

Report No. 011

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. 011
Monitoring Date 06-Feb-17

The Action and Limit Levels of suspended solids (SS) determined from baseline monitoring data is reproduced below:

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

Mid-Flood tide

Suspended Solids (SS) (in mg/L)

Monitoring Station	Monitoring time	Measured depth averaged	Level Exceeded
IS8	13:32	26.5	Action

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

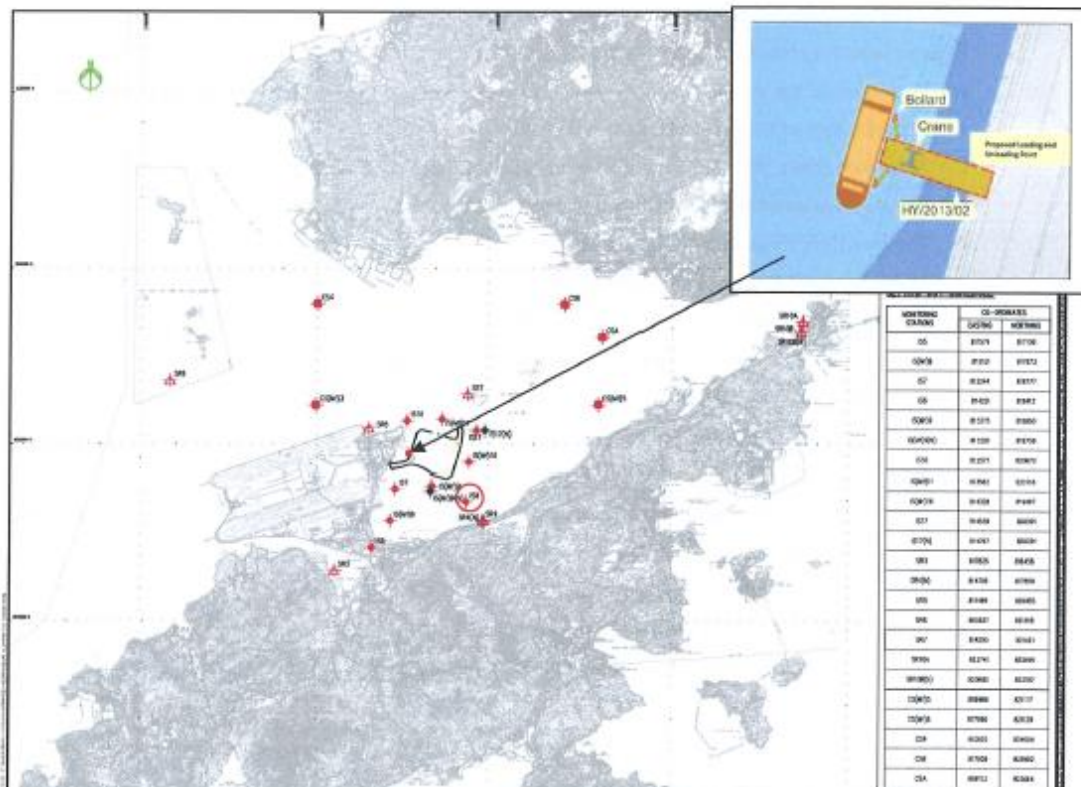


Figure 1 Location of Water Quality Monitoring Stations



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 IS8 from 04 February 2017 to the water quality monitoring period on 06 February 2017 under Contract No. HY/2013/02 so that it was unlikely to generate suspended solids in the marine water to cause the SS exceedance recorded at the monitoring station IS8 during mid-flood tide on 06 February 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 SS was not measured in situ;
2. After considered the above mentioned investigation results, it appears that it was unlikely that the SS 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 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

24-Feb-17

Report No. 012

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. 012

Monitoring Date 10-Feb-17

The Action and Limit Levels of suspended solids (SS) determined from baseline monitoring data is reproduced below:

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

Mid-Ebb tide

Suspended Solids (SS) (in mg/L)

Monitoring Station	Monitoring time	Measured depth averaged	Level Exceeded
SR6	11:29	23.8	Action

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

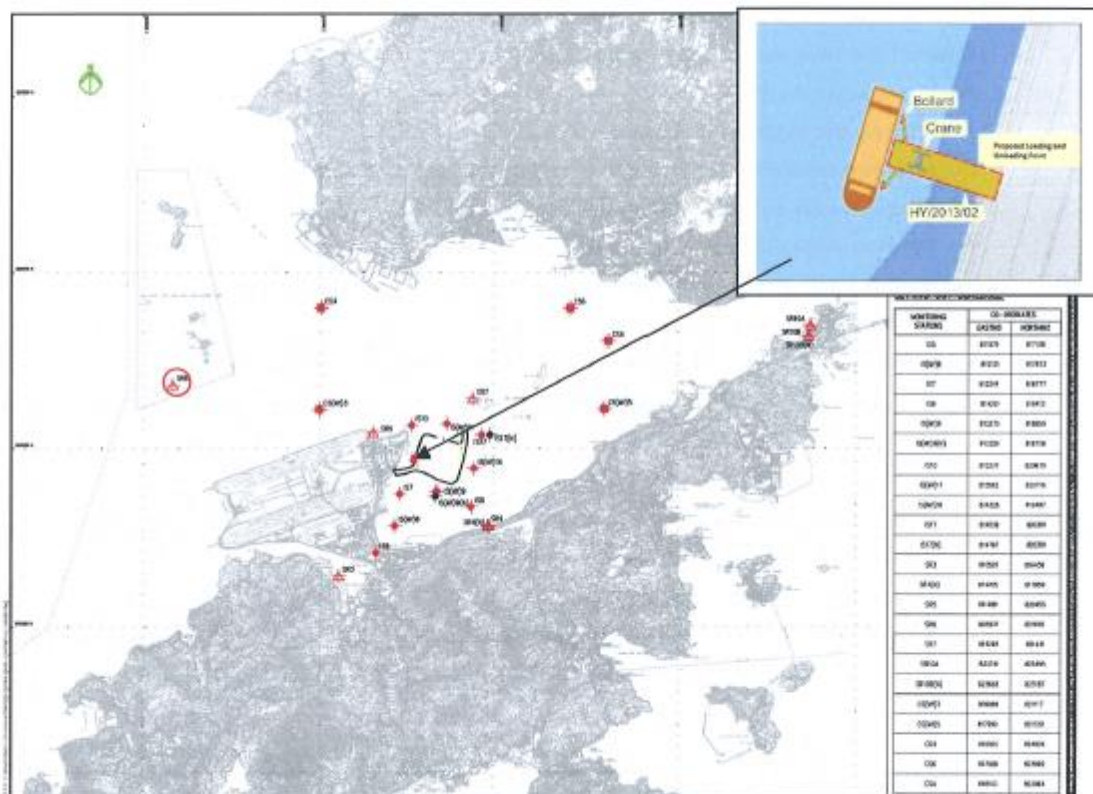


Figure 1 Location of Water Quality Monitoring Stations



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 except one marine pre-cat segment delivery which travelled passing through the north-east side with distance more than 4000 meters from the monitoring station SR6, 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 SR6 from 08 February 2017 to the water quality monitoring period on 10 February 2017 under Contract No. HY/2013/02 so that it was unlikely to generate suspended solids in the marine water to cause the SS exceedance recorded at the monitoring station SR6 during mid-ebb tide on 10 February 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 SS was not measured in situ;
 2. After considered the above mentioned investigation results, it appears that it was unlikely that the SS 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 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

04-Mar-17

Report No. 013

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. 013
Monitoring Date 15-Feb-17

The Action and Limit Levels of suspended solids (SS) determined from baseline monitoring data is reproduced below:

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

Mid-Flood tide

Suspended Solids (SS) (in mg/L)

Monitoring Station	Monitoring time	Measured depth averaged	Level Exceeded
SR7	09:35	23.6	Action

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

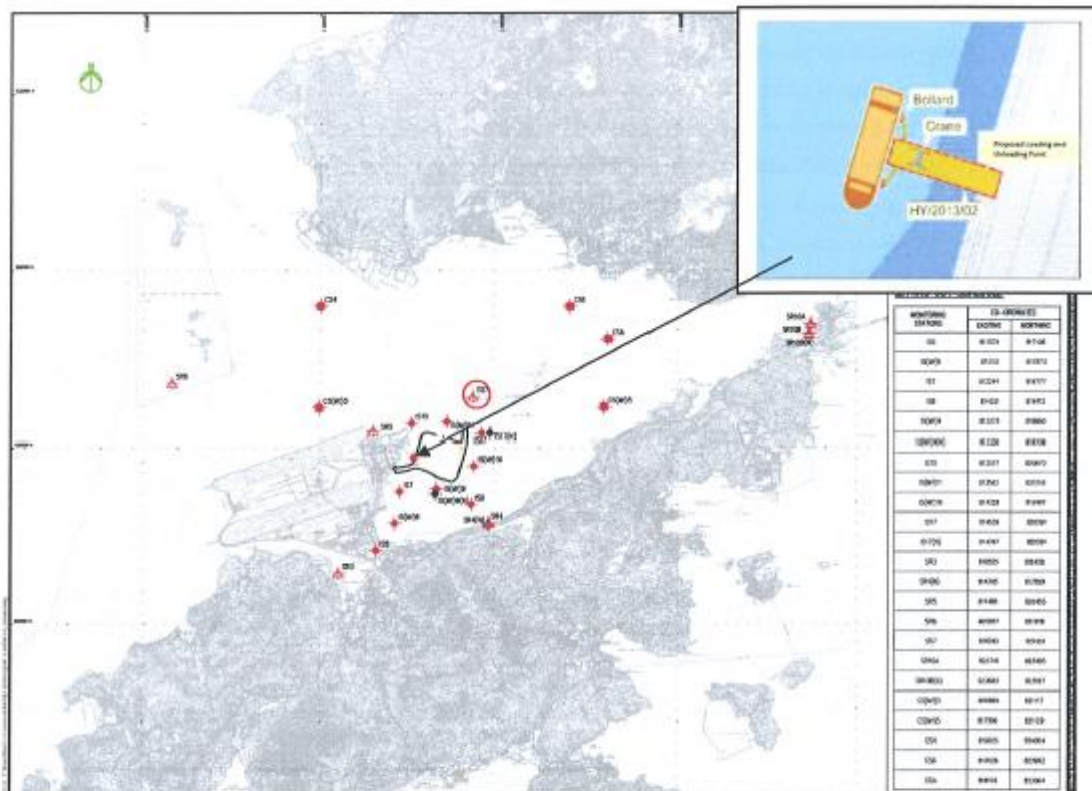


Figure 1 Location of Water Quality Monitoring Stations



Contract No. HY/2013/02
Hong Kong-Zhuhai-Macao Bridge
Hong Kong Boundary Crossing Facilities –Infrastructure Works Stage I (Western Portion)
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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 SR7 from 13 February 2017 to the water quality monitoring period on 15 February 2017 under Contract No. HY/2013/02 so that it was unlikely to generate suspended solids in the marine water to cause the SS exceedance recorded at the monitoring station SR7 during mid-flood tide on 15 February 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 SS was not measured in situ;
2. After considered the above mentioned investigation results, it appears that it was unlikely that the SS 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 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

02-Mar-17