

Report No. 014

Contract No. HY/2013/02
Hong Kong-Zhuhai-Macao Bridge
Hong Kong Boundary Crossing Facilities –Infrastructure Works Stage I (Western Portion)
Investigation Report on Action Level or Limit Level Non-compliance

Report No. 014

Monitoring Date 24-Mar-17

The Action and Limit Levels of turbidity determined from baseline monitoring data is reproduced below:

Monitoring Parameter	Action Level (AL)	Limit Level (LL)
Depth averaged turbidity (in NTU)	27.5	47.0

Mid-Flood tide

Turbidity (in NTU)

Monitoring Station	Monitoring time	Measured depth averaged	Level Exceeded
SR4(N)	15:30	33.6	Action
IS8	15:37	34.9	Action

*Monitoring was undertaken by the E.T. of Contract No. HY/2010/02

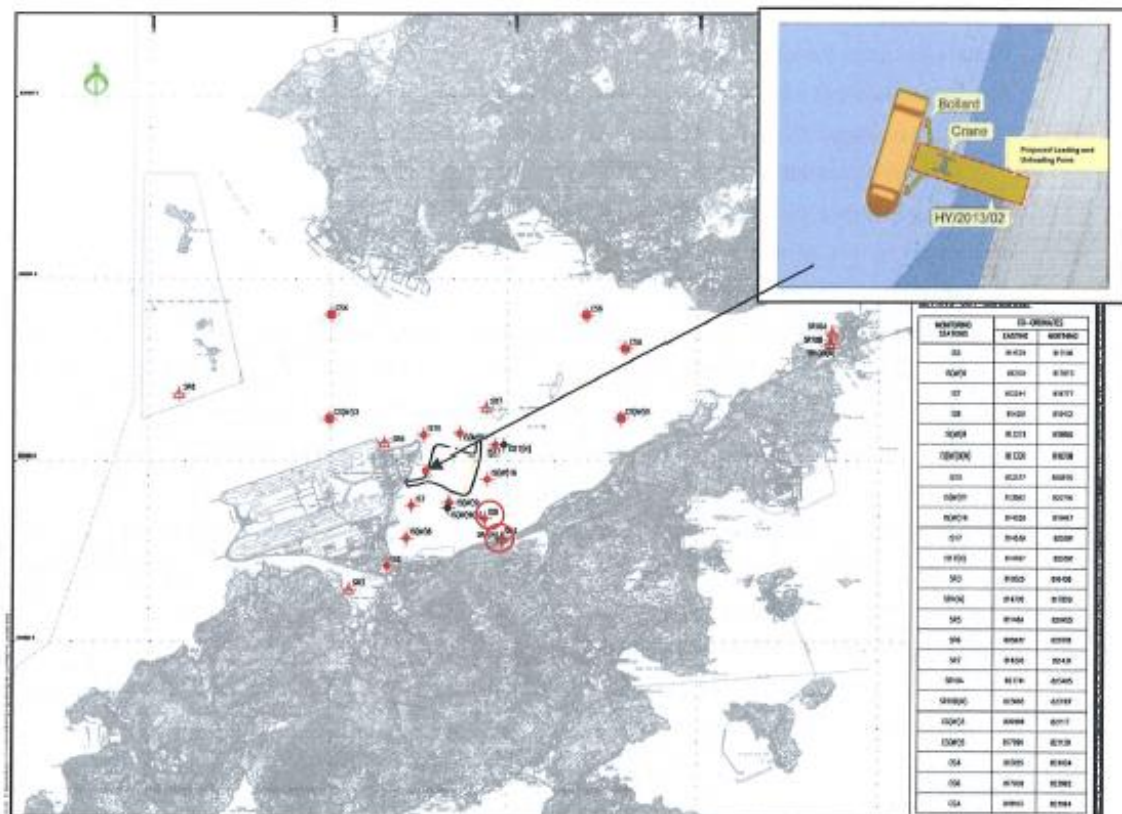


Figure 1 Location of Water Quality Monitoring Stations

Contract No. HY/2013/02
Hong Kong-Zhuhai-Macao Bridge
Hong Kong Boundary Crossing Facilities –Infrastructure Works Stage II (Western Portion)
Investigation Report on Action Level or Limit Level Non-compliance

Investigation Results:

a) Causes of exceedances

Exceedances were not due to operation of the works under Contract No. HY/2013/02 because:

- It was confirmed that there was no marine works or barge of this Contract worked at HKBCF reclamation site near the sea area or area near the monitoring station SR4(N) and IS8 from 22 March 2017 to the water quality monitoring period on 24 March 2017 under Contract No. HY/2013/02 so that it was unlikely to deteriorate the turbidity in the marine water to cause the turbidity exceedance recorded at the monitoring station SR4(N) and IS8 during mid-flood tide on 24 March 2017. **Figure 1** showing the location of the Water Quality Monitoring Station where recorded exceedance and all relevant WQM stations.
- The water quality mitigation measures as mentioned in EM&A Manual and EP was fully implemented in this Contract which including maintenance of the silt curtain on a daily basis by Contract No. HY/2010/02 etc. The exceedance was considered as non-Project related.

b) Action required under the action plan

Refer to Table 9.4 of the updated EM&A Manual for HKBCF.

c) Action taken under the action plan

1. Not applicable as water quality monitoring was conducted by Contract HY/2010/02;
2. After considered the above mentioned investigation results, it appears that it was unlikely that the turbidity exceedance was attributed to the above mentioned work site of this Contract;
3. The exceedance was informed by IEC and ER;
4. Monitoring data, all plant, equipment and Contractor's working methods were checked;

d) ET's conclusions and recommendations for mitigation

- All relevant water quality mitigation measurement was checked to be fully implemented.
- The Contractor was reminded to ensure all construction activities that generate wastewater should be collected to sedimentation tanks or package treatment systems for proper treatment prior to disposal.
- The Contractor was reminded to ensure that all silt removal facilities, channels and manholes shall be maintained and any deposited silt and grit shall be removed regularly.
- The Contractor was reminded to all vessels are sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.

e) Contractor's actions to implement the mitigation

- All construction activities that generate wastewater like wheel washing etc. was collected to sedimentation tanks or package treatment systems for proper treatment prior to disposal.
- All silt removal facilities, channels and manholes was maintained and any deposited silt and grit was removed regularly.
- All vessels are sized to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash

ET Leader Signature & Date



27-Mar-17

Report No. 015

Contract No. HY/2013/02
Hong Kong-Zhuhai-Macao Bridge
Hong Kong Boundary Crossing Facilities –Infrastructure Works Stage I (Western Portion)
Investigation Report on Action Level or Limit Level Non-compliance

Report No. 015
Monitoring Date 24-Mar-17

The Action and Limit Levels of suspended solid determined from baseline monitoring data is reproduced below:

Monitoring Parameter	Action Level (AL)	Limit Level (LL)
Depth averaged suspended solid (in mg/L)	23.5	34.4

Mid-Flood tide

Suspended Solid (in mg/L)

Monitoring Station	Monitoring time	Measured depth averaged	Level Exceeded
SR4(N)	15:30	29.5	Action
IS8	15:37	47.0	Limit

Mid-Ebb tide

Suspended Solid (in mg/L)

Monitoring Station	Monitoring time	Measured depth averaged	Level Exceeded
SR4(N)	11:32	26.6	Action
IS8	11:26	29.3	Action

*Monitoring was undertaken by the E.T. of Contract No. HY/2010/02

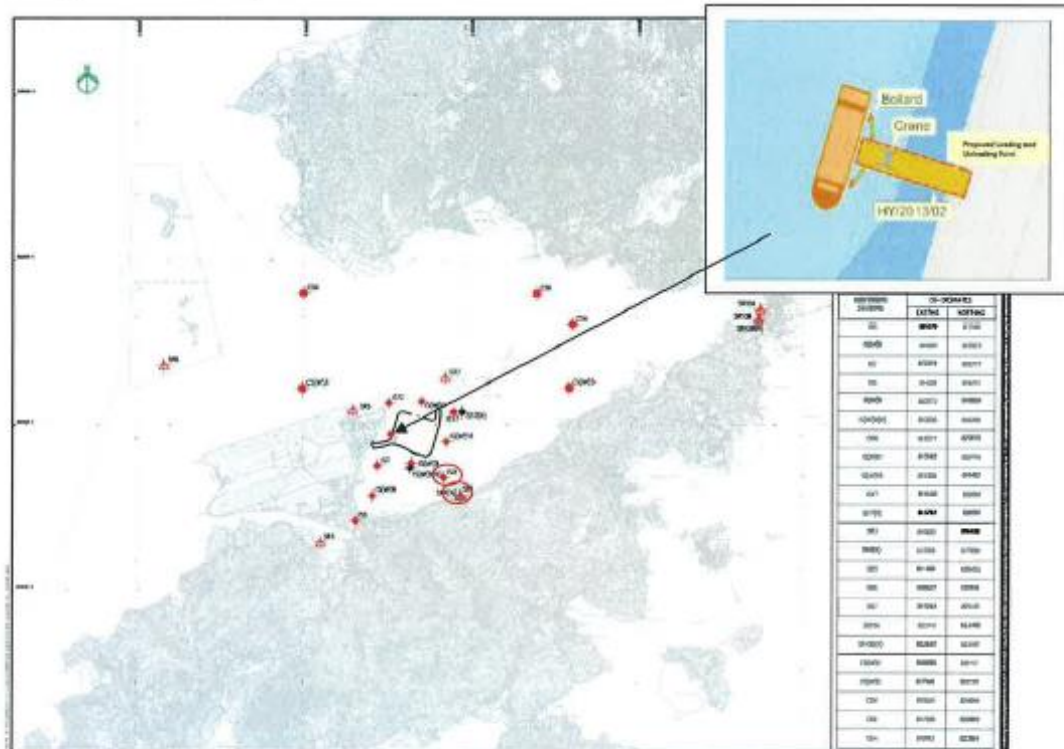


Figure 1 Location of Water Quality Monitoring Stations

Contract No. HY/2013/02
Hong Kong-Zhuhai-Macao Bridge
Hong Kong Boundary Crossing Facilities –Infrastructure Works Stage I (Western Portion)
Investigation Report on Action Level or Limit Level Non-compliance

Investigation Results:

a) Causes of exceedances

Exceedances were not due to operation of the works under Contract No. HY/2013/02 because:

- It was confirmed that there was no marine works or barge of this Contract worked at HKBCF reclamation site near the sea area or area near the monitoring station SR4(N) and IS8 from 22 March 2017 to the water quality monitoring period on 24 March 2017 under Contract No. HY/2013/02 so that it was unlikely to generate suspended solids in the marine water to cause the SS exceedances recorded at the monitoring station SR4(N) and IS8 during mid-flood tide and mid-ebb tide on 24 March 2017. **Figure 1** showing the location of the Water Quality Monitoring Station where recorded exceedance and all relevant WQM stations.
- The water quality mitigation measures as mentioned in EM&A Manual and EP was fully implemented in this Contract which including maintenance of the silt curtain on a daily basis by Contract No. HY/2010/02 etc. The exceedances were considered as non-Project related.

b) Action required under the action plan

Refer to Table 9.4 of the updated EM&A Manual for HKBCF.

c) Action taken under the action plan

1. Not applicable as SS was not measured in situ;
2. After considered the above mentioned investigation results, it appears that it was unlikely that the SS exceedances were attributed to the above mentioned work site of this Contract;
3. The exceedances were informed by IEC and ER;
4. Monitoring data, all plant, equipment and Contractor's working methods were checked;

d) ET's conclusions and recommendations for mitigation

- All relevant water quality mitigation measurement was checked to be fully implemented.
- The Contractor was reminded to ensure all construction activities that generate wastewater with high concentrations of suspended solids (SS) should be collected to sedimentation tanks or package treatment systems for proper treatment prior to disposal.
- The Contractor was reminded to ensure that all silt removal facilities, channels and manholes shall be maintained and any deposited silt and grit shall be removed regularly.

e) Contractor's actions to implement the mitigation

- All construction activities that generate wastewater with high concentrations of suspended solids (SS) like wheel washing etc. was collected to sedimentation tanks or package treatment systems for proper treatment prior to disposal.
- All silt removal facilities, channels and manholes was maintained and any deposited silt and grit was removed regularly.

ET Leader Signature & Date



06-Apr-17