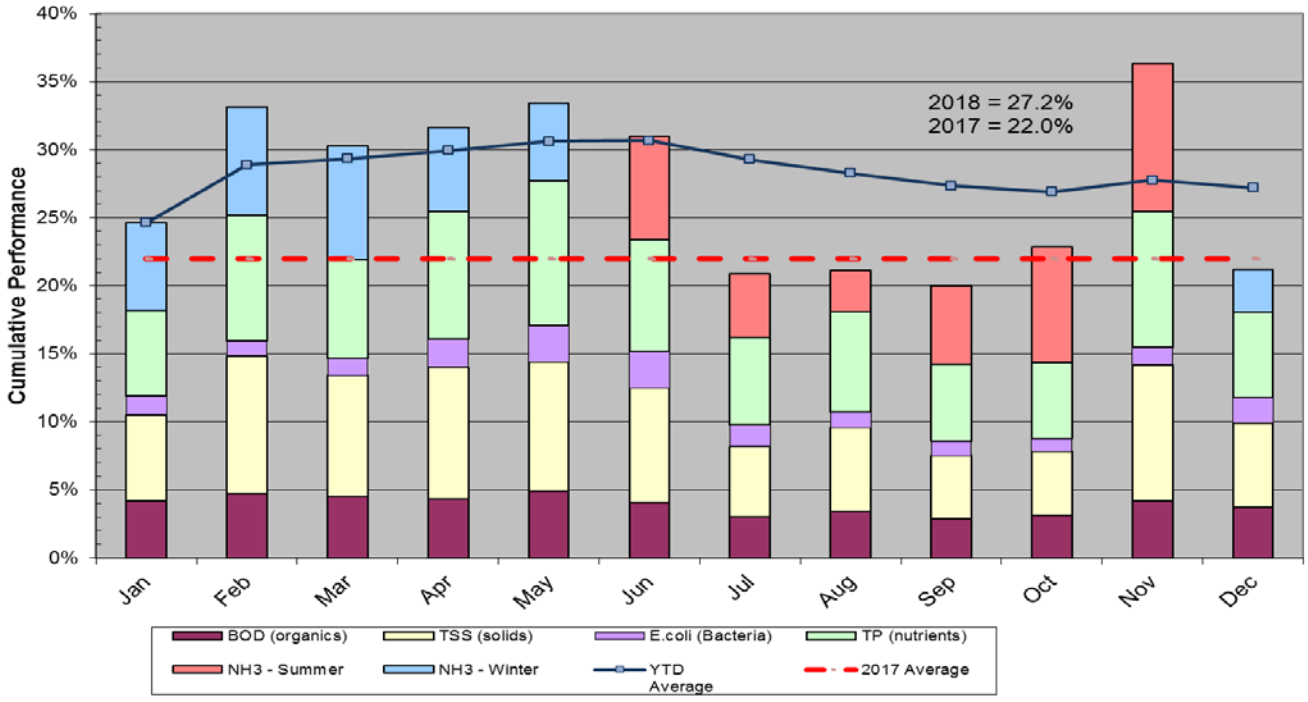

Figure 1: 2018 Monthly Gold Bar WWTP Wastewater Effluent Performance (WELP) Index

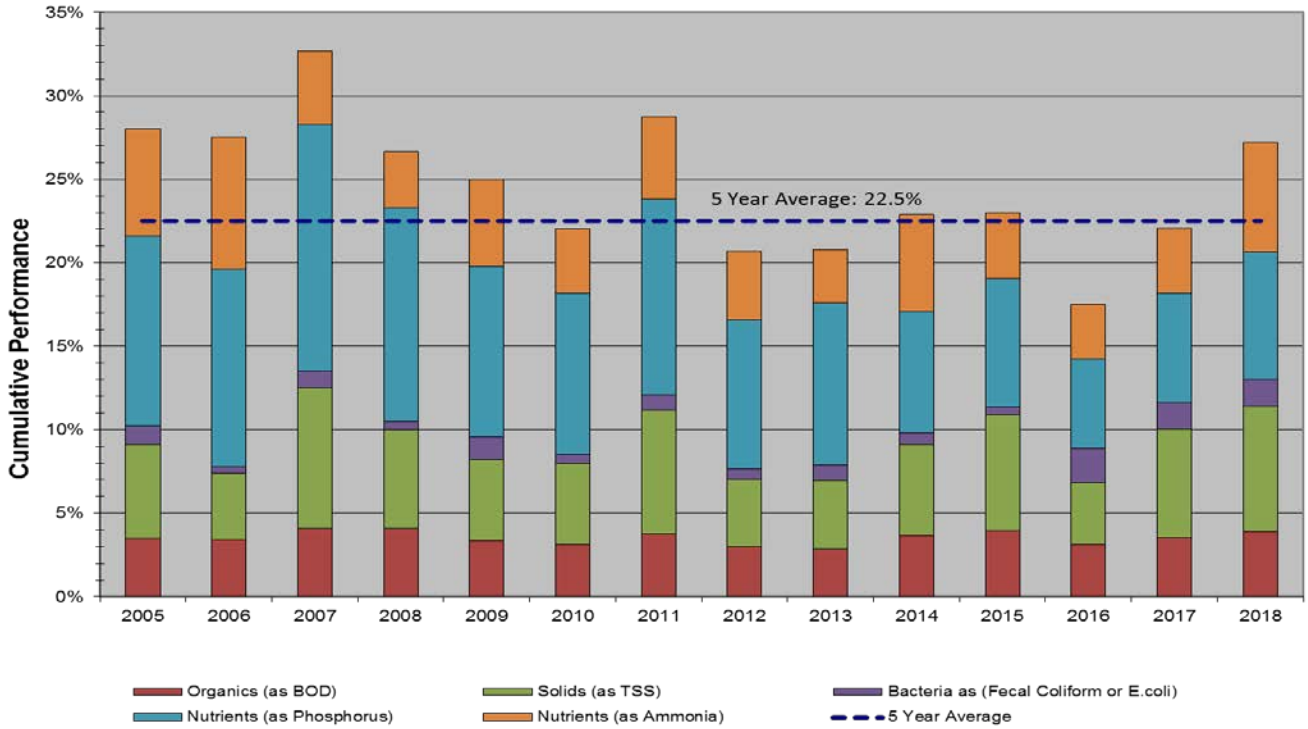

Figure 2: Gold Bar WWTP Wastewater Effluent Performance (WELP Index) 2005-2018

For 2018, all of the monthly limits for Approval to Operate discharge parameters were met (Table 3, Appendix A - Monthly Plant Performance Reports). A total of 98,884 million litres (ML) of wastewater was conveyed to the plant. Secondary treatment and UV disinfection was provided to 92,153 ML (93.2%) of the total influent raw flow with 3,514 ML (3.5%) of reclaimed water provided to industrial customers. A summary of reclaimed water quality in 2018 is provided in Table 4.

Plant Bypass (Secondary and Primary)

- In 2018, Gold Bar WWTP had 70 days of secondary and primary plant bypasses. Total volume of secondary bypass in 2018 was 3216 ML (3.3%). In addition, the total primary bypass volume was 0.17 ML (approximate)

Uncommitted hydraulic reserve capacity (Secondary treatment)

- In 2018, Gold Bar WWTP had total dry weather volume of 95,567 ML. This volume is sum total of Outfall 10 effluent and membrane product water (3514 ML). Outfall 10 effluent also includes wet weather flow that did not result in secondary bypass and any additional wet weather flow that had secondary treatment during plant secondary bypass events
- Average dry weather flow in 2018 was 262 MLD. However, true dry weather flow was lower than 262 MLD and was approximately 251 MLD (This average flow excludes additional flow to the plant during snow melt or rainfall but includes Inflow and Infiltration (I&I), true dry weather volume was approximately 91,794 ML)
- Based on 310 MLD of average secondary treatment capacity and true dry weather average of 251 MLD, uncommitted hydraulic reserve capacity for secondary treatment, in 2018, was 59 MLD

Summary of 2018 Major Work Program

Major Maintenance includes activities within the Major Work Schedule as well as significant equipment failure and major Preventive Maintenance (PM) work on various plant assets. Major maintenance is classified as having significant impact to Operations, high man-hour efforts, and/or large financial expenditures (capital or expense).

Most maintenance is completed at Gold Bar WWTP using internal work forces; however, when special skills are required to complete maintenance, contract services are utilized to complete specific tasks. Contract services used in 2018 included Tundra Boiler Controls for boiler maintenance, MAP Water & Sewer Services Ltd. for roadwork at Clover Bar Lagoons, and other contractors as required for weed control, tree trimming, asbestos abatement, lifting device certification and overhead crane repair, and EPCOR Energy services for transformer maintenance.

Major maintenance activities during 2018 included clarifier chain replacement on five clarifiers, UV bulb and hydraulic cylinder replacement in one UV disinfection channel, and boiler tube replacement in one boiler.

Buildings

- Asbestos abatement completed on piping around Primary Scum Tank 5
- ABSA inspections on several pressure vessels

Digestion

- Chemical flush of Digester 2 and 6 heat exchanger
- Compressor 101 and 109 rebuild
- K102 mechanical seal replacement
- Boiler 6, 7, 8, 9 inspection and recertification
- Clean of North and South Blend Tanks

Disinfection

- Full bulb replacement on Channel 4 and hydraulic sleeve replacement
- Hydraulic leak repair on UV system 2

- Channel 1 bulb replacements

Fermentation

- Cleaning and inspection was completed on Fermenter 2 – major rake repairs completed
- Fermenter 2 West TPS shaft repair and bearing replacement

Lab

- Heat exchanger for lab (and CEX) rebuilt

Lagoons (Clover Bar)

- Multiple valve replacements at the pump house

Membrane Filtration

- Repair of product water discharge line
- Completion of 2 week membrane shutdown including installation of sample hatches, check valve replacement on product water pumps, pressure reducer installation on product water line, camera inspection of permeate line, and cleaning of contact tanks

Odour Control

- Installation of new ORP drains
- Replacement of VFD for Air Scrubber 4
- Overhaul of Softened Water system

Outfall

- Flow meter for Outfall 30 channel was replace

Pretreatment

- Wash press for Screen 4 was rebuilt
- Grit tank 6 and 7 inspection and repairs
- Clamshell repair
- Grit tank 4/5 prescreen modifications from workshop with vendor

Primary Treatment

- Cleaning and inspection of primary clarifiers 5 and 6 were completed. Replacement of conveyor chain was completed in the long and cross collectors of primary clarifiers 5 with loop chain type 2
- Cleaning and inspection of EPT 9, 10, 11, and 12 including new wire ropes and shackles for gates
- Removal of old Primary 3 PLC cabinet
- Primary 8 cleaning and inspection and flight replacement
- Primary 3 and 4 cleaning and inspection and broken flight repair

Secondary Treatment

- Cleaning and inspection of secondary clarifiers 1, 3, 4, and 6 was completed. Chain replacement occurred on tank 1 with plastic chain, tank 3 with coated SS chain, tank 4 with loop chain type 2, and tank 6 with plastic chain
- Rebuild of spare RAS 6, 7, 8 pump
- Chemscan analyzer rebuilds
- Rebuild of north scum pump for Secondary 9
- Secondary 7 chain tightening
- Replacement of recycle pump on bio 4

Utilities

- Boiler 5 tube repair
- Substation 1 15kV switchgear inspection completed
- Backflow preventer organization and parts update
- Boiler 3 and 4 inspection and recertification
- Installation of arc flash cabinets in different areas of the plant
- Emergency generator service
- Replaced hot water tank in blower building 1 basement

Sludge/ Supernatant Piping

- Valve replacements for various parts of the SSP lines
- Train A booster pump rebuild

Waste Activated Sludge Thickening

- Rebuild of North and Centre TWAS pumps was completed
- Repair on 20” waste line

TABLE 3: 2018 Gold Bar WWTP Performance

Summary of the Gold Bar Wastewater Treatment Plant performance from January 1 to December 31, 2018 as required under sections 6.14 of the Approval to Operate 361975-00-00 . All analytical data in the table were developed on 24-hour composite samples collected using autosamplers at the sampling location specified in Table 5-1. The discreet samples for *Escherichia coli (E. coli)* determinations were collected at random times each day.

No instances of non-conformance with regards to monitoring requirements were reported to AEP in 2018.

Month		Flows (ML)							pH				TSS (mg/L)						BOD$_5$ (mg/L)				CBOD$_5$		TP (mg P/L)						NH$_3$ (mg N/L)						TKN (mg N/L)				NO$_2$+NO$_3$ (mg N/L)				Chloride (mg/L)				*E. coli* Counts/100 mL				Total Digested Sludge (ML)
		Raw	Outfall 30	MPW	Outfall 20	EPEPS	Outfall 10		Raw	Outfall 30	Outfall 20	Outfall 10	Raw	Outfall 30	Outfall 20	EPEPS	Outfall 10		Raw	Outfall 30	Outfall 20	EPEPS	Outfall 10		Raw	Outfall 30	Outfall 20	EPEPS	Outfall 10		Raw	Outfall 30	Outfall 20	EPEPS	Outfall 10		Raw	Outfall 30	Outfall 20	Outfall 10	Raw	Outfall 30	Outfall 20	Outfall 10	Raw	Outfall 30	Outfall 20	Outfall 10					
							FEC	FE				FEC					FEC	FE					FEC	FE					FEC	FE					FEC	FE				FEC				FEC				FEC				
January	Avg	244.51	0.00	9.87	0.00	0.00	234.63	234.63	7.7	---	---	7.6	324	---	---	---	3.7	3.7	311	---	---	---	3.0	3.0	7.93	---	---	---	0.23	0.23	42.7	---	---	---	2.36	2.36	63.0	---	---	4.29	0.06	---	---	9.30	106	---	---	113	2.2	---	---	8	59.93
	Min	235.07	0.00	8.60	0.00	0.00	225.18	225.18	7.4	---	---	7.4	240	---	---	---	2.5	2.5	250	---	---	---	< 1.0	< 1.0	6.18	---	---	---	0.21	0.21	31.9	---	---	---	0.31	0.31	48.6	---	---	1.68	< 0.01	---	---	6.10	84.0	---	---	90.0	1.9	---	---	2	
	Max	267.20	0.00	10.98	0.00	0.00	258.51	258.51	7.9	---	---	7.8	424	---	---	---	4.5	4.5	430	---	---	---	4.0	4.0	9.90	---	---	---	0.29	0.29	51.7	---	---	---	5.85	5.85	72.9	---	---	7.24	0.10	---	---	13.3	227	---	---	233	2.5	---	---	26	
February	Avg	241.14	0.00	10.34	0.00	0.00	230.79	230.79	7.6	---	---	7.4	231	---	---	---	10.1	10.1	335	---	---	---	5.0	5.0	7.56	---	---	---	0.46	0.46	40.9	---	---	---	3.97	3.97	60.0	---	---	5.96	0.01	---	---	13.3	122	---	---	127	3.3	---	---	7	59.26
	Min	232.91	0.00	8.13	0.00	0.00	222.96	222.96	7.5	---	---	7.3	240	---	---	---	4.4	4.4	271	---	---	---	3.0	3.0	6.26	---	---	---	0.26	0.26	34.7	---	---	---	2.50	2.50	50.5	---	---	3.82	< 0.01	---	---	6.63	96.0	---	---	96.6	2.9	---	---	4	
	Max	257.75	0.00	11.57	0.00	0.00	246.18	246.18	7.9	---	---	7.5	420	---	---	---	27.6	24.6	545	---	---	---	9.0	9.0	8.88	---	---	---	1.10	1.10	48.0	---	---	---	6.97	6.97	66.4	---	---	9.63	0.02	---	---	17.2	252	---	---	273	3.7	---	---	15	
March	Avg	272.79	11.99	10.26	0.00	0.00	250.54	250.54	7.5	7.5	---	7.4	350	75	---	---	8.9	8.9	303	145	---	---	4.5	4.5	6.82	3.48	---	---	0.36	0.36	36.8	34.4	---	---	4.20	4.20	55.3	42.4	---	5.62	0.01	1.10	---	12.4	189	321	---	195	1.4	1.8	---	8	70.54
	Min	235.17	0.00	7.40	0.00	0.00	224.51	224.51	7.3	7.3	---	7.2	272	36	---	---	4.2	4.2	202	102	---	---	3.0	3.0	5.61	2.34	---	---	0.16	0.16	28.9	26.3	---	---	1.24	1.24	45.9	35.4	---	4.05	< 0.01	0.07	---	9.02	88	141	---	110	1.4	0.9	---	2	
	Max	345.53	63.59	12.16	0.00	0.00	280.90	280.90	7.8	7.8	---	7.5	536	108	---	---	61.3	61.3	434	223	---	---	13.0	13.0	8.32	4.96	---	---	1.84	1.84	43.3	40.6	---	---	7.62	7.62	66.7	50.2	---	11.30	0.04	2.49	---	16.1	555	733	---	436	1.4	3.4	---	1,500	
April	Avg	293.87	20.47	2.91	0.00	0.00	270.49	270.49	7.6	7.5	---	7.3	336	73	---	---	9.7	9.7	294	122	---	---	4.3	4.3	6.84	4.06	---	---	0.47	0.47	35.1	30.4	---	---	3.09	3.09	53.8	39.8	---	5.29	0.05	0.41	---	15.0	111	134	---	121	2.0	1.5	---	13	67.63
	Min	241.15	0.00	0.00	0.00	0.00	232.78	232.78	7.5	7.3	---	7.2	216	42	---	---	4.6	4.0	201	108	---	---	2.0	2.0	4.94	3.32	---	---	0.20	0.20	14.5	24.3	---	---	1.20	1.20	33.1	33.1	---	2.96	0.01	0.07	---	10.5	85.5	100	---	87.2	1.5	0.8	---	1	
	Max	496.07	175.36	8.86	0.00	0.00	320.71	320.71	7.7	7.9	---	7.4	644	139	---	---	72.0	72.0	415	136	---	---	14	14	8.90	7.74	---	---	2.21	2.21	46.2	35.3	---	---	4.89	4.89	75.8	44.1	---	8.79	0.16	0.72	---	19.7	200	196	---	200	2.6	2.8	---	110	
May	Avg	258.90	2.53	7.59	0.00	0.00	248.78	248.78	7.6	7.3	---	7.4	351	90	---	---	9.5	9.5	317	141	---	---	4.9	4.9	8.19	4.46	---	---	0.53	0.53	38.9	35.2	---	---	2.87	2.87	61.5	44.9	---	5.41	0.02	0.16	---	10.5	82.7	95.3	---	91.5	2.1	1.3	---	17	72.80
	Min	235.68	0.00	3.64	0.00	0.00	229.35	229.35	7.3	7.3	---	7.3	252	88	---	---	5.1	5.1	251	129	---	---	3.0	3.0	6.91	4.46	---	---	0.35	0.35	33.6	32.5	---	---	1.66	1.66	51.4	41.5	---	3.42	< 0.01	0.03	---	7.50	75.2	83.0	---	80.9	2.1	0.8	---	5	
	Max	356.82	65.70	12.67	0.00	0.00	279.61	279.61	7.8	7.4	---	7.6	1,180	92	---	---	25.7	25.7	776	153	---	---	8.0	8.0	15.60	4.46	---	---	1.16	1.16	43.9	37.8	---	---	4.53	4.53	105.0	48.4	---	7.81	0.04	0.29	---	16.0	95.3	108	---	104	2.2	2.0	---	95	
June	Avg	298.95	24.85	10.73	0.01	0.00	263.36	263.36	7.6	7.7	7.3	7.5	358	76	320	---	8.4	8.4	277	101	127	---	4.1	4.1	7.15	4.21	2.56	---	0.41	0.41	33.9	29.7	11.1	---	1.89	1.89	54.1	38.8	17.1	3.85	0.03	0.72	0.28	8.82	73.4	71.3	36.0	80.8	3.1	1.7	0.4	17	68.86
	Min	245.75	0.00	9.48	0.00	0.00	236.03	236.03	7.3	7.3	7.3	7.2	204	48	320	---	5.1	5.1	98	49	127	---	3.0	3.0	2.43	2.16	2.56	---	0.24	0.24	11.9	11.9	11.1	---	0.23	0.23	22.4	18.6	17.1	1.48	< 0.01	0.04	0.28	3.10	41.9	45.6	36.0	46.3	2.8	0.5	0.4	1	
	Max	683.55	336.95	12.00	0.09	0.00	337.12	337.12	7.7	8.0	7.3	7.9	628	117	320	---	14.0	14.0	334	127	127	---	6.0	6.0	9.92	6.91	2.56	---	0.72	0.72	45.8	46.8	11.1	---	5.46	5.46	64.2	58.1	17.1	7.24	0.03	2.48	0.28	12.3	86.4	92.1	36.0	93.7	3.4	3.7	0.4	70	
July	Avg	290.73	13.09	10.17	0.00	0.00	267.47	267.47	7.6	7.7	---	7.5	340	66	---	---	5.2	5.2	277	101	---	---	3.0	3.0	7.57	4.35	---	---	0.32	0.32	35.6	30.2	---	---	1.18	1.18	55.7	38.3	---	2.92	0.12	1.61	---	10.4	72.7	68.5	---	79.3	2.5	1.7	---	10	66.22
	Min	246.24	0.00	9.14	0.00	0.00	235.03	235.03	7.4	7.4	---	7.3	220	33	---	---	2.8	2.8	210	45	---	---	2.0	2.0	5.01	2.49	---	---	0.17	0.17	17.5	18.0	---	---	0.26	0.26	32.4	26.6	---	1.99	< 0.01	0.53	---	7.49	49.3	50.5	---	58.5	1.8	0.5	---	20	
	Max	473.57	141.39	11.45	0.02	0.00	336.93	336.93	7.9	7.9	---	7.6	580	86	---	---	11.7	11.7	386	198	---	---	6.0	6.0	9.47	7.17	---	---	0.64	0.64	45.5	41.8	---	---	3.33	3.33	68.9	60.2	---	4.92	0.15	4.22	---	13.0	81.4	85.1	---	92.4	3.4	2.9	---	50	
August	Avg	276.71	9.04	11.11	0.00	0.00	256.56	256.56	7.6	7.8	---	7.6	350	67	---	---	6.2	6.2	291	101	---	---	3.4	3.4	7.31	3.63	---	---	0.37	0.37	38.3	26.6	---	---	0.75	0.75	54.6	33.2	---	2.55	0.07	1.61	---	11.5	73.1	71.9	---	81.6	3.5	0.7	---	7	66.96
	Min	248.00	0.00	9.52	0.00	0.00	236.02	236.02	7.5	7.4	---	7.4	242	17	---	---	3.0	3.0	188	54	---	---	< 2.0	< 2.0	4.25	1.76	---	---	0.25	0.25	20.3	9.2	---	---	0.19	0.19	32.8	12.4	---	1.48	0.01	0.03	---	8.23	47.1	49.9	---	57.0	2.1	0.2	---	2	
	Max	452.51	149.35	12.13	0.00	0.00	297.43	297.43	7.7	8.2	---	7.8	664	111	---	---	12.5	12.5	381	175	---	---	5.0	5.0	8.45	5.80	---	---	0.54	0.54	47.2	34.3	---	---	2.43	2.43	64.8	43.9	---	4.41	0.15	3.98	---	15.4	80.9	82.6	---	92.9	5.9	2.0	---	19	
September	Avg	290.82	17.38	11.06	0.00	0.00	272.07	272.07	7.6	7.6	---	7.6	297	65	---	---	4.6	4.6	271	85	---	---	2.9	2.9	6.65	2.87	---	---	0.28	0.28	33.3	24.2	---	---	1.44	1.44	51.5	32.1	---	3.10	0.01	0.93	---	8.86	67.1	56.5	---	75.4	2.8	1.1	---	7	61.40
	Min	251.34	0.00	10.23	0.00	0.00	241.00	241.00	7.4	7.5	---	7.3	59	36	---	---	2.9	2.9	87	57	---	---	< 2.0	< 2.0	1.99	0.60	---	---	0.18	0.18	14.0	12.2	---	---	0.10	0.10	21.0	23.3	---	1.68	< 0.01	0.03	---	5.05	41.5	39.4	---	46.2	2.6	0.6	---	3	
	Max	515.60	179.50	12.40	0.00	0.00	327.20	327.20	7.7	7.9	---	7.8	584	98	---	---	12.0	12.0	413	119	---	---	4.0	4.0	9.14	4.41	---	---	0.45	0.45	42.5	31.8	---	---	4.76	4.76	66.1	40.4	---	6.46	0.02	1.80	---	13.7	78.5	84.7	---	82.5	3.0	2.2	---	24	
October	Avg	268.10	3.30	10.15	0.00	0.00	254.65	254.65	7.5	7.4	---	7.6	321	78	---	---	4.7	4.7	293	186	---	---	3.1	3.1	7.21	7.06	---	---	0.28	0.28	36.1	30.4	---	---	2.13	2.13	54.1	38.2	---	3.85	0.06	1.32	---	8.39	77.7	111	---	83.9	3.2	0.7	---	6	64.30
	Min	247.90	0.00	0.00	0.00	0.00	242.10	242.10	7.4	7.3	---	7.0	246	45	---	---	2.6	2.6	208	102	---	---	2.0	2.0	5.13	3.33	---	---	0.20	0.20	25.6	23.7	---	---	0.25	0.25	37.4	31.3	---	2.06	0.01	1.24	---	6.62	60.2	75.5	---	69.1	3.2	0.5	---	1	
	Max	420.50	95.10	12.20	0.00	0.00	313.40	313.40	7.8	7.5	---	7.7	400	97	---	---	7.4	7.4	402	330	---	---	4.0	4.0	8.6	13.80	---	---	0.65	0.65	43.7	38.9	---	---	4.88	4.88	65.4	49.0	---	6.31	0.15	1.37	---	11.6	168	180	---	140	3.2	1.3	---	16	
November	Avg	265.14	3.26	9.47	0.00	0.00	252.45	252.45	7.5	7.4	---	7.6	315	114	---	---	10.0	10.0	297	141	---	---	4.2	4.2	6.53	3.98	---	---	0.50	0.50	33.4	28.5	---	---	2.71	2.71	52.9	38.6	---	4.88	0.02	0.50	---	5.82	136	304	---	138	2.3	1.1	---	8	69.75
	Min	243.80	0.00	0.00	0.00	0.00	232.40	232.40	7.4	7.4	---	7.1	244	107	---	---	3.9	3.9	223	127	---	---	3.0	3.0	5.06	3.79	---	---	0.21	0.21	19.2	28.4	---	---	0.45	0.45	40.3	37.2	---	2.04	0.01	0.50	---	2.98	77.9	79.7	---	80.0	2.2	0.4	---	2	
	Max	328.60	35.10	13.10	0.00	0.00	305.10	305.10	7.9	7.5	---	7.7	370	122	---	---	36.4	36.4	422	159	---	---	9.0	9.0	7.26	4.20	---	---	2.36	2.36	38.2	28.7	---	---	9.58	9.58	57.5	41.2	---	12.8	0.05	1.18	---	8.81	511	705	---	382	2.5	2.2	---	21	
December	Avg	244.36	0.00	11.14	0.00	0.00	233.22	233.22	7.5	---	---	7.6	325	---	---	---	6.2	6.2	316	---	---	---	3.7	3.7	6.75	---	---	---	0.31	0.31	36.4	---	---	---	1.59	1.59	56.3	---	---	3.63	0.04	---	---	9.46	113	---	---	113	3.5	---	---	12	72.59
	Min	220.60	0.00	10.20	0.00	0.00	209.00	209.00	7.4	---	---	7.4	284	---	---	---	3.4	3.4	213	---	---	---	3.0	3.0	3.20	---	---	---	0.22	0.22	21.6	---	---	---	0.57	0.57	26.6	---	---	2.26	0.01	---	---	6.66	89.0	---	---	89.0	3.0	---	---	6	
	Max	282.30	0.00	12.10	0.00	0.00	252.10	252.10	7.7	---	---	7.7	436	---	---	---	9.7	9.7	416	---	---	---	4.0	4.0	8.14	---	---	---	0.46	0.46	48.5	---	---	---	3.70	3.70	70.7	---	---	5.91	0.13	---	---	11.6	184	---	---	187	4.0	---	---	30	
Annual Volume (ML)		98,884	3,217.00	3,514	0.17	0.00	92,152	92,152																																													800.2
2018	Avg	271	8.8	9.6	0.00	0.00	253	253	7.6	7.5	7.3	7.5	325	78	320	---	7.3	7.3	299	125	127	---	3.8	3.8	7.21	4.23	2.56	---	0.38	0.38	36.8	30.0	11.1	---	2.35	2.35	56.1	38.5	17.1	4.28	0.04	0.93	0.28	10.3	102	137	36.00	108					
2017	Avg	277	11.6	10.4	0.01	0.00	255	255	7.6	7.7	7.5	7.5	317	82	405	---	6.7	6.7	294	114	100	---	3.6	3.6	7.46	3.85	3.58	---	0.33	0.33	36.8	29.9	13.6	---	1.64	1.64	57.0	38.6	15.9	3.54	0.03	0.74	0.25	9.7	93	137	18	98					

PBP – Plant Bypass
TBP – Total Bypass Plant (including plant and secondary)
SEC – Secondary Bypass Plant
EPE - Enhanced Primary Effluent
EPT – Enhanced Primary Treatment

Outfall 10 - Combined, UV-disinfected (FEC + EPE)
Outfall 20 – Combined Bypass (RAW + PE + EPE)
Outfall 30 - Combined Bypass (RAW + Screened + PE + EPE)

FEC – Final Effluent, Combined
RAW – Influent
BOD_5 – 5-day Biological Oxygen Demand
$CBOD_5$ – 5-day Inhibited BOD

TSS – Total Suspended Solids
TP – Total Phosphorus
NH_3-N – Ammonia as nitrogen

MPW – Membrane Product Water
ns – No sample

TABLE 4: 2018 Reclaimed Water Quality

Summary of data developed on the ultrafiltered final effluent (*i.e.* reclaimed water) samples from January 1 to December 31, 2018 as required under section 4.2.2 (i) and 4.3.1 (j) of the Approval to Operate No. 361975-00-00 (May 29, 2015). All parameters except *E. coli* which were developed on daily 24-hour composite samples of the recycled water. The *E. coli* testing was conducted on discrete samples collected on a daily basis. Note: from April 13 to April 28, 2018, Membrane was shutdown due to Suncor plant shutdown.

Month		FLOW ML	Total Alkalinity (mg CaCO3 /L)	Ammonia (mg N/L)	Biochemical Oxygen Demand (mg/L)	Chemical Oxygen Demand (mg/L)	Chloride (mg Cl/L)	Conductivity (mS/cm)	*E. coli* (Counts/100 mL)	pH	Total Suspended Solids (mg/L)	Total Organic Carbon (mg/L)	Total Phosphorus (mg P/L)	Total Dissolved Solids (mg/L)	Turbidity (NTU)
January	Avg	9.87	162	0.94	< 2	28	147	1,092	< 1	8.1	< 0.7	8.0	0.09	629	0.25
	Min	8.60	156	0.08	< 2	22	83.3	886	< 1	8.0	< 0.7	5.2	0.02	480	0.15
	Max	10.98	176	5.03	< 2	35	252	1,700	< 1	8.2	< 0.7	9.7	0.11	985	0.42
February	Avg	10.34	159	1.23	< 2	30	130	1,037	< 1	8.1	< 0.7	8.4	0.09	579	0.27
	Min	8.13	152	0.27	< 2	20	99.0	925	< 1	8.0	< 0.7	7.1	0.02	440	0.16
	Max	11.57	172	4.59	< 2	43	260	1,490	< 1	8.2	< 0.7	9.6	0.12	818	0.43
March	Avg	10.26	127	0.73	< 2	29	199	1,201	< 1	7.9	< 0.7	7.1	0.07	673	0.23
	Min	7.40	105	0.22	< 2	20	113	961	< 1	7.8	< 0.7	4.7	0.04	577	0.10
	Max	12.16	165	3.01	< 2	39	447	1,980	< 1	8.2	< 0.7	8.1	0.12	1,070	0.36
April	Avg	2.91	112	0.29	< 2	28	118	966	< 1	7.9	< 0.7	8.1	0.17	565	0.23
	Min	0.00	104	0.17	< 2	23	89.4	864	< 1	7.8	< 0.7	6.9	0.05	518	0.15
	Max	8.86	120	0.86	< 2	36	190	1,180	< 1	8.2	< 0.7	9.3	0.59	675	0.39
May	Avg	7.59	135	0.83	2	31	93.1	961	1	8.0	0.7	10.0	0.17	593	0.18
	Min	3.64	104	0.11	< 2	20	83.5	853	< 1	8.0	< 0.7	6.1	0.08	551	0.12
	Max	12.67	156	3.74	4	46	101	1,030	2	8.2	2.9	12.5	0.72	649	0.26
June	Avg	10.73	156	0.21	< 2	28	84.4	947	< 1	8.0	0.7	9.1	0.15	586	0.18
	Min	9.48	141	0.07	< 2	21	48.9	559	< 1	7.9	< 0.7	6.7	0.05	271	0.09
	Max	12.00	174	0.84	< 2	41	104	1,040	< 1	8.2	1.1	11.0	1.20	717	0.28
July	Avg	10.17	144	0.14	< 2	28	83.0	937	< 1	8.0	< 0.7	11.5	0.16	610	0.24
	Min	9.14	121	0.05	< 2	20	62.2	733	< 1	7.9	< 0.7	7.8	0.09	449	0.19
	Max	11.45	161	0.36	< 2	40	92.1	1,040	< 1	7.1	< 0.7	79.0	1.03	718	0.33
August	Avg	11.11	145	0.15	< 2	25	84.8	922	< 1	8.0	1.0	9.5	0.28	581	0.40
	Min	9.52	126	0.06	< 2	< 20	58.6	663	< 1	7.8	< 0.7	8.4	0.08	422	0.14
	Max	12.13	162	0.40	< 2	32	94.2	984	< 1	8.2	11.2	11.6	1.29	733	6.25
September	Avg	11.06	144	0.51	< 2	< 20	77.2	876	< 1	8.0	< 0.7	8.7	0.27	538	0.27
	Min	10.23	118	0.07	< 2	< 20	50.7	621	< 1	7.8	< 0.7	6.1	0.05	380	0.15
	Max	12.40	168	1.71	< 2	32	86.4	1,010	< 1	8.1	4.9	10.6	2.27	632	1.80
October	Avg	10.15	172	0.41	< 2	25	90.2	993	< 1	8.0	< 0.7	8.9	0.08	599	0.20
	Min	0.00	164	0.06	< 2	20	73.3	877	< 1	7.9	< 0.7	8.2	0.03	469	0.13
	Max	12.20	185	1.60	< 2	35	145	1,140	< 1	8.1	< 0.7	10.0	0.20	646	0.33
November	Avg	9.47	167	0.42	< 2	24	151	1,135	< 1	8.0	< 0.7	8.3	0.08	666	0.35
	Min	0.00	154	0.04	< 2	20	92.7	964	< 1	7.7	< 0.1	7.8	0.05	452	0.15
	Max	13.10	185	3.62	< 2	28	363	1,800	< 1	8.2	3.1	8.9	0.18	916	2.40
December	Avg	11.14	164	0.31	< 2	26	118	1,059	< 1	8.0	< 0.7	8.0	0.07	626	0.27
	Min	10.20	160	0.05	< 2	20	93.0	978	< 1	7.9	< 0.7	7.9	0.05	506	0.14
	Max	12.10	167	2.82	< 2	32	176	1,290	< 1	8.2	< 0.7	8.2	0.11	777	0.35
Annual Summary	Avg	9.57	149	0.51	< 2	27	115	1,011	< 1	8.0	< 0.7	8.8	0.14	604	0.26
	Min	0.00	104	0.04	< 2	< 20	48.9	559	< 1	7.7	< 0.6	4.7	0.02	271	0.09
	Max	13.10	185	5.03	4	46	447	1,980	2	8.2	11.2	79.0	2.27	1,070	6.25

Notes:

1) NTU – Nephelometric turbidity units.
2) Counts/100mL – Counts per 100 mL of sample.
3) ML – Megaliters (1,000,000 liters)

TABLE 5: 2018 Effluent Toxicity

Summary of chronic and acute toxicity testing as outlined in the sections 4.3.1. (i) and 6.1.1. of the Approval to Operate No. 361975-00-00. Both acute and chronic toxicity tests were carried out by contract laboratories in accordance with the Environment Canada Biological Test Methods (Environment Canada 1990 and 1992). The acute testing included 48-hour Rainbow Trout static toxicity, 48-hour static toxicity using*Daphnia magnia* and 15-minute Microtox tests using luminescence bacteria. Seven-day *Ceriodaphnia dubia* , Fathead minnows and three-day *P. subcapitata* survival and reproductive impairment tests were used to determine chronic toxicity.

No effulent toxic events observed in 2018.

Dates	Qrt	Microtox	*Daphnia Magma*	Rainbow Trout	*Ceriodaphnia dubia*				Fathead Minnows				*Pseudokirchneriella*				
					Survival		*Reproduction*		*Survival*		*Biomass*						
		% of Control	LC_{50} %[1]	LC_{50} %	LC_{25} %	LC_{50} %	IC_{25} %	IC_{50} %	LC_{25} %	LC_{50} %	IC_{25} %	IC_{50} %	IC_{25} %[3]	NOEL (%)[4]	LOEL (%)[5]	TOEL (%)[6]	Toxic Units (TU)[7]
2018-01-10		> 81.8	> 100	> 100													
2018-02-14	1	> 81.8	> 100	> 100		> 100	> 100						> 90.91	1.42	2.841	2.009	70.42
2018-03-13		> 81.8	> 100	> 100					> 100	> 100	> 100	> 100					
2018-04-11		> 81.8	> 100	> 100													
2018-05-08		> 81.8	> 100	> 100	> 100	> 100	> 100	> 100	> 100	> 100	> 100	> 100	> 90.91	2.841	5.682	4.018	35.2
2018-06-13		> 81.9	> 100	> 100													
2018-07-11		> 81.9	> 100	> 100													
2018-08-15	3	> 81.9	> 100	> 100	91.9	> 100	66.1	> 100	> 100	> 100	> 100	> 100	> 90.91	1.42	2.841	2.009	70.42
2018-09-12		> 81.9	> 100	> 100													
2018-10-16		> 81.9	> 100	> 100													
2018-11-13	4	> 81.9	> 100	> 100		> 100	> 100		> 100	> 100	> 100	> 100	> 90.91	1.42	2.841	2.009	70.42
2018-12-14		> 81.9	> 100	> 100													

[1] LC50 - % effluent concentration at which there is a 50% mortality of test organisms; [2] IC50 - % effluent concentration at which there is a 50% reduction in growth or reproduction of test organisms; [3] IC25 - % effluent concentration at which there is a 25% reduction in growth or reproduction of test organisms; [4] NOEL - the concentration at which there was no observed effect level; [5] LOEL - the concentration at which you start seeing the lowest observable effect; [6] TOEL - NOEL/LOEL; [7] TU - the ratio of the concentration observed divided by the concentration for 50% inhibition.

TABLE 6: 2018 Summary of Gold Bar Wastewater Proficiency Testing

Summary of quality assurance data as required under sections 4.3.1 (m) of the Approval to Operate No. 361975-00-00 (May 29, 2015), and includes the Laboratory z-scores achieved from analyzing proficiency testing (PT) samples for constituents required by the Approval to Operate No. 361975-00-00. The 2018 PT samples were provided by the Canadian Association for Laboratory Accreditation (CALA). A PT scores greater than or equal to 70 or z-scores less than or equal to 3.000 are considered acceptable for CALA PT.

Study	Date	pH		BOD		C-BOD		TSS		NH3-N		TP		*E.coli*	
		PT Score	Avg. z-score	PT Score	Avg. z-score	PT Score	Avg. z-score	PT Score	Avg. z-score	PT Score	Avg. z-score	PT Score	Avg. z-score	PT Score	Avg. z-score
CALA	Mar-18	97	-0.05	88	0.78	94	0.40	97	-0.13	98	0.071	99	-0.17	93	0.00
CALA	Oct-17	92	-0.50	93	-0.44	99	-0.05	93	0.50	94	0.39	98	0.00	90	-0.65

Notes:

PT Score > 70 acceptable.

VH - Very high bias, H - High bias, L - Low bias, A - Acceptable, Q - Questionable, U - Unsatisfactory

CALA - Canadian Association for Laboratory Accreditation.

pH - pH manual, BOD - 5-day Biochemical Oxygen Demand, C-BOD - 5-day Carbonaceous Biochemical Oxygen Demand, TSS - Total Suspended Solids, NH3-N - Ammonia as Nitrogen, TP - Total Phosphorus.

E.coli - Sample analyzed using membrane filtration (mENDO) method.

Table 7: 2018 Environmental Release Reports & Administrative Non-Compliances

Date of Occurrence	ERS Incident Number	Location	Incident Description	Type	AEP Reference Number
22/03/2018	ENV-20180322-362602	Gold Bar - west of the EPT building/facility	At 12:50PM digested sludge was observed coming out of the ground west of the EPT building spilling onto the road. Control room was notified and shutdown sludge pumping out of the plant which slowed the leak significantly. Maintenance and operations contained the spill to prevent it from spreading too far, and Line 1 which was running at the time was isolated. Reported to AEP (ref #335978).	Reportable-uncontrolled Release	335978
26/03/2018	ENV-20180327-673261	Gold Bar-Outfall No. 10 (UV Disinfection building/facility)	At 1:04PM UV Channel 3 was called to start to accommodate the rise in flow coming to the plant, lights and power came on normally. Shortly after UV Channel 2 also opened the effluent gate but no power turned on and no lights were on. An operator noticed the abnormal state at 3:29PM and immediately put UV Channel 2 into hand (manual) and closed the gate. A critical alarm was generated by the UV program at 1:19PM that stated UV Channel 2 outlet gate opened but no bulbs on, but this alarm did not get to the Control room. PCA is currently investigating why this alarm did not come to the control room. Approximately 12ML of non-UV disinfected water went to the river during the 2 hours (approximated 140 MLD flowrate).	Reportable-Contravention of Approval	336093
22/06/2018	ENV-20180628-804444	Gold Bar - North Avenue - underground glycol return and supply lines (pipes)	AEP was called today to report a potential glycol leak of unknown quantity and unknown location somewhere on the 340m of underground 200mm inhibited ethylene glycol pipe buried under North avenue at the Gold Bar WWTP. The pipe is approximately 40m South of the North Saskatchewan River (NSR). The potential leak was discovered when a contractor performed a pressure test on June 22nd of the underground pipe and was unable to hold pressure during the testing. Further pressure testing with water was performed on the glycol line in question and that revealed the suspected leak location of the pipe. The location was excavated and samples were taken that confirmed several high ethylene glycol concentrations (higher than the Alberta Tier 1 soil standard) within the excavated area. A glycol release assessment study was developed and conducted that involved soil and groundwater testing within the area. The results show that glycols in the soil and groundwater samples met Alberta 2016 Tier 1 guidelines and glycol concentrations were less than laboratory detection limits.	Reportable-uncontrolled Release	340222

TABLE 8: 2018 List of Certified Wastewater Treatment Operators (as of December 2018)

Name	Title	WWT Certification Level
Grossell, Ken M	Manager, Operations	IV
Schneider, Brian P	WWTP Operator Foreman	IV
Kerr, David A	WWTP HEI Co Ordinator	IV
Graham, Thomas A	WWTP Operator Foreman	IV
Jones, Kira I	WWTP Operator Foreman	IV
Kwan, Tom	WWTP Operator Foreman	IV
Espinosa, Diego F	WWTP Operator Foreman	IV
Lekamwasam, Janaka	WWTP Operator Foreman	IV
Barrett, Jeremy L	WWTP Operator Foreman	III
Li, Bing BL	WWTP Operator	III
Jama, Yusuf	WWTP Operator	III
Ketchum, Glen	WWTP Training Co Ordinator	III
Budden, Curt	WWTP Lead Operator	III
Rindero, Billy	WWTP Operator	III
Hetherington, Clarke	WWTP Operator	III
Hahn, Kevin	WWTP Operator	III
Nunes, Michael	WWTP Lead Operator	III
Penner, Jody	WWTP Lead Operator	III
Sanche, Dagny	WWTP Operator	III
Sandouga, Sam	WWTP Lead Operator	III
Baker, Cole	WWTP Operator	III
Holden, Derek	WWTP Operator	II
Sontrop Melanie	WWTP Operator	II
Diletzoy, Kyle	WWTP Operator	II
Jordan, Bradley	WWTP Operator	II
Nieuwenhuis, Andrew	WWTP Operator	II
Volgensang, Ryan	WWTP Operator	II
Rees, Emma	WWTP Operator	I
Omeragic, Arment	WWTP Operator	I

TABLE 9: Summary of 2018 Completed Projects and Planned Major Capital and Rehabilitation Projects

Program	Project/Scope	Completion
Plant Reliability		
	Screens 7, 8 Upgrades	Completed
	Standby Generator Upgrade	Completed
	Channel 3 Rehab	Completed
	Restore Odour Control System Capacity	In-Service
	Operations Center at Mid-Point Entrance	Dec 2021
	EPT Polymer System Upgrades	Completed
	EPT Ventilation	Completed
	Secondary 3 Structural Rehab	Completed
	Distribution Chamber Rehab	Jun 2019
	Evacuation Alarm Upgrades	Dec 2021
	Odour Monitoring System	Aug 2019
	Boiler Upgrades	Completed
	Digested Sludge Piping Replacement	Completed
	Replace 2.5 km Of Sludge Lines	Dec 2019
	West Digested Sludge Rehab	Completed
	North Avenue Piping Rehab	Completed
	Chain Operated Valve Upgrades	Completed
	Nuhn Lagoon Crawler	Completed
	LIMS Upgrade	Completed
	Odour Scrubber Reliability Improvements	In-Service
	Utility Hot Water System Rehabilitation	Dec 2021
	Diversion Structure Structural Rehab	Dec 2021
	Safety and Equipment Davits	Dec 2021
	Building Mgmt System	Dec 2021
	Stainless Chain Replacement	Dec 2021
	Mechanical Rehab Secondaries 2-8	Dec 2021
Program Work		
	Isolation Upgrades	2018 work completed
	HVAC Rehabilitation	2018 work completed
	Buildings and Site Rehabilitation	2018 work completed
	Electrical Rehabilitation	2018 work completed
	Instrumentation Rehab and Upgrades	2018 work completed
	Control System Rehab and Improvements	2018 work completed
	Mechanical Rehabilitation	2018 work completed
	Structural Rehabilitation	2018 work completed
	Membrane Rehabilitation	2018 work completed
	Clarifier Chain Rehabilitation	2018 work completed
	Plant Improvements	2018 work completed
	Process Improvements	2018 work completed
	Plant Equipment Upgrades	2018 work completed
	Fleet Replacement	2018 work completed
	Lab Equipment Replacement	2018 work completed
Digester Reliability		
	Digester 3 Upgrades	Commissioning
	Digester 4 Upgrades	On Hold
Clover Bar Improvements		
	Lagoon Supernatant Project (OSTARA)	Completed
Special Projects		
	Hydrovac Sanitary Grit Treatment Facility	In-Service
	NSR Flood Protection	Dec 2021

Appendices

PROVIDING MORE EPCOR

Gold Bar Wastewater Treatment Plant
Plant Performance Report
January 2018

Digested Sludge: Total Monthly Volume (ML)	65.01

Volume of Flow (ML)

DATE	Peak Flow (MLD)	Influent RAW	Effluent: Non UV Disinfected OUTFALL30	Effluent: Non UV Disinfected MPW	Effluent: Non UV Disinfected OUTFALL20	Effluent: UV Disinfected EPEPS	Effluent: UV Disinfected OUTFALL10 FEC	Effluent: UV Disinfected OUTFALL10 FE
Mon 01	367.17	234.58	0.00	12.03	0.00	0.00	222.55	222.55
Tue 02	353.65	241.41	0.00	11.33	0.00	0.00	230.08	230.08
Wed 03	348.86	239.94	0.00	12.23	0.00	0.00	227.71	227.71
Thu 04	329.84	240.73	0.00	12.18	0.00	0.00	228.55	228.55
Fri 05	355.11	242.38	0.00	12.12	0.00	0.00	230.26	230.26
Sat 06	325.29	239.45	0.00	11.15	0.00	0.00	228.30	228.30
Sun 07	336.72	240.30	0.00	10.88	0.00	0.00	229.42	229.42
Mon 08	341.75	243.38	0.00	10.73	0.00	0.00	232.65	232.65
Tue 09	309.10	238.45	0.00	10.48	0.00	0.00	227.97	227.97
Wed 10	310.17	238.57	0.00	10.60	0.00	0.00	227.97	227.97
Thu 11	322.72	238.70	0.00	11.70	0.00	0.00	227.00	227.00
Fri 12	318.70	240.21	0.00	11.97	0.00	0.00	228.24	228.24
Sat 13	326.65	235.85	0.00	11.53	0.00	0.00	224.32	224.32
Sun 14	338.22	239.46	0.00	11.49	0.00	0.00	227.97	227.97
Mon 15	344.93	243.39	0.00	11.46	0.00	0.00	231.93	231.93
Tue 16	360.28	239.25	0.00	11.67	0.00	0.00	227.58	227.58
Wed 17	328.19	241.31	0.00	11.58	0.00	0.00	229.73	229.73
Thu 18	364.93	237.42	0.00	10.30	0.00	0.00	227.12	227.12
Fri 19	318.85	241.40	0.00	8.78	0.00	0.00	232.62	232.62
Sat 20	319.70	241.71	0.00	7.89	0.00	0.00	233.82	233.82
Sun 21	328.70	238.45	0.00	8.09	0.00	0.00	230.36	230.36
Mon 22	332.05	242.85	0.00	10.06	0.00	0.00	232.79	232.79
Tue 23	311.96	237.76	0.00	9.70	0.00	0.00	228.06	228.06
Wed 24	314.78	239.08	0.00	9.57	0.00	0.00	229.51	229.51
Thu 25	307.33	236.36	0.00	9.77	0.00	0.00	226.59	226.59
Fri 26	346.52	235.45	0.00	9.78	0.00	0.00	225.67	225.67
Sat 27	333.81	233.08	0.00	9.81	0.00	0.00	223.27	223.27
Sun 28	325.38	234.82	0.00	9.82	0.00	0.00	225.00	225.00
Mon 29	341.04	247.52	0.00	8.77	0.00	0.00	238.75	238.75
Tue 30	305.46	238.94	0.00	9.92	0.00	0.00	229.02	229.02
Wed 31	303.32	236.73	0.00	9.74	0.00	0.00	226.99	226.99
Average	331.33	239.32	0.00	10.55	0.00	0.00	228.77	228.77
Minimum	303.32	233.08	0.00	7.89	0.00	0.00	222.55	222.55
Maximum	367.17	247.52	0.00	12.23	0.00	0.00	238.75	238.75
GeoMean	---	---	---	---	---	---	---	---
TOTAL	---	7,419	0	327	0.00	0	7,092	7,092

Liquid Stream Quality

DATE	pH@25°C RAW	pH@25°C OUTFALL30	pH@25°C OUTFALL20	pH@25°C OUTFALL10 FEC	TSS (mg/L) RAW	TSS OUTFALL30	TSS OUTFALL20	TSS EPEPS	TSS OUTFALL10 FEC	TSS OUTFALL10 FE	BOD_5/$cBOD_5$ (mg/L) RAW BOD_5	BOD_5 OUTFALL30	BOD_5 OUTFALL20	BOD_5 EPEPS	$cBOD_5$ OUTFALL10 FEC	$cBOD_5$ OUTFALL10 FE	TP (mg/L) RAW	TP OUTFALL30	TP OUTFALL20	TP EPEPS	TP OUTFALL10 FEC	TP OUTFALL10 FE
Mon 01	8.0			7.5	440				4.8	4.8	334				3	3	11.60				0.21	0.21
Tue 02	7.5			7.4	284				6.0	6.0	338				3	3	7.99				0.23	0.23
Wed 03	7.5			7.5	280				5.7	5.7	380				3	3	7.51				0.28	0.28
Thu 04	7.6			7.5	312				4.9	4.9	336				3	3	7.80				0.30	0.30
Fri 05	7.7			7.5	311				5.4	5.4	384				< 2	< 2	7.74				0.31	0.31
Sat 06	7.5			7.4	326				5.1	5.1	342				3	3	7.95				0.30	0.30
Sun 07	7.6			7.5	324				7.2	7.2	332				3	3	7.44				0.29	0.29
Mon 08	7.6			7.5	336				5.4	5.4	331				3	3	6.79				0.29	0.29
Tue 09	7.6			7.6	346				5.6	5.6	291				3	3	7.61				0.28	0.28
Wed 10	7.6			7.6	337				5.6	5.6	338				2	2	7.79				0.29	0.29
Thu 11	7.6			7.5	336				5.0	5.0	327				3	3	7.67				0.30	0.30
Fri 12	7.6			7.5	364				6.9	6.9	386				4	4	8.00				0.32	0.32
Sat 13	7.5			7.4	360				5.6	5.6	296				3	3	7.39				0.29	0.29
Sun 14	7.5			7.5	352				5.3	5.3	378				4	4	8.14				0.31	0.31
Mon 15	7.5			7.4	288				7.1	7.1	325				4	4	6.80				0.33	0.33
Tue 16	7.5			7.4	308				6.6	6.6	380				4	4	6.76				0.31	0.31
Wed 17	7.5			7.5	314				5.3	5.3	344				4	4	6.66				0.31	0.31
Thu 18	7.5			7.4	340				7.1	7.1	310				4	4	6.78				0.30	0.30
Fri 19	7.5			7.5	456				5.9	5.9	322				5	5	7.72				0.28	0.28
Sat 20	7.6			7.5	356				6.2	6.2	303				5	5	7.83				0.27	0.27
Sun 21	7.5			7.5	336				6.0	6.0	320				5	5	7.60				0.28	0.28
Mon 22	7.5			7.4	280				6.1	6.1	322				5	5	7.14				0.29	0.29
Tue 23	7.5			7.4	260				5.6	5.6	382				5	5	7.99				0.30	0.30
Wed 24	7.5			7.6	336				6.7	6.7	268				5	5	8.76				0.33	0.33
Thu 25	7.6			7.5	336				6.1	6.1	340				5	5	9.06				0.36	0.36
Fri 26	7.6			7.4	236				6.0	6.0	388				6	6	9.81				0.37	0.37
Sat 27	7.6			7.4	308				9.6	9.6	458				6	6	9.32				0.42	0.42
Sun 28	7.7			7.5	317				9.5	9.5	311				6	6	8.91				0.43	0.43
Mon 29	7.7			7.5	344				11.4	11.4	322				6	6	8.52				0.42	0.42
Tue 30	7.6			7.5	268				5.9	5.9	305				4	4	8.87				0.33	0.33
Wed 31	7.5			7.5	376				5.8	5.8	360				4	4	9.26				0.32	0.32
Average	6.3	---	---	7.5	328	---	---	---	6.3	6.3	340	---	---	---	4.2	4.2	8.04	---	---	---	0.31	0.31
Minimum	4.8	---	---	7.4	236	---	---	---	4.8	4.8	268	---	---	---	< 2	< 2	6.66	---	---	---	0.21	0.21
Maximum	11.4	---	---	7.6	456	---	---	---	11.4	11.4	458	---	---	---	9	9	11.6	---	---	---	0.43	0.43
GeoMean	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

DATE	NH3-N (mg/L) RAW	NH3-N OUTFALL30	NH3-N OUTFALL20	NH3-N EPEPS	NH3-N OUTFALL10 FEC	NH3-N OUTFALL10 FE	TKN (mg/L) RAW	TKN OUTFALL30	TKN OUTFALL20	TKN OUTFALL10 FEC	NO_2+NO_3 (mg/L) RAW	NO_2+NO_3 OUTFALL30	NO_2+NO_3 OUTFALL20	NO_2+NO_3 OUTFALL10 FEC	Chloride (mg/L) RAW	Chloride OUTFALL30	Chloride OUTFALL20	Chloride OUTFALL10 FEC	*E. coli* (Counts/100 mL) RAW	*E. coli* OUTFALL30	*E. coli* OUTFALL20	*E. coli* OUTFALL10 FEC
																			X10^6	X10^6	X10^6	
Mon 01	63.7				6.12	6.12	80.6			9.26	0.04			77.1	96.2			14				
Tue 02	43.9				5.25	5.25	67.0			11.9	92.4			90.6				9				
Wed 03	41.7				3.23	3.23	61.3			9.83	0.05			102	110			21				
Thu 04	44.5				2.88	2.88	61.0			9.07	119			119				6				
Fri 05	44.9				3.82	3.82	62.4			9.86	134			126				6				
Sat 06	43.6				3.79	3.79	63.7			9.71	154			146				9				
Sun 07	45.6				3.39	3.39	60.9			10.4	107			153				14				
Mon 08	41.2				2.78	2.78	55.6			9.85	126			122				13				
Tue 09	45.5				1.75	1.75	60.5			11.2	120			125				6				
Wed 10	40.4				2.10	2.10	64.0			9.44	120			122				4				
Thu 11	48.2				2.92	2.92	60.8			8.99	112			119				4				
Fri 12	41.9				2.88	2.88	64.0			9.12	104			120				8				
Sat 13	38.4				2.04	2.04	61.2			9.10	100			104				20				
Sun 14	45.2				2.36	2.36	68.8			8.72	154			112				24				
Mon 15	39.2				2.68	2.68	54.8			8.33	111			113	3.4			3				
Tue 16	35.4				0.75	0.75	51.0			6.84	124			127				3				
Wed 17	33.7				0.38	0.38	48.7			6.33	426			214				3				
Thu 18	35.3				0.27	0.27	52.6			7.02	320			325				2				
Fri 19	36.9				0.39	0.39	58.9			7.61	284			314				4				
Sat 20	41.6				1.58	1.58	60.6			9.66	184			275				6				
Sun 21	43.1				2.91	2.91	61.3			10.2	119			167				5				
Mon 22	40.9				2.29	2.29	56.8			8.00	121			130				5				
Tue 23	40.9				2.39	2.39	62.0			9.11	115			122				10				
Wed 24	46.5				2.66	2.66	68.4			9.25	111			123				2,400				
Thu 25	46.4				3.24	3.24	66.4			7.72	108			120				14				
Fri 26	43.2				4.57	4.57	68.8			7.80	144			117				10				
Sat 27	44				5.76	5.76	67.1			7.80	122			143				21				
Sun 28	46.9				6.74	6.74	65.5			8.79				121				3				
Mon 29	44.1				6.54	6.54	63.0			8.60				112				12				
Tue 30	44.3				5.98	5.98	67.4			7.89				125				6				
Wed 31	48.2				6.72	6.72	67.3			8.92	1.54			133				15				
Average	43.2	---	---	---	3.26	3.26	62.3	---	---	5.07	0.29	---	---	8.78	142	---	---	143	---	---	---	---
Minimum	33.7	---	---	---	0.27	0.27	48.7	---	---	1.80	0.02	---	---	6.33	92.4	---	---	77.1	3.4	---	---	2
Maximum	63.7	---	---	---	6.74	6.74	80.6	---	---	8.92	1.54	---	---	11.9	426	---	---	325	3.4	---	---	2400
GeoMean	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	3.4	---	---	9
TOTAL	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

* Contact Laboratory for information about the quality assurance associated with the result.

Enhanced Primary Treatment (EPT) Usage					
Total Bypass (hrs)	EPT Usage (hrs)	% Usage	Total Bypass YTD (hrs)	EPT Usage YTD (hrs)	% Usage YTD
0	0	100%	0	0	100.00%

Report Comments

1.	Outfall 10 - Jan 02: Analysis of this sample was repeated. The repeat analysis exceeded the recommended holding time for this analyte.
2.	Outfall 10 - Jan 12: Analysis of this sample was repeated. The repeat analysis exceeded the recommended holding time for this analyte.
3.	Outfall 10 - Jan 24: Analysis of this sample was repeated. The repeat analysis exceeded the recommended holding time for this analyte.

AEP Ref #

RAW Untreated Influent into the Plant

INF Untreated wastewater from collection system
INFs Influent, screened at the Headworks Diversion Structure
PE Primary Effluent from conventional primaries
PE 30 Primary Effluent from conventional primaries discharged via Outfall 30
EPT Enhanced Primary Treatment
EPE Enhanced Primary Effluent
EPEPS Enhanced Primary Effluent and Pump Station

FE Final Effluent from secondary treatment process (with biological nutrient removal). Pre-Ultraviolet disinfection.

FEC Combined pre-UV disinfection (FE+EPEPS)
OUTFALL 10 UV-disinfected, discharged via OUTFALL 10
OUTFALL 20 Combined Bypass (RAW + PE + EPE)
OUTFALL 30 Combined Bypass (INF + INFS + PE30 + EPE)
MPW Membrane Product Water (effluent re-use water)

ML Megalitre (1,000,000 Litres)
MPN Most Probable Number
NR No result
NS No sample
INS Insufficient sample

Abhishek Bhargava
Senior Manager, Operations

Shane Harnish
Senior Manager, Analytical Operations

PROVIDING MORE EPCOR

Gold Bar Wastewater Treatment Plant
Plant Performance Report
February 2018

Digested Sludge: Total Monthly Volume (ML)	59.26

Volume of Flow (ML)

DATE	Peak Flow (MLD)	Influent	Effluent					
			Non UV Disinfected			UV Disinfected		
		RAW	OUTFALL 30	MPW	OUTFALL 20	EPEPS	OUTFALL 10 FEC	OUTFALL 10 FE
Thu 01	340.78	236.68	0.00	10.79	0.00	0.00	225.89	225.89
Fri 02	308.79	235.86	0.00	10.41	0.00	0.00	225.45	225.45
Sat 03	317.17	232.91	0.00	9.95	0.00	0.00	222.96	222.96
Sun 04	368.66	239.61	0.00	10.45	0.00	0.00	229.16	229.16
Mon 05	317.37	240.69	0.00	10.65	0.00	0.00	230.04	230.04
Tue 06	309.14	241.08	0.00	9.70	0.00	0.00	231.38	231.38
Wed 07	306.83	237.04	0.00	10.27	0.00	0.00	226.77	226.77
Thu 08	309.20	238.47	0.00	11.02	0.00	0.00	227.45	227.45
Fri 09	310.90	236.93	0.00	10.18	0.00	0.00	226.75	226.75
Sat 10	323.07	234.59	0.00	10.43	0.00	0.00	224.16	224.16
Sun 11	339.79	235.72	0.00	11.05	0.00	0.00	224.67	224.67
Mon 12	354.95	242.09	0.00	10.31	0.00	0.00	231.78	231.78
Tue 13	362.39	248.65	0.00	10.87	0.00	0.00	237.78	237.78
Wed 14	343.48	241.21	0.00	9.36	0.00	0.00	231.85	231.85
Thu 15	365.09	252.29	0.00	8.13	0.00	0.00	244.16	244.16
Fri 16	335.97	245.80	0.00	8.63	0.00	0.00	237.17	237.17
Sat 17	353.38	237.15	0.00	10.95	0.00	0.00	226.20	226.20
Sun 18	314.72	235.25	0.00	10.93	0.00	0.00	224.32	224.32
Mon 19	338.96	239.60	0.00	9.89	0.00	0.00	229.71	229.71
Tue 20	321.55	242.11	0.00	10.12	0.00	0.00	231.99	231.99
Wed 21	322.78	241.54	0.00	10.39	0.00	0.00	231.15	231.15
Thu 22	324.13	242.70	0.00	10.52	0.00	0.00	232.18	232.18
Fri 23	321.88	240.48	0.00	10.58	0.00	0.00	229.90	229.90
Sat 24	316.56	237.11	0.00	10.50	0.00	0.00	226.61	226.61
Sun 25	358.76	240.59	0.00	10.47	0.00	0.00	230.12	230.12
Mon 26	372.87	249.12	0.00	10.72	0.00	0.00	238.40	238.40
Tue 27	324.87	248.81	0.00	10.74	0.00	0.00	238.07	238.07
Wed 28	340.76	257.75	0.00	11.57	0.00	0.00	246.18	246.18
Average	333.03	241.14	0.00	10.34	0.00	0.00	230.79	230.79
Minimum	306.83	232.91	0.00	8.13	0.00	0.00	222.96	222.96
Maximum	372.87	257.75	0.00	11.57	0.00	0.00	246.18	246.18
GeoMean	---	---	---	---	---	---	---	---
TOTAL	---	6,752	0	290	0.00	0	6,462	6,462

Liquid Stream Quality

pH@25°C

DATE	RAW	OUTFALL 30	OUTFALL 20	OUTFALL 10 FEC
Thu 01	7.6			7.4
Fri 02	7.6			7.5
Sat 03	7.6			7.5
Sun 04	7.5			7.3
Mon 05	7.6			7.4
Tue 06	7.5			7.4
Wed 07	7.7			7.4
Thu 08	7.7			7.4
Fri 09	7.9			7.3
Sat 10	7.6			7.3
Sun 11	7.8			7.5
Mon 12	7.8			7.3
Tue 13	7.6			7.3
Wed 14	7.5			7.3
Thu 15	7.6			7.3
Fri 16	7.6			7.4
Sat 17	7.5			7.3
Sun 18	7.7			7.4
Mon 19	7.6			7.4
Tue 20	7.5			7.4
Wed 21	7.6			7.3
Thu 22	7.6			7.4
Fri 23	7.6			7.4
Sat 24	7.7			7.5
Sun 25	7.7			7.4
Mon 26	7.6			7.5
Tue 27	7.6			7.5
Wed 28	7.5			7.3
Average	7.6	---	---	7.4
Minimum	7.5	---	---	7.3
Maximum	7.9	---	---	7.5
GeoMean	---	---	---	---
TOTAL	---	---	---	---

TSS (mg/L)

DATE	RAW	OUTFALL 30	OUTFALL 20	EPEPS	OUTFALL 10 FEC	OUTFALL 10 FE
Thu 01	324				5.8	5.8
Fri 02	360				5.6	5.6
Sat 03	288				5.3	5.3
Sun 04	280				5.9	5.9
Mon 05	324				6.7	6.7
Tue 06	420				6.3	6.3
Wed 07	308				6.3	6.3
Thu 08	348				6.4	6.4
Fri 09	306				6.2	6.2
Sat 10	288				6.5	6.5
Sun 11	270				7.0	7.0
Mon 12	324				27.6	27.6
Tue 13	344				27.8	27.6
Wed 14	274				6.6	6.6
Thu 15	240				17.1	17.1
Fri 16	348				8.4	8.4
Sat 17	348				8.4	8.4
Sun 18	296				7.5	7.5
Mon 19	340				21.4	21.4
Tue 20	304				14.9	14.9
Wed 21	308				11.4	11.4
Thu 22	306				21.7	21.7
Fri 23	324				8.6	8.6
Sat 24	356				6.8	6.8
Sun 25	396				6.9	6.9
Mon 26	368				7.9	7.9
Tue 27	340				6.2	6.2
Wed 28	269				4.4	4.4
Average	321	---	---	---	10.1	10.1
Minimum	240	---	---	---	4.4	4.4
Maximum	420	---	---	---	27.6	27.6
GeoMean	---	---	---	---	---	---
TOTAL	---	---	---	---	---	---

BOD_5/$cBOD_5$ (mg/L)

DATE	RAW	OUTFALL 30	OUTFALL 20	EPEPS	OUTFALL 10 FEC	OUTFALL 10 FE
Thu 01	358				4	4
Fri 02	327				6	6
Sat 03	336				4	4
Sun 04	332				5	5
Mon 05	323				4	4
Tue 06	365				3	3
Wed 07	384				4	4
Thu 08	545				3	3
Fri 09	331				4	4
Sat 10	330				3	3
Sun 11	322				3	3
Mon 12	377				7	7
Tue 13	306				7	7
Wed 14	305				3	3
Thu 15	328				5	5
Fri 16	343				4	4
Sat 17	301				4	4
Sun 18	301				4	4
Mon 19	356				9	9
Tue 20	352				7	7
Wed 21	334				6	6
Thu 22	271				7	7
Fri 23	309				6	6
Sat 24	356				5	5
Sun 25	295				5	5
Mon 26	291				5	5
Tue 27	315				3	3
Wed 28	287				3	3
Average	335	---	---	---	5	5
Minimum	271	---	---	---	3	3
Maximum	545	---	---	---	9	9
GeoMean	---	---	---	---	---	---
TOTAL	---	---	---	---	---	---

TP (mg/L)

DATE	RAW	OUTFALL 30	OUTFALL 20	EPEPS	OUTFALL 10 FEC	OUTFALL 10 FE
Thu 01	8.57				0.32	0.32
Fri 02	8.88				0.31	0.31
Sat 03	8.23				0.31	0.31
Sun 04	7.68				0.32	0.32
Mon 05	7.69				0.34	0.34
Tue 06	7.97				0.34	0.34
Wed 07	8.39				0.35	0.35
Thu 08	7.26				0.35	0.35
Fri 09	7.40				0.34	0.34
Sat 10	8.22				0.33	0.33
Sun 11	7.48				0.38	0.38
Mon 12	7.73				1.00	1.00
Tue 13	7.04				1.10	1.10
Wed 14	6.56				0.36	0.36
Thu 15	6.80				0.73	0.73
Fri 16	7.63				0.36	0.36
Sat 17	6.57				0.31	0.31
Sun 18	6.26				0.38	0.38
Mon 19	7.72				0.82	0.82
Tue 20	7.15				0.52	0.52
Wed 21	7.52				0.65	0.65
Thu 22	7.74				0.79	0.79
Fri 23	7.88				0.42	0.42
Sat 24	8.10				0.34	0.34
Sun 25	8.23				0.34	0.34
Mon 26	7.21				0.44	0.44
Tue 27	7.33				0.36	0.36
Wed 28	6.40				0.26	0.26
Average	7.56	---	---	---	0.46	0.46
Minimum	6.26	---	---	---	0.26	0.26
Maximum	8.88	---	---	---	1.10	1.10
GeoMean	---	---	---	---	---	---
TOTAL	---	---	---	---	---	---

NH3-N (mg/L)

DATE	RAW	OUTFALL 30	OUTFALL 20	EPEPS	OUTFALL 10 FEC	OUTFALL 10 FE
Thu 01	38.0				6.97	6.97
Fri 02	45.4				6.91	6.91
Sat 03	48.0				5.62	5.62
Sun 04	46.0				4.91	4.91
Mon 05	44.3				3.46	3.46
Tue 06	43.3				3.60	3.60
Wed 07	46.1				4.08	4.08
Thu 08	36.5				3.35	3.35
Fri 09	36.4				3.15	3.15
Sat 10	43.0				3.56	3.56
Sun 11	43.0				3.33	3.33
Mon 12	41.5				4.84	4.84
Tue 13	40.1				5.65	5.65
Wed 14	39.6				2.71	2.71
Thu 15	37.4				2.72	2.72
Fri 16	35.8				3.75	3.75
Sat 17	42.2				2.81	2.81
Sun 18	43.1				2.83	2.83
Mon 19	42.3				3.28	3.28
Tue 20	37.0				3.96	3.96
Wed 21	38.7				3.86	3.86
Thu 22	39.7				3.14	3.14
Fri 23	42.8				3.50	3.50
Sat 24	41.6				3.68	3.68
Sun 25	46.0				4.86	4.86
Mon 26	39.1				4.99	4.99
Tue 27	34.9				3.12	3.12
Wed 28	34.7				2.50	2.50
Average	40.9	---	---	---	3.97	3.97
Minimum	34.7	---	---	---	2.50	2.50
Maximum	48.0	---	---	---	6.97	6.97
GeoMean	---	---	---	---	---	---
TOTAL	---	---	---	---	---	---

TKN (mg/L)

DATE	RAW	OUTFALL 30	OUTFALL 20	OUTFALL 10 FEC
Thu 01	63.4			9.63
Fri 02	62.6			8.27
Sat 03	63.8			6.96
Sun 04	60.4			6.38
Mon 05	63.2			4.99
Tue 06	62.7			5.32
Wed 07	66.4			5.37
Thu 08	60.0			5.74
Fri 09	61.1			5.63
Sat 10	63.2			5.49
Sun 11	60.2			5.72
Mon 12	60.7			7.68
Tue 13	52.4			8.16
Wed 14	56.7			4.67
Thu 15	57.9			5.23
Fri 16	61.8			5.51
Sat 17	58.0			4.52
Sun 18	57.7			4.60
Mon 19	57.0			5.49
Tue 20	61.1			6.74
Wed 21	61.8			6.68
Thu 22	59.5			5.90
Fri 23	61.9			5.71
Sat 24	61.3			5.28
Sun 25	63.9			6.10
Mon 26	55.8			6.40
Tue 27	54.5			4.76
Wed 28	50.5			3.82
Average	60.0	---	---	5.96
Minimum	50.5	---	---	3.82
Maximum	66.4	---	---	9.63
GeoMean	---	---	---	---
TOTAL	---	---	---	---

NO_2+NO_3 (mg/L)

DATE	RAW	OUTFALL 30	OUTFALL 20	OUTFALL 10 FEC
Thu 01				6.63
Fri 02				8.51
Sat 03				10.7
Sun 04				12.5
Mon 05				14.4
Tue 06				14.4
Wed 07	0.02			14.1
Thu 08				14.5
Fri 09				17.2
Sat 10				16.0
Sun 11				16.0
Mon 12				12.8
Tue 13				12.3
Wed 14	0.01			13.4
Thu 15				13.1
Fri 16				12.0
Sat 17				13.5
Sun 18				14.3
Mon 19				14.2
Tue 20				13.0
Wed 21	0.01			15.1
Thu 22				14.3
Fri 23				13.1
Sat 24				15.0
Sun 25				15.0
Mon 26				14.4
Tue 27				11.0
Wed 28	< 0.01			11.2
Average	< 0.01	---	---	13.3
Minimum	< 0.01	---	---	6.63
Maximum	0.02	---	---	17.2
GeoMean	---	---	---	---
TOTAL	---	---	---	---

Chloride (mg/L)

DATE	RAW	OUTFALL 30	OUTFALL 20	OUTFALL 10 FEC
Thu 01	108			129
Fri 02	108			114
Sat 03	110			113
Sun 04	96.7			113
Mon 05	120			99.0
Tue 06	113			120
Wed 07	113			111
Thu 08	109			119
Fri 09	86.0			104
Sat 10	113			115
Sun 11	106			110
Mon 12	102			100
Tue 13	194			107
Wed 14	252			273
Thu 15	152			210
Fri 16	141			158
Sat 17	120			148
Sun 18	94.6			119
Mon 19	95.9			98.6
Tue 20	103			96.6
Wed 21	108			103
Thu 22	92.9			113
Fri 23	109			126
Sat 24	116			125
Sun 25	98.6			121
Mon 26	123			114
Tue 27	155			129
Wed 28	184			160
Average	122	---	---	127
Minimum	86.0	---	---	96.6
Maximum	252	---	---	273
GeoMean	---	---	---	---
TOTAL	---	---	---	---

E. coli (Counts/100 mL)

DATE	RAW	OUTFALL 30	OUTFALL 20	OUTFALL 10 FEC
	X10^6	X10^6	X10^6	
Thu 01				6
Fri 02				7
Sat 03				9
Sun 04				5
Mon 05				4
Tue 06				6
Wed 07				8
Thu 08				5
Fri 09				6
Sat 10				7
Sun 11				7
Mon 12				10
Tue 13				15
Wed 14				6
Thu 15				8
Fri 16				6
Sat 17				5
Sun 18				8
Mon 19				5
Tue 20				10
Wed 21				6
Thu 22	2.9			5
Fri 23				5
Sat 24				5
Sun 25				8
Mon 26	3.7			4
Tue 27				9
Wed 28				10
Average	---	---	---	---
Minimum	---	---	---	4
Maximum	---	---	---	15
GeoMean	3.3	---	---	7
TOTAL	---	---	---	---

* contact Laboratory for information about the quality assurance associated with the result

Enhanced Primary Treatment (EPT) Usage

Total Bypass (hrs)	EPT Usage (hrs)	% Usage	Total Bypass YTD (hrs)	EPT Usage YTD	% Usage YTD
0	0	100%	0	0	100.00%

Report Comments

1.	RAW - February 22: Analysis of this sample exceeded the recommended holding time for BOD.

AEP Ref #**

** AEP - Alberta Environment & Parks

RAW	Untreated Influent into the plant
INF	Untreated Wastewater from collection system
INFs	Influent, screened at the Headworks Diversion Structure
PE	Primary Effluent from conventional primaries
PE 30	Primary Effluent from conventional primaries discharged via Outfall 30
EPT	Enhanced Primary Treatment
EPE	Enhanced Primary Effluent
EPEP	Enhanced Primary Effluent and Pump Station
FE	Final Effluent from secondary treatment process (with biological nutrient removal). Pre-Ultraviolet disinfection

FEC	Combined pre-UV disinfection (FE+EPEPS)
OUTFALL 10	UV-disinfected, discharged via OUTFALL 10
OUTFALL 20	Combined Bypass (RAW + PE + EPE)
OUTFALL 30	Combined Bypass (INF + INFS + PE30 + EPE)
MPW	Membrane Product Water (Effluent re-use water)
ML	Megalitre (1,000,000 Litre)
MPN	Most Probable Number
NR	No Result
NS	No Sample
INS	Insufficient Sample

Abhishek Bhargava
Senior Manager, Operations

Shane Harnish
Senior Manager, Analytical Operations

PROVIDING MORE EPCOR

Gold Bar Wastewater Treatment Plant
Plant Performance Report
March 2018

Digested Sludge: Total Monthly Volume (ML)	70.54

		Volume of Flow (ML)							Liquid Stream Quality															
		Influent	Effluent						pH@25°C				TSS (mg/L)						BOD_5/$cBOD_5$ (mg/L)					
			Non UV Disinfected			UV Disinfected																		
DATE	Peak Flow (MLD)	RAW	OUTFALL 30	OUTFALL 20	MPW	EPEPS	OUTFALL 10 FEC	OUTFALL 10 FE	RAW	OUTFALL 30	OUTFALL 20	OUTFALL 10 FEC	RAW	OUTFALL 30	OUTFALL 20	EPEPS	OUTFALL 10 FEC	OUTFALL 10 FE	RAW BOD_5	OUTFALL 30 BOD_5	OUTFALL 20 BOD_5	EPEPS BOD_5	OUTFALL 10 FEC $cBOD_5$	OUTFALL 10 FE $cBOD_5$
Thu 01	297.75	241.46	0.00	0.00	10.58	0.00	230.88	230.88	7.5			7.4	300				6.2	6.2	236				3	3
Fri 02	362.99	240.61	0.00	0.00	10.73	0.00	229.88	229.88	7.5			7.5	356				5.1	5.1	384				3	3
Sat 03	374.12	235.17	0.00	0.00	10.66	0.00	224.51	224.51	7.6			7.5	302				7.6	7.6	295				3	3
Sun 04	362.94	241.01	0.00	0.00	10.21	0.00	230.80	230.80	7.4			7.4	343				8.1	8.1	344				3	3
Mon 05	329.20	246.12	0.00	0.00	9.15	0.00	236.97	236.97	7.6			7.3	340				10.9	10.9	287				5	5
Tue 06	320.27	243.73	0.00	0.00	9.88	0.00	233.85	233.85	7.5			7.3	360				7.0	7.0	328				4	4
Wed 07	321.25	243.56	0.00	0.00	10.13	0.00	233.43	233.43	7.5			7.4	356				7.2	7.2	356				4	4
Thu 08	376.31	243.55	0.00	0.00	10.40	0.00	233.15	233.15	7.6			7.4	380				5.1	5.1	277				4	4
Fri 09	387.74	242.35	0.00	0.00	10.51	0.00	231.84	231.84	7.6			7.4	272				10.1	10.1	325				4	4
Sat 10	471.10	273.39	14.96	0.00	10.45	0.00	247.98	247.98	7.6	7.4		7.5	400	73			9.6	9.6	364	131			6	6
Sun 11	494.39	275.81	30.08	0.00	10.74	0.00	234.99	234.99	7.6	7.4		7.4	380	101			6.2	6.2	296	128			5	5
Mon 12	474.40	293.03	27.91	0.00	11.66	0.00	253.46	253.46	7.5	7.4		7.4	372	44			10.7	10.7	291	142			6	6
Tue 13	465.04	286.09	20.83	0.00	12.16	0.00	253.10	253.10	7.8	7.7		7.5	400	85			21.7	21.7	328	127			8	8
Wed 14	447.23	290.22	20.50	0.00	11.34	0.00	258.38	258.38	7.6	7.7		7.3	356	58			61.3	61.3	287	134			13	13
Thu 15	403.72	265.87	4.38	0.00	10.29	0.00	251.20	251.20	7.6	7.7		7.3	292	59			7.2	7.2	202	122			5	5
Fri 16	454.65	278.71	7.35	0.00	10.46	0.00	260.90	260.90	7.6	7.8		7.3	320	108			7.3	7.3	316	162			5	5
Sat 17	424.65	269.95	3.43	0.00	10.46	0.00	256.06	256.06	7.5	7.6		7.4	348	105			5.2	5.2	347	223			5	5
Sun 18	436.47	277.53	12.80	0.00	10.10	0.00	254.63	254.63	7.6	7.6		7.3	416	101			4.6	4.6	434	191			6	6
Mon 19	400.56	269.63	3.83	0.00	8.08	0.00	257.72	257.72	7.5	7.5		7.3	294	75			6.8	6.8	310	215			4	4
Tue 20	686.21	341.52	54.73	0.00	7.40	0.00	279.39	279.39	7.5	7.5		7.4	536	88			8.1	8.1	242	113			4	4
Wed 21	552.54	337.38	46.52	0.00	9.96	0.00	280.90	280.90	7.5	7.6		7.3	484	54			5.1	5.1	288	141			3	3
Thu 22	467.85	290.80	10.02	0.00	11.21	0.00	269.57	269.57	7.5	7.4		7.4	329	55			5.8	5.8	382	131			3	3
Fri 23	757.48	345.53	63.59	0.00	9.60	0.00	272.34	272.34	7.3	7.3		7.3	472	98			5.1	5.1	260	102			3	3
Sat 24	540.77	305.77	19.59	0.00	9.17	0.00	277.01	277.01	7.6	7.6		7.2	340	36			6.0	6.0	230	103			4	4
Sun 25	490.37	294.90	13.35	0.00	9.00	0.00	272.55	272.55	7.6	7.4		7.3	309	60			5.3	5.3	275	170			3	3
Mon 26	512.67	306.52	17.67	0.00	10.09	0.00	278.76	278.76	7.5	7.5		7.4	314	78			5.0	5.0	230	125			4	4
Tue 27	371.92	277.85	0.00	0.00	10.93	0.00	266.92	266.92	7.6			7.4	352				4.2	4.2	239				4	4
Wed 28	396.20	269.25	0.00	0.00	11.61	0.00	257.64	257.64	7.5			7.3	404				5.7	5.7	350				4	4
Thu 29	343.61	251.74	0.00	0.00	10.81	0.00	240.93	240.93	7.5			7.4	296				6.2	6.2	245				4	4
Fri 30	330.95	238.37	0.00	0.00	9.76	0.00	228.61	228.61	7.5			7.3	300				6.0	6.0	296				4	4
Sat 31	312.36	238.98	0.00	0.00	10.45	0.00	228.53	228.53	7.6			7.3	284				5.3	5.3	334				4	4
Average	431.22	272.79	11.99	0.00	10.26	0.00	250.54	250.54	7.5	7.5	---	7.4	355	75	---	---	8.9	8.9	303	145	---	---	4.5	4.5
Minimum	297.75	235.17	0.00	0.00	7.40	0.00	224.51	224.51	7.3	7.3	---	7.2	272	36	---	---	4.2	4.2	202	102	---	---	3.0	3.0
Maximum	757.48	345.53	63.59	0.00	12.16	0.00	280.90	280.90	7.8	7.8	---	7.5	536	108	---	---	61.3	61.3	434	223	---	---	13.0	13.0
GeoMean	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL	---	8,456	372	0	318	0	7,767	7,767	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

	Liquid Stream Quality																											
	TP (mg/L)						NH3-N (mg/L)						TKN (mg/L)				NO_2+NO_3 (mg/L)				Chloride (mg/L)				*E. coli* (Counts/100 mL)			
DATE	RAW	OUTFALL 30	OUTFALL 20	EPEPS	OUTFALL 10 FEC	OUTFALL 10 FE	RAW	OUTFALL 30	OUTFALL 20	EPEPS	OUTFALL 10 FEC	OUTFALL 10 FE	RAW	OUTFALL 30	OUTFALL 20	OUTFALL 10 FEC	RAW	OUTFALL 30	OUTFALL 20	OUTFALL 10 FEC	RAW	OUTFALL 30	OUTFALL 20	OUTFALL 10 FEC	RAW X10^6	OUTFALL 30 X10^6	OUTFALL 20 X10^6	OUTFALL 10 FEC
Thu 01	7.18				0.34	0.34	34.7				2.64	2.64	54.5			4.60				11.8	144			192				10
Fri 02	7.55				0.37	0.37	36.5				3.96	3.96	57.5			5.66				12.3	98.2			139				9
Sat 03	7.04				0.51	0.51	37.3				4.82	4.82	54.7			6.40				12.4	108			110				11
Sun 04	6.92				0.61	0.61	35.2				4.68	4.68	54.6			6.05				11.3	173			128				14
Mon 05	7.56				0.42	0.42	32.0				3.58	3.58	57.6			5.47				12.3	132			150				8
Tue 06	7.90				0.33	0.33	37.7				2.31	2.31	64.5			4.05				12.0	130			146				8
Wed 07	8.32				0.32	0.32	34.4				3.38	3.38	66.7			5.64	< 0.01			11.7	127			141				8
Thu 08	7.94				0.33	0.33	38.4				6.38	6.38	62.9			8.22				13.4	113			134				6
Fri 09	8.18				0.37	0.37	41.8				6.96	6.96	61.9			7.98				12.7	111			125				12
Sat 10	7.63	3.06			0.38	0.38	40.0	34.5			7.62	7.62	57.4	42.9		8.52		0.09		12.9	258	468		126		2.9		6
Sun 11	6.27	4.21			0.35	0.35	34.2	35.7			5.80	5.80	50.5	45.2		7.39		0.10		12.7	272	354		234		1.9		6
Mon 12	6.34	2.60			0.31	0.31	36.4	39.0			4.62	4.62	49.4	42.9		5.60		0.50		11.7	230	313		250		1.6		2
Tue 13	7.06	3.00			0.73	0.73	33.9	30.9			4.37	4.37	54.3	39.9		11.3		1.93		12.5	208	343		270		1.3		3
Wed 14	6.63	3.92			1.84	1.84	36.5	39.2			5.42	5.42	52.8	48.2		11.3	< 0.01	0.42		9.02	208	267		217		1.6		6
Thu 15	7.13	3.50			0.30	0.30	43.3	36.5			4.97	4.97	57.2	43.1		6.34		0.07		12.5	129	233		192		2.9		6
Fri 16	7.14	4.96			0.31	0.31	42.2	40.6			5.64	5.64	55.6	50.2		6.93		2.08		13.3	188	278		158		1.5		5
Sat 17	7.56	4.66			0.27	0.27	36.6	36.9			4.97	4.97	60.8	46.6		6.57		1.42		11.7	219	362		195				10
Sun 18	7.41	4.80			0.26	0.26	39.0	37.9			4.90	4.90	59.7	48.0		6.66		2.49		12.7	555	733		277		2.5		7
Mon 19	6.84	3.72			0.27	0.27	40.9	40.1			2.53	2.53	56.1	42.8		5.63		1.32		11.1	170	451		436				7
Tue 20	5.77	3.34			0.27	0.27	34.4	32.7			2.06	2.06	45.9	38.9		5.17		2.20		12.1	229	284		214		1.3		5
Wed 21	6.32	2.34			0.22	0.22	33.0	30.7			1.24	1.24	51.0	35.4		4.86	< 0.01	1.78		12.6	221	241		213		1.5		9
Thu 22	6.26	3.08			0.21	0.21	34.6	33.4			3.40	3.40	53.6	39.8		4.95		1.82		10.1	168	245		202		1.7		11
Fri 23	5.73	2.69			0.22	0.22	28.9	27.7			4.77	4.77	48.0	36.2		6.31		1.78		11.1	427	405		243		1.1		5
Sat 24	5.72	2.71			0.20	0.20	35.8	26.3			2.98	2.98	50.0	36.8		4.45		0.26		11.7	163	193		303		0.9		4
Sun 25	5.61	3.24			0.17	0.17	35.3	32.6			4.62	4.62	53.1	40.8		6.11		0.21		12.0	136	149		197		2.3		5
Mon 26	5.69	3.34			0.18	0.18	32.6	30.8			4.35	4.35	50.1	42.4		5.92		0.22		12.5	130	141		133		3.4		1,500
Tue 27	5.73				0.16	0.16	34.8				3.10	3.10	52.3			4.76				12.5	228			139	1.4			12
Wed 28	7.21				0.21	0.21	39.0				4.10	4.10	59.5			5.45	0.04			13.0	136			232				8
Thu 29	6.35				0.22	0.22	39.8				3.60	3.60	54.8			5.94				14.1	88			159				10
Fri 30	6.38				0.21	0.21	41.1				3.21	3.21	55.1			4.74				15.9	239			140				4
Sat 31	6.06				0.22	0.22	41.5				3.26	3.26	53.6			4.70				16.1	134			235				2
Average	6.82	3.48	---	---	0.36	0.36	36.8	34.4	---	---	4.20	4.20	55.3	42.4	---	6.25	0.01	1.10	---	12.4	189	321	---	195	---	---	---	---
Minimum	5.61	2.34	---	---	0.16	0.16	28.9	26.3	---	---	1.24	1.24	45.9	35.4	---	4.05	< 0.01	0.07	---	9.02	88.2	141	---	110	1.4	0.9	---	2
Maximum	8.32	4.96	---	---	1.84	1.84	43.3	40.6	---	---	7.62	7.62	66.7	50.2	---	11.3	0.04	2.49	---	16.1	555	733	---	436	1.4	3.4	---	1500
GeoMean	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1.4	1.8	---	8
TOTAL	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

* contact Laboratory for information about the quality assurance associated with the result

Enhanced Primary Treatment (EPT) Usage					
Total Bypass (hrs)	EPT Usage (hrs)		Total Bypass YTD (hrs)	EPT Usage YTD	% Usage YTD
50	50	100	50	50	100.00%

RAW	Untreated Influent into the plant
INF	Untreated Wastewater from collection system
INFs	Influent, screened at the Headworks Diversion Structure
PE	Primary Effluent from conventional primaries
PE 30	Primary Effluent from conventional primaries discharged via Outfall 30
EPT	Enhanced Primary Treatment
EPE	Enhanced Primary Effluent
EPEP	Enhanced Primary Effluent and Pump Station
FE	Final Effluent from secondary treatment process (with biological nutrient removal). Pre-Ultraviolet disinfection
FEC	Combined pre-UV disinfection (FE+EPEPS)
OUTFALL 10	UV-disinfected, discharged via OUTFALL 10
OUTFALL 20	Combined Bypass (RAW + PE + EPE)
OUTFALL 30	Combined Bypass (INF + INFS + PE30 + EPE)
MPW	Membrane Product Water (Effluent re-use water)
ML	Megalitre (1,000,000 Litre)
MPN	Most Probable Number
NR	No Result
NS	No Sample
INS	Insufficient Sample

Report Comments

1.	OUTFALL 10 - March 26, 2018: Analysis of this sample was repeated and exceeded the recommended holding time for *E. coli* .
2.	RAW - March 01, 2018: Analysis of this sample was repeated and exceeded the recommended holding time for BOD.

Abhishek Bhargava
Senior Manager, Operations

Shane Harnish
Senior Manager, Analytical Operations

AEP Ref #**

** AEP - Alberta Environment & Parks

Gold Bar Wastewater Treatment Plant
Plant Performance Report
April 2018

Digested Sludge: Total Monthly Volume (ML)	67.63

DATE	Peak Flow (MLD)	Volume of Flow (ML)								pH@25°C				TSS (mg/L)					
		Influent	Effluent																
			Non UV Disinfected				UV Disinfected												
								OUTFALL 10					OUTFALL 10					OUTFALL 10	
		RAW	OUTFALL 30	OUTFALL 20	MPW	OUTFALL 20	EPEPS	FEC	FE	RAW	OUTFALL 30	OUTFALL 20	FEC	RAW	OUTFALL 30	OUTFALL 20	EPEPS	FEC	FE
Sun 01	320.91	241.15	0.00	0.00	8.37	0.00	0.00	232.78	232.78	7.6			7.3	388				5.9	5.9
Mon 02	389.52	255.68	0.00	0.00	8.56	0.00	0.00	247.12	247.12	7.7			7.3	328				5.6	5.6
Tue 03	388.37	262.24	0.00	0.00	8.55	0.00	0.00	253.69	253.69	7.6			7.3	312				6.8	6.8
Wed 04	320.75	248.62	0.00	0.00	7.32	0.00	0.00	241.30	241.30	7.5			7.2	564				5.4	5.4
Thu 05	319.67	247.56	0.00	0.00	8.86	0.00	0.00	238.70	238.70	7.6			7.3	297				5.7	5.7
Fri 06	319.82	247.38	0.00	0.00	8.58	0.00	0.00	238.80	238.80	7.6			7.4	368				6.4	6.4
Sat 07	326.14	244.29	0.00	0.00	8.28	0.00	0.00	236.01	236.01	7.6			7.2	306				6.5	6.5
Sun 08	377.47	251.15	0.00	0.00	7.50	0.00	0.00	243.65	243.65	7.7			7.3	320				11.1	11.1
Mon 09	403.35	266.07	0.00	0.00	3.65	0.00	0.00	262.42	262.42	7.6			7.3	396				16.0	16.0
Tue 10	600.29	347.62	62.02	0.00	2.79	0.00	0.00	282.81	282.81	7.5	7.4		7.2	392	93			18.0	18.0
Wed 11	387.61	294.32	3.79	0.00	2.72	0.00	0.00	287.81	287.81	7.6	7.4		7.2	272	49			72.0	72.0
Thu 12	365.39	265.18	0.00	0.00	0.12	0.00	0.00	265.06	265.06	7.7			7.3	282				8.8	8.8
Fri 13	685.93	320.59	43.75	0.00	0.00	0.00	0.00	276.84	276.84	7.7	7.5		7.3	388	108			7.2	7.2
Sat 14	789.71	381.13	88.78	0.00	0.00	0.00	0.00	292.35	292.35	7.6	7.5		7.3	257	82			5.3	5.3
Sun 15	641.44	374.87	74.78	0.00	0.00	0.00	0.00	300.09	300.09	7.5	7.4		7.2	216	57			4.2	4.2
Mon 16	552.86	343.36	26.42	0.00	0.00	0.00	0.00	316.94	316.94	7.5	7.4		7.2	376	55			5.3	5.3
Tue 17	1,063.42	496.07	175.36	0.00	0.00	0.00	0.00	320.71	320.71	7.5	7.4		7.2	644	139			5.5	5.5
Wed 18	583.34	382.32	67.18	0.00	0.00	0.00	0.00	315.14	315.14	7.5	7.5		7.2	304	78			5.5	5.5
Thu 19	462.25	333.61	30.45	0.00	0.00	0.00	0.00	303.16	303.16	7.5	7.4		7.2	320	59			5.9	5.9
Fri 20	430.85	307.04	4.98	0.00	0.00	0.00	0.00	302.06	302.06	7.6	7.7		7.3	232	54			6.2	6.2
Sat 21	610.16	319.28	35.30	0.00	0.00	0.00	0.00	283.98	283.98	7.5	7.3		7.2	326	61			4.0	4.0
Sun 22	404.12	290.50	1.20	0.00	0.00	0.00	0.00	289.30	289.30	7.5	7.9		7.3	286	42			5.2	5.2
Mon 23	368.91	278.68	0.00	0.00	0.00	0.00	0.00	278.68	278.68	7.7			7.3	448				8.0	8.0
Tue 24	347.37	260.23	0.00	0.00	0.00	0.00	0.00	260.23	260.23	7.7			7.2	304				7.4	7.4
Wed 25	345.84	259.98	0.00	0.00	0.00	0.00	0.00	259.98	259.98	7.6			7.3	312				8.1	8.1
Thu 26	348.23	262.60	0.00	0.00	0.00	0.00	0.00	262.60	262.60	7.5			7.4	291				10.1	10.1
Fri 27	354.04	262.40	0.00	0.00	0.50	0.00	0.00	261.90	261.90	7.6			7.3	268				7.8	7.8
Sat 28	373.75	258.14	0.00	0.00	3.96	0.00	0.00	254.18	254.18	7.6			7.3	300				8.6	8.6
Sun 29	359.26	257.19	0.00	0.00	3.08	0.00	0.00	254.11	254.11	7.6			7.3	276				10.2	10.2
Mon 30	346.77	256.80	0.00	0.00	4.52	0.00	0.00	252.28	252.28	7.6			7.3	292				7.7	7.7
Average	452.92	293.87	20.47	0.00	2.91	0.00	0.00	270.49	270.49	7.6	7.5	---	7.3	336	73	---	---	9.7	9.7
Minimum	319.67	241.15	0.00	0.00	0.00	0.00	0.00	232.78	232.78	7.5	7.3	---	7.2	216	42	---	---	4.0	4.0
Maximum	1,063.42	496.07	175.36	0.00	8.86	0.00	0.00	320.71	320.71	7.7	7.9	---	7.4	644	139	---	---	72.0	72.0
GeoMean	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL	---	8,816	614	0	87	0.00	0	8,115	8,115	---	---	---	---	---	---	---	---	---	---

DATE	Liquid Stream Quality																	
	BOD_5/$cBOD_5$ (mg/L)						TP (mg/L)						NH3-N (mg/L)					
					OUTFALL 10						OUTFALL 10						OUTFALL 10	
	RAW	OUTFALL 30	OUTFALL 20	EPEPS	FEC	FE	RAW	OUTFALL 30	OUTFALL 20	EPEPS	FEC	FE	RAW	OUTFALL 30	OUTFALL 20	EPEPS	FEC	FE
	BOD_5	BOD_5	BOD_5	BOD_5	$cBOD_5$	$cBOD_5$												
Sun 01	284				4	4	6.18				0.20	0.20	39.8				2.83	2.83
Mon 02	354				4	4	6.63				0.21	0.21	34.3				3.40	3.40
Tue 03	318				3	3	6.70				0.27	0.27	42.1				4.54	4.54
Wed 04	415				3	3	5.53				0.27	0.27	44.3				3.32	3.32
Thu 05	382				4	4	7.15				0.26	0.26	43.0				3.48	3.48
Fri 06	392				3	3	7.28				0.30	0.30	43.8				3.23	3.23
Sat 07	239				4	4	7.25				0.36	0.36	44.2				3.57	3.57
Sun 08	350				5	5	7.74				0.45	0.45	46.2				3.73	3.73
Mon 09	344				5	5	8.58				0.59	0.59	40.5				2.98	2.98
Tue 10	271	136			6	6	6.92	4.74			0.69	0.69	33.6	31.0			3.28	3.28
Wed 11	246	116			14	14	7.42	4.04			2.21	2.21	37.8	32.9			2.40	2.40
Thu 12	281				4	4	7.66				0.38	0.38	39.9				4.13	4.13
Fri 13	328	129			4	4	6.48	4.34			0.42	0.42	33.5	28.7			4.89	4.89
Sat 14	216	124			3	3	5.09	4.55			0.34	0.34	27.0	29.1			2.09	2.09
Sun 15	204	124			3	3	5.24	3.90			0.26	0.26	27.3	29.7			1.23	1.23
Mon 16	274	110			3	3	5.72	4.10			0.30	0.30	30.6	32.5			1.97	1.97
Tue 17	201	108			2	2	4.94	3.79			0.37	0.37	17.0	25.5			2.65	2.65
Wed 18	228	134			3	3	5.18	4.11			0.26	0.26	24.3	30.7			1.20	1.20
Thu 19	228	113			3	3	6.01	4.09			0.28	0.28	29.9	34.1			2.73	2.73
Fri 20	216	125			3	3	6.20	3.75			0.31	0.31	30.9	31.4			2.80	2.80
Sat 21	260	126			4	4	6.38	4.03			0.40	0.40	31.6	35.3			3.42	3.42
Sun 22	317	121			3	3	6.82	3.32			0.32	0.32	14.5	24.3			2.64	2.64
Mon 23	311				4	4	7.72				0.40	0.40	39.9				3.47	3.47
Tue 24	282				5	5	7.27				0.50	0.50	38.0				2.66	2.66
Wed 25	307				4	4	8.90				0.60	0.60	36.6				2.34	2.34
Thu 26	290				5	5	8.07				0.65	0.65	37.7				3.51	3.51
Fri 27	287				4	4	8.03				0.52	0.52	38.1				3.15	3.15
Sat 28	293				4	4	7.48				0.60	0.60	33.8				3.76	3.76
Sun 29	303				6	6	7.29				0.64	0.64	38.7				3.79	3.79
Mon 30	396				6	6	7.47				0.73	0.73	35.1				3.57	3.57
Average	294	122	---	---	4	4	6.84	4.06	---	---	0.47	0.47	35.1	30.4	---	---	3.09	3.09
Minimum	201	108	---	---	2	2	4.94	3.32	---	---	0.20	0.20	14.5	24.3	---	---	1.20	1.20
Maximum	415	136	---	---	14	14	8.90	4.74	---	---	2.21	2.21	46.2	35.3	---	---	4.89	4.89
GeoMean	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---
TOTAL	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---

DATE	Liquid Stream Quality															
	TKN (mg/L)				NO_2+NO_3 (mg/L)				Chloride (mg/L)				*E. coli* (Counts/100 mL)			
	RAW	OUTFALL 30	OUTFALL 20	OUTFALL 10	RAW	OUTFALL 30	OUTFALL 20	OUTFALL 10	RAW	OUTFALL 30	OUTFALL 20	OUTFALL 10	RAW	OUTFALL 30	OUTFALL 20	OUTFALL 10
				FEC				FEC				FEC	X10^6	X10^6	X10^6	FEC
Sun 01	75.8			4.52				15.3	121			172				2
Mon 02	58.2			5.00				16.0	114			141				13
Tue 03	59.0			6.11				14.0	113			125				9
Wed 04	54.1			4.77	0.16			15.8	114			108	2.6			12
Thu 05	62.6			5.19				16.3	108			107	2.3			10
Fri 06	61.5			4.93				19.7	103			101				2
Sat 07	60.6			5.48				19.0	86.2			98.6				7
Sun 08	60.4			5.65				18.6	86.6			87.2				5
Mon 09	58.4			5.81				17.2	111			91.7				1
Tue 10	47.4	44.1		6.02		0.43		14.5	119	127		117		2.4		10
Wed 11	54.5	39.7		8.79	< 0.01	0.31		12.1	164	114		149		1.0		110
Thu 12	61.8			6.42				14.2	100			144				10
Fri 13	47.2	38.0		6.57		0.38		15.8	180	196		136		0.8		20
Sat 14	38.5	39.1		3.88		0.31		15.4	100	110		156		1.7		22
Sun 15	40.8	37.4		2.96		0.62		13.1	103	103		114		1.4		23
Mon 16	46.3	39.7		3.77		0.51		13.4	138	182		109		1.8		18
Tue 17	33.1	33.1		4.47		0.72		13.1	164	176		200		1.5		29
Wed 18	39.3	39.6		2.96	0.04	0.39		10.5	106	115		144		1.0		29
Thu 19	44.2	42.6		4.62		0.32		12.7	110	123		118	1.5	1.2		36
Fri 20	47.5	40.2		4.73		0.57		14.8	105	100		118		1.7		16
Sat 21	48.0	42.5		5.25		0.07		15.5	119	154		118		2.8		13
Sun 22	54.9	41.4		4.27		0.26		14.5	96.1	109		121		1.2		13
Mon 23	59.8			5.39				15.2	104			113				11
Tue 24	55.3			5.24				15.6	109			112				6
Wed 25	63.6			4.57	< 0.01			15.8	104			112				15
Thu 26	55.9			5.75				14.7	94.0			110	1.7			14
Fri 27	58.9			5.96				14.7	102			109				14
Sat 28	56.8			6.71				14.2	89.0			112				25
Sun 29	54.9			6.18				13.7	88.6			101				36
Mon 30	54.3			6.61				14.7	85.5			92.1				19
Average	53.8	39.8	---	5.29	0.05	0.41	---	15.0	111.2	134	---	121.2	---	---	---	---
Minimum	33.1	33.1	---	2.96	0.01	0.07	---	10.5	85.5	100	---	87.2	1.5	0.8	---	1
Maximum	75.8	44.1	---	8.8	0.16	0.72	---	19.7	180	196	---	200	2.6	2.8	---	110
GeoMean	---	---	---	---	---	---	---	---	---	---	---	---	2.0	1.5	---	13
TOTAL	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

* contact Laboratory for information about the quality assurance associated with the result

Enhanced Primary Treatment (EPT) Usage					
Total Bypass (hrs)	EPT Usage (hrs)	% Usage	Total Bypass YTD (hrs)	EPT Usage YTD	% Usage
87	87	100%	137	137	100.00%

Report Comments

1.	OUTFALL 30 - April 20, 2018: Analysis of one of two samples collected on April 20 was repeated and recommended holding time consequently exceeded the recommended holding time for *E. coli*.
2.	RAW - April 07, 2018: Analysis of this sample was repeated and exceeded the recommended holding time for BOD. BOD.

AEP Ref #**

** AEP - Alberta Environment & Parks

RAW	Untreated Influent into the plant
INF	Untreated Wastewater from collection system
INFs	Influent, screened at the Headworks Diversion Structure
PE	Primary Effluent from conventional primaries
PE 30	Primary Effluent from conventional primaries discharged via Outfall 30
EPT	Enhanced Primary Treatment
EPE	Enhanced Primary Effluent
EPEP	Enhanced Primary Effluent and Pump Station
FE	Final Effluent from secondary treatment process (with biological nutrient removal). Pre-Ultraviolet disinfection

FEC	Combined pre-UV disinfection (FE+EPEPS)
OUTFALL 10	UV-disinfected, discharged via OUTFALL 10
OUTFALL 20	Combined Bypass (RAW + PE + EPE)
OUTFALL 30	Combined Bypass (INF + INFS + PE30 + EPE)
MPW	Membrane Product Water (Effluent re-use water)
ML	Megalitre (1,000,000 Litre)
MPN	Most Probable Number
NR	No Result
NS	No Sample
INS	Insufficient Sample

Abhishek Bhargava
Senior Manager, Operations

Shane Harnish
Senior Manager, Analytical Operations

PROVIDING MORE EPCOR

Gold Bar Wastewater Treatment Plant
Plant Performance Report
May 2018

Digested Sludge: Total Monthly Volume (ML)	72.80

Volume of Flow (ML)

DATE	Peak Flow (MLD)	Influent RAW	Effluent: Non UV Disinfected OUTFALL 30	Non UV Disinfected OUTFALL 20	Non UV Disinfected MPW	UV Disinfected EPEPS	UV Disinfected OUTFALL 10 FEC	UV Disinfected OUTFALL 10 FE
Tue 01	333.11	253.55	0.00	0.00	5.30	0.00	248.25	248.25
Wed 02	330.23	250.93	0.00	0.00	5.22	0.00	245.71	245.71
Thu 03	313.80	256.95	0.00	0.00	5.35	0.00	251.60	251.60
Fri 04	315.04	247.14	0.00	0.00	5.48	0.00	241.66	241.66
Sat 05	341.07	241.40	0.00	0.00	3.64	0.00	237.76	237.76
Sun 06	336.36	254.57	0.00	0.00	5.42	0.00	249.15	249.15
Mon 07	342.23	267.01	0.00	0.00	5.23	0.00	261.78	261.78
Tue 08	322.44	255.46	0.00	0.00	7.33	0.00	248.13	248.13
Wed 09	310.74	250.23	0.00	0.00	8.05	0.00	242.18	242.18
Thu 10	359.95	263.97	0.00	0.00	7.35	0.00	256.62	256.62
Fri 11	311.98	251.07	0.00	0.00	5.52	0.00	245.55	245.55
Sat 12	340.89	245.80	0.00	0.00	5.87	0.00	239.93	239.93
Sun 13	336.57	245.52	0.00	0.00	5.85	0.00	239.67	239.67
Mon 14	344.52	251.89	0.00	0.00	5.88	0.00	246.01	246.01
Tue 15	347.91	251.32	0.00	0.00	5.87	0.00	245.45	245.45
Wed 16	338.58	263.30	0.00	0.00	6.17	0.00	257.13	257.13
Thu 17	330.89	262.30	0.00	0.00	6.05	0.00	256.25	256.25
Fri 18	368.83	265.01	0.00	0.00	5.61	0.00	259.40	259.40
Sat 19	310.82	241.29	0.00	0.00	6.21	0.00	235.08	235.08
Sun 20	313.87	235.68	0.00	0.00	6.33	0.00	229.35	229.35
Mon 21	327.49	249.62	0.00	0.00	6.93	0.00	242.69	242.69
Tue 22	327.24	266.57	0.00	0.00	9.23	0.00	257.34	257.34
Wed 23	320.30	262.09	0.00	0.00	9.30	0.00	252.79	252.79
Thu 24	380.23	264.93	0.00	0.00	9.46	0.00	255.47	255.47
Fri 25	331.34	262.24	0.00	0.00	11.45	0.00	250.79	250.79
Sat 26	332.35	252.49	0.00	0.00	11.42	0.00	241.07	241.07
Sun 27	360.21	255.70	0.00	0.00	12.67	0.00	243.03	243.03
Mon 28	440.65	265.98	0.00	0.00	12.40	0.00	253.58	253.58
Tue 29	542.72	277.75	12.70	0.00	12.02	0.00	253.03	253.03
Wed 30	662.82	356.82	65.70	0.00	11.51	0.00	279.61	279.61
Thu 31	369.62	257.47	0.00	0.00	11.22	0.00	246.25	246.25
Average	356.28	258.90	2.53	0.00	7.59	0.00	248.78	248.78
Minimum	310.74	235.68	0.00	0.00	3.64	0.00	229.35	229.35
Maximum	662.82	356.82	65.70	0.00	12.67	0.00	279.61	279.61
GeoMean	---	---	---	---	---	---	---	---
TOTAL	---	8,026	78	0	235	0	7,712	7,712

Liquid Stream Quality

DATE	pH@25°C RAW	pH@25°C OUTFALL 30	pH@25°C OUTFALL 20	pH@25°C OUTFALL 10 FEC	TSS (mg/L) RAW	TSS (mg/L) OUTFALL 30	TSS (mg/L) OUTFALL 20	TSS (mg/L) EPEPS	TSS (mg/L) OUTFALL 10 FEC	TSS (mg/L) OUTFALL 10 FE
Tue 01	7.5			7.3	312				14.4	14.4
Wed 02	7.6			7.3	276				6.2	6.2
Thu 03	7.6			7.3	266				13.5	13.5
Fri 04	7.6			7.4	332				10.0	10.0
Sat 05	7.6			7.6	308				9.6	9.6
Sun 06	7.6			7.4	304				9.6	9.6
Mon 07	7.5			7.4	372				7.4	7.4
Tue 08	7.5			7.6	1180				8.8	8.8
Wed 09	7.6			7.6	280				7.9	7.9
Thu 10	7.5			7.4	308				15.5	15.5
Fri 11	7.5			7.4	336				5.1	5.1
Sat 12	7.6			7.4	252				8.4	8.4
Sun 13	7.5			7.5	324				7.1	7.1
Mon 14	7.8			7.5	283				9.8	9.8
Tue 15	7.5			7.5	292				7.0	7.0
Wed 16	7.6			7.4	420				9.7	9.7
Thu 17	7.5			7.5	288				8.3	8.3
Fri 18	7.6			7.4	280				7.1	7.1
Sat 19	7.6			7.5	337				6.5	6.5
Sun 20	7.6			7.6	312				6.3	6.3
Mon 21	7.6			7.4	304				7.6	7.6
Tue 22	7.3			7.5	308				6.7	6.7
Wed 23	7.5			7.5	312				6.0	6.0
Thu 24	7.5			7.6	488				5.9	5.9
Fri 25	7.6			7.4	257				7.0	7.0
Sat 26	7.7			7.5	408				7.9	7.9
Sun 27	7.7			7.5	260				8.5	8.5
Mon 28	7.5			7.4	269				10.2	10.2
Tue 29	7.6	7.3		7.4	464	88			9.9	9.9
Wed 30	7.4	7.4		7.3	388	92			25.7	25.7
Thu 31	7.6			7.4	364				20.3	20.3
Average	7.6	7.3	---	7.4	351	90	---	---	9.5	9.5
Minimum	7.3	7.3	---	7.3	252	88	---	---	5.1	5.1
Maximum	7.8	7.4	---	7.6	1180	92	---	---	25.7	25.7
GeoMean	---	---	---	---	---	---	---	---	---	---
TOTAL	---	---	---	---	---	---	---	---	---	---

DATE	BOD_5/$cBOD_5$ (mg/L) RAW	BOD_5 OUTFALL 30	BOD_5 OUTFALL 20	BOD_5 EPEPS	$cBOD_5$ OUTFALL 10 FEC	$cBOD_5$ OUTFALL 10 FE	TP (mg/L) RAW	TP OUTFALL 30	TP OUTFALL 20	TP EPEPS	TP OUTFALL 10 FEC	TP OUTFALL 10 FE
Tue 01	299				5	5	7.24				0.79	0.79
Wed 02	305				5	5	9.18				0.71	0.71
Thu 03	338				6	6	8.15				0.84	0.84
Fri 04	310				3	3	8.50				0.72	0.72
Sat 05	296				6	6	8.58				0.64	0.64
Sun 06	308				5	5	8.45				0.50	0.50
Mon 07	380				5	5	8.50				0.58	0.58
Tue 08	776				6	6	15.6				0.59	0.59
Wed 09	306				5	5	7.8				0.38	0.38
Thu 10	290				4	4	7.83				0.45	0.45
Fri 11	295				5	5	7.39				0.41	0.41
Sat 12	262				5	5	7.65				0.38	0.38
Sun 13	308				4	4	7.58				0.41	0.41
Mon 14	315				6	6	7.89				0.43	0.43
Tue 15	289				5	5	8.14				0.47	0.47
Wed 16	342				4	4	8.3				0.49	0.49
Thu 17	289				5	5	6.91				0.46	0.46
Fri 18	338				5	5	7.74				0.48	0.48
Sat 19	300				4	4	7.82				0.39	0.39
Sun 20	262				4	4	7.47				0.35	0.35
Mon 21	296				4	4	8.32				0.39	0.39
Tue 22	294				4	4	7.71				0.40	0.40
Wed 23	309				4	4	8.12				0.37	0.37
Thu 24	286				5	5	8.66				0.44	0.44
Fri 25	269				5	5	8.07				0.42	0.42
Sat 26	324				5	5	7.41				0.42	0.42
Sun 27	251				5	5	7.71				0.50	0.50
Mon 28	271				5	5	7.70				0.50	0.50
Tue 29	312	153			5	5	8.29	4.46			0.54	0.54
Wed 30	300	129			8	8	7.10	4.46			1.16	1.16
Thu 31	317				6	6	8.18				0.89	0.89
Average	317	141	---	---	4.9	4.9	8.19	4.46	---	---	0.53	0.53
Minimum	251	129	---	---	3	3	6.91	4.46	---	---	0.35	0.35
Maximum	776	153	---	---	8	8	15.6	4.46	---	---	1.16	1.16
GeoMean	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL	---	---	---	---	---	---	---	---	---	---	---	---

DATE	NH3-N (mg/L) RAW	NH3-N OUTFALL 30	NH3-N OUTFALL 20	NH3-N EPEPS	NH3-N OUTFALL 10 FEC	NH3-N OUTFALL 10 FE	TKN (mg/L) RAW	TKN OUTFALL 30	TKN OUTFALL 20	TKN OUTFALL 10 FEC
Tue 01	36.3				3.19	3.19	56.8			5.91
Wed 02	36.4				4.00	4.00	62.8			6.62
Thu 03	34.0				4.53	4.53	59.7			7.81
Fri 04	38.6				3.40	3.40	62.2			6.10
Sat 05	33.6				2.65	2.65	58.4			5.76
Sun 06	39.6				2.94	2.94	58.3			5.20
Mon 07	36.1				2.81	2.81	62.1			5.46
Tue 08	33.9				3.00	3.00	105			5.99
Wed 09	41.2				2.57	2.57	62.5			4.72
Thu 10	42.4				2.79	2.79	64.3			5.53
Fri 11	43.9				3.38	3.38	58.3			6.16
Sat 12	43.9				2.80	2.80	62.5			5.01
Sun 13	42.6				2.43	2.43	63.5			4.93
Mon 14	41.4				2.59	2.59	64.5			5.18
Tue 15	40.4				2.10	2.10	63.6			5.05
Wed 16	41.8				2.39	2.39	63.5			5.37
Thu 17	33.6				2.30	2.30	52.9			4.63
Fri 18	42.1				3.70	3.70	57.7			6.07
Sat 19	39.9				4.39	4.39	56.6			5.98
Sun 20	36.6				2.82	2.82	60.4			5.23
Mon 21	36.1				2.99	2.99	63			5.35
Tue 22	38.9				3.64	3.64	56.5			4.95
Wed 23	36.4				2.45	2.45	51.4			4.80
Thu 24	41.0				1.68	1.68	58.6			3.42
Fri 25	40.5				1.66	1.66	57.1			3.76
Sat 26	39.5				2.37	2.37	59.1			4.13
Sun 27	41.0				2.86	2.86	62.7			5.80
Mon 28	37.6				2.76	2.76	61.3			5.26
Tue 29	39.3	37.8			2.80	2.80	62.5	48.4		5.43
Wed 30	33.7	32.5			2.97	2.97	54.8	41.5		7.01
Thu 31	43.0				1.96	1.96	63.1			5.10
Average	38.9	35.2	---	---	2.87	2.87	61.5	44.9	---	5.41
Minimum	33.6	32.5	---	---	1.66	1.66	51.4	41.5	---	3.42
Maximum	43.9	37.8	---	---	4.53	4.53	105	48.4	---	7.81
GeoMean	---	---	---	---	---	---	---	---	---	---
TOTAL	---	---	---	---	---	---	---	---	---	---

DATE	TKN OUTFALL 10 FE	NO_2+NO_3 (mg/L) RAW	NO_2+NO_3 OUTFALL 30	NO_2+NO_3 OUTFALL 20	NO_2+NO_3 OUTFALL 10 FEC	Chloride (mg/L) RAW	Chloride OUTFALL 30	Chloride OUTFALL 20	Chloride OUTFALL 10 FEC	*E. coli* (Counts/100 mL) RAW	*E. coli* OUTFALL 30	*E. coli* OUTFALL 20	*E. coli* OUTFALL 10 FEC
Tue 01						95.3			92.5				27
Wed 02		0.02			13.8	83.3			95.8				26
Thu 03					11.4	86.1			92.8				23
Fri 04					10.4	83.9			95.9				43
Sat 05					9.80	83.6			93.2				17
Sun 06					9.60	82.3			87.1				28
Mon 07					9.90	83.0			86.4				38
Tue 08					7.5	76.7			90.5				95
Wed 09		< 0.07			8.20	79.4			85.5				19
Thu 10					9.80	94.8			95.8				11
Fri 11					10.1	78.0			102				25
Sat 12					10.1	75.2			93.2				19
Sun 13					10.3	75.2			85.4				10
Mon 14					10.1	75.2			84.5				22
Tue 15					10.7	87.0			100				13
Wed 16		0.04			10.4	85.2			89.8				10
Thu 17					9.8	92.6			104				11
Fri 18					9.0	94.4			94.1				20
Sat 19					9.6	89.6			104				10
Sun 20					11.4	83.3			91.8				20
Mon 21					11.2	78.6			86.1				14
Tue 22					10.3	86.2			90.1				12
Wed 23		< 0.01			9.7	82.8			93.0				8
Thu 24					10.9	82.4			93.3	2.1			5
Fri 25					11.3	76.4			88.7				8
Sat 26					12.2	75.3			86.6				7
Sun 27					12.1	81.9			86.0				10
Mon 28					11.3	77.9			80.9				9
Tue 29			0.03		9.2	85.5	108		89.5		0.8		24
Wed 30		0.01	0.29		8.9	76.6	83.0		88.7	2.2	2.0		81
Thu 31					10.3	76.6			88.7				8
Average		0.02	0.16	---	10.5	82.7	95.3	---	91.5	---	---	---	---
Minimum		< 0.01	0.03	---	7.50	75.2	83.0	---	80.9	2.1	0.8	---	5
Maximum		0.04	0.29	---	16.0	95.3	108	---	104	2.2	2.0	---	95
GeoMean		---	---	---	---	---	---	---	---	2.1	1.3	---	17
TOTAL		---	---	---	---	---	---	---	---	---	---	---	---

* contact Laboratory for information about the quality assurance associated with the result

Enhanced Primary Treatment (EPT) Usage

Total Bypass (hrs)	EPT Usage (hrs)		Total Bypass YTD (hrs)	EPT Usage YTD	% Usage YTD
11	11	100%	148	148	100.00%

Report Comments

1.	OUTFALL 10 - May 04, 2018: Analysis of this sample was repeated, and consequently, exceeded the recommended holding for BOD.
2.	OUTFALL 30 - May 29, 2018: The autosampler failed. The reported values are the arithmetic average of test results developed on two grab samples collected at 00:05 a.m. and 02:05 a.m. respectively.

AEP Ref #**

** AEP - Alberta Environment & Parks

RAW	Untreated Influent into the plant
INF	Untreated Wastewater from collection system
INFs	Influent, screened at the Headworks Diversion Structure
PE	Primary Effluent from conventional primaries
PE 30	Primary Effluent from conventional primaries discharged via Outfall 30
EPT	Enhanced Primary Treatment
EPE	Enhanced Primary Effluent
EPEPS	Enhanced Primary Effluent and Pump Station
FE	Final Effluent from secondary treatment process (with biological nutrient

FEC	Combined pre-UV disinfection (FE+EPEPS)
OUTFALL 10	UV-disinfected, discharged via OUTFALL 10
OUTFALL 20	Combined Bypass (RAW + PE + EPE)
OUTFALL 30	Combined Bypass (INF + INFS + PE30 + EPE)
MPW	Membrane Product Water (Effluent re-use water)
ML	Megalitre (1,000,000 Litre)
MPN	Most Probable Number
NR	No Result
NS	No Sample
INS	Insufficient Sample

Abhishek Bhargava
Senior Manager, Operations

Shane Harnish
Senior Manager, Analytical Operations

Gold Bar Wastewater Treatment Plant
Plant Performance Report
June 2018

Digested Sludge: Total Monthly Volume (ML)	68.86

DATE	Peak Flow (MLD)	Volume of Flow (ML): Influent RAW	Effluent, Non UV Disinfected: OUTFALL 30	Non UV Disinfected: OUTFALL 20	Non UV Disinfected: MPW	UV Disinfected: EPEPS	UV Disinfected: OUTFALL 10 FEC	UV Disinfected: OUTFALL 10 FE	pH@25°C: RAW	pH: OUTFALL 30	pH: OUTFALL 20	pH: OUTFALL 10 FEC	TSS (mg/L): RAW	TSS: OUTFALL 30	TSS: OUTFALL 20	TSS: EPEPS	TSS: OUTFALL 10 FEC	TSS: OUTFALL 10 FE
Fri 01	518.18	278.05	14.29	0.00	12.00	0.00	251.76	251.76	7.5	7.9		7.4	333	60.5			8.5	8.5
Sat 02	331.09	247.08	0.00	0.00	10.94	0.00	236.14	236.14	7.7			7.4	316				10.6	10.6
Sun 03	335.08	248.92	0.00	0.00	10.44	0.00	238.48	238.48	7.6			7.6	334				13.6	13.6
Mon 04	355.73	271.56	0.00	0.00	11.19	0.00	260.37	260.37	7.5			7.9	328				11.4	11.4
Tue 05	335.43	257.84	0.00	0.00	11.34	0.00	246.50	246.50	7.5			7.4	332				9.8	9.8
Wed 06	323.99	252.99	0.00	0.00	10.20	0.00	242.79	242.79	7.6			7.5	388				8.3	8.3
Thu 07	322.64	258.06	0.00	0.00	9.88	0.00	248.18	248.18	7.6			7.5	408				8.8	8.8
Fri 08	328.76	260.92	0.00	0.00	9.89	0.00	251.03	251.03	7.6			7.6	376				8.3	8.3
Sat 09	330.85	245.74	0.00	0.00	9.71	0.00	236.03	236.03	7.6			7.5	348				6.4	6.4
Sun 10	1,457.50	576.63	272.27	0.09	9.67	0.00	294.60	294.60	7.3	7.3	7.3	7.5	628	117	320		9.5	9.5
Mon 11	1,358.02	683.55	336.95	0.00	9.48	0.00	337.12	337.12	7.5	7.7		7.2	204	49.3			7.1	7.1
Tue 12	446.67	320.03	1.17	0.00	10.28	0.00	308.58	308.58	7.6			7.4	254				7.0	7.0
Wed 13	381.60	300.55	0.00	0.00	11.16	0.00	289.39	289.39	7.6			7.4	374				5.4	5.4
Thu 14	453.87	288.96	5.13	0.00	10.89	0.00	272.94	272.94	7.5	7.8		7.4	342	80.7			6.8	6.8
Fri 15	799.61	317.75	36.54	0.02	10.83	0.00	270.36	270.36	7.5	7.5		7.4	402	62.3			7.4	7.4
Sat 16	369.86	263.00	0.00	0.00	10.34	0.00	252.66	252.66	7.6			7.4	349				7.0	7.0
Sun 17	364.98	263.40	0.00	0.00	10.88	0.00	252.52	252.52	7.6			7.4	232				7.5	7.5
Mon 18	360.44	276.73	0.00	0.00	11.17	0.00	265.56	265.56	7.6			7.4	308				10.6	10.6
Tue 19	366.02	274.08	0.00	0.00	10.98	0.00	263.10	263.10	7.5			7.4	288				14.0	14.0
Wed 20	360.45	272.42	0.00	0.00	11.50	0.00	260.92	260.92	7.6			7.5	328				11.4	11.4
Thu 21	372.06	277.81	0.00	0.00	11.15	0.00	266.66	266.66	7.6			7.6	312				9.6	9.6
Fri 22	953.38	320.74	25.35	0.00	9.70	0.00	285.69	285.69	7.6	7.7		7.6	512	82.0			7.1	7.1
Sat 23	416.93	274.26	0.00	0.00	10.40	0.00	263.86	263.86	7.6			7.5	368				6.6	6.6
Sun 24	426.78	271.65	2.42	0.00	9.88	0.00	259.35	259.35	7.7	8.0		7.5	368	111			6.3	6.3
Mon 25	731.36	301.99	15.83	0.03	10.74	0.00	275.39	275.39	7.6	7.7		7.5	468	72.0			7.9	7.9
Tue 26	351.34	267.65	0.00	0.00	11.45	0.00	256.20	256.20	7.7			7.5	316				5.1	5.1
Wed 27	351.03	271.96	0.00	0.00	11.57	0.00	260.39	260.39	7.6			7.4	296				7.4	7.4
Thu 28	356.37	269.61	0.00	0.00	11.41	0.00	258.20	258.20	7.5			7.4	380				5.6	5.6
Fri 29	349.98	255.43	0.00	0.00	11.52	0.00	243.91	243.91	7.6			7.5	312				8.3	8.3
Sat 30	821.74	299.27	35.65	0.01	11.41	0.00	252.20	252.20	7.5	7.5		7.5	544	47.5			9.7	9.7
Average	501.06	298.95	24.85	0.01	10.73	0.00	263.36	263.36	7.6	7.7	7.3	7.5	358	75.8	320	---	8.4	8.4
Minimum	322.64	245.74	0.00	0.00	9.48	0.00	236.03	236.03	7.3	7.3	7.3	7.2	204	47.5	320	---	5.1	5.1
Maximum	1,457.50	683.55	336.95	0.09	12.00	0.00	337.12	337.12	7.7	8.0	7.3	7.9	628	117	320	---	14.0	14.0
GeoMean	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL	---	8,969	746	0	322	0	7,901	7,901	---	---	---	---	---	---	---	---	---	---

Liquid Stream Quality (continued)

DATE	$BOD_5/cBOD_5$ (mg/L): RAW BOD_5	OUTFALL 30 BOD_5	OUTFALL 20 BOD_5	EPEPS BOD_5	OUTFALL 10 FEC $cBOD_5$	OUTFALL 10 FE $cBOD_5$	TP (mg/L): RAW	TP: OUTFALL 30	TP: OUTFALL 20	TP: EPEPS	TP: OUTFALL 10 FEC	TP: OUTFALL 10 FE	NH3-N (mg/L): RAW	NH3-N: OUTFALL 30	NH3-N: OUTFALL 20	NH3-N: EPEPS	NH3-N: OUTFALL 10 FEC	NH3-N: OUTFALL 10 FE
Fri 01	333	126			4	4	8.69	6.91			0.51	0.51	40.2	43.0			2.82	2.82
Sat 02	285				5	5	8.49				0.48	0.48	38.3				1.53	1.53
Sun 03	331				5	5	8.77				0.62	0.62	41.2				2.56	2.56
Mon 04	285				5	5	7.77				0.51	0.51	30.4				1.95	1.95
Tue 05	302				4	4	7.02				0.46	0.46	35.4				1.21	1.21
Wed 06	287				4	4	7.28				0.37	0.37	32.9				1.48	1.48
Thu 07	245				4	4	6.42				0.46	0.46	32.1				1.36	1.36
Fri 08	308				4	4	7.32				0.54	0.54	33.2				1.59	1.59
Sat 09	218				3	3	7.07				0.31	0.31	28.9				1.31	1.31
Sun 10	258	91	127		4	4	4.99	2.16	2.56		0.38	0.38	14.2	11.9	11.1		0.38	0.38
Mon 11	98	49			3	3	2.43	2.34			0.24	0.24	11.9	16.8			0.23	0.23
Tue 12	275				4	4	5.42				0.25	0.25	29.5				5.46	5.46
Wed 13	234				4	4	7.88				0.28	0.28	29.3				3.90	3.90
Thu 14	288	115			4	4	6.73	5.48			0.29	0.29	27.5	34.3			2.11	2.11
Fri 15	301	91			4	4	6.79	2.93			0.29	0.29	32.0	28.4			3.20	3.20
Sat 16	262				4	4	6.40				0.28	0.28	33.2				1.89	1.89
Sun 17	257				3	3	6.61				0.72	0.72	36.1				2.22	2.22
Mon 18	299				4	4	6.84				0.45	0.45	37.4				1.46	1.46
Tue 19	312				5	5	7.31				0.51	0.51	38.1				1.44	1.44
Wed 20	274				6	6	7.05				0.65	0.65	37.4				1.14	1.14
Thu 21	303				4	4	7.16				0.45	0.45	35.6				1.16	1.16
Fri 22	196	87			3	3	6.72	3.89			0.34	0.34	29.1	27.6			1.47	1.47
Sat 23	256				3	3	7.21				0.26	0.26	39.6				1.53	1.53
Sun 24	272	127			4	4	7.76	6.84			0.28	0.28	37.4	46.8			1.89	1.89
Mon 25	310	101			4	4	6.96	4.28			0.31	0.31	34.2	29.9			1.58	1.58
Tue 26	313				4	4	7.80				0.28	0.28	37.1				1.16	1.16
Wed 27	293				4	4	8.19				0.35	0.35	41.2				2.51	2.51
Thu 28	301				4	4	9.92				0.34	0.34	45.8				2.74	2.74
Fri 29	334				6	6	8.00				0.34	0.34	43.0				1.32	1.32
Sat 30	283	126			5	5	7.37	3.04			0.62	0.62	35.6	28.8			1.96	1.96
Average	277	101	127	---	4.1	4.1	7.15	4.21	2.56	---	0.41	0.41	33.9	29.7	11.1	---	1.89	1.89
Minimum	98	49	127	---	3	3	2.43	2.16	2.56	---	0.24	0.24	11.9	11.9	11.1	---	0.23	0.23
Maximum	334	127	127	---	6	6	9.92	6.91	2.56	---	0.72	0.72	45.8	46.8	11.1	---	5.46	5.46
GeoMean	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

DATE	TKN (mg/L): RAW	TKN: OUTFALL 30	TKN: OUTFALL 20	TKN: OUTFALL 10 FEC	NO_2+NO_3 (mg/L): RAW	NO_2+NO_3: OUTFALL 30	NO_2+NO_3: OUTFALL 20	NO_2+NO_3: OUTFALL 10 FEC	Chloride (mg/L): RAW	Chloride: OUTFALL 30	Chloride: OUTFALL 20	Chloride: OUTFALL 10 FEC	*E. coli* (Counts/100 mL): RAW X10^6	*E. coli*: OUTFALL 30 X10^6	*E. coli*: OUTFALL 20 X10^6	*E. coli*: OUTFALL 10 FEC
Fri 01	59.8	49.7		5.10		0.27		11.5	76.7	85.8		82.8		1.4		13
Sat 02	62.8			4.38				10.9	70.0			77.6				10
Sun 03	62.8			4.94				10.7	70.3			78.7				22
Mon 04	58.7			4.16				9.66	82.3			72.8				9
Tue 05	55.1			3.30				7.27	75.7			77.8				23
Wed 06	54.3			3.28	< 0.01			6.83	76.4			81.5				6
Thu 07	52.2			3.50				6.24	71.1			84.2				13
Fri 08	55.8			3.22				6.56	75.0			82.8				6
Sat 09	54.2			3.07				6.89	69.9			80.6				14
Sun 10	30.3	18.6	17.1	2.29		0.59	0.28	5.98	45.9	45.6	36.0	73.1		0.8	0.4	11
Mon 11	22.4	21.4		1.48		2.48		3.10	41.9	55.8		46.3		0.5		1
Tue 12	43.4			7.24				6.02	77.9			68.5		1.5		22
Wed 13	53.3			5.67	< 0.01			6.02	78.0			80.2				10
Thu 14	52.2	54.4		3.64		0.04		5.87	80.2	92.1		80.8	3.4	2.1		31
Fri 15	54.0	34.7		5.03		0.12		7.11	81.7	73.2		85.8		1.6		51
Sat 16	51.8			3.86				8.01	73.2			81.0				25
Sun 17	57.0			4.26				11.7	62.1			80.5				25
Mon 18	57.4			3.65				10.6	83.7			79.9				70
Tue 19	58.4			3.66				8.52	82.8			89.2	2.8			30
Wed 20	57.4			3.85	< 0.15			10.2	86.4			89.2				24
Thu 21	56.3			3.21				9.54	67.6			93.7				45
Fri 22	51.7	37.2		3.53		0.58		9.05	67.4	65.8		84.9		3.7		29
Sat 23	56.5			3.47				10.0	75.5			81.1				11
Sun 24	54.9	58.1		3.23		0.27		10.4	72.7	81.9		79.1		2.9		21
Mon 25	51.1	41.5		3.42		0.04		10.1	72.3	82.4		80.6		2.4		23
Tue 26	60.7			3.02				10.7	80.1			84.2				21
Wed 27	63.5			4.47	0.03			12.3	82.1			87.0				33
Thu 28	64.2			4.62				11.9	78.3			89.0				23
Fri 29	58.3			3.35				10.6	76.6			83.9				13
Sat 30	51.3	33.6		3.66		2.06		10.3	67.3	59.3		87.0		2.1		8
Average	54.1	38.8	17.1	3.85	0.03	0.72	0.28	8.82	73.4	71.3	36.0	80.8	---	---	---	---
Minimum	22.4	18.6	17.1	1.48	< 0.01	0.04	0.28	3.10	41.9	45.6	36.0	46.3	2.8	0.5	0.4	1
Maximum	64.2	58.1	17.1	7.24	0.03	2.48	0.28	12.3	86.4	92.1	36.0	93.7	3.4	3.7	0.4	70
GeoMean	---	---	---	---	---	---	---	---	---	---	---	---	3.1	1.7	0.4	17
TOTAL	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

* Contact Laboratory for information about the quality assurance associated with the result.

Enhanced Primary Treatment (EPT) Usage					
Total Bypass (hrs)	EPT Usage (hrs)		Total Bypass YTD (hrs)	EPT Usage YTD	% Usage
53	53	100%	201	201	100.00%

Report Comments

1.	OUTFALL 10 - June 14, 2018: Recommended holding time was exceeded prior to analysis by 20 hours.
2.	OUTFALL 10 - June 15, 2018: Recommended holding time was exceeded prior to analysis by 2 hours.
3.	OUTFALL 30 - June 14, 2018: Recommended holding time for respective grab samples was exceeded prior to analysis by 14 hours and 12 hours.
4.	OUTFALL 30 - June 22, 2018: Recommended holding was exceeded prior to analysis.
5.	OUTFALL 30 - June 24, 2018: Recommended holding was exceeded prior to analysis by 18 hours.
6.	RAW - June 14, 2018: Recommended holding was exceeded prior to analysis by 20 hours.
7.	RAW - June 22, 2018: Recommended holding was exceeded prior to analysis.

AEP Ref #**

RAW	Untreated Influent into the plant
INF	Untreated Wastewater from collection system
INFs	Influent, screened at the Headworks Diversion Structure
PE	Primary Effluent from conventional primaries
PE 30	Primary Effluent from conventional primaries discharged via Outfall 30
EPT	Enhanced Primary Treatment
EPE	Enhanced Primary Effluent
EPEPS	Enhanced Primary Effluent and Pump Station
FE	Final Effluent from secondary treatment process (with biological nutrient removal).
FEC	Combined pre-UV disinfection (FE+EPEPS)
OUTFALL 10	UV-disinfected, discharged via OUTFALL 10
OUTFALL 20	Combined Bypass (RAW + PE + EPE)
OUTFALL 30	Combined Bypass (INF + INFS + PE30 + EPE)
MPW	Membrane Product Water (Effluent re-use water)
ML	Megalitre (1,000,000 Litre)
MPN	Most Probable Number
NR	No Result
NS	No Sample
INS	Insufficient Sample

Abhishek Bhargava (mm/dd/yyyy)
Senior Manager, Operations

07/31/2018
Steve Craik (mm/dd/yyyy)
Director, Quality Assurance & Environment

PROVIDING MORE EPCOR

Gold Bar Wastewater Treatment Plant
Plant Performance Report
July 2018

Digested Sludge: Total Monthly Volume (ML)	66.22

Volume of Flow (ML)

DATE	Peak Flow (MLD)	Influent	Effluent						
			Non UV Disinfected			UV Disinfected			
		RAW	OUTFALL 30	OUTFALL 20	MPW	EPEPS	OUTFALL 10 FEC	OUTFALL 10 FE
Sun 01	348.66	252.98	0.00	0.00	11.45	0.00	241.53	241.53
Mon 02	339.59	246.24	0.00	0.00	11.21	0.00	235.03	235.03
Tue 03	530.53	274.44	6.73	0.00	11.17	0.00	256.54	256.54
Wed 04	334.17	264.95	0.00	0.00	11.32	0.00	253.63	253.63
Thu 05	340.83	265.89	0.00	0.00	10.76	0.00	255.13	255.13
Fri 06	343.58	265.88	0.00	0.00	10.61	0.00	255.27	255.27
Sat 07	640.51	300.56	39.35	0.00	10.45	0.00	250.76	250.76
Sun 08	351.09	251.36	0.00	0.00	10.61	0.00	240.75	240.75
Mon 09	471.48	290.84	1.88	0.00	10.23	0.00	278.73	278.73
Tue 10	690.61	265.80	9.06	0.00	10.30	0.00	246.44	246.44
Wed 11	1,218.63	389.23	59.21	0.00	10.39	0.00	319.63	319.63
Thu 12	358.28	270.63	0.00	0.00	9.94	0.00	260.69	260.69
Fri 13	1,261.14	439.51	93.29	0.02	9.27	0.00	336.93	336.93
Sat 14	674.88	308.52	9.06	0.00	9.14	0.00	290.32	290.32
Sun 15	365.33	270.63	0.00	0.00	9.55	0.00	261.08	261.08
Mon 16	356.99	269.29	0.00	0.00	9.96	0.00	259.33	259.33
Tue 17	355.56	268.65	0.00	0.00	9.76	0.00	258.89	258.89
Wed 18	520.57	305.97	10.19	0.00	10.33	0.00	285.45	285.45
Thu 19	728.68	286.92	9.68	0.00	9.31	0.00	267.93	267.93
Fri 20	1,259.20	473.57	141.39	0.00	9.33	0.00	322.85	322.85
Sat 21	575.42	342.42	14.26	0.00	10.59	0.00	317.57	317.57
Sun 22	575.89	306.16	11.64	0.00	10.17	0.00	284.35	284.35
Mon 23	353.50	281.07	0.00	0.00	9.75	0.00	271.32	271.32
Tue 24	338.06	270.57	0.00	0.00	9.23	0.00	261.34	261.34
Wed 25	338.19	270.12	0.00	0.00	9.96	0.00	260.16	260.16
Thu 26	346.55	266.57	0.00	0.00	10.71	0.00	255.86	255.86
Fri 27	353.95	268.08	0.00	0.00	9.23	0.00	258.85	258.85
Sat 28	352.75	250.30	0.00	0.00	10.64	0.00	239.66	239.66
Sun 29	354.03	256.83	0.00	0.00	10.40	0.00	246.43	246.43
Mon 30	361.09	272.62	0.00	0.00	9.48	0.00	263.14	263.14
Tue 31	357.65	266.14	0.00	0.00	10.11	0.00	256.03	256.03
Average	509.59	290.73	13.09	0.00	10.17	0.00	267.47	267.47
Minimum	334.17	246.24	0.00	0.00	9.14	0.00	235.03	235.03
Maximum	1,261.14	473.57	141.39	0.02	11.45	0.00	336.93	336.93
GeoMean	---	---	---	---	---	---	---	---
TOTAL	---	9,013	406	0	315	0	8,292	8,292

Liquid Stream Quality

DATE	pH@25°C RAW	pH@25°C OUTFALL 30	pH@25°C OUTFALL 20	pH@25°C OUTFALL 10 FEC	TSS (mg/L) RAW	TSS (mg/L) OUTFALL 30	TSS (mg/L) OUTFALL 20	TSS (mg/L) EPEPS	TSS (mg/L) OUTFALL 10 FEC	TSS (mg/L) OUTFALL 10 FE	BOD_5/$cBOD_5$ (mg/L) RAW	BOD_5/$cBOD_5$ (mg/L) OUTFALL 30	BOD_5/$cBOD_5$ (mg/L) OUTFALL 20	BOD_5/$cBOD_5$ (mg/L) EPEPS	BOD_5/$cBOD_5$ (mg/L) OUTFALL 10 FEC $cBOD_5$	BOD_5/$cBOD_5$ (mg/L) OUTFALL 10 FE $cBOD_5$	TP (mg/L) RAW	TP (mg/L) OUTFALL 30	TP (mg/L) OUTFALL 20	TP (mg/L) EPEPS	TP (mg/L) OUTFALL 10 FEC	TP (mg/L) OUTFALL 10 FE	NH3-N (mg/L) RAW	NH3-N (mg/L) OUTFALL 30	NH3-N (mg/L) OUTFALL 20	NH3-N (mg/L) EPEPS	NH3-N (mg/L) OUTFALL 10 FEC	NH3-N (mg/L) OUTFALL 10 FE	TKN (mg/L) RAW	TKN (mg/L) OUTFALL 30	TKN (mg/L) OUTFALL 20	TKN (mg/L) OUTFALL 10 FEC	(NO_2+NO_{3-N} (mg/L) RAW	(NO_2+NO_{3-N} (mg/L) OUTFALL 30	(NO_2+NO_{3-N} (mg/L) OUTFALL 20	(NO_2+NO_{3-N} (mg/L) OUTFALL 10 FEC	Chloride (mg/L) RAW	Chloride (mg/L) OUTFALL 30	Chloride (mg/L) OUTFALL 20	Chloride (mg/L) OUTFALL 10 FEC	*E. coli* (Counts/100 mL) RAW	*E. coli* (Counts/100 mL) OUTFALL 30	*E. coli* (Counts/100 mL) OUTFALL 20	*E. coli* (Counts/100 mL) OUTFALL 10 FEC
Sun 01	7.7			7.6	396				11.7	11.7	293				6	6	8.40				0.32	0.32	45.5				0.47	0.47	63.8			2.83				7.49	75.3			74.7				11
Mon 02				7.5	346				8.0	8.0	288				4	4	7.11				0.29	0.29	43.1				2.26	2.26	56.5			4.22				10.7	77.4			79.6				15
Tue 03	7.6	7.8		7.5	377	86			3.8	3.8	352	145			3	3	7.36	4.99			0.23	0.23	38.7	35.9			1.87	1.87	53.5	43.3		3.76		3.53		10.3	75.5	79.8		82.7		2.0		24
Wed 04	7.6			7.5	340				3.0	3.0	250				2	2	8.46				0.17	0.17	42.5				2.08	2.08	68.9			2.85	< 0.15			9.66	76.8			81.6	1.8			30
Thu 05	7.6			7.5	293				3.2	3.2	284				2	2	7.38				0.22	0.22	24.0				3.33	3.33	56.6			4.92				10.2	74.8			84.8				23
Fri 06	7.5			7.5	220				4.2	4.2	285				2	2	7.09				0.23	0.23	36.1				3.01	3.01	53.1			4.57				8.60	79.2			80.5				15
Sat 07	7.5	7.5		7.5	412	33			5.0	5.0	254	66			2	2	6.48	3.30			0.32	0.32	30.3	30.5			1.12	1.12	54.1	32.8		2.87		1.35		8.89	64.5	69.9		80.5		1.3		5
Sun 08	7.7			7.4	308				2.8	2.8	287				2	2	7.31				0.31	0.31	40.1				1.59	1.59	54.9			3.28				10.1	68.7			69.6				5
Mon 09	7.5	7.9		7.4	220	85			4.2	4.2	386	128			< 2	< 2	7.16	4.64			0.24	0.24	32.9	32.5			2.16	2.16	51.3	40.5		3.71				9.75	69.8			73.4		2.0		7
Tue 10	7.7	7.9		7.4	344	73			3.5	3.5	230	198			2	2	7.38	6.10			0.22	0.22	37.6	41.8			0.87	0.87	53.6	46.2		2.41		2.06		10.3	75.6	81.0		76.4		2.8		22
Wed 11	7.5	7.4		7.4	432	73			3.9	3.9	333	65			2	2	6.06	2.52			0.23	0.23	26.3	18.0			1.00	1.00	42.2	26.8		2.34	< 0.01	0.53		9.18	56.3	50.5		70.4		0.5		50
Thu 12	7.4			7.4	266				4.5	4.5	269				3	3	8.18				0.30	0.30	36.5				0.99	0.99	61.4			2.59				11.8	77.1			79.7				21
Fri 13	7.5	7.5		7.6	580	63			5.2	5.2	232	75			3	3	5.70	3.48			0.31	0.31	20.4	23.3			0.96	0.96	36.6	30.9		2.69		0.81		9.22	54.8	61.5		72.2		1.8		27
Sat 14	7.5	7.7		7.3	324	38			5.5	5.5	242	45			3	3	7.51	2.49			0.27	0.27	36.9	23.9			1.00	1.00	55.7	29.6		2.64		1.15		10.1	71.2	55.3		67.0		1.3		10
Sun 15	7.7			7.4	354				5.6	5.6	231				3	3	8.22				0.29	0.29	40.8				1.98	1.98	62.7			3.78				12.6	75.0			76.5				24
Mon 16	7.5			7.5	303				8.8	8.8	266				5	5	7.48				0.45	0.45	33.9				1.61	1.61	51.9			3.63				12.2	81.4			81.8				42
Tue 17	7.6			7.5	400				5.7	5.7	283				4	4	7.47				0.34	0.34	36.1				1.61	1.61	54.5			3.35				8.70	75.2			86.2				15
Wed 18	7.6	7.7		7.5	310	75			5.2	5.2	248	90			3	3	6.62	5.01			0.42	0.42	32.4	30.5			0.77	0.77	50.5	40.4		2.55	< 0.15	1.60		9.22	81.3	85.1		85.8		2.0		14
Thu 19	7.4	7.8		7.5	390	77			3.9	3.9	236	163			3	3	7.81	7.17			0.64	0.64	36.7	38.4			0.72	0.72	58.0	60.2		2.72		0.96		10.8	70.5	73.0		83.2		2.9		13
Fri 20	7.4	7.4		7.4	404	63			5.7	5.7	210	71			3	3	5.01	3.10			0.43	0.43	17.5	22.5			0.68	0.68	32.4	26.6		2.54		0.75		8.87	49.3	51.7		76.6		1.7		8
Sat 21	7.6	7.7		7.4	294	46			4.7	4.7	235	79			3	3	5.95	3.66			0.30	0.30	28.4	27.3			0.65	0.65	42.6	34.2		2.08		0.80		7.83	65.0	62.1		58.5		1.6		8
Sun 22	7.5	7.6		7.5	336	78			4.8	4.8	256	86			3	3	7.26	5.71			0.26	0.26	32.6	37.6			0.87	0.87	46.2	48.3		2.49		4.22		9.44	74.3	83.3		74.6		1.8		4
Mon 23	7.6			7.5	276				4.4	4.4	222				3	3	9.41				0.26	0.26	37.8				0.50	0.50	60.5			1.99				9.87	80.0			76.2				3
Tue 24	7.6			7.5	303				4.1	4.1	277				3	3	7.77				0.35	0.35	42.6				0.88	0.88	60.5			2.64				13.0	80.4			87.0				4
Wed 25	7.5			7.4	308				4.5	4.5	289				3	3	8.85				0.36	0.36	34.6				1.10	1.10	67.0			3.00	< 0.15			11.3	75.6			90.2	3.4			5
Thu 26	7.6			7.6	294				4.5	4.5	294				3	3	7.96				0.33	0.33	40.4				0.48	0.48	60.4			2.50				11.0	77.9			92.4				9
Fri 27	7.7			7.6	292				6.5	6.5	259				3	3	8.38				0.30	0.30	41.6				0.36	0.36	60.7			1.99				11.8	76.8			87.2				4
Sat 28	7.6			7.5	384				5.2	5.2	326				3	3	9.07				0.30	0.30	33.7				0.43	0.43	62.4			2.51				12.1	70.2			84.8				2
Sun 29	7.5			7.6	392				5.0	5.0	339				3	3	9.47				0.37	0.37	42.9				0.61	0.61	67.4			2.40				12.9	71.0			79.2				3
Mon 30	7.6			7.6	384				8.4	8.4	305				4	4	8.45				0.42	0.42	39.0				0.38	0.38	64.0			2.34				12.3	76.2			77.7				6
Tue 31	7.7			7.5	260				6.7	6.7	332				4	4	7.90				0.36	0.36	42.5				0.26	0.26	61.3			2.22				11.2	75.9			88.8				8
Average	7.6	7.7	---	7.5	340	66	---	---	5.2	5.2	277	101	---	---	3.0	3.0	7.57	4.35	---	---	0.32	0.32	35.6	30.2	---	---	1.18	1.18	55.7	38.3	---	2.92	< 0.12	1.61	---	10.4	72.7	68.5	---	79.3	---	---	---	---
Minimum	7.4	7.4	---	7.3	220	33	---	---	2.8	2.8	210	45	---	---	2	2	5.01	2.49	---	---	0.17	0.17	17.5	18.0	---	---	0.26	0.26	32.4	26.6	---	1.99	< 0.01	0.53	---	7.49	49.3	50.5	---	58.5	1.8	0.5	---	2
Maximum	7.9	7.9	---	7.6	580	86	---	---	11.7	11.7	386	198	---	---	6	6	9.47	7.17	---	---	0.64	0.64	45.5	41.8	---	---	3.33	3.33	68.9	60.2	---	4.92	< 0.15	4.22	---	13.0	81.4	85.1	---	92.4	3.4	2.9	---	50
GeoMean	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

* contact Laboratory for information about the quality assurance associated with the results

Enhanced Primary Treatment (EPT) Usage

Total Bypass (hrs)	EPT Usage (hrs)	%	Total Bypass YTD (hrs)	EPT Usage YTD	% Usage YTD
51	51	100%	252	252	100.00%

Report Comments

1.	Outfall 10 test results for July 01 and July 03 through July 11 were determined from analysis of samples from the back-up auto-sampler. All other results were determined from samples from the lead auto-sampler.
2.	RAW - July 25, 2018: Test was repeated. Consequently, the recommended holding time was exceeded by five days prior to analysis.

AEP Ref #**

** AEP - Alberta Environment & Parks

RAW	Untreated Influent into the plant
INF	Untreated Wastewater from collection system
INFs	Influent, screened at the Headworks Diversion Structure
PE	Primary Effluent from conventional primaries
PE 30	Primary Effluent from conventional primaries discharged via Outfall 30
EPT	Enhanced Primary Treatment
EPE	Enhanced Primary Effluent
EPEPS	Enhanced Primary Effluent and Pump Station
FE	Final Effluent from secondary treatment process (with biological nutrient removal)
FEC	Combined pre-UV disinfection (FE+EPEPS)
OUTFALL 10	UV-disinfected, discharged via OUTFALL 10
OUTFALL 20	Combined Bypass (RAW + PE + EPE)
OUTFALL 30	Combined Bypass (INF + INFS + PE30 + EPE)
MPW	Membrane Product Water (Effluent re-use water)
ML	Megalitre (1,000,000 Litre)
MPN	Most Probable Number
NR	No Result
NS	No Sample
INS	Insufficient Sample

Abhishek Bhargava
Senior Manager, Operations

Shane Harnish
Senior Manager, Analytical Operations

PROVIDING MORE EPCOR

Gold Bar Wastewater Treatment Plant
Plant Performance Report
August 2018

Digested Sludge: Total Monthly Volume (ML)	66.96

Volume of Flow (ML)

DATE	Peak Flow (MLD)	Influent	Effluent					
			Non UV Disinfected			UV Disinfected		
		RAW	OUTFALL 30	OUTFALL 20	MPW	EPEPS	OUTFALL 10 FEC	OUTFALL 10 FE
Wed 01	626.65	276.48	1.32	0.00	10.36	0.00	264.80	264.80
Thu 02	711.36	299.95	16.09	0.00	10.02	0.00	273.84	273.84
Fri 03	578.08	317.38	17.54	0.00	9.98	0.00	289.86	289.86
Sat 04	1,151.67	343.69	54.69	0.00	10.74	0.00	278.27	278.27
Sun 05	351.72	259.90	0.00	0.00	11.24	0.00	248.66	248.66
Mon 06	370.07	254.88	0.00	0.00	10.37	0.00	244.51	244.51
Tue 07	363.95	266.91	0.00	0.00	11.64	0.00	255.27	255.27
Wed 08	351.86	264.10	0.00	0.00	10.34	0.00	253.75	253.75
Thu 09	348.95	264.54	0.00	0.00	9.77	0.00	254.77	254.77
Fri 10	355.01	265.44	0.00	0.00	11.77	0.00	253.67	253.67
Sat 11	858.54	289.36	28.88	0.00	10.17	0.00	250.32	250.32
Sun 12	1,023.04	452.51	149.35	0.00	11.60	0.00	291.56	291.56
Mon 13	453.05	310.25	1.51	0.00	11.31	0.00	297.43	297.43
Tue 14	336.68	274.48	0.00	0.00	11.46	0.00	263.02	263.02
Wed 15	326.54	266.23	0.00	0.00	11.29	0.00	254.94	254.94
Thu 16	318.29	263.92	0.00	0.00	11.57	0.00	252.34	252.34
Fri 17	405.42	267.69	0.00	0.00	11.73	0.00	255.96	255.96
Sat 18	414.43	263.05	0.00	0.00	11.97	0.00	251.09	251.09
Sun 19	335.14	249.23	0.00	0.00	12.09	0.00	237.14	237.14
Mon 20	302.51	261.43	0.00	0.00	11.69	0.00	249.74	249.74
Tue 21	314.61	260.26	0.00	0.00	10.07	0.00	250.19	250.19
Wed 22	315.30	259.03	0.00	0.00	9.52	0.00	249.51	249.51
Thu 23	294.67	255.63	0.00	0.00	10.09	0.00	245.54	245.54
Fri 24	332.81	260.48	0.00	0.00	12.13	0.00	248.36	248.36
Sat 25	326.34	248.00	0.00	0.00	11.97	0.00	236.02	236.02
Sun 26	339.66	249.95	0.00	0.00	12.05	0.00	237.89	237.89
Mon 27	326.10	266.18	0.00	0.00	11.53	0.00	254.65	254.65
Tue 28	477.62	275.45	2.34	0.00	11.55	0.00	261.56	261.56
Wed 29	381.38	263.45	0.00	0.00	11.49	0.00	251.97	251.97
Thu 30	351.60	254.68	0.00	0.00	11.49	0.00	243.19	243.19
Fri 31	543.57	273.52	8.59	0.00	11.31	0.00	253.62	253.62
Average	451.18	276.71	9.04	0.00	11.11	0.00	256.56	256.56
Minimum	294.67	248.00	0.00	0.00	9.52	0.00	236.02	236.02
Maximum	1,151.67	452.51	149.35	0.00	12.13	0.00	297.43	297.43
GeoMean	---	---	---	---	---	---	---	---
TOTAL	---	8,578	280	0	344	0	7,953	7,953

Liquid Stream Quality

DATE	pH@25°C				TSS (mg/L)						BOD$_5$/cBOD$_5$ (mg/L)						TP (mg/L)					
	RAW	OUTFALL 30	OUTFALL 20	OUTFALL 10 FEC	RAW	OUTFALL 30	OUTFALL 20	EPEPS	OUTFALL 10 FEC	OUTFALL 10 FE	RAW	OUTFALL 30	OUTFALL 20	EPEPS	OUTFALL 10 FEC	OUTFALL 10 FE	RAW	OUTFALL 30	OUTFALL 20	EPEPS	OUTFALL 10 FEC	OUTFALL 10 FE
Wed 01	7.6	8.2		7.6	326	17			10.9	10.9	275	175			4	4	7.85	5.80			0.51	0.51
Thu 02	7.6	7.7		7.5	350	90			12.5	12.5	268	109			4	4	6.78	2.65			0.52	0.52
Fri 03	7.5	7.6		7.5	300	65			8.8	8.8	319	72			4	4	6.86	4.16			0.48	0.48
Sat 04	7.5	7.6		7.4	664	111			9.8	9.8	280	73			5	5	7.24	3.71			0.50	0.50
Sun 05	7.6			7.4	380				8.0	8.0	275				4	4	7.42				0.38	0.38
Mon 06	7.6			7.5	268				7.1	7.1	224				4	4	7.70				0.42	0.42
Tue 07	7.6			7.5	327				10.0	10.0	295				4	4	7.51				0.54	0.54
Wed 08	7.7			7.6	297				7.6	7.6	251				4	4	7.70				0.45	0.45
Thu 09	7.6			7.6	264				5.0	5.0	284				4	4	7.84				0.42	0.42
Fri 10	7.7			7.6	316				7.7	7.7	268				4	4	7.58				0.43	0.43
Sat 11	7.6	7.6		7.6	324	106			8.2	8.2	302	152			5	5	7.02	4.36			0.43	0.43
Sun 12	7.6	7.4		7.4	242	72			9.0	9.0	188	75			5	5	4.25	3.12			0.45	0.45
Mon 13	7.6	7.9		7.4	270	57			8.7	8.7	233	62			4	4	6.37	3.10			0.41	0.41
Tue 14	7.6			7.7	271				8.3	8.3	265				4	4	7.22				0.48	0.48
Wed 15	7.6			7.6	411				5.9	5.9	309				4	4	8.45				0.41	0.41
Thu 16	7.5			7.6	332				4.0	4.0	289				3	3	7.66				0.29	0.29
Fri 17	7.7			7.7	336				3.7	3.7	339				3	3	7.95				0.30	0.30
Sat 18	7.7			7.6	316				4.3	4.3	368				3	3	6.83				0.34	0.34
Sun 19	7.5			7.5	284				3.2	3.2	263				2	2	6.50				0.24	0.24
Mon 20	7.6			7.8	284				3.5	3.5	333				3	3	7.40				0.26	0.26
Tue 21	7.5			7.6	303				3.0	3.0	340				< 2	< 2	7.37				0.26	0.26
Wed 22	7.6			7.6	329				3.7	3.7	316				2	2	7.56				0.25	0.25
Thu 23	7.6			7.7	337				3.7	3.7	302				2	2	7.63				0.27	0.27
Fri 24	7.6			7.6	317				4.0	4.0	253				3	3	7.75				0.29	0.29
Sat 25	7.6			7.6	277				3.9	3.9	312				3	3	7.60				0.30	0.30
Sun 26	7.6			7.6	300				4.2	4.2	298				< 2	< 2	7.25				0.29	0.29
Mon 27	7.7			7.6	476				5.2	5.2	381				3	3	6.80				0.32	0.32
Tue 28	7.6	8.1		7.5	357	30			4.5	4.5	252	54			3	3	7.51	1.76			0.31	0.31
Wed 29	7.6			7.7	308				4.9	4.9	295				3	3	7.60				0.34	0.34
Thu 30	7.6			7.6	288				4.4	4.4	264				3	3	7.75				0.36	0.36
Fri 31	7.6	7.8		7.7	364	55			4.3	4.3	375	141			3	3	7.55	4.05			0.34	0.34
Average	7.6	7.8	---	7.6	330	67	---	---	6.2	6.2	291	101	---	---	3.4	3.4	7.31	3.63	---	---	0.37	0.37
Minimum	7.5	7.4	---	7.4	242	17	---	---	3.0	3.0	188	54	---	---	< 2.0	< 2.0	4.25	1.76	---	---	0.24	0.24
Maximum	7.7	8.2	---	7.8	664	111	---	---	12.5	12.5	381	175	---	---	5.0	5.0	8.45	5.80	---	---	0.54	0.54
GeoMean	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

DATE	NH3-N (mg/L)						TKN (mg/L)				NO_2+NO_3 (mg/L)				Chloride (mg/L)				*E. coli* (Counts/100 mL)				
	RAW	OUTFALL 30	OUTFALL 20	EPEPS	OUTFALL 10 FEC	OUTFALL 10 FE	RAW	OUTFALL 30	OUTFALL 20	OUTFALL 10 FEC	RAW	OUTFALL 30	OUTFALL 20	OUTFALL 10 FEC	RAW	OUTFALL 30	OUTFALL 20	OUTFALL 10 FEC	RAW	OUTFALL 30	OUTFALL 20	OUTFALL 10 FEC
Wed 01	37.2	31.3			0.40	0.40	58.4	43.9		3.04	< 0.15	0.88		11.6	71.7	79.5		83.8		0.4		7
Thu 02	29.8	22.0			0.20	0.20	48.4	30.8		2.44		0.03		8.23	79.1	82.6		83.0		1.8		16
Fri 03	33.4	34.3			0.24	0.24	51.3	41.2		2.16		0.09		8.38	71.3	79.3		89.7		2.0		5
Sat 04	27.4	29.8			0.79	0.79	49.4	36.7		3.13		0.34		9.94	58.2	60.1		76.6		1.5		6
Sun 05	42.9				0.55	0.55	59.2			2.28				8.35	73.4			64.8				2
Mon 06	39.8				0.84	0.84	55.6			3.00				12.6	77.1			74.4				4
Tue 07	38.7				0.80	0.80	54.7			2.93				10.8	80.9			80.6	2.1			3
Wed 08	43.2				1.02	1.02	56.9			2.92	< 0.15			12.3	77.7			86.0				5
Thu 09	41.3				1.32	1.32	58.3			3.02				12.9	77.5			85.2				11
Fri 10	36.1				0.86	0.86	53.2			2.85				11.2	77.7			84.3				5
Sat 11	37.2	33.7			1.11	1.11	51.3	40.5		2.80		3.98		11.5	78.2	71.2		84.9		1.0		2
Sun 12	20.3	24.8			0.58	0.58	32.8	29.2		3.12		1.84		8.92	47.1	49.9		78.8		1.0		10
Mon 13	33.6	28.4			1.12	1.12	50.1			3.12				9.89	66.4			57.0		0.6		7
Tue 14	38.9				2.43	2.43	54.3			4.41				10.3	73.3			78.5				5
Wed 15	40.3				1.31	1.31	64.8			3.18	< 0.01			10.6	77.5			81.3				9
Thu 16	37.2				0.46	0.46	56.7			2.12				11.9	77.6			89.6				6
Fri 17	42.3				0.40	0.40	58.2			1.90				12.4	77.6			89.8				5
Sat 18	33.9				0.61	0.61	44.7			2.31				12.1	71.6			92.9				11
Sun 19	32.9				0.27	0.27	48.4			1.54				11.0	67.9			78.5				7
Mon 20	38.3				0.19	0.19	54.6			1.48				11.3	68.8			75.3				5
Tue 21	35.3				0.25	0.25	52.8			1.80				11.4	74.1			79.2	5.9			6
Wed 22	40.7				0.21	0.21	54.0			1.64	< 0.01			12.9	73.2			76.6				8
Thu 23	43.4				0.31	0.31	58.8			1.79				10.1	76.6			83.4				11
Fri 24	43.4				0.76	0.76	60.1			2.39				14.1	74.8			81.0				12
Sat 25	47.2				1.28	1.28	61.6			2.87				15.4	72.5			88.8				19
Sun 26	45.1				1.42	1.42	60.2			2.98				13.6	72.0			86.8				15
Mon 27	41.6				1.03	1.03	56.8			2.57				12.8	78.4			85.2				9
Tue 28	42.1	9.19			0.70	0.70	59.3	12.4		2.22		3.82		12.2	76.4	79.3		85.9		0.2		7
Wed 29	41.5				0.81	0.81	56.3			2.54	0.03			12.1	79.1			84.6				9
Thu 30	41.9				0.64	0.64	57.1			2.27				12.2	71.9			82.9				14
Fri 31	39.3	25.8			0.49	0.49	54.8	31.1		2.18		1.86		12.7	67.7	73.4		79.3		0.3		5
Average	38.3	26.6	---	---	0.75	0.75	54.6	33.2	---	2.55	0.07	1.61	---	11.5	73.1	71.9	---	81.6	---	---	---	---
Minimum	20.3	9.19	---	---	0.19	0.19	32.8	12.4	---	1.48	0.01	0.03	---	8.23	47.1	49.9	---	57.0	2.1	0.2	---	2
Maximum	47.2	34.3	---	---	2.43	2.43	64.8	43.9	---	4.41	0.15	3.98	---	15.4	80.9	82.6	---	92.9	5.9	2.0	---	19
GeoMean	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	3.5	0.7	---	7
TOTAL	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

* Contact Laboratory for information about the quality assurance associated with the results

Enhanced Primary Treatment (EPT) Usage

Total Bypass (hrs)	EPT Usage (hrs)	%	Total Bypass YTD (hrs)	EPT Usage YTD	% Usage
34	34	100%	286	286	100.00%

Report Comments

1.	OUTFALL 30 - August 01, 2018: Insufficient sample available to produce an adequate amount of TSS residue as required by *Standard Methods*.
2.	RAW - August 24, 2018: BOD test was repeated. Consequently, the recommended holding time was exceeded prior to analysis.

AEP Ref #**

** AEP - Alberta Environment & Parks

RAW	Untreated Influent into the plant
INF	Untreated Wastewater from collection system
INFs	Influent, screened at the Headworks Diversion Structure
PE	Primary Effluent from conventional primaries
PE 30	Primary Effluent from conventional primaries discharged via Outfall 30
EPT	Enhanced Primary Treatment
EPE	Enhanced Primary Effluent
EPEPS	Enhanced Primary Effluent and Pump Station
FE	Final Effluent from secondary treatment process (with biological nutrient removal).

FEC	Combined pre-UV disinfection (FE+EPEPS)
OUTFALL 10	UV-disinfected, discharged via OUTFALL 10
OUTFALL 20	Combined Bypass (RAW + PE + EPE)
OUTFALL 30	Combined Bypass (INF + INFS + PE30 + EPE)
MPW	Membrane Product Water (Effluent re-use water)
ML	Megalitre (1,000,000 Litre)
MPN	Most Probable Number
NR	No Result
NS	No Sample
INS	Insufficient Sample

Abhishek Bhargava
Senior Manager, Operations

Shane Harnish
Senior Manager, Analytical Operations

Gold Bar Wastewater Treatment Plant
Plant Performance Report
September 2018

Digested Sludge: Total Monthly Volume (ML)	61.40

DATE	Peak Flow (MLD)	Volume of Flow (ML)							Liquid Stream Quality: pH@25°C			
		Influent	Effluent									
			Non UV Disinfected			UV Disinfected						
		RAW	OUTFALL 30	OUTFALL 20	MPW	EPEPS	OUTFALL 10 FEC	OUTFALL 10 FE	RAW	OUTFALL 30	OUTFALL 20	OUTFALL 10 FEC
Sat 01	359.00	279.33	0.00	0.00	11.33	0.00	268.00	268.00	7.6			7.6
Sun 02	335.00	253.37	0.00	0.00	11.37	0.00	242.00	242.00	7.6			7.6
Mon 03	354.00	281.22	0.00	0.00	11.22	0.00	270.00	270.00	7.5			7.6
Tue 04	345.20	256.89	0.00	0.00	10.89	0.00	246.00	246.00	7.5			7.6
Wed 05	334.00	254.06	0.00	0.00	11.06	0.00	243.00	243.00	7.6			7.6
Thu 06	327.00	254.55	0.00	0.00	10.55	0.00	244.00	244.00	7.6			7.6
Fri 07	327.00	259.23	0.00	0.00	10.23	0.00	249.00	249.00	7.5			7.6
Sat 08	338.00	251.34	0.00	0.00	10.34	0.00	241.00	241.00	7.6			7.6
Sun 09	358.00	253.55	0.00	0.00	10.55	0.00	243.00	243.00	7.6			7.5
Mon 10	549.00	297.85	18.00	0.00	10.85	0.00	269.00	269.00	7.6	7.5		7.6
Tue 11	340.70	252.90	0.00	0.00	11.00	0.00	241.90	241.90	7.6			7.6
Wed 12	521.60	326.90	11.90	0.00	10.50	0.00	304.50	304.50	7.5	7.5		7.6
Thu 13	381.80	294.90	0.00	0.00	11.30	0.00	283.60	283.60	7.4			7.4
Fri 14	356.30	279.90	0.00	0.00	11.00	0.00	268.90	268.90	7.6			7.4
Sat 15	965.80	474.30	179.50	0.00	10.60	0.00	284.20	284.20	7.5	7.5		7.3
Sun 16	950.20	515.60	177.90	0.00	10.50	0.00	327.20	327.20	7.5	7.5		7.4
Mon 17	453.40	335.50	5.70	0.00	10.30	0.00	319.50	319.50	7.5	7.5		7.5
Tue 18	368.10	287.90	0.00	0.00	10.40	0.00	277.50	277.50	7.5			7.7
Wed 19	347.40	279.80	0.00	0.00	10.60	0.00	269.20	269.20	7.6			7.7
Thu 20	343.20	274.40	0.00	0.00	10.80	0.00	263.60	263.60	7.5			7.7
Fri 21	586.70	369.80	40.10	0.00	10.70	0.00	319.00	319.00	7.5	7.5		7.5
Sat 22	539.60	349.80	34.20	0.00	10.70	0.00	304.90	304.90	7.6	7.6		7.6
Sun 23	550.30	349.50	49.40	0.00	11.60	0.00	288.50	288.50	7.5	7.6		7.7
Mon 24	421.40	318.00	4.60	0.00	11.60	0.00	301.80	301.80	7.6	7.9		7.5
Tue 25	389.10	296.40	0.00	0.00	11.80	0.00	284.60	284.60	7.6			7.7
Wed 26	413.70	293.90	0.00	0.00	12.00	0.00	281.90	281.90	7.5			7.7
Thu 27	357.40	280.70	0.00	0.00	11.80	0.00	268.90	268.90	7.5			7.6
Fri 28	352.10	264.10	0.00	0.00	11.60	0.00	252.50	252.50	7.7			7.8
Sat 29	392.80	262.40	0.00	0.00	12.20	0.00	250.20	250.20	7.6			7.7
Sun 30	405.00	267.20	0.00	0.00	12.40	0.00	254.80	254.80	7.6			7.7
Average	435.43	290.82	17.38	0.00	11.06	0.00	272.07	263.30	7.6	7.6	---	7.6
Minimum	327.00	0.00	0.00	0.00	10.23	0.00	241.00	0.00	7.4	7.5	---	7.3
Maximum	965.80	515.60	179.50	0.00	12.40	0.00	327.20	327.20	7.7	7.9	---	7.8
GeoMean	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL	---	9,015	521	0	332	0	8,162	8,162	---	---	---	---

DATE	TSS (mg/L)						BOD_5/$cBOD_5$ (mg/L)						TP (mg/L)					
	RAW	OUTFALL 30	OUTFALL 20	EPEPS	OUTFALL 10 FEC	OUTFALL 10 FE	RAW BOD_5	OUTFALL 30 BOD_5	OUTFALL 20 BOD_5	EPEPS BOD_5	OUTFALL 10 FEC $cBOD_5$	OUTFALL 10 FE $cBOD_5$	RAW	OUTFALL 30	OUTFALL 20	EPEPS	OUTFALL 10 FEC	OUTFALL 10 FE
Sat 01	300				4.2	4.2	260				3	3	6.87				0.32	0.32
Sun 02	248				4.7	4.7	295				3	3	7.38				0.35	0.35
Mon 03	287				4.2	4.2	256				3	3	6.63				0.38	0.38
Tue 04	297				4.9	4.9	283				4	4	7.41				0.45	0.45
Wed 05	288				5.8	5.8	329				3	3	7.53				0.34	0.34
Thu 06	296				4.7	4.7	294				3	3	7.47				0.34	0.34
Fri 07	332				5.5	5.5	326				3	3	7.47				0.31	0.31
Sat 08	370				5.6	5.6	413				3	3	8.05				0.32	0.32
Sun 09	584				12.0	12.0	308				4	4	7.38				0.35	0.35
Mon 10	405	98.0			6.7	6.7	346	119			4	4	7.14	3.58			0.36	0.36
Tue 11	266				5.1	5.1	324				4	4	6.16				0.31	0.31
Wed 12	288	61.0			4.1	4.1	192	107			3	3	5.45	0.60			0.35	0.35
Thu 13	294				4.0	4.0	246				3	3	5.99				0.32	0.32
Fri 14	263				6.0	6.0	310				< 2	< 2	6.31				0.31	0.31
Sat 15	320	59.0			6.9	6.9	162	58			3	3	4.17	2.23			0.30	0.30
Sun 16	58.7	39.1			4.5	4.5	87	61			3	3	1.99	1.96			0.21	0.21
Mon 17	268	94.0			3.8	3.8	265	80			3	3	5.68	2.46			0.21	0.21
Tue 18	277				3.2	3.2	279				3	3	6.42				0.22	0.22
Wed 19	407				3.1	3.1	268				2	2	7.41				0.23	0.23
Thu 20	289				3.3	3.3	295				3	3	7.21				0.21	0.21
Fri 21	296	53.3			4.3	4.3	242	57			3	3	5.44	2.30			0.21	0.21
Sat 22	256	35.6			3.5	3.5	242	88			2	2	6.02	4.36			0.19	0.19
Sun 23	271	70.0			3.3	3.3	224	95			2	2	5.99	4.41			0.19	0.19
Mon 24	278	73.1			3.3	3.3	321	100			2	2	5.93	3.96			0.18	0.18
Tue 25	280				3.2	3.2	262				3	3	5.85				0.19	0.19
Wed 26	269				3.2	3.2	282				2	2	6.15				0.20	0.20
Thu 27	280				2.9	2.9	237				3	3	7.55				0.19	0.19
Fri 28	280				3.2	3.2	234				3	3	8.71				0.22	0.22
Sat 29	280				3.8	3.8	295				3	3	8.63				0.23	0.23
Sun 30	272				4.0	4.0	259				2	2	9.14				0.38	0.38
Average	297	65	---	---	4.6	4.6	271	85	---	---	2.9	2.9	6.65	2.87	---	---	0.28	0.28
Minimum	58.7	36	---	---	2.9	2.9	87	57	---	---	< 2.0	< 2.0	1.99	0.60	---	---	0.18	0.18
Maximum	584	98	---	---	12.0	12.0	413	119	---	---	4.0	4.0	9.14	4.41	---	---	0.45	0.45
GeoMean	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

DATE	NH3-N (mg/L)						TKN (mg/L)				NO_2+NO_3 (mg/L)				Chloride (mg/L)				*E. coli* (Counts/100 mL)			
	RAW	OUTFALL 30	OUTFALL 20	EPEPS	OUTFALL 10 FEC	OUTFALL 10 FE	RAW	OUTFALL 30	OUTFALL 20	OUTFALL 10 FEC	RAW	OUTFALL 30	OUTFALL 20	OUTFALL 10 FEC	RAW	OUTFALL 30	OUTFALL 20	OUTFALL 10 FEC	RAW X10^6	OUTFALL 30 X10^6	OUTFALL 20 X10^6	OUTFALL 10 FEC
Sat 01	38.7				0.74	0.74	49.0			2.26				11.6	65.6			76.8				3
Sun 02	42.5				1.58	1.58	57.4			3.16				13.7	74.9			77.5				6
Mon 03	38.4				1.52	1.52	52.4			3.45				12.5	66.7			81.0				7
Tue 04	40.8				1.64	1.64	62.2			3.52				9.03	77.3			75.6				8
Wed 05	40.9				1.35	1.35	62.1			3.19	0.02			8.56	71.8			81.4				5
Thu 06	37.0				0.95	0.95	59.5			3.10				11.8	66.9			80.9				8
Fri 07	42.1				0.69	0.69	59.4			2.38				11.1	66.7			77.7				5
Sat 08	37.5				1.16	1.16	66.1			3.13				9.70	78.5			82.1				6
Sun 09	34.3				1.59	1.59	62.6			3.60				12.3	72.8			78.3				6
Mon 10	37.4	31.8			0.87	0.87	55.8	40.4		2.40		0.03		10.4	74.3	84.7		75.9		1.3		24
Tue 11	34.8				0.18	0.18	46.4			1.72				10.3	72.6			78.3				10
Wed 12	26.9	21.8			0.48	0.48	43.5	32.1		2.32	< 0.01	0.03		7.90	61.0	59.7		72.4	2.6	1.2		11
Thu 13	32.0				1.12	1.12	46.7			2.58				8.38	74.3			75.3				19
Fri 14	33.8				1.35	1.35	52.4			3.13				7.15	68.7			75.3				8
Sat 15	15.5	12.2			0.20	0.20	27.5	23.3		1.68		0.50		8.05	42.5	39.4		76.8		1.0		6
Sun 16	14.0	17.4			0.10	0.10	21.0	24.0		2.61		0.66		5.51	41.5	48.3		46.2		0.6		5
Mon 17	24.8	23.0			1.37	1.37	46.7	28.4		2.59		1.10		5.05	74.3	51.8		57.0		1.0		5
Tue 18	36.0				2.65	2.65	50.8			3.95				7.28	76.9			82.5				22
Wed 19	36.0				2.03	2.03	60.1			3.82	< 0.01			8.84	72.5			82.1				8
Thu 20	35.9				1.18	1.18	53.3			2.69				8.08	69.7			81.4	3.0			5
Fri 21	27.0	25.2			0.74	0.74	41.9	29.8		2.07		1.37		6.42	62.7	59.1		79.4		0.6		9
Sat 22	28.3	30.1			1.66	1.66	45.4	40.3		2.94		1.06		6.71	56.6	59.7		70.8		2.0		3
Sun 23	29.5	30.9			1.50	1.50	43.9	37.1		2.86		1.80		7.44	55.2	51.2		67.4		2.2		6
Mon 24	29.5	25.6			1.10	1.10	46.4	33.9		2.44		1.78		6.93	63.0	54.2		66.1		0.7		4
Tue 25	32.7				1.16	1.16	48.6			2.53				7.02	64.9			73.3				5
Wed 26	32.1				0.87	0.87	47.9			2.25	NR			6.77	69.1			73.0				4
Thu 27	36.4				1.77	1.77	51.4			3.23				5.85	66.8			78.7				6
Fri 28	41.0				3.28	3.28	60.6			5.18				9.93	73.9			80.4				5
Sat 29	32.5				3.47	3.47	59.3			5.78				11.7	68.1			81.4				8
Sun 30	31.0				4.76	4.76	64.6			6.46				9.69	62.7			76.0				20
Average	33.3	24.2	---	---	1.44	1.44	51.5	32.1	---	3.10	0.01	0.93	---	8.86	67.1	56.5	---	75.4	---	---	---	---
Minimum	14.0	12.2	---	---	0.10	0.10	21.0	23.3	---	1.68	< 0.01	0.03	---	5.05	41.5	39.4	---	46.2	2.6	0.6	---	3
Maximum	42.5	31.8	---	---	4.76	4.76	66.1	40.4	---	6.46	0.02	1.80	---	13.7	78.5	84.7	---	82.5	3.0	2.2	---	24
GeoMean	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2.8	1.1	---	7
TOTAL	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

* contact Laboratory for information about the quality assurance associated with the results

Enhanced Primary Treatment (EPT) Usage					
Total Bypass (hrs)	EPT Usage (hrs)	%	Total Bypass YTD (hrs)	EPT Usage YTD	% Usage
57	52	91.2%	343	338	98.50%

Report Comments

AEP Ref #**

** AEP - Alberta Environment & Parks

RAW	Untreated Influent into the plant
INF	Untreated Wastewater from collection system
INFs	Influent, screened at the Headworks Diversion Structure
PE	Primary Effluent from conventional primaries
PE 30	Primary Effluent from conventional primaries discharged via Outfall 30
EPT	Enhanced Primary Treatment
EPE	Enhanced Primary Effluent
EPEPS	Enhanced Primary Effluent and Pump Station
FE	Final Effluent from secondary treatment process (with biological nutrient removal). Pre-
FEC	Combined pre-UV disinfection (FE+EPEPS)
OUTFALL 10	UV-disinfected, discharged via OUTFALL 10
OUTFALL 20	Combined Bypass (RAW + PE + EPE)
OUTFALL 30	Combined Bypass (INF + INFS + PE30 + EPE)
MPW	Membrane Product Water (Effluent re-use water)
ML	Megalitre (1,000,000 Litre)
MPN	Most Probable Number
NR	No Result
NS	No Sample
INS	Insufficient Sample

Abhishek Bhargava
Senior Manager, Operations

Shane Harnish
Senior Manager, Analytical Operations

PROVIDING MORE EPCOR

Gold Bar Wastewater Treatment Plant
Plant Performance Report
October 2018

Digested Sludge: Total Monthly Volume (ML)	64.30

Volume of Flow (ML)

DATE	Peak Flow (MLD)	Influent	Effluent					
			Non UV Disinfected			UV Disinfected		
		RAW	OUTFALL 30	OUTFALL 20	MPW	EPEPS	OUTFALL 10 FEC	OUTFALL 10 FE
Mon 01	384.4	269.0	0.0	0.0	12.2	0.0	256.8	256.8
Tue 02	345.5	264.0	0.0	0.0	12.1	0.0	251.9	251.9
Wed 03	342.2	266.0	0.0	0.0	12.2	0.0	253.8	253.8
Thu 04	345.5	265.2	0.0	0.0	12.2	0.0	253.0	253.0
Fri 05	359.8	263.3	0.0	0.0	12.1	0.0	251.2	251.2
Sat 06	370.2	258.7	0.0	0.0	12.2	0.0	246.5	246.5
Sun 07	395.5	255.8	0.0	0.0	12.2	0.0	243.6	243.6
Mon 08	423.6	310.9	7.1	0.0	12.2	0.0	291.6	291.6
Tue 09	366.5	265.4	0.0	0.0	12.1	0.0	253.3	253.3
Wed 10	464.1	261.5	0.0	0.0	12.0	0.0	249.5	249.5
Thu 11	420.6	273.6	0.0	0.0	12.0	0.0	261.6	261.6
Fri 12	621.7	420.5	95.1	0.0	12.0	0.0	313.4	313.4
Sat 13	392.9	293.0	0.2	0.0	12.1	0.0	280.7	280.7
Sun 14	401.7	270.4	0.0	0.0	12.0	0.0	258.4	258.4
Mon 15	380.1	268.9	0.0	0.0	11.9	0.0	257.0	257.0
Tue 16	370.2	259.9	0.0	0.0	11.9	0.0	248.0	248.0
Wed 17	346.8	265.8	0.0	0.0	12.2	0.0	253.6	253.6
Thu 18	339.9	258.9	0.0	0.0	12.1	0.0	246.8	246.8
Fri 19	352.2	254.3	0.0	0.0	12.2	0.0	242.1	242.1
Sat 20	378.8	257.2	0.0	0.0	12.0	0.0	245.2	245.2
Sun 21	378.8	255.0	0.0	0.0	11.8	0.0	243.2	243.2
Mon 22	353.9	260.0	0.0	0.0	11.6	0.0	248.4	248.4
Tue 23	344.2	255.2	0.0	0.0	10.6	0.0	244.6	244.6
Wed 24	339.1	258.1	0.0	0.0	11.4	0.0	246.7	246.7
Thu 25	343.6	254.1	0.0	0.0	11.6	0.0	242.5	242.5
Fri 26	338.5	257.6	0.0	0.0	10.6	0.0	247.0	247.0
Sat 27	360.5	253.5	0.0	0.0	5.2	0.0	248.3	248.3
Sun 28	412.1	258.8	0.0	0.0	0.0	0.0	258.8	258.8
Mon 29	356.0	257.3	0.0	0.0	0.0	0.0	257.3	257.3
Tue 30	333.1	251.3	0.0	0.0	0.0	0.0	251.3	251.3
Wed 31	331.3	247.9	0.0	0.0	0.0	0.0	247.9	247.9
Average	377.20	268.10	3.30	0.00	10.15	0.00	254.65	254.65
Minimum	331.30	247.90	0.00	0.00	0.00	0.00	242.10	242.10
Maximum	621.70	420.50	95.10	0.00	12.20	0.00	313.40	313.40
GeoMean	---	---	---	---	---	---	---	---
TOTAL	---	8,311	102	0	315	0	7,894	7,894

Liquid Stream Quality

DATE	pH@25°C				TSS (mg/L)						BOD$_5$/cBOD$_5$ (mg/L)						TP (mg/L)					
	RAW	OUTFALL 30	OUTFALL 20	OUTFALL 10 FEC	RAW	OUTFALL 30	OUTFALL 20	EPEPS	OUTFALL 10 FEC	OUTFALL 10 FE	RAW BOD$_5$	OUTFALL 30 BOD$_5$	OUTFALL 20 BOD$_5$	EPEPS BOD$_5$	OUTFALL 10 FEC cBOD$_5$	OUTFALL 10 FE cBOD$_5$	RAW	OUTFALL 30	OUTFALL 20	EPEPS	OUTFALL 10 FEC	OUTFALL 10 FE
Mon 01	7.5			7.6	276				4.3	4.3	277				3	3	7.12				0.31	0.31
Tue 02	7.5			7.7	320				3.8	3.8	275				3	3	7.45				0.27	0.27
Wed 03	7.5			7.6	316				2.8	2.8	305				3	3	8.14				0.24	0.24
Thu 04	7.5			7.6	267				3.4	3.4	298				3	3	8.52				0.23	0.23
Fri 05	7.5			7.6	284				3.5	3.5	265				3	3	8.31				0.24	0.24
Sat 06	7.6			7.6	292				6.0	6.0	298				3	3	8.05				0.44	0.44
Sun 07	7.6			7.6	308				4.2	4.2	271				3	3	7.31				0.24	0.24
Mon 08	7.6	7.5		7.7	272	92			4.8	4.8	278	126			3	3	6.28	4.05			0.24	0.24
Tue 09	7.6			7.6	384				2.6	2.6	297				3	3	8.55				0.22	0.22
Wed 10	7.5			7.6	396				4.0	4.0	323				3	3	8.14				0.24	0.24
Thu 11	7.5			7.6	336				5.5	5.5	300				2	2	7.87				0.32	0.32
Fri 12	7.4	7.5		7.5	400	97			7.4	7.4	208	102			4	4	5.73	3.33			0.65	0.65
Sat 13	7.8	7.3		7.0	300	45			5.1	5.1	251	330			4	4	7.42	13.8			0.28	0.28
Sun 14	7.6			7.6	280				5.5	5.5	299				3	3	7.96				0.27	0.27
Mon 15	7.4			7.6	268				4.9	4.9	331				4	4	7.87				0.27	0.27
Tue 16	7.5			7.6	328				5.0	5.0	402				4	4	6.83				0.26	0.26
Wed 17	7.6			7.6	270				4.4	4.4	328				3	3	6.55				0.25	0.25
Thu 18	7.5			7.6	316				5.1	5.1	283				3	3	6.52				0.21	0.21
Fri 19	7.7			7.6	344				4.1	4.1	226				3	3	6.25				0.20	0.20
Sat 20	7.6			7.6	304				4.5	4.5	318				2	2	6.1				0.21	0.21
Sun 21	7.6			7.7	340				3.9	3.9	277				3	3	6.12				0.20	0.20
Mon 22	7.6			7.6	246				6.9	6.9	259				4	4	5.13				0.54	0.54
Tue 23	7.4			7.7	345				5.5	5.5	280				3	3	7.16				0.30	0.30
Wed 24	7.5			7.7	316				4.8	4.8	208				3	3	6.73				0.27	0.27
Thu 25	7.5			7.6	316				4.1	4.1	287				3	3	7.05				0.26	0.26
Fri 26	7.5			7.7	380				3.6	3.6	335				3	3	7.78				0.24	0.24
Sat 27	7.5			7.5	340				5.1	5.1	343				3	3	7.68				0.23	0.23
Sun 28	7.5			7.7	340				5.1	5.1	343				3	3	7.67				0.27	0.27
Mon 29	7.7			7.6	285				4.4	4.4	271				3	3	5.54				0.24	0.24
Tue 30	7.5			7.6	384				5.5	5.5	341				3	3	7.40				0.32	0.32
Wed 31	7.5			7.7	392				5.0	5.0	307				3	3	8.35				0.28	0.28
Average	7.5	7.4	---	7.6	321	78	---	---	4.7	4.7	293	186	---	---	3.1	3.1	7.21	7.06	---	---	0.28	0.28
Minimum	7.4	7.3	---	7.0	246	45	---	---	2.6	2.6	208	102	---	---	2.0	2.0	5.13	3.33	---	---	0.20	0.20
Maximum	7.8	7.5	---	7.7	400	97	---	---	7.4	7.4	402	330	---	---	4.0	4.0	8.55	13.8	---	---	0.65	0.65
GeoMean	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

DATE	NH3-N (mg/L)						TKN (mg/L)				NO_2+NO_3 (mg/L)				Chloride (mg/L)				*E. coli* (Counts/100 mL)			
	RAW	OUTFALL 30	OUTFALL 20	EPEPS	OUTFALL 10 FEC	OUTFALL 10 FE	RAW	OUTFALL 30	OUTFALL 20	OUTFALL 10 FEC	RAW	OUTFALL 30	OUTFALL 20	OUTFALL 10 FEC	RAW	OUTFALL 30	OUTFALL 20	OUTFALL 10 FEC	RAW X10^6	OUTFALL 30 X10^6	OUTFALL 20 X10^6	OUTFALL 10 FEC
Mon 01	35.5				2.98	2.98	52.9			4.58				10.7	77.0			74.5				8
Tue 02	33.8				1.15	1.15	50.4			2.77				7.38	79.6			83.2				14
Wed 03					2.50	2.50	56.9			3.89	< 0.15			8.82	76.4			82.7				9
Thu 04					2.60	2.60	59.0			4.30				9.14	77.2			80.9				5
Fri 05					2.75	2.75	55.2			3.82				10.0	74.1			81.3				6
Sat 06	38.5				3.33	3.33	57.4			4.84				10.6	67.0			88.2				10
Sun 07	43.7				3.35	3.35	52.8			4.98				11.6	75.6			75.1				9
Mon 08	32.1	38.9			3.98	3.98	43.3	49.0		5.76		1.24		8.25	168	180		116		1.3		8
Tue 09					3.37	3.37	58.6			5.41				8.79	95.1			140				4
Wed 10					3.62	3.62	55.6			5.14	< 0.01			9.03	90.5			99.7				9
Thu 11					3.53	3.53	53.6			6.11				8.79	82.8			95.2				11
Fri 12	25.6	23.7			1.67	1.67	37.4	31.3		3.79		1.36		8.41	78.7	75.5		97.3		0.5		11
Sat 13	38.8	28.6			2.11	2.11	55.2	34.4		4.33		1.37		7.26	66.5	78.1		74.9		0.5		9
Sun 14	34.8				4.88	4.88	59.2			6.31				9.59	67.9			70.9				6
Mon 15	36.4				4.11	4.11	61.2			6.06				8.70	74.5			69.1				16
Tue 16	29.4				1.64	1.64	52.8			3.42				6.62	79.2			78.0				8
Wed 17	36.5				1.60	1.60	54.2			3.28	< 0.01			7.27	76.2			81.9				4
Thu 18	38.4				1.36	1.36	53.8			2.87				7.65	74.5			84.6				5
Fri 19	36.2				1.36	1.36	51.3			2.90				7.08	73.3			81.3				6
Sat 20	36.4				1.04	1.04	49.3			2.86				7.28	72.5			78.5				5
Sun 21	37.2				1.60	1.60	52.5			3.05				7.43	71.8			76.3				7
Mon 22	26.5				1.03	1.03	41.5			2.81				8.38	60.2			73.0				6
Tue 23	37.4				1.13	1.13	59.1			2.86				7.48	74.7			80.3				5
Wed 24	33.3				0.83	0.83	54.0			2.68	0.03			7.67	71.7			78.4				4
Thu 25	34.4				0.93	0.93	55.6			2.71				7.95	77.8			80.0				2
Fri 26	39.8				1.25	1.25	59.2			2.73				8.03	74.1			82.9				5
Sat 27	42.3				1.88	1.88	56.3			3.49				8.97	68.5			81.6				5
Sun 28	39.1				2.30	2.30	59.6			4.08				9.21	74.7			76.3				1
Mon 29	29.6				1.44	1.44	46.2			3.20				7.30	63.0			78.0				9
Tue 30	37.6				0.33	0.33	58.6			2.24				7.22	74.3			80.3	3.2			5
Wed 31	33.6				0.25	0.25	65.4			2.06	0.08			7.36	72.7			79.6				6
Average	36.1	30.4	---	---	2.13	2.13	54.1	38.2	---	3.85	0.06	1.32	---	8.39	77.7	111	---	83.9	---	---	---	---
Minimum	25.6	23.7	---	---	0.25	0.25	37.4	31.3	---	2.06	0.01	1.24	---	6.62	60.2	75.5	---	69.1	3.2	0.5	---	1
Maximum	43.7	38.9	---	---	4.88	4.88	65.4	49.0	---	6.31	0.15	1.37	---	11.6	168	180	---	140	3.2	1.3	---	16
GeoMean	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	3.2	0.7	---	6
TOTAL	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

* contact Laboratory for information about the quality assurance associated with the results

Enhanced Primary Treatment (EPT) Usage

Total Bypass (hrs)	EPT Usage (hrs)	%	Total Bypass YTD (hrs)	EPT Usage YTD	% Usage
14	14	100%	357	352	98.60%

Report Comments

1.	OUTFALL 30 - October 13, 2018: Recommended holding was exceeded prior to BOD analysis.

AEP Ref #**

** AEP - Alberta Environment & Parks

RAW	Untreated Influent into the plant
INF	Untreated Wastewater from collection system
INFs	Influent, screened at the Headworks Diversion Structure
PE	Primary Effluent from conventional primaries
PE 30	Primary Effluent from conventional primaries discharged via Outfall 30
EPT	Enhanced Primary Treatment
EPE	Enhanced Primary Effluent
EPEPS	Enhanced Primary Effluent and Pump Station
FE	Final Effluent from secondary treatment process (with biological nutrient removal).

FEC	Combined pre-UV disinfection (FE+EPEPS)
OUTFALL 10	UV-disinfected, discharged via OUTFALL 10
OUTFALL 20	Combined Bypass (RAW + PE + EPE)
OUTFALL 30	Combined Bypass (INF + INFS + PE30 + EPE)
MPW	Membrane Product Water (Effluent re-use water)
ML	Megalitre (1,000,000 Litre)
MPN	Most Probable Number
NR	No Result
NS	No Sample
INS	Insufficient Sample

Abhishek Bhargava (mm/dd/yyyy)
Senior Manager, Operations

Shane Harnish (mm/dd/yyyy)
Senior Manager, Analytical Operations

PROVIDING MORE EPCOR

Gold Bar Wastewater Treatment Plant
Plant Performance Report
November 2018

Digested Sludge: Total Monthly Volume (ML)	69.75

DATE	Peak Flow (MLD)	Volume of Flow (ML)							Liquid Stream Quality: pH@25°C			
		Influent RAW	Effluent, Non UV Disinfected: OUTFALL 30	Effluent, Non UV Disinfected: OUTFALL 20	Effluent, Non UV Disinfected: MPW	Effluent, UV Disinfected: EPEPS	Effluent, UV Disinfected: OUTFALL 10 FEC	Effluent, UV Disinfected: OUTFALL 10 FE	RAW	OUTFALL 30	OUTFALL 20	OUTFALL 10 FEC
Thu 01	334.60	245.50	0.00	0.00	0.00	0.00	245.50	245.50	7.5			7.7
Fri 02	394.70	273.80	0.00	0.00	0.00	0.00	273.80	273.80	7.5			7.6
Sat 03	514.00	310.60	34.20	0.00	0.00	0.00	276.40	276.40	7.5	7.4		7.5
Sun 04	491.30	328.60	35.10	0.00	0.00	0.00	293.50	293.50	7.7	7.5		7.5
Mon 05	354.90	269.30	0.00	0.00	0.00	0.00	269.30	269.30	7.5			7.5
Tue 06	367.80	257.20	0.00	0.00	3.10	0.00	254.10	254.10	7.6			7.5
Wed 07	338.80	258.50	0.00	0.00	11.60	0.00	246.90	246.90	7.4			7.6
Thu 08	335.00	253.10	0.00	0.00	11.30	0.00	241.80	241.80	7.4			7.6
Fri 09	357.60	263.20	0.00	0.00	11.50	0.00	251.70	251.70	7.4			7.7
Sat 10	395.90	263.50	0.00	0.00	11.50	0.00	252.00	252.00	7.5			7.5
Sun 11	350.20	243.80	0.00	0.00	11.40	0.00	232.40	232.40	7.5			7.6
Mon 12	365.80	251.10	0.00	0.00	10.10	0.00	241.00	241.00	7.5			7.7
Tue 13	333.60	247.00	0.00	0.00	11.40	0.00	235.60	235.60	7.5			7.6
Wed 14	337.60	262.40	0.00	0.00	11.50	0.00	250.90	250.90	7.5			7.6
Thu 15	423.40	317.60	0.00	0.00	12.50	0.00	305.10	305.10	7.5			7.5
Fri 16	341.80	257.10	0.00	0.00	13.10	0.00	244.00	244.00	7.7			7.4
Sat 17	327.90	249.70	0.00	0.00	11.80	0.00	237.90	237.90	7.6			7.6
Sun 18	516.60	307.20	28.40	0.00	11.20	0.00	267.60	267.60	7.5	7.4		7.6
Mon 19	377.40	288.20	0.00	0.00	11.60	0.00	276.60	276.60	7.5			7.1
Tue 20	355.70	267.40	0.00	0.00	11.70	0.00	255.70	255.70	7.6			7.3
Wed 21	334.70	258.70	0.00	0.00	11.90	0.00	246.80	246.80	7.5			7.6
Thu 22	332.00	257.90	0.00	0.00	12.20	0.00	245.70	245.70	7.6			7.7
Fri 23	331.90	254.40	0.00	0.00	12.70	0.00	241.70	241.70	7.5			7.7
Sat 24	335.90	253.50	0.00	0.00	12.90	0.00	240.60	240.60	7.5			7.6
Sun 25	337.50	250.70	0.00	0.00	12.50	0.00	238.20	238.20	7.6			7.7
Mon 26	334.60	252.60	0.00	0.00	11.90	0.00	240.70	240.70	7.6			7.6
Tue 27	343.40	252.40	0.00	0.00	11.10	0.00	241.30	241.30	7.7			7.6
Wed 28	334.80	265.60	0.00	0.00	11.10	0.00	254.50	254.50	7.9			7.5
Thu 29	320.10	249.70	0.00	0.00	11.00	0.00	238.70	238.70	7.5			7.6
Fri 30	308.20	243.90	0.00	0.00	11.40	0.00	232.50	232.50	7.6			7.7
Average	364.26	265.14	3.26	0.00	9.47	0.00	252.42	252.42	7.5	7.4	---	7.6
Minimum	308.20	243.80	0.00	0.00	0.00	0.00	232.40	232.40	7.4	7.4	---	7.1
Maximum	516.60	328.60	35.10	0.00	13.10	0.00	305.10	305.10	7.9	7.5	---	7.7
GeoMean	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL	---	7,954	98	0	284	0	7,572	7,572	---	---	---	---

DATE	TSS (mg/L)						BOD_5/$cBOD_5$ (mg/L)						TP (mg/L)					
	RAW	OUTFALL 30	OUTFALL 20	EPEPS	OUTFALL 10 FEC	OUTFALL 10 FE	RAW BOD_5	OUTFALL 30 BOD_5	OUTFALL 20 BOD_5	EPEPS BOD_5	OUTFALL 10 FEC $cBOD_5$	OUTFALL 10 FE $cBOD_5$	RAW	OUTFALL 30	OUTFALL 20	EPEPS	OUTFALL 10 FEC	OUTFALL 10 FE
Thu 01	348				4.4	4.4	307				3	3	7.26				0.26	0.26
Fri 02	335				12.1	12.1	311				5	5	6.41				0.54	0.54
Sat 03	370	122			8.4	8.4	246	127			3	3	7.19	3.95			0.47	0.47
Sun 04	296	107			9.8	9.8	223	159			3	3	5.06	4.20			0.36	0.36
Mon 05	320				14.4	14.4	317				5	5	6.24				0.53	0.53
Tue 06	308				8.1	8.1	236				3	3	6.31				0.37	0.37
Wed 07	320				6.9	6.9	307				3	3	6.76				0.36	0.36
Thu 08	360				8.9	8.9	422				4	4	6.97				0.44	0.44
Fri 09	308				13.4	13.4	318				5	5	7.11				0.54	0.54
Sat 10	273				11.9	11.9	259				4	4	6.56				0.51	0.51
Sun 11	252				5.7	5.7	277				4	4	6.42				0.31	0.31
Mon 12	276				6.2	6.2	282				3	3	6.57				0.31	0.31
Tue 13	304				5.4	5.4	321				3	3	6.76				0.24	0.24
Wed 14	312				5.3	5.3	284				3	3	6.67				0.28	0.28
Thu 15	356				17.0	17.0	236				5	5	6.27				0.63	0.63
Fri 16	311				4.1	4.1	267				3	3	6.74				0.24	0.24
Sat 17	288				3.9	3.9	418				3	3	6.89				0.21	0.21
Sun 18	297	114			3.9	3.9	242	138			3	3	5.95	3.79			0.24	0.24
Mon 19	320				36.4	36.4	288				9	9	6.31				2.36	2.36
Tue 20	316				23.8	23.8	268				7	7	6.37				1.65	1.65
Wed 21	343				5.6	5.6	250				3	3	6.45				0.33	0.33
Thu 22	343				6.8	6.8	268				3	3	6.28				0.35	0.35
Fri 23	306				4.2	4.2	297				3	3	6.52				0.25	0.25
Sat 24	312				12.8	12.8	310				5	5	6.42				0.49	0.49
Sun 25	300				7.2	7.2	358				4	4	6.55				0.31	0.31
Mon 26	348				7.1	7.1	293				4	4	6.41				0.28	0.28
Tue 27	284				4.9	4.9	311				3	3	6.46				0.26	0.26
Wed 28	370				20.0	20.0	306				9	9	6.88				0.83	0.83
Thu 29	244				14.6	14.6	339				6	6	6.60				0.69	0.69
Fri 30	336				7.6	7.6	353				4	4	6.54				0.35	0.35
Average	315	114	---	---	10.0	10.0	297	141	---	---	4.2	4.2	6.53	3.98	---	---	0.50	0.50
Minimum	244	107	---	---	3.9	3.9	223	127	---	---	3	3	5.06	3.79	---	---	0.21	0.21
Maximum	370	122	---	---	36.4	36.4	422	159	---	---	9	9	7.26	4.20	---	---	2.36	2.36
GeoMean	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

DATE	NH3-N (mg/L)						TKN (mg/L)				NO_2+NO_3 (mg/L)				Chloride (mg/L)				*E. coli* (Counts/100 mL)			
	RAW	OUTFALL 30	OUTFALL 20	EPEPS	OUTFALL 10 FEC	OUTFALL 10 FE	RAW	OUTFALL 30	OUTFALL 20	OUTFALL 10 FEC	RAW	OUTFALL 30	OUTFALL 20	OUTFALL 10 FEC	RAW	OUTFALL 30	OUTFALL 20	OUTFALL 10 FEC	RAW X10^6	OUTFALL 30 X10^6	OUTFALL 20 X10^6	OUTFALL 10 FEC
Thu 01	37.5				0.45	0.45	54.0			2.04				7.88	77.9			80.0				4
Fri 02	27.9				0.77	0.77	48.1			3.14				6.14	170			90.3				5
Sat 03	19.2	28.7			0.77	0.77	48.8	37.2		2.74		0.28		5.79	128	126		171		1.4		13
Sun 04	28.1	28.5			0.56	0.56	40.3	37.5		2.23		0.05		5.00	77.9	79.7		116		2.2		4
Mon 05	32.7				0.82	0.82	52.5			3.24				4.59	150			106				3
Tue 06	36.6				1.55	1.55	53.3			3.47				4.35	94.6			134				5
Wed 07	34.8				1.91	1.91	55.4			3.94	< 0.01			5.00	88.4			106	2.2			5
Thu 08	37.8				1.89	1.89	57.2			4.12				4.15	85.8			101				7
Fri 09	31.9				2.20	2.20	54.4			4.70				4.31	252			118				5
Sat 10	32.1				2.33	2.33	53.6			5.04				3.90	179			260				6
Sun 11	28.8				2.28	2.28	54.3			4.46				4.90	91.0			178				7
Mon 12	37.8				2.39	2.39	53.8			4.55				5.21	82.7			108				6
Tue 13	36.7				2.12	2.12	53.5			3.81				5.28	98.7			94.2				9
Wed 14	30.5				1.41	1.41	47.0			3.15	< 0.01			5.71	94.2			108				7
Thu 15	29.0				1.93	1.93	50.4			4.83				5.66	152			137				21
Fri 16	35.6				2.26	2.26	57.2			4.13				5.06	166			139				9
Sat 17	35.6				2.71	2.71	57.1			4.52				5.19	169			129				5
Sun 18	29.8	28.4			2.68	2.68	49.5	41.2		4.58		1.18		5.88	511	705		196		0.4		5
Mon 19	29.8				6.77	6.77	51.4			10.6				2.98	238			382				2
Tue 20	35.4				9.58	9.58	49.0			12.8				4.44	154			301	2.5			14
Wed 21	34.0				4.00	4.00	52.4			5.75	0.02			5.94	117			179				11
Thu 22	35.4				2.49	2.49	52.0			4.38				6.43	117			125				8
Fri 23	32.6				2.74	2.74	52.7			4.12				5.73	103			117				14
Sat 24	36.7				2.28	2.28	53.6			4.81				7.36	82.7			107				11
Sun 25	38.2				3.25	3.25	57.5			5.05				8.19	80.0			87.5				14
Mon 26	36.0				3.61	3.61	55.9			5.40				7.16	83.2			82.7				12
Tue 27	34.0				2.70	2.70	55.4			4.78				7.43	90.2			89.0				12
Wed 28	37.2				5.33	5.33	57.4			7.76	0.05			7.36	107			97.9				18
Thu 29	33.4				4.61	4.61	56.1			7.46				8.81	99.4			102				15
Fri 30	35.9				2.88	2.88	53.6			4.92				8.76	126			106				18
Average	33.4	28.5	---	---	2.71	2.71	52.9	38.6	---	4.88	0.02	0.50	---	5.82	136	304	---	138	---	---	---	---
Minimum	19.2	28.4	---	---	0.45	0.45	40.3	37.2	---	2.04	0.01	0.05	---	2.98	77.9	79.7	---	80.0	2.2	0.4	---	2
Maximum	38.2	28.7	---	---	9.58	9.58	57.5	41.2	---	12.8	0.05	1.18	---	8.81	511	705	---	382	2.5	2.2	---	21
GeoMean	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2.3	1.1	---	8
TOTAL	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

* Contact Laboratory for information about the quality assurance associated with the results

Enhanced Primary Treatment (EPT) Usage					
Total Bypass (hrs)	EPT Usage (hrs)	%	Total Bypass YTD (hrs)	EPT Usage YTD	% Usage YTD
21	21	100%	373	378	98.70%

Report Comments

AEP Ref #**

** AEP - Alberta Environment & Parks

RAW	Untreated Influent into the plant
INF	Untreated Wastewater from collection system
INFs	Influent, screened at the Headworks Diversion Structure
PE	Primary Effluent from conventional primaries
PE 30	Primary Effluent from conventional primaries discharged via Outfall 30
EPT	Enhanced Primary Treatment
EPE	Enhanced Primary Effluent
EPEPS	Enhanced Primary Effluent and Pump Station
FE	Final Effluent from secondary treatment process (with biological nutrient removal).

FEC	Combined pre-UV disinfection (FE+EPEPS)
OUTFALL 10	UV-disinfected, discharged via OUTFALL 10
OUTFALL 20	Combined Bypass (RAW + PE + EPE)
OUTFALL 30	Combined Bypass (INF + INFS + PE30 + EPE)
MPW	Membrane Product Water (Effluent re-use water)
ML	Megalitre (1,000,000 Litre)
MPN	Most Probable Number
NR	No Result
NS	No Sample
INS	Insufficient Sample

Abhishek Bhargava

Senior Manager, Operations

Shane Harnish

Senior Manager, Analytical Operations

PROVIDING MORE EPCOR

Gold Bar Wastewater Treatment Plant
Plant Performance Report
December 2018

Digested Sludge: Total Monthly Volume (ML)	72.59

Volume of Flow (ML)

DATE	Peak Flow (MLD)	Influent	Effluent					
			Non UV Disinfected			UV Disinfected		
		RAW	OUTFALL 30	OUTFALL 20	MPW	EPEPS	OUTFALL 10 FEC	OUTFALL 10 FE
Sat 01	322.9	242.5	0.0	0.0	12.1	0.0	230.4	230.4
Sun 02	324.6	243.3	0.0	0.0	11.8	0.0	231.5	231.5
Mon 03	326.9	247.2	0.0	0.0	11.7	0.0	235.5	235.5
Tue 04	328.8	251.5	0.0	0.0	11.7	0.0	239.8	239.8
Wed 05	317.3	248.2	0.0	0.0	11.8	0.0	236.4	236.4
Thu 06	317.0	243.8	0.0	0.0	11.7	0.0	232.1	232.1
Fri 07	327.4	238.5	0.0	0.0	11.5	0.0	227.0	227.0
Sat 08	336.3	247.6	0.0	0.0	11.3	0.0	236.3	236.3
Sun 09	335.5	245.8	0.0	0.0	11.0	0.0	234.8	234.8
Mon 10	338.9	262.3	0.0	0.0	10.2	0.0	252.1	252.1
Tue 11	348.6	260.5	0.0	0.0	10.5	0.0	250.0	250.0
Wed 12	332.2	254.4	0.0	0.0	10.4	0.0	244.0	244.0
Thu 13	303.2	243.5	0.0	0.0	10.6	0.0	232.9	232.9
Fri 14	312.9	248.0	0.0	0.0	11.8	0.0	236.2	236.2
Sat 15	341.9	247.3	0.0	0.0	11.9	0.0	235.4	235.4
Sun 16	335.4	241.1	0.0	0.0	11.4	0.0	229.7	229.7
Mon 17	309.7	249.3	0.0	0.0	11.5	0.0	237.8	237.8
Tue 18	312.0	248.2	0.0	0.0	11.2	0.0	237.0	237.0
Wed 19	315.6	243.8	0.0	0.0	11.4	0.0	232.4	232.4
Thu 20	298.4	244.0	0.0	0.0	11.4	0.0	232.6	232.6
Fri 21	297.2	248.3	0.0	0.0	10.6	0.0	237.7	237.7
Sat 22	344.5	244.3	0.0	0.0	10.6	0.0	233.7	233.7
Sun 23	348.7	243.0	0.0	0.0	10.6	0.0	232.4	232.4
Mon 24	331.2	247.9	0.0	0.0	10.6	0.0	237.3	237.3
Tue 25	301.9	229.3	0.0	0.0	11.5	0.0	217.8	217.8
Wed 26	289.9	220.6	0.0	0.0	11.6	0.0	209.0	209.0
Thu 27	292.5	234.0	0.0	0.0	10.9	0.0	223.1	223.1
Fri 28	314.9	246.2	0.0	0.0	10.7	0.0	235.5	235.5
Sat 29	317.8	234.7	0.0	0.0	10.4	0.0	224.3	224.3
Sun 30	351.8	235.3	0.0	0.0	10.5	0.0	224.8	224.8
Mon 31	354.1	240.7	0.0	0.0	10.4	0.0	230.3	230.3
Average	323.55	244.36	0.00	0.00	11.14	0.00	233.22	233.22
Minimum	289.90	220.60	0.00	0.00	10.20	0.00	209.00	209.00
Maximum	354.10	262.30	0.00	0.00	12.10	0.00	252.10	252.10
GeoMean	---	---	---	---	---	---	---	---
TOTAL	---	7,575	0	0	345	0	7,230	7,230

Liquid Stream Quality

DATE	pH@25°C RAW	pH@25°C OUTFALL 30	pH@25°C OUTFALL 20	pH@25°C OUTFALL 10 FEC	TSS (mg/L) RAW	TSS (mg/L) OUTFALL 30	TSS (mg/L) OUTFALL 20	TSS (mg/L) EPEPS	TSS (mg/L) OUTFALL 10 FEC	TSS (mg/L) OUTFALL 10 FE	BOD_5/$cBOD_5$ (mg/L) RAW	BOD_5 OUTFALL 30	BOD_5 OUTFALL 20	BOD_5 EPEPS	$cBOD_5$ OUTFALL 10 FEC	$cBOD_5$ OUTFALL 10 FE	TP (mg/L) RAW	TP OUTFALL 30	TP OUTFALL 20	TP EPEPS	TP OUTFALL 10 FEC	TP OUTFALL 10 FE	NH3-N (mg/L) RAW	NH3-N OUTFALL 30	NH3-N OUTFALL 20	NH3-N EPEPS	NH3-N OUTFALL 10 FEC	NH3-N OUTFALL 10 FE	TKN (mg/L) RAW	TKN (mg/L) OUTFALL 30	TKN (mg/L) OUTFALL 20	TKN (mg/L) OUTFALL 10 FEC	NO_2+NO_3 (mg/L) RAW	NO_2+NO_3 OUTFALL 30	NO_2+NO_3 OUTFALL 20	NO_2+NO_3 OUTFALL 10 FEC	Chloride (mg/L) RAW	Chloride OUTFALL 30	Chloride OUTFALL 20	Chloride OUTFALL 10 FEC	*E. coli* (Counts/100 mL) RAW	*E. coli* OUTFALL 30	*E. coli* OUTFALL 20	*E. coli* OUTFALL 10 FEC
															FEC	FE																												
											X10^6	X10^6	X10^6	X10^6																														
Sat 01	7.7			7.7	348				9.1	9.1	338				4	4	6.77				0.37	0.37	36.1				1.83	1.83	56.0			5.58				7.21	116			131				25
Sun 02	7.6			7.7	304				9.7	9.7	332				4	4	6.66				0.46	0.46	38.4				3.70	3.70	58.4			5.91				8.42	116			132				30
Mon 03	7.5			7.6	308				9.6	9.6	347				4	4	6.25				0.46	0.46	35.0				2.07	2.07	53.6			4.60				8.33	134			125				16
Tue 04	7.7			7.7	354				8.8	8.8	268				4	4	6.53				0.41	0.41	38.2				2.29	2.29	55.0			4.32				6.66	130			131				24
Wed 05	7.5			7.6	352				8.0	8.0	337				4	4	6.94				0.42	0.42	33.2				1.08	1.08	54.4			3.87	< 0.01			8.18	117			135	4.0			14
Thu 06	7.6			7.6	336				8.2	8.2	324				4	4	6.72				0.38	0.38	35.2				1.14	1.14	55.8			4.20				7.93	108			123				14
Fri 07	7.5			7.5	292				7.3	7.3	288				3	3	6.47				0.36	0.36	36.2				1.68	1.68	55.0			3.56				8.94	102			114				18
Sat 08	7.5			7.6	340				7.6	7.6	299				4	4	6.68				0.36	0.36	36.9				1.25	1.25	55.6			3.17				9.93	93.6			110				17
Sun 09	7.5			7.6	335				6.3	6.3	213				4	4	6.58				0.31	0.31	37.1				1.24	1.24	56.9			3.15				10.2	84.6			93.5				10
Mon 10	7.5			7.6	348				8.0	8.0	283				4	4	6.29				0.35	0.35	34.6				1.12	1.12	50.0			3.20				10.2	184			104				13
Tue 11	7.4			7.6	396				8.6	8.6	292				4	4	6.59				0.33	0.33	34.0				1.08	1.08	56.1			2.97				8.75	147			187				16
Wed 12	7.5			7.6	340				5.0	5.0	321				4	4	3.20				0.25	0.25	33.8				1.66	1.66	26.6			3.48	0.13			8.35	121			158				14
Thu 13	7.6			7.5	436				4.7	4.7	416				4	4	7.18				0.23	0.23	30.8				1.50	1.50	54.3			3.32				8.83	111			127	3.0			12
Fri 14	7.6			7.6	352				5.0	5.0	344				3	3	7.43				0.26	0.26	34.2				1.38	1.38	59.4			3.08				9.94	116			119				24
Sat 15	7.5			7.6	332				4.7	4.7	299				3	3	6.58				0.23	0.23	36.5				1.50	1.50	52.8			3.12				9.93	106			127				13
Sun 16	7.5			7.5	284				3.4	3.4	224				3	3	5.90				0.22	0.22	35.4				1.42	1.42	50.6			3.10				9.82	82.1			106				12
Mon 17	7.6			7.5	280				5.4	5.4	318				3	3	6.64				0.27	0.27	35.4				1.18	1.18	56.3			2.80				10.4	81.9			89.0				10
Tue 18	7.4			7.6	311				4.8	4.8	314				3	3	6.89				0.26	0.26	34.9				0.99	0.99	56.7			2.61				10.4	88.7			89.0				16
Wed 19	7.4			7.6	340				4.3	4.3	321				3	3	6.82				0.27	0.27	36.5				0.57	0.57	56.3			2.26	< 0.01			10.2	82.0			93.4				9
Thu 20	7.5			7.6	304				5.2	5.2	312				3	3	6.95				0.25	0.25	39.7				0.83	0.83	57.7			2.42				9.45	86.0			95.1				9
Fri 21	7.6			7.7	323				4.4	4.4	317				4	4	7.27				0.24	0.24	39.1				1.13	1.13	57.5			2.78				8.86	99.1			93.8				11
Sat 22	7.6			7.7	308				5.6	5.6	322				4	4	6.68				0.27	0.27	38.4				1.63	1.63	56.3			3.10				8.88	96.9			103				12
Sun 23	7.4			7.6	286				5.5	5.5	289				4	4	7.06				0.26	0.26	45.8				2.10	2.10	56.8			3.86				8.63	89.9			99.4				8
Mon 24	7.5			7.5	264				6.8	6.8	342				4	4	6.77				0.29	0.29	48.5				1.95	1.95	56.4			4.00				9.30	94.1			95.9				7
Tue 25	7.6			7.5	276				5.9	5.9	337				4	4	7.09				0.28	0.28	27.9				1.30	1.30	60.1			3.27				10.2	78.0			96				7
Wed 26	7.6			7.5	320				4.3	4.3	319				4	4	8.14				0.28	0.28	46.0				1.98	1.98	70.7			4.36	< 0.01			11.6	90.9			89.0				9
Thu 27	7.5			7.6	312				4.4	4.4	357				4	4	7.92				0.31	0.31	40.9				3.48	3.48	64.4			5.57				10.7	98.9			95.3				7
Fri 28	7.5			7.5	300				6.1	6.1	336				4	4	7.46				0.34	0.34	21.6				2.98	2.98	62.7			5.21				11.0	108			111				7
Sat 29	7.7			7.6	328				5.3	5.3	329				4	4	6.98				0.33	0.33	44.6				1.96	1.96	62.1			4.08				9.89	104			113				8
Sun 30	7.4			7.6	376				4.6	4.6	291				4	4	6.88				0.29	0.29	26.1				0.79	0.79	60.6			2.75				11.1	97.0			118				7
Mon 31	7.5			7.5	296				4.8	4.8	372				4	4	6.92				0.34	0.34	37.6				0.59	0.59	60.5			2.85				11.0	88.2			102				6
Average	7.5	---	---	7.6	325	---	---	---	6.2	6.2	316	---	---	---	3.7	3.7	6.75	---	---	---	0.31	0.31	36.4	---	---	---	1.59	1.59	56.3	---	---	3.63	0.04	---	---	9.46	105	---	---	113	---	---	---	---
Minimum	7.4	---	---	7.4	264	---	---	---	3.4	3.4	213	---	---	---	3.0	3.0	3.20	---	---	---	0.22	0.22	21.6	---	---	---	0.57	0.57	26.6	---	---	2.26	0.01	---	---	6.66	78.0	---	---	89.0	3.0	---	---	6
Maximum	7.7	---	---	7.7	436	---	---	---	9.7	9.7	416	---	---	---	4.0	4.0	8.14	---	---	---	0.46	0.46	48.5	---	---	---	3.70	3.70	70.7	---	---	5.91	0.13	---	---	11.6	184	---	---	187	4.0	---	---	30
GeoMean	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	3.5	---	---	12
TOTAL	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

* contact Laboratory for information about the quality assurance associated with the results

Enhanced Primary Treatment (EPT) Usage

Total Bypass (hrs)	EPT Usage (hrs)	%	Total Bypass YTD (hrs)	EPT Usage YTD	% Usage YTD
0	0	100%	378	373	98.70%

Report Comments

AEP Ref #**

** AEP - Alberta Environment & Parks

RAW	Untreated Influent into the plant
INF	Untreated Wastewater from collection system
INFs	Influent, screened at the Headworks Diversion Structure
PE	Primary Effluent from conventional primaries
PE 30	Primary Effluent from conventional primaries discharged via Outfall 30
EPT	Enhanced Primary Treatment
EPE	Enhanced Primary Effluent
EPEPS	Enhanced Primary Effluent and Pump Station
FE	Final Effluent from secondary treatment process (with biological nutrient removal).

FEC	Combined pre-UV disinfection (FE+EPEPS)
OUTFALL 10	UV-disinfected, discharged via OUTFALL 10
OUTFALL 20	Combined Bypass (RAW + PE + EPE)
OUTFALL 30	Combined Bypass (INF + INFS + PE30 + EPE)
MPW	Membrane Product Water (Effluent re-use water)
ML	Megalitre (1,000,000 Litre)
MPN	Most Probable Number
NR	No Result
NS	No Sample
INS	Insufficient Sample

Abhishek Bhargava
Senior Manager, Operations

Shane Harnish
Senior Manager, Analytical Operations

Gold Bar Wastewater Treatment Plant
10977 50 Street
Edmonton AB T6A 2E9
Canada
epcor.com

Approval 361975-00-00
Gold Bar Waste Water Treatment Plant Operations Monthly Summary

2018

SENIOR MANAGER, OPERATIONS MANAGER, OPERATIONS	• ABHISHEK BHARGAVA • KEN GROSSELL (LEVEL IV)
LEVEL IV OPERATORS	• TOM GRAHAM • KIRA JONES • TOM KWAN • DIEGO ESPINOSA • JANAKA LEKAMWASAM

January
- 0 Secondary Bypass Events
- Influent Channel 2 and Grit Tanks 4/5 back in service
- Boiler 5 commissioned – available
- Influent Channel 3 O/S, Grit Tank 6/7 O/S
- Dig 6 heat exchanger cleaned

February
- 0 Secondary Bypass Events
- Testing Bioreactors in Winter Mode
- Feb 28th – supernatant off for Hermitage line repair
- Dig 2 heat exchanger acid clean

March
- 15 Secondary Bypass Events – March 10th, 11th, 12th, 13th, 14th, 16th, 17th, 18th, 20th, 21st, 22nd, 23rd, 24th, 25th, & 26th (Total volume: 372 ML)
- Dig 2 heat exchanger acid and high pressure cleaned
- Dig Train Sludge Line 1 leak (West of EPT) – March 22nd
- EPT 11 & 12 in service/ EPT 9 & 10 O/S for inspection/tank covers

- UV Channel 2 lamp issue (did not come on when channel came into service) – March 26th

April
- 12 Secondary Bypass Events – April 10th, 11th, 13th, 14th, 15th, 16th, 17th, 18th, 19th, 20th, 21st & 22nd (Total volume: 614 ML)
- Influent Channel 3 in service
- EPT 9 & 10 O/S for inspection/tank covers
- Dig Sludge Line 1 leak/Line 2 in service
- Ferm 2 O/S for inspection
- Sec 1 in service
- Sec 10 O/S for RAS pipe leak
- Sec 11 O/S for 8" sludge line repair at flange

May
- 2 Secondary Bypass Events – May 29th & 30th (Total volume: 78 ML)
- Sec 6 O/S for chain replacement – May 5th
- Sec 4 O/S for projects – May 26th
- Sludge to farmland program started – May 17th
- Primary 1 & 2 O/S for inspection – May 19th
- All Bioreactors back to Summer Mode – May 3rd
- Sludge Train A in service using line A – 8" line (East)

June
- 10 Secondary Bypass Events – June 1st, 10th, 11th, 12th, 14th, 15th, 22nd, 24th, 25th & 30th (Total volume: 746 ML)
- Bio/Sec 4 O/S for projects
- Blower 1 & 4 O/S for projects
- South Blend Tank O/S for cleaning
- Primary 3/4 and Sec 1 & 10 O/S for chain tightening
- Grit Tank 5 conveyor upgrades completed

July
- 12 Secondary bypass events – July 3rd, 7th, 9th, 10th, 11th, 13th, 14th, 18th, 19th, 20th, 21st & 22nd (Total volume: 406 ML)
- North Blend Tank cleaned – available
- Grit Recovery Facility O/S – failure of grit slurry pumps
- EPT air scouring available for service
- Oil/diesel spill in from Strathcona line – July 12th
- Primary 8 O/S for shoe repair
- Sec 10 cross collector failure – O/S for repair

August

- 7 Secondary Bypass Events – Aug 1st, 3rd, 4th, 11th, 12th, 28th & 31st (Total volume: 280 ML)
- Clarifier Capacity Assessment – week of Aug 20th
- West/EPT chemical pumps upgrade – Aug 20th
- EPT 10 inspection completed
- DAF subnatant to headworks – Bing L Test – Aug 13th

September

- 7 Secondary Bypass Events – Sept 10th, 12th, 15th, 16th, 21st, 22nd, 23rd (Total volume: 521 ML)
- Sec 9 O/S Sept 2nd for chain replacement – in service Sept 29th
- Grit Tank 6/7 inspected
- Planned plant power shutdown including UV – Sept 6th
- Influent Channel 3 static weir plate raised – Sept 10th
- Ostara offline due to broken pipe/flood – Sept 21st
- Primary 5/6 O/S for chain replacement for Primary 5
- East caustic storage tank back in service – Sept 27th

October

- 2 Secondary Bypass Events – Oct 8th & 12th (Total volume: 102 ML)
- Influent Channel 1 & 2 O/S for diversion structure repair – Oct 1st
- West caustic storage tank back in service
- EPT sludge bypass line in use (hose to sludge header Primary 5 & 6)
- UV dose changed from 27 mWs/cm2 to 23 mWs/cm2 – Oct 30th
- Membrane offline due to product water line leak – Oct 27th

November

- 3 Secondary Bypass Events – Nov 3rd, 4th, &18th (Total volume: 98 ML)
- Membrane product water line leak repaired – back online Nov 6th
- Primary 5/6 in service – Nov 12th
- Acid clean started – Nov 17th
- Sec 11 broken chain, West side drained, running East side – Nov 24th
- Sec 7 O/S for chain tightening – Nov 27th

December

- 0 Secondary Bypass Events
- Sec 4 O/S for chain tightening – Dec 1st
- Winter Mode for Bioreactors during peak flows
- Sec 4 in service – Dec 6th
- West bleach storage tank in service – Dec 7th

- Sec 11 broken chain, running half of a clarifier – Dec 6th
- K102 back in service – Dec 18th
- Supernatant back on – Dec 20th

2018 Summary of Notifications to Alberta Environment & Parks		
Date	**Summary of Notifications**	**AEP Reference Number**
January 02	AEP was notified of offline status of West Scrubber since Dec 30, 2017 @ 7:30 AM.	333308
January 10	AEP was notified of a 5 day West Scrubber outage planned to start January 15th at 7AM and finishing January 19th at 4PM.	333593
January 25	AEP was notified of a 5 day East Scrubber outage planned to start January 29th at 7AM and finishing February 2nd at 4PM.	334090
February 12	AEP was notified of a 5 day East Scrubber outage planned to start February 12th at 7AM and finishing February 16th at 4PM. This included the outage for the Fermenter Scrubber from February 12th at 7AM to February 14th at 4PM to work on the shared water softener system.	334600
February 12	AEP was notified of a 5 day Fermenter Scrubber outage planned to start February 20th at 7AM and finishing February 23rd at 4PM.	334601
February 12	AEP was notified of a 5 day West Scrubber outage planned to start January February 26th at 7AM and finishing March 2nd at 4PM. This included the outage for the EPT Scrubber from February 26th at 7AM to February 28th at 4PM to work on the shared water softener system.	334602
March 07	AEP notified of the Fathead Minnow toxicity test indicating some toxic effects. A resample/retest is being performed.	335390
March 22	AEP called to report sludge leak on West end of plant from 10” sludge line #1. 7 Day letter required.	335978
March 26	AEP called to report UV Channel 2 running with no bulbs on. 7 Day letter required.	336093
March 27	AEP notified of supernatant leak on Cloverbar property.	336118
May 23	AEP notified of 1 hour UV power outage on May 31st.	338547
June 27	AEP called to report potential glycol leak under North Ave.	340222
August 15	AEP was notified of a 5 day West Scrubber outage planned to start August 20th at 7AM and finishing August 24th at 4PM.	342538
August 15	AEP was notified of a 5 day East/Fermenter Scrubber outage planned to start September 10th at 7AM and finishing September 14th at 4PM.	342539
August 20	AEP was notified of an upcoming study where a non-toxic blue tracer dye (Rhodamine WT) was to be dosed into secondary clarifiers, and may pass through to Outfall 10 and the NSR. Study was planned to start Aug 20th and finish August 24th.	342872
August 24	AEP was notified of a 12 hour UV outage to start September 6th at 1AM and ending at 1PM.	343150

September 5	AEP was notified of a up to 5 day planned shutdown of inlet channel 3 for capital work that will result in a reduction of the target operating capacity from 1200 MLD to 800 MLD for conventional and enhanced primary treated wastewater flows. Outage to start September 10th at 7AM and end by September 14th at 5PM.	343609
September 7	AEP was notified of revised dates for a 5 day East/Fermenter Scrubber outage previously planned to start September 10th at 7AM and finishing September 14th at 4PM was revised to start September 17th at 7AM and finishing September 21st at 4PM.	342539
September 26	AEP was notified of a up to 6 month planned shutdown of channels and diversion structure for capital work that will result in a reduction of the target operating capacity from 1200 MLD to 600 MLD for conventional and enhanced primary treated wastewater flows. Outage to start October 1, 2018 and end by March 31, 2019.	344350

2018 Secondary Alum Usage (kg)

	January	February	March	April	May	June	July	August	September	October	November	December
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	39	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	245	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	137	0	0
8	0	0	0	0	0	0	0	0	0	651	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	1	154	0	0	0	0	0	0	0
11	0	0	0	0	480	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	937	0	0	0	0	0	0	0	0
18	0	0	0	527	0	0	0	405	0	0	25	0
19	0	0	0	0	0	875	0	0	0	0	0	0
20	0	0	0	1	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0
29	0		0	0	0	0	0	0	0	0	0	0
30	0		0	0	26	0	0	0	0	0	0	0
31	0		0		0		0	0		0		0
Total (kg)	**0**	**0**	**0**	**1,466**	**659**	**914**	**0**	**405**	**245**	**788**	**25**	**0**

2018 EPT Alum Usage (kg)

	January	February	March	April	May	June	July	August	September	October	November	December
1	0	0	0	0	0	1533	0	342	33	0	0	0
2	0	0	0	0	0	0	0	1990	0	0	0	0
3	0	0	0	0	0	0	1423	2503	0	0	6442	0
4	0	0	0	0	0	0	0	4746	0	0	5892	0
5	0	0	0	0	0	0	0	0	0	0	145	0
6	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	3562	0	0	0	0	0
8	0	0	0	0	180	0	0	0	0	4663	0	0
9	0	0	0	0	151	0	834	0	0	0	0	0
10	0	0	1657	3386	0	13124	777	0	2479	0	0	0
11	0	0	2773	763	0	16107	4479	2806	0	0	0	0
12	0	0	4329	0	0	799	0	8313	1726	10306	0	0
13	0	0	1821	2267	0	0	6427	731	0	440	0	0
14	0	0	2689	5011	0	983	1336	0	0	0	0	0
15	0	0	539	4380	0	2856	0	0	9449	0	0	0
16	0	0	818	2159	0	0	0	0	12228	0	0	0
17	0	0	379	7361	0	0	0	0	1709	0	0	0
18	0	0	1523	3548	0	0	2342	0	0	0	11036	0
19	0	0	519	3334	0	0	1123	0	0	0	14	0
20	0	0	2923	829	0	0	10832	0	0	0	0	0
21	0	0	3267	2815	0	0	2930	0	8167	0	0	0
22	0	0	915	429	0	2349	2214	0	5161	0	0	0
23	0	0	2869	0	0	0	0	0	6198	0	0	0
24	0	0	2291	0	0	593	0	0	1026	0	0	0
25	0	0	1612	380	0	1577	0	0	0	0	0	0
26	0	0	1878	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	908	0	0	0	0
29	0		0	0	1694	0	0	0	0	0	0	0
30	0		0	0	6489	4065	0	0	0	0	0	0
31	0		0		6888		0	1593		0		0
Total (kg)	**0**	**0**	**32,800**	**36,664**	**15,403**	**43,987**	**38,279**	**23,931**	**48,176**	**15,409**	**23,530**	**0**

2018 DAF Polymer Usage (kg)

	January	February	March	April	May	June	July	August	September	October	November	December
1	29	31	27	36	32	33	32	18	36	31	30	27
2	24	27	19	34	24	37	34	27	30	26	34	21
3	23	27	27	34	26	39	101	28	28	40	34	27
4	24	27	27	35	23	41	105	29	29	38	25	24
5	26	28	26	34	21	37	21	29	29	38	19	24
6	32	28	29	33	18	34	27	30	26	42	34	26
7	27	26	30	33	25	27	27	29	35	40	30	26
8	32	26	29	33	25	22	22	29	32	33	27	23
9	30	27	26	32	33	21	26	16	33	25	27	22
10	27	26	26	33	28	20	29	30	31	28	31	21
11	28	27	23	22	34	20	25	30	33	27	33	27
12	23	31	25	51	36	27	26	30	33	24	31	23
13	24	35	27	46	35	26	26	25	35	31	10	24
14	28	35	37	40	35	26	27	19	34	33	32	32
15	26	30	30	33	29	26	32	24	37	33	31	29
16	30	30	36	29	31	25	27	23	34	31	37	29
17	31	32	40	24	28	19	25	27	35	31	34	26
18	31	33	34	33	28	12	25	28	41	18	33	23
19	34	33	35	39	27	38	26	29	40	31	26	25
20	33	33	37	36	27	39	27	30	42	30	23	27
21	33	33	41	40	24	35	27	32	38	34	20	29
22	34	40	40	36	23	32	28	28	29	34	26	29
23	31	35	46	36	20	36	26	32	29	31	30	29
24	26	32	50	43	22	39	27	32	31	7	28	31
25	31	34	50	42	29	37	27	30	10	34	34	32
26	37	33	40	34	25	15	27	25	46	34	38	31
27	39	36	48	23	21	34	26	30	46	34	28	30
28	39	33	48	31	20	30	25	30	40	17	15	27
29	37		45	33	23	34	25	33	41	14	18	28
30	36		39	32	28	32	25	32	41	15	28	28
31	34		37		28		25	31		19		32
Total (kg)	**938**	**869**	**1,074**	**1,040**	**828**	**895**	**980**	**865**	**1,024**	**903**	**849**	**833**

2018 EPT Polymer Usage (kg)

	January	February	March	April	May	June	July	August	September	October	November	December
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	25	0
19	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0
29	0		0	0	0	0	0	0	0	0	0	0
30	0		0	0	0	0	0	0	0	0	0	0
31	0		0		0		0	0		0		0
Total (kg)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**25**	**0**

2018 Scrubber Bleach Usage (L as delivered 16% sodium hypochlorite solution)

	January	February	March	April	May	June	July	August	September	October	November	December
1	1390	745	267	1169	987	1215	853	910	707	875	1015	775
2	725	873	556	1179	719	1258	783	1771	701	1118	978	693
3	883	964	580	1146	765	1203	1059	1096	801	682	850	788
4	720	910	503	1148	896	1209	1020	390	959	1287	960	686
5	407	823	544	1013	1051	1034	891	379	985	1284	1162	717
6	578	764	507	803	1102	964	1042	356	736	1600	1086	917
7	618	635	490	661	979	749	885	537	862	1616	1545	717
8	675	690	557	628	1036	645	769	1290	754	1464	1915	864
9	694	570	535	696	1118	776	829	1060	879	1012	709	1061
10	571	670	482	830	1205	728	720	1034	901	998	865	1145
11	636	681	432	631	1229	873	819	1118	901	1005	881	680
12	544	747	703	786	1125	909	763	845	838	830	1187	1055
13	499	438	1013	807	1106	951	932	813	640	713	814	1085
14	644	522	877	872	1163	971	724	1144	1101	557	1157	875
15	411	708	791	843	983	887	836	878	1544	809	641	842
16	473	695	723	657	1213	1064	594	519	534	992	761	986
17	316	740	737	734	1225	931	357	881	6642	901	1057	672
18	311	841	765	810	1305	957	981	1065	84	897	859	858
19	548	943	674	686	1147	900	988	972	279	1078	1032	824
20	780	786	961	881	1092	847	906	481	403	1350	806	897
21	622	788	989	704	1104	775	1001	440	2775	1178	695	636
22	653	535	1139	699	1087	553	1004	331	2462	1233	762	747
23	754	965	943	717	1043	775	965	341	2326	868	1185	723
24	779	924	960	716	1079	1218	852	964	1100	1057	897	882
25	456	941	1178	725	1087	691	959	765	845	1125	921	883
26	562	392	1159	751	1058	416	1009	649	3889	1259	963	698
27	630	272	940	769	1172	727	1060	486	2294	1442	831	761
28	585	313	1044	916	1166	802	990	485	2264	1616	737	838
29	518		973	892	1130	786	1019	666	2468	1619	769	778
30	360		1065	907	813	800	968	896	1749	1053	872	852
31	657		1054		896		1059	682		977		964
Total (L)	**18,997**	**19,874**	**24,137**	**24,775**	**33,084**	**26,617**	**27,639**	**24,243**	**43,424**	**34,493**	**28,911**	**25,899**

2018 Scrubber Caustic Usage (kg as delivered 50% sodium hydroxide solution)

	January	February	March	April	May	June	July	August	September	October	November	December
1	67	75	67	70	94	70	67	67	70	114	171	80
2	67	75	67	70	94	70	67	67	70	114	111	130
3	67	75	67	70	94	70	67	67	70	114	231	151
4	67	75	67	70	94	70	67	67	70	114	67	74
5	67	75	67	70	94	70	67	67	70	114	90	140
6	67	75	67	70	94	70	67	67	70	114	134	107
7	67	75	67	70	94	70	67	67	70	114	191	146
8	67	75	67	70	94	70	67	67	70	114	99	111
9	67	75	67	70	94	70	67	67	70	114	136	107
10	67	75	67	70	94	70	67	67	70	114	97	119
11	67	75	67	70	94	70	67	67	70	114	179	118
12	67	75	67	70	94	70	67	67	70	114	83	130
13	67	75	67	70	94	70	67	67	70	114	171	65
14	67	75	67	70	94	70	67	67	70	114	123	99
15	67	75	67	70	94	70	67	67	70	114	113	149
16	67	75	67	70	94	70	67	67	70	114	163	207
17	67	75	67	70	94	70	67	67	70	114	131	105
18	67	75	67	70	94	70	67	67	70	114	164	178
19	67	75	67	70	94	70	67	67	70	114	111	152
20	67	75	67	70	94	70	67	67	70	114	117	83
21	67	75	67	70	94	70	67	67	70	114	110	110
22	67	75	67	70	94	70	67	67	70	114	136	166
23	67	75	67	70	94	70	67	67	70	114	103	125
24	67	75	67	70	94	70	67	67	70	114	147	213
25	67	75	67	70	94	70	67	67	70	357	113	80
26	67	75	67	70	94	70	67	67	70	266	101	99
27	67	75	67	70	94	70	67	67	70	281	138	155
28	67	75	67	70	94	70	67	67	70	252	122	99
29	67		67	70	94	70	67	67	70	284	98	225
30	67		67	70	94	70	67	67	70	108	133	113
31	67		67		94		67	67		221		139
Total (kg)	**2,090**	**2,090**	**2,090**	**2,090**	**2,926**	**2,090**	**2,090**	**2,090**	**2,100**	**4,505**	**3,885**	**3,975**

2018 Membrane Bleach Usage (L as delivered 16% sodium hypochlorite solution)

	January	February	March	April	May	June	July	August	September	October	November	December
1	198	204	315	268	271	388	734	686	403	208	0	445
2	418	305	184	360	252	379	797	540	628	363	0	442
3	424	383	329	340	183	522	935	646	540	575	0	458
4	153	429	294	238	199	536	1051	497	474	563	0	502
5	354	441	237	538	235	414	575	473	696	445	0	523
6	364	260	320	519	124	566	755	746	447	468	366	454
7	310	431	260	507	129	456	643	486	406	464	751	446
8	419	268	193	468	145	382	451	481	625	426	579	488
9	435	180	347	173	193	645	684	578	311	390	450	409
10	320	382	223	185	239	497	606	484	378	426	418	488
11	346	291	184	222	90	182	526	383	646	478	492	476
12	285	197	339	30	99	419	466	533	386	375	376	167
13	184	326	318	0	30	496	332	448	347	315	633	692
14	387	248	247	0	126	262	263	418	168	302	722	443
15	270	178	343	0	413	624	315	667	193	373	648	449
16	415	313	359	0	157	506	342	395	154	387	735	682
17	593	305	488	0	143	397	306	461	249	263	526	216
18	561	260	479	0	226	583	369	630	237	567	351	62
19	354	398	366	0	97	639	384	341	130	498	525	455
20	345	230	321	0	163	479	394	412	214	489	590	541
21	154	204	409	0	235	646	276	616	373	473	470	438
22	270	345	375	0	344	561	330	329	173	566	570	533
23	417	264	266	0	470	340	575	485	173	432	547	475
24	263	204	359	0	552	584	558	761	296	508	510	382
25	276	333	304	0	664	645	566	636	155	485	488	496
26	365	259	230	0	554	609	474	588	240	325	562	519
27	243	262	420	21	304	806	365	793	252	143	503	241
28	164	371	420	445	501	757	707	500	199	0	515	378
29	414		348	121	647	724	505	405	192	0	513	484
30	328		462	306	400	778	485	568	183	0	432	396
31	296		414		540		666	436		0		511
Total (L)	**10,326**	**8,271**	**10,153**	**4,741**	**8,725**	**15,823**	**16,435**	**16,422**	**9,868**	**11,307**	**13,271**	**13,691**