

Annex C2

Surface Water Quality Monitoring Results

Surface Water Quality Monitoring Results at DP4

During Baseline Surface Water Monitoring between 13 August 2018 and 31 August 2018

	17-Aug-18	20-Aug-18	21-Aug-18	23-Aug-18	24-Aug-18	27-Aug-18	28-Aug-18	29-Aug-18	30-Aug-18	31-Aug-18
Weather Condition	Overcast, heavy rain	Overcast, rainy	Cloudy, calm	Overcast, calm	Overcast, calm	Overcast, rainy	Overcast, calm	Overcast, calm	Overcast, light S wind	Overcast, calm
Sampling Time	10:30	10:30	10:25	10:15	9:50	10:35	10:20	10:15	10:25	10:55
Estimated Flow (In-situ)	L/min	>130	>130	18	50	70	50	40	50	25
Temperature (In-situ)	oC	25.8	26.3	29.8	27.9	27.8	27.2	26.7	27.7	26.8
Colour (In-situ)		Pale brown	Pale yellow	No	No	No	No	No	No	Pale brown
Clarity (In-situ)		Slightly turbid	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Odour (In-situ)		No	No	No	No	No	No	No	No	No
pH (In-situ)		7.65	7.14	8.39	7.93	8.01	8.05	7.73	7.47	7.15
EC (In-situ)	us/cm	217.0	231.9	393.5	302.2	393.6	359.3	389.6	408.3	436.2
DO (In-situ)	mg/l	6.11	6.63	7.02	7.28	7.40	7.26	7.35	7.14	7.18
DO (In-situ)	% Sat	74.9	81.1	92.5	92.6	93.9	93.1	91.7	91.1	90.3
SS	mg/L	66 ^(a)	5	4	2	3	3	3	1	2
COD	mg/L	34	7	8	5	6	7	8	5	6
BOD5	mg/L	2	<2	<2	<2	<2	<2	<2	<2	<2
TOC	mg/L	6	3	3	2	3	4	4	4	3
Ammoniacal-nitrogen	mg/L	0.12	0.12	<0.10	<0.10	<0.10	<0.10	0.10	0.12	<0.10
Nitrate-nitrogen	mg/L	0.73	0.56	0.48	0.26	0.27	0.16	0.17	0.28	0.30
Nitrite-nitrogen	mg/L	<0.01	<0.01	0.02	<0.01	0.01	0.01	0.03	0.02	0.02
TKN	mg/L	0.9	0.5	0.3	0.3	0.2	0.4	0.4	0.2	0.3
TN	mg/L	1.63	1.06	0.80	0.56	0.48	0.57	0.60	0.50	0.62
Phosphate	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sulphate	mg/L	16	20	42	38	47	41	42	43	48
Sulphide	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carbonate	mg/L	<1	<1	6	<1	<1	<1	<1	<1	<1
Oil & Grease	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bicarbonate	mg/L	70	57	80	76	90	83	87	98	103
Chloride	mg/L	10	14	24	21	25	22	23	23	25
Sodium	mg/L	10.8	12.0	16.2	16.2	17.0	16.3	17.5	17.5	14.6
Potassium	mg/L	4.99	3.88	4.72	4.77	4.82	4.68	5.08	4.64	5.29
Calcium	mg/L	31.4	25.1	35.7	35.8	39.1	37.8	41.9	43.5	46.5
Magnesium	mg/L	2.24	2.61	4.41	4.32	4.84	4.62	5.12	5.31	5.95
Nickel	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	mg/L	0.067	0.013	0.011	0.011	0.010	0.010	0.012	0.016	0.025
Chromium	mg/L	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001
Cadmium	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper	mg/L	0.007	0.002	0.001	0.001	0.001	0.001	0.002	<0.001	0.001
Lead	mg/L	0.008	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002
Iron	mg/L	0.48	<0.04	<0.04	0.05	<0.04	<0.04	0.05	<0.04	<0.04
Zinc	mg/L	0.040	<0.010	<0.010	<0.010	<0.010	<0.010	0.020	<0.010	0.020
Mercury	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Boron	mg/L	0.040	0.040	0.070	0.040	0.060	0.040	0.060	0.060	0.080

Surface Water Quality Monitoring Results at DP4
Historical Data between 15 May 2018 and 16 July 2018

		13-Sep-13	14-Jun-18	16-Jul-18
Weather Condition		Sunnt, light NW wind	Cloudy, light S wind	Light rain, light NE wind
Sampling Time		10:30	10:00	10:20
Estimated Flow (In-situ)	L/min	35		72
Temperature (In-situ)	oC	28.7	26.4	26.9
Colour (In-situ)		Pale yellow	Colourless	Colourless
Clarity (In-situ)		Semi-clear	Clear	Clear
Odour (In-situ)		No	No	No
pH (In-situ)		7.65	8.35	8.40
EC (In-situ)	us/cm	311	385	405
DO (In-situ)	mg/l	5.33	7.26	6.90
DO (In-situ)	% Sat	74.1	87.8	83.1
		Duplicate		
SS	mg/L	<2	<2	10
COD	mg/L	10	7	12
BOD5	mg/L	<2	-	3
TOC	mg/L	4	4	4
Ammoniacal-nitrogen	mg/L	7	7.1	<0.10
Nitrate-nitrogen	mg/L	0.32	0.32	-
Nitrite-nitrogen	mg/L	0.4	0.4	-
TKN	mg/L	-	-	-
TN	mg/L	-	-	-
Phosphate	mg/L	-	-	-
Sulphate	mg/L	10	9	44
Sulphide	mg/L	<0.1	<0.1	<0.1
Carbonate	mg/L	<1	<1	1
Oil & Grease	mg/L	-	-	-
Bicarbonate	mg/L	105	110	<0.001
Chloride	mg/L	22	22	28
Sodium	mg/L	20	20.2	19.3
Potassium	mg/L	9.33	9.56	6.27
Calcium	mg/L	24.7	25	45.4
Magnesium	mg/L	1.91	1.98	4.45
Nickel	mg/L	0.001	<0.001	<0.001
Manganese	mg/L	0.222	0.222	0.01
Chromium	mg/L	<0.001	<0.001	<0.001
Cadmium	mg/L	<0.2	<0.2	<0.2
Copper	mg/L	0.001	0.001	0.002
Lead	mg/L	<0.001	<0.001	<0.001
Iron	mg/L	0.35	0.36	<0.04
Zinc	mg/L	<0.01	<0.01	<0.01
Mercury	mg/L	-	-	-
Boron	mg/L	-	-	-

Note:

- (a) SS data collected at DP4 on 17 Aug 2018 is considered outlier. The data is discarded and is not used to establish the action and limit levels. All the data including the discarded value will be reviewed and used as references during the future impact monitoring.