

## Report No. 004

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.** 004  
**Monitoring Date** 03-Oct-16

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
IS(Mf)11	07:55	25.7	Action
SR6	09:06	29.5	Action
SR7	07:48	24.3	Action

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

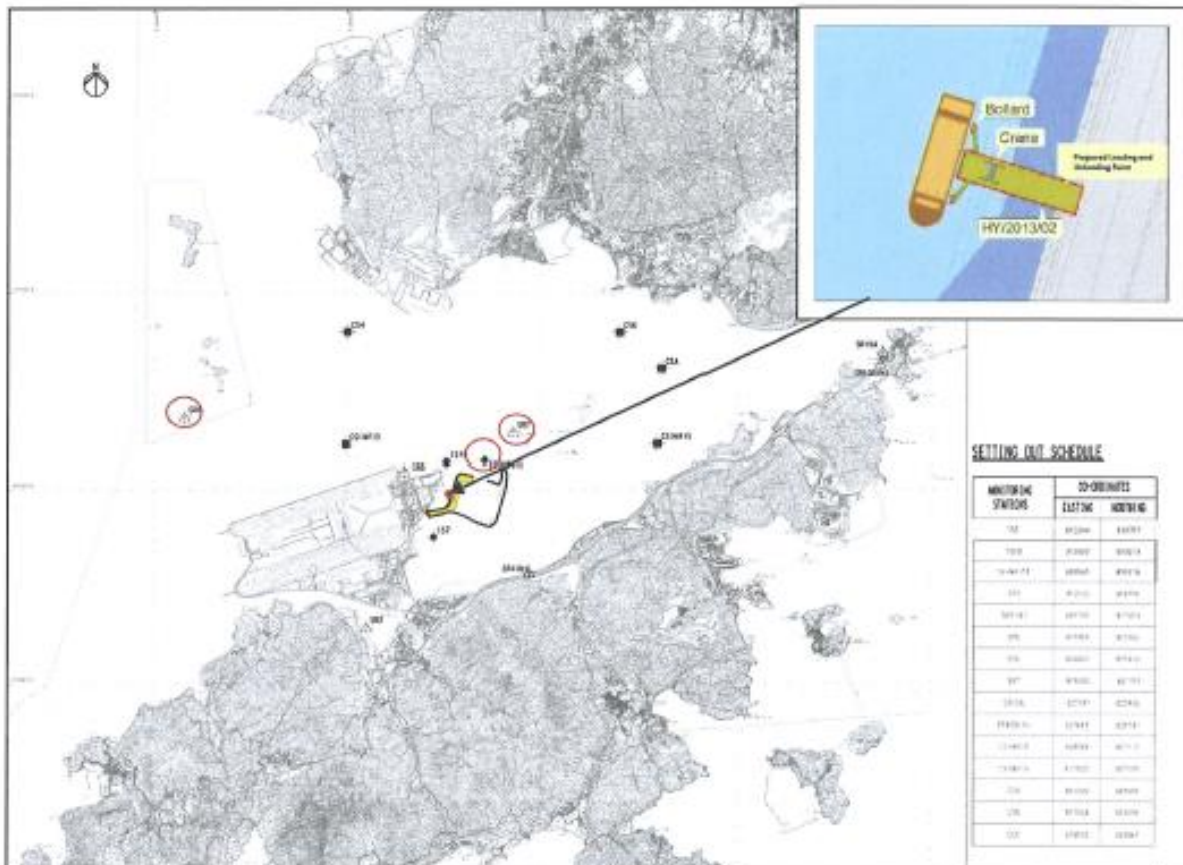


Figure 1 Location of Water Quality Monitoring Stations

Contract No. HY/2013/02  
Hong Kong-Zhuhai-Macao Bridge  
Hong Kong Boundary Crossing Facilities –Infrastructure Works Stage I (Western Portion)  
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#### Investigation Results:

a) Causes of exceedance

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 stations IS(Mf)11, SR6 and SR7 from 27 September 2016 to the water quality monitoring period on 03 October 2016 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 IS(Mf)11, SR6 and SR7 during mid-flood tide on 03 October 2016. **Figure 1** showing the locations of the Water Quality Monitoring Stations where recorded exceedances and all relevant WQM stations.
- The exceedances were recorded during flood tide in which the direction of flow was flowing from east to west and the monitoring stations IS(Mf)11 and SR7 are located at upstream of the works area of this Contract and the monitoring station SR6 is located at downstream of the monitoring stations IS10 and SR5 which are located in between the works area of this Contract and the monitoring station SR6 but no SS exceedance were recorded at the monitoring station IS10 and SR5. Therefore, it is unlikely that the SS exceedances recorded at IS(Mf)11, SR6 and SR7 during mid-flood tide on 03 October 2016 were contributed by the works under Contract No. HY/2013/02.
- 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 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 solid (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.



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- e) Contractor's actions to implement the mitigation
- All construction activities that generate wastewater with high concentrations of suspended solid (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-Oct-16

## Report No. 005

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.** 005  
**Monitoring Date** 17-Oct-16

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
SR6	08:45	24.2	Action

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



Figure 1 Location of Water Quality Monitoring Stations



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#### Investigation Results:

a) Causes of exceedance

Exceedance was 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 SR6 from 01 October 2016 to the water quality monitoring period on 17 October 2016 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-flood tide on 17 October 2016. **Figure 1** showing the location of the Water Quality Monitoring Station where recorded exceedance and all relevant WQM stations.
- The exceedance was recorded during flood tide in which the direction of flow was flowing from east to west and the monitoring station SR6 is located at downstream of the monitoring stations IS10 and SR5 which are located in between the works area of this Contract and the monitoring station SR6 but no SS exceedance were recorded at the monitoring station IS10 and SR5. Therefore, it is unlikely that the SS exceedance recorded at SR6 during mid-flood tide on 17 October 2016 was contributed by the works under Contract No. HY/2013/02.
- 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 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 solid (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



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- All construction activities that generate wastewater with high concentrations of suspended solid (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

A handwritten signature in blue ink, appearing to be 'C. Lee', written over a horizontal line.

31-Oct-16

## Report No. 006

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.** 006

**Monitoring Date** 19-Oct-16

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
SR6	10:33	25.7	Action

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



Figure 1 Location of Water Quality Monitoring Stations

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#### Investigation Results:

a) Causes of exceedance

Exceedance was 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 SR6 from 01 October 2016 to the water quality monitoring period on 19 October 2016 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-flood tide on 19 October 2016. **Figure 1** showing the location of the Water Quality Monitoring Station where recorded exceedance and all relevant WQM stations.
- The exceedance was recorded during flood tide in which the direction of flow was flowing from east to west and the monitoring station SR6 is located at downstream of the monitoring stations IS10 and SR5 which are located in between the works area of this Contract and the monitoring station SR6 but no SS exceedance were recorded at the monitoring station IS10 and SR5. Therefore, it is unlikely that the SS exceedance recorded at SR6 during mid-flood tide on 19 October 2016 was contributed by the works under Contract No. HY/2013/02.
- 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 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 solid (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





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- All construction activities that generate wastewater with high concentrations of suspended solid (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

A handwritten signature in blue ink, appearing to be 'as', written over a horizontal line.

31-Oct-16