

Table B1 *Summary Table of DO, Turbidity and SS Levels Recorded in November 2016 for Impact Water Quality Monitoring during Dredging Operations of ESC CMP Vb*

Sampling Date	Tidal Period	Station	Average DO Levels (mg/L)		Average Turbidity Level (NTU)	Average SS Level (mg/L)		
			Bottom	Surface and Mid Depth				
2016/11/02	Mid-Ebb	DS1	6.83	6.73	7.51	22.77		
		DS2	6.31	6.47	11.78	22.98		
		DS3	6.33	6.32	13.73	24.85		
		DS4	6.31	6.38	14.39	29.62		
		DS5	6.46	6.46	13.78	28.27		
		US1	6.90	6.67	7.15	15.27		
	Mid-Flood	US2	6.92	6.67	6.89	12.30		
		MW1	6.15	6.11	5.44	11.08		
		DS1	6.46	6.44	10.30	20.43		
		DS2	6.41	6.40	12.37	20.68		
		DS3	6.36	6.35	12.27	8.52		
		DS4	6.34	6.32	8.09	18.48		
		DS5	6.33	6.32	10.14	26.65		
		US1	6.49	6.46	6.00	20.72		
		US2	6.52	6.51	9.12	15.45		
		MW1	6.14	6.15	8.44	13.83		
		2016/11/04	Mid-Ebb	DS1	6.49	6.50	6.18	9.32
				DS2	6.43	6.52	6.36	10.03
DS3	6.35			6.49	4.52	6.58		
DS4	6.14			6.41	4.68	7.83		
DS5	6.23			6.36	4.36	7.45		
US1	6.53			6.65	4.65	7.07		
US2	6.60			6.62	4.43	7.33		
MW1	6.25			6.26	4.32	11.42		
Mid-Flood	DS1			6.60	6.60	5.40	8.53	
	DS2		6.63	6.63	5.08	8.02		
	DS3		6.68	6.67	4.65	8.00		
	DS4		6.65	6.68	7.71	12.30		
	DS5		6.64	6.65	4.46	6.10		
	US1		6.57	6.56	7.51	11.60		
	US2		6.55	6.55	7.80	11.87		
	MW1		6.42	6.44	6.27	9.55		
	2016/11/08		Mid-Ebb	DS1	6.21	6.32	5.51	5.02
DS2				6.21	6.35	5.34	6.37	
DS3		6.31		6.41	3.93	7.63		
DS4		6.27		6.40	8.04	10.30		
DS5		6.36		6.43	3.93	4.57		
US1		6.18		6.42	3.69	6.13		
US2		6.18		6.44	3.43	4.93		
MW1		5.90		5.99	2.39	3.32		
Mid-Flood		DS1		6.13	6.28	7.74	10.15	
		DS2	6.25	6.37	5.06	6.08		
		DS3	6.40	6.52	3.18	3.83		
		DS4	6.31	6.48	4.09	6.30		
		DS5	6.31	6.44	3.56	5.28		
		US1	6.11	6.27	7.81	7.87		
		US2	6.08	6.32	7.54	8.87		
		MW1	5.71	5.85	5.48	6.40		

Sampling Date	Tidal Period	Station	Average DO Levels (mg/L)		Average Turbidity Level (NTU)	Average SS Level (mg/L)
			Bottom	Surface and Mid Depth		
2016/11/10	Mid-Ebb	DS1	6.05	5.96	6.04	6.88
		DS2	5.92	5.87	5.74	8.22
		DS3	5.81	5.87	5.19	5.92
		DS4	5.93	5.85	5.94	7.83
		DS5	5.94	5.80	8.02	10.35
		US1	6.08	6.03	6.16	6.63
		US2	6.21	6.12	5.22	6.27
	Mid-Flood	MW1	5.79	5.79	4.39	5.83
		DS1	6.27	6.16	5.96	7.08
		DS2	6.23	6.16	6.12	8.33
		DS3	6.23	6.16	5.24	6.28
		DS4	6.20	6.13	5.67	9.62
		DS5	6.23	6.10	5.79	9.58
		US1	6.22	6.14	6.61	8.63
		US2	6.15	6.12	7.12	8.70
		MW1	5.73	5.68	6.44	8.62
		2016/11/12	Mid-Ebb	DS1	6.34	6.31
DS2	6.34			6.35	7.73	8.15
DS3	6.34			6.30	8.08	9.63
DS4	6.28			6.29	14.29	16.83
DS5	6.34			6.32	13.05	16.98
US1	6.32			6.28	9.36	10.35
US2	6.33			6.28	11.02	12.38
Mid-Flood	MW1		5.85	5.89	7.48	9.88
	DS1		6.13	6.12	6.36	8.25
	DS2		6.14	6.13	7.58	10.97
	DS3		6.24	6.14	8.81	10.43
	DS4		6.13	6.14	10.29	13.75
	DS5		6.10	6.16	8.06	8.90
	US1		6.10	6.10	6.11	8.27
	US2		6.18	6.19	8.36	9.67
	MW1		5.70	5.71	11.11	11.78
	2016/11/14		Mid-Ebb	DS1	6.15	6.17
DS2		6.23		6.21	16.22	13.12
DS3		6.18		6.20	16.37	11.57
DS4		6.22		6.22	22.08	12.23
DS5		6.20		6.22	27.34	18.72
US1		6.15		6.18	14.50	18.23
US2		6.20		6.17	13.84	14.37
Mid-Flood		MW1	5.59	5.66	9.82	12.85
		DS1	6.15	6.17	21.05	21.23
		DS2	6.17	6.17	17.03	18.55
		DS3	6.14	6.15	23.18	21.02
		DS4	6.17	6.18	18.97	22.10
		DS5	6.10	6.11	26.71	20.83
		US1	6.17	6.20	13.69	13.38
		US2	6.20	6.22	18.71	20.48
		MW1	5.69	5.71	12.67	16.18
		2016/11/16	Mid-Ebb	DS1	6.00	6.06
DS2	5.93			6.04	14.22	18.57
DS3	5.94			6.06	12.42	15.83
DS4	5.93			6.05	16.68	21.78
DS5	5.87			5.99	19.35	19.80

Sampling Date	Tidal Period	Station	Average DO Levels (mg/L)		Average Turbidity Level (NTU)	Average SS Level (mg/L)	
			Bottom	Surface and Mid Depth			
	Mid-Flood	US1	6.08	6.09	15.65	14.15	
		US2	6.12	6.16	12.17	13.97	
		MW1	5.72	5.79	8.72	16.47	
		DS1	6.13	6.13	36.30	32.52	
		DS2	6.03	6.03	38.45	31.32	
		DS3	6.03	6.05	44.07	34.13	
		DS4	6.11	6.09	54.21	42.90	
		DS5	6.06	6.03	32.78	24.78	
		US1	6.10	6.12	33.10	24.58	
		US2	6.15	6.14	29.22	35.63	
		MW1	5.78	5.83	20.78	27.72	
		2016/11/18	Mid-Ebb	DS1	5.96	5.90	13.70
DS2	5.94			5.91	12.97	23.72	
DS3	5.86			5.90	16.07	22.88	
DS4	5.79			5.93	11.77	18.38	
DS5	5.83			5.90	12.25	25.97	
US1	6.01			6.02	8.29	10.00	
US2	5.97			5.99	9.51	12.32	
MW1	5.71			5.68	8.32	22.48	
Mid-Flood	DS1			5.97	5.97	30.19	25.77
	DS2		6.03	5.99	24.74	28.48	
	DS3		6.02	6.02	21.28	31.40	
	DS4		6.01	6.00	26.42	21.37	
	DS5		5.95	5.93	21.98	26.87	
	US1		6.05	6.00	29.45	32.92	
	US2		6.08	6.04	32.24	33.90	
	MW1		5.71	5.80	18.30	23.07	
	2016/11/21		Mid-Ebb	DS1	5.89	5.94	7.86
DS2				6.06	6.03	6.74	9.23
DS3		5.92		5.97	6.71	8.33	
DS4		5.91		5.95	7.91	11.20	
DS5		5.80		5.93	9.77	11.77	
US1		5.96		6.00	9.64	14.82	
US2		6.20		6.20	7.96	9.87	
MW1		5.58		5.60	3.87	5.18	
Mid-Flood		DS1		5.99	6.01	14.69	16.55
		DS2	6.04	6.07	14.24	14.50	
		DS3	5.99	6.16	12.26	15.00	
		DS4	6.26	6.23	10.01	13.87	
		DS5	6.27	6.23	10.57	13.95	
		US1	6.13	6.12	11.77	14.90	
		US2	6.13	6.12	17.50	20.93	
		MW1	5.69	5.73	6.14	12.43	
		2016/11/23	Mid-Ebb	DS1	5.93	6.12	6.13
DS2				6.02	6.10	5.91	8.50
DS3	5.99			6.12	7.33	19.60	
DS4	6.11			6.17	4.42	6.48	
DS5	6.09			6.18	3.95	7.07	
US1	6.12			6.17	3.70	8.45	
US2	6.06			6.11	6.23	7.10	
MW1	5.56			5.64	2.77	5.05	
Mid-Flood	DS1			5.95	6.06	6.03	6.80
	DS2		5.95	6.10	7.43	11.20	

Sampling Date	Tidal Period	Station	Average DO Levels (mg/L)		Average Turbidity Level (NTU)	Average SS Level (mg/L)		
			Bottom	Surface and Mid Depth				
		DS3	6.03	6.15	5.81	8.97		
		DS4	6.10	6.27	4.12	5.85		
		DS5	6.10	6.24	3.08	4.95		
		US1	6.01	6.17	4.91	8.13		
		US2	6.00	6.13	4.96	8.47		
		MW1	5.63	5.68	5.99	8.82		
2016/11/25	Mid-Ebb	DS1	6.23	6.16	11.64	17.82		
		DS2	6.11	6.15	7.76	12.03		
		DS3	6.14	6.09	9.47	11.58		
		DS4	6.11	6.03	12.54	19.27		
		DS5	6.14	6.06	8.49	11.30		
		US1	6.43	6.36	11.52	11.27		
	Mid-Flood	US2	6.48	6.42	7.96	10.55		
		MW1	6.12	6.07	4.25	13.50		
		DS1	6.28	6.17	9.56	15.52		
		DS2	6.41	6.33	12.37	20.17		
		DS3	6.58	6.42	11.37	18.73		
		DS4	6.52	6.46	10.61	22.02		
		DS5	6.53	6.54	6.89	23.17		
		US1	6.21	6.16	10.82	13.10		
		US2	6.24	6.19	8.96	15.12		
		MW1	6.07	6.07	5.10	13.50		
		2016/11/28	Mid-Ebb	DS1	6.56	6.56	9.62	10.53
				DS2	6.55	6.53	7.97	10.07
				DS3	6.59	6.53	7.58	10.18
DS4	6.49			6.52	6.96	9.58		
DS5	6.60			6.54	8.18	10.05		
US1	6.57			6.53	7.44	8.65		
US2	6.64			6.56	9.44	11.12		
MW1	6.37			6.37	6.03	7.63		
Mid-Flood	DS1			6.80	6.69	8.24	10.27	
	DS2		6.80	6.77	15.98	21.00		
	DS3		6.82	6.81	16.09	16.78		
	DS4		6.87	6.82	14.99	16.15		
	DS5		6.78	6.81	16.65	17.52		
	US1		6.68	6.62	10.26	12.42		
	US2		6.65	6.61	14.65	17.95		
	MW1		6.27	6.28	7.86	10.58		
	2016/11/30		Mid-Ebb	DS1	6.48	6.51	11.62	15.20
				DS2	6.53	6.52	8.17	11.10
DS3				6.54	6.51	7.84	10.03	
DS4		6.42		6.50	7.67	10.00		
DS5		6.58		6.55	7.64	9.92		
US1		6.58		6.57	7.92	9.42		
US2		6.66		6.62	9.16	12.15		
MW1		6.21		6.23	6.69	8.87		
Mid-Flood		DS1		6.68	6.60	20.45	14.17	
		DS2	6.68	6.61	20.93	13.83		
		DS3	6.71	6.64	20.20	12.15		
		DS4	6.79	6.65	19.95	15.10		
		DS5	6.54	6.49	18.40	9.98		
		US1	6.73	6.66	17.85	18.50		
		US2	6.70	6.62	18.08	19.88		

Sampling Date	Tidal Period	Station	Average DO Levels (mg/L)		Average Turbidity Level (NTU)	Average SS Level (mg/L)
			Bottom	Surface and Mid Depth		
		MW1	6.27	6.28	11.49	9.53

Notes:

1. Please refer to Table B2 below for the Action and Limit Levels for dredging activities.
2. Cell shaded yellow indicated value exceeding the Action Level criteria.
3. Cell shaded red indicated value exceeding the Limit Level criteria.

Table B2 Action and Limit Levels of Water Quality for Dredging, Backfilling and Capping Activities at ESC CMPs

Parameter	Action Level	Limit Level
Dissolved Oxygen (DO) ⁽¹⁾	<u>Surface and Mid-depth</u> ⁽²⁾ 5%-ile of baseline data for surface and middle layer = 3.76 mg L⁻¹	<u>Surface and Mid-depth</u> ⁽²⁾ 1%-ile of baseline data for surface and middle layer = 3.11 mg L⁻¹ ⁽³⁾
	and	and
	Significantly less than the reference stations mean DO (at the same tide of the same day)	Significantly less than the reference stations mean DO (at the same tide of the same day)
	<u>Bottom</u> 5%-ile of baseline data for bottom layers = 2.96 mg L⁻¹	<u>Bottom</u> The average of the impact station readings are <2 mg/L⁻¹
	and	and
	Significantly less than the reference stations mean DO (at the same tide of the same day)	Significantly less than the reference stations mean DO (at the same tide of the same day)
Depth-averaged Suspended Solids (SS) ⁽⁴⁾⁽⁵⁾	95%-ile of baseline data for depth average = 37.88 mg L⁻¹	99%-ile of baseline data for depth average = 61.92 mg L⁻¹
	and	and
	120% of control station's SS at the same tide of the same day	130% of control station's SS at the same tide of the same day
Depth-averaged Turbidity (Tby) ⁽⁴⁾⁽⁵⁾	95%-ile of baseline data = 28.14 NTU	99%-ile of baseline data = 38.32 NTU
	and	and
	120% of control station's Tby at the same tide of the same day	130% of control station's Tby at the same tide of the same day

Notes:

- (1) For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
- (2) The Action and Limit Levels for DO for Surface & Middle layers were calculated from the combined pool of baseline surface layer data and baseline middle layer data.
- (3) Given the Action Level for DO for Surface & Middle layers has already been lower than 4 mg L⁻¹, it is proposed to set the Limit Level at 3.11 mg L⁻¹ which is the first percentile of the baseline data.
- (4) "Depth-averaged" is calculated by taking the arithmetic means of reading of all three depths.
- (5) For turbidity and SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.

Table B3 *Water Column Profiling Results for ESC CMP Vd in November 2016*

Stations	Temp (°C)	Salinity (ppt)	Turbidity (NTU)	Dissolved Oxygen (%) (mg L ⁻¹)		pH (mg L ⁻¹)	Suspended Solids (mg L ⁻¹)
WCP 1 (Downstream)	25.91	29.56	4.68	86.56	5.95	8.03	5.38
WCP 2 (Upstream)	25.76	29.46	5.70	86.56	5.97	7.99	5.35
WQO (Dry season)	N/A	26.52 – 32.41#	N/A	N/A	>4	6.5-8.5	13.2

Note:

#Not exceeding 10% of natural ambient level which is the result obtained from the Reference Station.

Cell shaded yellow / red indicate value exceeding the Action/Limit levels.

Cell shaded grey indicate value exceeding the WQO.

Table B4 *In-situ Monitoring Results for Routine Water Quality Monitoring of ESC CMPs in November 2016*

Sampling Period	Stations	Temp (°C)	Salinity (ppt)	Turbidity (NTU)	Dissolved Oxygen (%) (mg L ⁻¹)		pH (mg L ⁻¹)
November 2016	RFE (Reference)	26.88	27.84	10.63	96.84	6.61	7.97
	IPE (Impact)	26.93	28.41	9.64	96.99	6.60	7.94
	INE (Intermediate)	26.85	29.04	8.83	98.56	6.69	7.99
	Ma Wan	27.11	30.28	3.82	93.30	6.26	7.91
	WQO	N/A	25.06 – 30.62#	N/A	N/A	>4	6.5-8.5

Notes:

#Not exceeding 10% of natural ambient level which is the result obtained from the Reference Station.

Cell shaded yellow / red indicate value exceeding the Action/Limit levels.

Cell shaded grey indicate value exceeding the WQO.

Table B5 *Laboratory Results for Routine Water Quality Monitoring of ESC CMPs in November 2016*

Sampling Period	Stations	As (µg/L)	Cd (µg/L)	Cr (µg/L)	Cu (µg/L)	Pb (µg/L)	Hg (µg/L)	Ni (µg/L)	Ag (µg/L)	Zn (µg/L)	NH ₃ (mg/L)	TIN (mg/L)	BOD ₅ (mg/L)	SS (mg/L)
November 2016	RFE	1.97	<LOR	0.50	0.55	0.50	<LOR	0.57	<LOR	7.37	0.09	0.59	3.10	12.04
	IPE	1.92	<LOR	0.69	0.50	0.52	<LOR	0.58	<LOR	7.70	0.07	0.60	1.73	12.83
	INE	2.05	<LOR	0.50	0.51	0.52	<LOR	0.72	<LOR	6.19	0.08	0.53	2.12	16.97
	Ma Wan	1.95	<LOR	0.50	0.58	0.50	<LOR	0.50	<LOR	6.13	0.10	0.47	2.31	17.81

WQO of TIN: 0.5 mg/L

Dry Season WQO of SS : 13.2 mg/L

Notes:

Cell shaded yellow / red indicate value exceeding the Action/Limit levels.

Cell shaded grey indicate value exceeding the WQO.