

# Appendix B. Water Quality Monitoring Results

**Table B1: Action and Limit Levels of Water Quality for Dredging, Disposal and Capping Activities at ESC CMP V**

| Parameters  | Action   | Limit   |
|---|--|---|
| Dissolved Oxygen (DO) in mg L <sup>-1</sup> (Surface, Middle & Bottom) <sup>(1)</sup> | <b>Surface and Middle Depth<sup>(2)</sup></b><br>5%-ile of baseline data for surface and middle layer = <b>3.76</b><br>and<br>Significantly less than the reference station's mean DO (at the same tide of the same day) | <b>Surface and Middle Depth<sup>(2)</sup></b><br>1%-ile of baseline data for surface and middle layer = <b>3.11</b> <sup>(3)</sup><br>and<br>Significantly less than the reference station's mean DO (at the same tide of the same day) |
|   | <b>Bottom</b><br>5%-ile of baseline data for surface and middle layer = <b>2.96</b><br>and<br>Significantly less than the reference station's mean DO (at the same tide of the same day)                                 | <b>Bottom</b><br>The average of the impact station readings are < <b>2</b><br>and<br>Significantly less than the reference station's mean DO (at the same tide of the same day)   |
| Suspended Solids (SS) in mg L <sup>-1</sup> (depth-averaged) <sup>(5)</sup>           | 95%-ile of baseline data for depth-averaged = <b>37.88</b><br>and<br>120% of control station's SS at the same tide of the same day   | 99%-ile of baseline data for depth-averaged = <b>61.92</b><br>and<br>130% of control station's SS at the same tide of the same day  |
| Turbidity in NTU (depth-averaged) <sup>(4)(5)</sup>                                   | 95%-ile of baseline data = <b>28.14</b><br>and<br>120% of control station's Turbidity at the same tide of the same day   | 99%-ile of baseline data = <b>38.32</b><br>and<br>130% of control station's Turbidity 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. Action and Limit Levels for DO for Surface and 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 and Middle layers has already been lower than 4 mg L<sup>-1</sup>, it is proposed to set the Limit Level at 3.11 mg L<sup>-1</sup> 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 B2: Water Column Profiling Results for ESC CMP Vb in October 2023**

| Station               | Temp.<br>(°C) | Salinity<br>(ppt)        | Turbidity<br>(NTU) | Dissolved Oxygen<br>(%) | (mg L <sup>-1</sup> ) | pH      | Suspended Solids<br>(mg L <sup>-1</sup> ) |
|-----------------------|---------------|--------------------------|--------------------|-------------------------|-----------------------|---------|---|
| WCP 1<br>(Downstream) | 29.49         | 27.90                    | 4.24               | 91.92                   | 6.01                  | 8.02    | 4.0                                       |
| WCP 2<br>(Upstream)   | 29.55         | 28.35                    | 5.72               | 93.56                   | 6.10                  | 8.00    | 6.5                                       |
| WQO<br>(Wet Season)   | N/A           | 25.52-31.19 <sup>#</sup> | N/A                | N/A                     | >4                    | 6.5-8.5 | 11.7                                      |

Notes:

1. <sup>#</sup> Not exceeding 10% of natural ambient level which is the result obtained from the Reference Station.
2. Cell shaded yellow / red indicates value exceeding the Action/Limit levels.
3. Cell shaded grey indicates value exceeding the WQO.

**Table B3: In-situ Monitoring Results for Routine Water Quality Monitoring of ESC CMPs in October 2023**

| Station            | Temp.<br>(°C) | Salinity<br>(ppt)        | Turbidity<br>(NTU) | Dissolved Oxygen<br>(%) | (mg L <sup>-1</sup> ) | pH      |
|--------------------|---------------|--------------------------|--------------------|-------------------------|-----------------------|---------|
| RFF (Reference)    | 29.76         | 26.36                    | 7.29               | 84.43                   | 5.54                  | 7.93    |
| IPF (Impact)       | 29.76         | 25.97                    | 6.44               | 83.53                   | 5.50                  | 7.95    |
| INF (Intermediate) | 29.74         | 26.03                    | 6.98               | 83.28                   | 5.48                  | 7.95    |
| Ma Wan             | 29.36         | 30.19                    | 5.09               | 82.46                   | 5.34                  | 7.94    |
| WQO (Wet Season)   | N/A           | 23.72-28.99 <sup>#</sup> | N/A                | N/A                     | >4                    | 6.5-8.5 |

Notes:

1. <sup>#</sup> Not exceeding 10% of natural ambient level which is the result obtained from the Reference Station.
2. Cell shaded yellow / red indicates value exceeding the Action/Limit levels.
3. Cell shaded grey indicates value exceeding the WQO.

**Table B4: Laboratory Results for Dissolved Metals and Metalloid in Routine Water Quality Monitoring of ESC CMPs in October 2023**

| Station | As<br>(µg/L) | Cd<br>(µg/L) | Cr<br>(µg/L) | Cu<br>(µg/L) | Pb<br>(µg/L) | Hg<br>(µg/L) | Ni<br>(µg/L) | Ag<br>(µg/L) | Zn<br>(µg/L) |
|---------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| RFF     | 1.95         | 0.03         | 0.10         | 0.60         | ND           | 0.007        | 0.70         | ND           | 0.06         |
| IPF     | 2.02         | 0.03         | 0.12         | 0.73         | 0.01         | 0.007        | 0.73         | ND           | 1.09         |
| INF     | 1.95         | 0.03         | 0.11         | 0.76         | 0.01         | 0.006        | 0.81         | ND           | 0.18         |
| Ma Wan  | 1.60         | 0.02         | 0.10         | 0.30         | 0.01         | 0.006        | 0.43         | ND           | 11.84        |

Note:

1. "ND" indicates the concentrations of metals and metalloids are not detected.

**Table B5: Laboratory Results for Nutrients and Suspended Solid in Routine Water Quality Monitoring of ESC CMPs in October 2023**

| Station | NH <sub>3</sub><br>(mg/L) | TIN<br>(mg/L) | BOD <sub>5</sub><br>(mg/L) | SS<br>(mg/L) |
|---------|---------------------------|---------------|----------------------------|--------------|
| RFF     | 0.05                      | 0.55          | <LOR                       | 8.8          |
| IPF     | 0.03                      | 0.61          | 0.50                       | 5.8          |
| INF     | 0.03                      | 0.62          | <LOR                       | 5.8          |
| Ma Wan  | 0.07                      | 0.28          | <LOR                       | 7.5          |

WQO of TIN: 0.5 mg/L

Wet Season WQO of SS: 11.7 mg/L

Notes:

1. "<LOR" indicates the concentrations of contaminants are below the limit of reporting.
2. Cell shaded yellow / red indicates value exceeding the Action/Limit levels.
3. Cell shaded grey indicates value exceeding the WQO.