Appendix 5.5a Predicted Water Quality at Key Water Sensitive Receivers (Annual)

Note: Shaded and Bolded - value exceeded the assessment criteria; N/A - Not Available

Indicator Point ID (Ref: Appendix 5.1)	Scenario	Depth Averaged									
		10%ile / min. DO (mg/L)	mean Salinity (ppt)	Change Salinity %	Mean BOD_5 (mg/L)	Mean TIN (mg/L)	Mean UIA (mg/L)	Mean TN (mg/L)	Mean TP (mg/L)	Mean SS (mg/L)	Mean *E.coli* (no./100mL)
Ecological/Fisheries Resources											
Assessment Criteria (for Deep Bay WCZ, Inner Marine Subzone)		≥ 4 (10%ile)	±10% ambit		N/A	≤ 0.7	≤ 0.021	N/A	N/A	≤ 30% ambit	N/A
Mai Po Marshes SSSI (E1)	Scenario 1: Without YLSEPP	**3.9**	12.2	-	11.0	**6.73**	**0.126**	8.5	1.13	40.0	21
	Scenario 2: YLSEPP with 65,000 m^3/day Effluent Discharge	4.5	11.5	-5.5%	11.4	**6.89**	**0.122**	8.6	1.10	40.3	18
	Scenario 3: 2-hr Emergency Discharge from YLSEPP	4.4	11.5	-5.5%	11.4	**6.92**	**0.125**	8.7	1.11	40.4	19
Mai Po Inner Deep bay Ramsar Site / Inner Deep Bay SSSI (E2)	Scenario 1: Without YLSEPP	5.1	12.9	-	11.0	**5.92**	**0.118**	7.9	0.73	37.3	28
	Scenario 2: YLSEPP with 65,000 m^3/day Effluent Discharge	5.2	12.7	-1.9%	11.3	**5.97**	**0.117**	7.9	0.72	37.3	27
	Scenario 3: 2-hr Emergency Discharge from YLSEPP	5.2	12.7	-1.9%	11.3	**5.98**	**0.118**	7.9	0.73	37.3	27
Assessment Criteria (for Deep Bay WCZ, Mariculture Subzone)		≥ 5 (10%ile)	±10% ambit		N/A	≤ 0.7	≤ 0.021	N/A	N/A	≤ 30% ambit	≤ 610
Oyster Culture Area (E3)	Scenario 1: Without YLSEPP	5.2	14.8	-	5.0	**2.42**	**0.036**	3.3	0.28	23.5	43
	Scenario 2: YLSEPP with 65,000 m^3/day Effluent Discharge	5.2	14.7	-0.1%	5.0	**2.43**	**0.036**	3.3	0.28	23.5	43
	Scenario 3: 2-hr Emergency Discharge from YLSEPP	5.2	14.7	-0.1%	5.0	**2.43**	**0.036**	3.3	0.28	23.5	43
Mangroves											
Assessment Criteria (for Deep Bay WCZ, Inner Marine Subzone)		≥ 4 (10%ile)	N/A		N/A	≤ 0.7	≤ 0.021	N/A	N/A	N/A	N/A
Mangroves (Inner Deep Bay) (E4)	Scenario 1: Without YLSEPP	4.5	12.8	-	9.8	**5.83**	**0.109**	7.5	0.82	35.9	22
	Scenario 2: YLSEPP with 65,000 m^3/day Effluent Discharge	4.7	12.4	-3.3%	10.1	**5.92**	**0.107**	7.5	0.80	36.1	21
	Scenario 3: 2-hr Emergency Discharge from YLSEPP	4.7	12.4	-3.3%	10.1	**5.94**	**0.108**	7.5	0.81	36.1	21
Assessment Criteria (for Deep Bay WCZ, Yuen Long & Kam Tin (Lower) Subzone)		≥ 4 (min.)	N/A		≤ 5	N/A	≤ 0.021	N/A	N/A	≤ 20 (median)	≤ 1,000
Mangrove (along Shan Pui River) (E5)	Scenario 1: Without YLSEPP	**2.8**	11.2	-	**10.8**	7.81	**0.122**	9.3	1.31	**35.0**	100
	Scenario 2: YLSEPP with 65,000 m^3/day Effluent Discharge	**3.3**	10.4	-6.6%	**11.2**	7.97	**0.118**	9.4	1.27	**35.4**	87
	Scenario 3: 2-hr Emergency Discharge from YLSEPP	**3.2**	10.4	-6.6%	**11.2**	8.01	**0.120**	9.5	1.28	**35.5**	89
EPD Routine Monitoring Station											
Assessment Criteria (for Deep Bay WCZ, Inner Marine Subzone)		≥ 4 (10%ile)	±10% ambit		N/A	≤ 0.7	≤ 0.021	N/A	N/A	≤ 30% ambit	N/A
DM1 (DM1)	Scenario 1: Without YLSEPP	4.4	13.4	-	8.7	**4.97**	**0.094**	6.4	0.60	32.5	57
	Scenario 2: YLSEPP with 65,000 m^3/day Effluent Discharge	4.5	13.2	-1.5%	8.8	**5.01**	**0.093**	6.5	0.59	32.5	56
	Scenario 3: 2-hr Emergency Discharge from YLSEPP	4.5	13.2	-1.5%	8.8	**5.02**	**0.094**	6.5	0.60	32.6	56
DM2 (DM2)	Scenario 1: Without YLSEPP	4.1	14.0	-	7.6	**4.13**	**0.081**	5.4	0.45	28.6	1,034
	Scenario 2: YLSEPP with 65,000 m^3/day Effluent Discharge	4.1	14.0	-0.4%	7.6	**4.14**	**0.081**	5.4	0.45	28.6	1,030
	Scenario 3: 2-hr Emergency Discharge from YLSEPP	4.1	14.0	-0.4%	7.6	**4.15**	**0.081**	5.4	0.45	28.6	1,030
DM3 (DM3)	Scenario 1: Without YLSEPP	4.7	15.1	-	3.3	**1.81**	**0.026**	2.4	0.20	18.2	57
	Scenario 2: YLSEPP with 65,000 m^3/day Effluent Discharge	4.8	15.1	0.2%	3.3	**1.81**	**0.026**	2.4	0.20	18.2	56
	Scenario 3: 2-hr Emergency Discharge from YLSEPP	4.8	15.1	0.2%	3.3	**1.81**	**0.026**	2.4	0.20	18.2	56

Remark: The annual mean results presented in this Appendix 5.5a should not be used for assessing the impacts of the short-term emergency discharge.

Appendix 5.5b Predicted Water Quality at Key Water Sensitive Receivers (Dry Season)

Indicator Point ID (Ref: Appendix 5.1)	Scenario	Depth Averaged								
		10%ile / min. DO (mg/L)	min. - max. Salinity (ppt)	Mean BOD_5 (mg/L)	TIN (mg/L)	UIA (mg/L)	TN (mg/L)	TP (mg/L)	SS (mg/L)	*E.coli* (no./100mL)
Ecological/Fisheries Resources										
Assessment Criteria (for Deep Bay WCZ, Inner Marine Subzone)		10%ile								
Mai Po Marshes SSSI (E1)	Scenario 1: Without YLSEPP	5.9	15.2 - 19.7	12.7	8.37	0.100	10.7	1.16	49.1	187
	Scenario 2: YLSEPP with 65,000 m^3/day Effluent Discharge	5.8	13.9 - 19.3	12.8	8.61	0.098	10.9	1.13	49.5	154
	Scenario 3: 2-hr Emergency Discharge from YLSEPP	5.8	13.9 - 19.3	12.8	8.63	0.099	10.9	1.14	49.7	164
Mai Po Inner Deep bay Ramsar Site / Inner Deep Bay SSSI (E2)	Scenario 1: Without YLSEPP	7.7	17.7 - 20.9	12.9	8.29	0.118	10.9	0.91	48.1	218
	Scenario 2: YLSEPP with 65,000 m^3/day Effluent Discharge	7.7	17.2 - 20.8	12.9	8.37	0.117	10.9	0.91	48.2	210
	Scenario 3: 2-hr Emergency Discharge from YLSEPP	7.7	17.2 - 20.8	12.9	8.38	0.118	11.0	0.91	48.3	210
Assessment Criteria (for Deep Bay WCZ, Mariculture Subzone)		10%ile								
Oyster Culture Area (E3)	Scenario 1: Without YLSEPP	8.6	20.5 - 22.5	6.0	3.10	0.030	4.2	0.37	31.9	119
	Scenario 2: YLSEPP with 65,000 m^3/day Effluent Discharge	8.6	20.5 - 22.6	6.0	3.12	0.030	4.2	0.37	31.9	120
	Scenario 3: 2-hr Emergency Discharge from YLSEPP	8.6	20.5 - 22.6	6.0	3.12	0.030	4.2	0.37	31.9	120
Mangroves										
Assessment Criteria (for Deep Bay WCZ, Inner Marine Subzone)		10%ile								
Mangroves (Inner Deep Bay) (E4)	Scenario 1: Without YLSEPP	6.8	16.3 - 20.7	11.1	7.46	0.091	9.6	0.92	44.9	158
	Scenario 2: YLSEPP with 65,000 m^3/day Effluent Discharge	6.8	15.0 - 20.5	11.2	7.62	0.090	9.7	0.91	45.1	141
	Scenario 3: 2-hr Emergency Discharge from YLSEPP	6.7	15.0 - 20.5	11.2	7.63	0.090	9.7	0.91	45.2	145
Assessment Criteria (for Deep Bay WCZ, Yuen Long & Kam Tin (Lower) Subzone)		min.								
Mangrove (along Shan Pui River) (E5)	Scenario 1: Without YLSEPP	4.5	11.9 - 19.2	12.4	8.90	0.094	10.9	1.27	42.7	419
	Scenario 2: YLSEPP with 65,000 m^3/day Effluent Discharge	4.3	11.0 - 18.8	12.5	9.13	0.092	11.1	1.24	43.0	336
	Scenario 3: 2-hr Emergency Discharge from YLSEPP	4.2	11.0 - 18.8	12.5	9.16	0.093	11.1	1.24	43.3	351
EPD Routine Monitoring Station										
Assessment Criteria (for Deep Bay WCZ, Inner Marine Subzone)		10%ile								
DM1 (DM1)	Scenario 1: Without YLSEPP	7.4	17.6 - 21.7	9.8	6.37	0.078	8.2	0.73	41.6	300
	Scenario 2: YLSEPP with 65,000 m^3/day Effluent Discharge	7.4	16.7 - 21.6	9.8	6.45	0.078	8.3	0.72	41.7	293
	Scenario 3: 2-hr Emergency Discharge from YLSEPP	7.4	16.7 - 21.6	9.8	6.45	0.078	8.3	0.73	41.8	294
DM2 (DM2)	Scenario 1: Without YLSEPP	6.6	19.6 - 22.4	8.0	4.94	0.059	6.4	0.55	36.6	2,662
	Scenario 2: YLSEPP with 65,000 m^3/day Effluent Discharge	6.7	19.3 - 22.5	8.0	4.97	0.058	6.5	0.54	36.7	2,679
	Scenario 3: 2-hr Emergency Discharge from YLSEPP	6.7	19.3 - 22.5	8.0	4.97	0.058	6.5	0.54	36.7	2,679
DM3 (DM3)	Scenario 1: Without YLSEPP	7.3	20.3 - 23.6	3.7	2.17	0.020	2.9	0.25	25.0	151
	Scenario 2: YLSEPP with 65,000 m^3/day Effluent Discharge	7.3	20.3 - 23.7	3.7	2.18	0.020	2.9	0.25	25.0	154
	Scenario 3: 2-hr Emergency Discharge from YLSEPP	7.3	20.3 - 23.7	3.7	2.18	0.020	2.9	0.25	25.0	154

Appendix 5.5c Predicted Water Quality at Key Water Sensitive Receivers (Wet Season)

Indicator Point ID (Ref: Appendix 5.1)	Scenario	Depth Averaged								
		10%ile / min. DO (mg/L)	min. - max. Salinity (ppt)	Mean BOD_5 (mg/L)	TIN (mg/L)	UIA (mg/L)	TN (mg/L)	TP (mg/L)	SS (mg/L)	*E.coli* (no./100mL)
Ecological/Fisheries Resources										
Assessment Criteria (for Deep Bay WCZ, Inner Marine Subzone)		10%ile								
Mai Po Marshes SSSI (E1)	Scenario 1: Without YLSEPP	3.7	5.2 - 6.9	9.2	5.08	0.151	6.3	1.10	30.8	2
	Scenario 2: YLSEPP with 65,000 m^3/day Effluent Discharge	4.3	4.0 - 6.8	10.0	5.17	0.146	6.3	1.07	31.1	2
	Scenario 3: 2-hr Emergency Discharge from YLSEPP	4.2	4.0 - 6.8	10.0	5.22	0.150	6.4	1.08	31.1	2
Mai Po Inner Deep bay Ramsar Site / Inner Deep Bay SSSI (E2)	Scenario 1: Without YLSEPP	4.7	6.1 - 7.8	9.2	3.56	0.118	4.8	0.55	26.4	4
	Scenario 2: YLSEPP with 65,000 m^3/day Effluent Discharge	4.8	5.8 - 7.7	9.6	3.56	0.117	4.8	0.54	26.4	4
	Scenario 3: 2-hr Emergency Discharge from YLSEPP	4.8	5.8 - 7.7	9.6	3.58	0.118	4.8	0.54	26.4	4
Assessment Criteria (for Deep Bay WCZ, Mariculture Subzone)		10%ile								
Oyster Culture Area (E3)	Scenario 1: Without YLSEPP	5.1	7.4 - 9.9	3.9	1.74	0.042	2.3	0.20	15.0	16
	Scenario 2: YLSEPP with 65,000 m^3/day Effluent Discharge	5.2	7.3 - 9.9	4.0	1.74	0.042	2.3	0.20	15.0	15
	Scenario 3: 2-hr Emergency Discharge from YLSEPP	5.2	7.3 - 9.9	4.0	1.74	0.042	2.3	0.20	15.0	15
Mangroves										
Assessment Criteria (for Deep Bay WCZ, Inner Marine Subzone)		10%ile								
Mangroves (Inner Deep Bay) (E4)	Scenario 1: Without YLSEPP	4.4	6.1 - 7.5	8.5	4.19	0.127	5.4	0.71	27.0	3
	Scenario 2: YLSEPP with 65,000 m^3/day Effluent Discharge	4.6	5.5 - 7.4	9.0	4.23	0.125	5.4	0.69	27.1	3
	Scenario 3: 2-hr Emergency Discharge from YLSEPP	4.6	5.5 - 7.4	9.0	4.25	0.127	5.4	0.70	27.1	3
Assessment Criteria (for Deep Bay WCZ, Yuen Long & Kam Tin (Lower) Subzone)		min.								
Mangrove (along Shan Pui River) (E5)	Scenario 1: Without YLSEPP	2.8	5.5 - 8.0	9.2	6.72	0.149	7.8	1.35	27.4	24
	Scenario 2: YLSEPP with 65,000 m^3/day Effluent Discharge	3.3	4.6 - 7.4	9.9	6.81	0.144	7.8	1.30	27.7	23
	Scenario 3: 2-hr Emergency Discharge from YLSEPP	3.2	4.6 - 7.4	10.0	6.86	0.148	7.8	1.31	27.8	23
EPD Routine Monitoring Station										
Assessment Criteria (for Deep Bay WCZ, Inner Marine Subzone)		10%ile								
DM1 (DM1)	Scenario 1: Without YLSEPP	4.3	6.5 - 8.5	7.6	3.57	0.110	4.62	0.47	23.4	11
	Scenario 2: YLSEPP with 65,000 m^3/day Effluent Discharge	4.3	6.2 - 8.5	7.9	3.58	0.109	4.62	0.47	23.4	11
	Scenario 3: 2-hr Emergency Discharge from YLSEPP	4.3	6.2 - 8.5	7.9	3.59	0.110	4.63	0.47	23.4	11
DM2 (DM2)	Scenario 1: Without YLSEPP	3.9	6.0 - 9.3	7.2	3.32	0.103	4.30	0.36	20.6	402
	Scenario 2: YLSEPP with 65,000 m^3/day Effluent Discharge	3.9	5.9 - 9.3	7.3	3.32	0.103	4.30	0.36	20.6	396
	Scenario 3: 2-hr Emergency Discharge from YLSEPP	3.9	5.9 - 9.3	7.3	3.32	0.103	4.30	0.36	20.6	396
DM3 (DM3)	Scenario 1: Without YLSEPP	4.6	7.1 - 10.6	2.8	1.44	0.032	1.87	0.14	11.4	21
	Scenario 2: YLSEPP with 65,000 m^3/day Effluent Discharge	4.7	7.1 - 10.7	2.8	1.44	0.031	1.87	0.14	11.4	21
	Scenario 3: 2-hr Emergency Discharge from YLSEPP	4.7	7.1 - 10.7	2.8	1.44	0.032	1.87	0.14	11.4	21