

Annex F4

Effluent Quality Monitoring Results

Table F4.1 Effluent Monitoring Results

		21 Nov 2021	22 Nov 2021	23 Nov 2021	24 Nov 2021	25 Nov 2021	26 Nov 2021	27 Nov 2021	28 Nov 2021	29 Nov 2021	30 Nov 2021
On-site Measurements											
Temperature	°C	28.9	20.5	18.6	21.5	24.5	24.5	27.5	28.6	28.9	26.0
pH Value	pH Unit	8.4	8.4	8.5	8.4	8.4	8.4	8.5	8.4	8.4	8.3
Volume Discharged	m ³	987	301	910	1462	1264	1207	1332	900	486	961
Laboratory Analysis											
Suspended Solids (SS)	mg/L	29.3	35.2	33.3	28.4	24.0	25.3	20.4	26.8	24.3	23.3
Alkalinity	mg/L	2060	2140	2130	2140	2120	2130	2130	2120	2100	2160
Ammoniacal-nitrogen	mg/L	0.33	0.49	0.3	0.3	0.28	0.36	0.31	0.33	0.32	0.84
Chloride	mg/L	1860	1820	2160	2230	2150	2210	2210	2220	2230	2160
Nitrite-nitrogen	mg/L	<0.10	0.38	0.04	0.15	0.05	<0.10	0.14	0.15	0.29	0.63
Phosphate	mg/L	9.36	9.8	10.1	9.52	9.2	9.6	9.66	9.38	9.67	10.3
Sulphate	mg/L	63	64	70	64	63	61	64	64	58	65
Total Nitrogen	mg/L	115	110	95.7	90.4	98	109	112	113	112	102
Nitrate-nitrogen	mg/L	68.5	65.8	50.5	46.4	53.3	64.6	66.8	67.8	69.6	54.6
Total Inorganic Nitrogen	mg/L	68.9	66.7	50.8	46.9	53.6	65.1	67.3	68.3	70.2	56.1
Biochemical Oxygen Demand (BOD)	mg/L	10	13	12	11	14	10	12	8	6	7
Chemical Oxygen Demand (COD)	mg/L	904	888	888	970	921	929	937	1620	1090	1030
Oil & Grease	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Total Organic Carbon (TOC)	mg/L	324	332	345	362	368	422	358	346	381	392
Boron	µg/L	5130	5280	5450	5070	4900	5140	5260	5440	5500	5290
Calcium	mg/L	15.4	15.4	16	15.3	16.6	16.1	15.4	15.9	15.5	16.1
Iron	mg/L	1.28	1.36	1.53	1.56	1.47	1.37	1.32	1.43	1.32	1.45
Magnesium	mg/L	12.1	12.4	13.3	13	13.8	13.4	13	13.5	13.4	13.3
Potassium	mg/L	1070	1050	844	864	827	856	846	853	892	910
Cadmium	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	µg/L	120	123	123	132	128	128	123	124	122	134
Copper	µg/L	<10	<10	<10	<10	<10	<10	11	<10	<10	<10
Nickel	µg/L	116	116	112	117	113	116	112	111	110	115
Zinc	µg/L	70	70	70	70	70	60	60	60	60	60

		1 Dec 21	2 Dec 21	3 Dec 21	4 Dec 21	5 Dec 21	6 Dec 21	7 Dec 21	8 Dec 21	9 Dec 21	10 Dec 21	11 Dec 21
On-site Measurements												
Temperature	°C	26.3	25.7	25.8	25.4	24.8	25.3	25.4	26.1	24.8	28.1	28.8
pH Value	pH Unit	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4
Volume Discharged	m³	1264	1193	1225	667	791	663	1149	1249	1401	1293	1139
Laboratory Analysis												
Suspended Solids (SS)	mg/L	32.4	23	21.6	22.8	13.3	23.1	27.5	21.3	22.1	14.2	28
Alkalinity	mg/L	2200	2180	2120	2130	2130	2160	2160	2200	2190	2130	2110
Ammoniacal-nitrogen	mg/L	0.39	0.38	0.38	0.26	0.32	<0.10	<0.10	0.27	0.42	0.37	0.3
Chloride	mg/L	2200	1770	1780	1640	1710	1710	1680	1660	1760	1750	1770
Nitrite-nitrogen	mg/L	0.28	0.33	0.29	<0.10	0.36	0.3	0.19	0.18	0.21	0.23	0.16
Phosphate	mg/L	10.2	9.28	10.2	10.5	9.27	10.1	10.3	9.7	9.58	9.98	9.89
Sulphate	mg/L	66	60	61	65	59	61	64	66	62	63	62
Total Nitrogen	mg/L	104	115	125	130	127	112	90.4	93.4	110	113	118
Nitrate-nitrogen	mg/L	53.5	58	73	80.3	79.6	64.1	43	44.3	54.6	61	65.8
Total Inorganic Nitrogen	mg/L	54.2	58.7	73.7	80.7	80.3	64.5	43.3	44.8	55.2	61.6	66.3
Biochemical Oxygen Demand (BOD)	mg/L	10	11	11	24	9	9	12	11	7	7	9
Chemical Oxygen Demand (COD)	mg/L	1230	1380	838	889	1430	923	973	913	785	938	823
Oil & Grease	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Total Organic Carbon (TOC)	mg/L	394	424	359	348	372	409	344	360	357	348	343
Boron	µg/L	5240	5440	4940	5240	5400	5180	5170	5030	5470	5170	4580
Calcium	mg/L	15.5	16.1	14.6	18.0	15.0	15.9	15.2	15.4	14.3	14.1	15.8
Iron	mg/L	1.51	1.58	1.33	1.67	1.51	1.74	1.65	1.43	1.41	1.37	1.44
Magnesium	mg/L	13.1	13.4	12.1	15.2	13.2	13.9	13.5	12.6	12.8	12.6	14
Potassium	mg/L	844	888	816	835	860	858	836	806	818	824	868
Cadmium	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	µg/L	137	140	122	112	130	131	127	120	128	130	123
Copper	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Nickel	µg/L	117	120	107	98	114	112	107	108	113	115	106
Zinc	µg/L	60	60	50	40	50	50	50	60	56	56	54

		12 Dec 21	13 Dec 21	14 Dec 21	15 Dec 21	16 Dec 21	17 Dec 21	18 Dec 21	19 Dec 21	20 Dec 21	21 Dec 21	22 Dec 21
On-site Measurements												
Temperature	°C	29.5	26.6	26.2	27.8	30.6	27.6	23.9	27.6	22	21.7	27.3
pH Value	pH Unit	8.4	8.4	8.5	8.4	8.4	8.4	8.3	8.4	8.4	8.5	8.4
Volume Discharged	m³	926	488	1170	1293	1201	1409	668	473	531	1195	1186
Laboratory Analysis												
Suspended Solids (SS)	mg/L	13.6	20.3	22.7	18.1	21.7	23.5	23.1	33.8	14.4	23.9	16.3
Alkalinity	mg/L	2120	2130	2190	2200	2210	2210	2200	2150	2160	2190	2170
Ammoniacal-nitrogen	mg/L	0.3	0.42	0.32	0.36	0.32	0.35	0.32	0.34	0.75	0.35	0.18
Chloride	mg/L	1780.0	1810	1860	2080	2090	1850	1850	1930	1960	1800	1770
Nitrite-nitrogen	mg/L	0.2	0.31	0.18	0.19	0.2	0.19	0.28	0.18	0.7	0.26	0.22
Phosphate	mg/L	9.8	10.6	10.4	10.4	10.7	10.3	10.8	10.9	11.2	11.5	10.5
Sulphate	mg/L	61.0	67	63	68	64	68	64	66	70	66	61
Total Nitrogen	mg/L	123.0	119	110	104	118	121	127	135	132	129	113
Nitrate-nitrogen	mg/L	72.5	67.5	56.7	54.8	65.8	68.9	74.4	77.4	76.2	74.2	64.1
Total Inorganic Nitrogen	mg/L	73.1	68.2	57.2	55.4	66.3	69.4	75.0	77.9	77.7	74.8	64.5
Biochemical Oxygen Demand (BOD)	mg/L	8	11	13	11	12	11	8	12	10	10	8
Chemical Oxygen Demand (COD)	mg/L	804	880	938	900	919	1070	919	976	981	1050	1020
Oil & Grease	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Total Organic Carbon (TOC)	mg/L	347.0	359	351	348	356	352	397	374	398	386	387
Boron	µg/L	4880.0	4660	4780	5040	5680	5540	5460	5590	5520	6050	5860
Calcium	mg/L	15.0	14.8	17.1	14.4	15	13.6	13.1	13.1	12.7	14.1	17.7
Iron	mg/L	1.3	1.42	1.54	1.29	1.35	1.32	1.28	1.41	1.26	1.53	1.56
Magnesium	mg/L	13.5	13.1	14.7	12.7	12.7	12.1	11.5	11.6	11.5	13.9	14.5
Potassium	mg/L	914.0	898	934	879	931	844	827	800	808	898	892
Cadmium	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	µg/L	131.0	130	130	128	138	137	141	146	138	135	138
Copper	µg/L	<10	<10	<10	<10	<10	<10	<10	61	<10	<10	<10
Nickel	µg/L	115.0	112	112	112	119	121	123	122	116	115	116
Zinc	µg/L	56.0	59	58	55	61	56	57	100	48	54	62

		23 Dec 21	24 Dec 21	25 Dec 21	26 Dec 21	27 Dec 21	28 Dec 21	29 Dec 21	30 Dec 21	31 Dec 21
On-site Measurements										
Temperature	°C	25.8	25.7	20.7	23.3	20	22.6	27.6	28.9	26.2
pH Value	pH Unit	8.4	8.5	8.4	8.5	8.5	8.5	8.4	8.4	8.5
Volume Discharged	m ³	934	957	1000	734	499	1120	1348	1435	1189
Laboratory Analysis										
Suspended Solids (SS)	mg/L	14.3	14	17.4	13.9	10.1	11.6	15.7	26	14.8
Alkalinity	mg/L	2110	2100	2120	2190	2190	2160	2200	2250	2210
Ammoniacal-nitrogen	mg/L	0.15	0.34	0.24	0.28	0.46	0.41	0.38	0.28	0.3
Chloride	mg/L	2030	2130	1880	1840	1950	1870	2070	2070	2050
Nitrite-nitrogen	mg/L	0.19	0.18	0.15	0.15	0.33	0.16	0.16	0.14	0.16
Phosphate	mg/L	9.85	9.8	10.2	9.33	10.1	10.2	8.2	7.67	8.56
Sulphate	mg/L	57	65	67	74	78	82	88	90	92
Total Nitrogen	mg/L	121	114	106	112	106	106	91.2	98.4	108
Nitrate-nitrogen	mg/L	70.7	57	56.5	54.5	54.3	53	42.4	47.6	57
Total Inorganic Nitrogen	mg/L	71.0	57.5	56.9	54.9	55.1	53.6	42.9	48.0	57.5
Biochemical Oxygen Demand (BOD)	mg/L	8	6	7	7	7	6	8	9	7
Chemical Oxygen Demand (COD)	mg/L	1020	973	973	973	920	1130	1040	989	1010
Oil & Grease	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Total Organic Carbon (TOC)	mg/L	338	340	368	362	394	340	335	359	388
Boron	µg/L	4530	4660	4700	4750	4950	4920	4810	4830	5350
Calcium	mg/L	17.5	16.8	14.6	15.9	14.9	16.1	17.6	17.6	17.8
Iron	mg/L	1.39	1.33	1.21	1.37	1.32	1.32	1.58	1.61	1.43
Magnesium	mg/L	13.6	13	11.3	13.8	14	15.4	21.2	22.1	20.3
Potassium	mg/L	854	865	759	847	857	848	885	885	824
Cadmium	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	µg/L	124	120	128	124	124	119	127	130	125
Copper	µg/L	24	<10	<10	<10	<10	<10	<10	<10	<10
Nickel	µg/L	101	98	116	116	119	114	120	124	112
Zinc	µg/L	68	58	54	58	57	58	54	58	54