



Ref no.	Date	Tidal	Location	Parameters (Avg.)	Measured	Action Level	Limit Level	Follow-up
X_W221	3-May-11	Mid-ebb	WSD21	DO (mg/L)	5.18	3.17	2.63	Possible reason: Water quality influence from WSD screen washing Action taken / to be taken: WSD washing screen was observed during the water monitoring. The major marine activity was the land-filling at WCR1 on 3 May 2011. Compared with the water quality nearer the WCR1, water quality at C5e and C5w was well below the Action Level. Remarks / Other Obs: Silt screen & silt curtain were in proper condition during monitoring. In the view of no exceedance recorded at the monitoring Stations near the marine works area, it is considered not related to the Project.
				Turbidity	5.84	10.01	11.54	
				Suspended Solid	18.00	16.26	19.74	
X_W222	5-May-11	Mid-flood	WSD17	DO (mg/L)	5.29	3.17	2.63	Possible reason: Natural variation or changes in ambient conditions Action taken / to be taken: Silt screen & silt curtain were in proper condition during monitoring. Remarks / Other Obs: In view that WSD17 was located in upstream of the Project during flood tide, the SS exceedance is definitely non-works related under the Project.
				Turbidity	11.93	10.01	11.54	
				Suspended Solid	26.50	16.26	19.74	
X_W223	5-May-11	Mid-ebb	WSD19	DO (mg/L)	5.44	3.17	2.63	Possible reason: Natural variation or changes in ambient conditions Action taken / to be taken: According to the information reported by Contractor HK/2009/01, filling operation in HKCEC1 area and rock armour removal in Wan Chai side for Cross Harbour Water mains were carried out. Remarks / Other Obs: In view that WSD19 was located in upstream of the Project during ebb tide, the turbidity and SS exceedances were definitely non-works related under the Project.
				Turbidity	10.51	10.01	11.54	
				Suspended Solid	16.50	16.26	19.74	
X_W224	12-May-11	Mid-ebb	WSD15	DO (mg/L)	5.55	3.17	2.63	Possible reason: Natural variation or changes in ambient conditions Action taken / to be taken: Comparing with the monitoring stations closer to the site, no exceedance was recorded at the stations near the marine work site of Contract HY200911. Remarks / Other Obs: Silt screen & silt curtain were in proper condition during monitoring. In the view of no exceedance recorded at the monitoring Stations near the marine works area of Contract no.HY/2009/11, it is considered not related to the Project.
				Turbidity	10.75	10.01	11.54	
				Suspended Solid	5.50	16.26	19.74	
X_W225	16-May-11	Mid-flood	WSD17	DO (mg/L)	5.54	3.17	2.63	Possible reason: Natural variation or changes in ambient conditions Action taken / to be taken: Silt screen & silt curtain were in proper condition during monitoring. Checked with Contractor's works on 16 May 2011, no marine works were undertaken after 1800hr. Remarks / Other Obs: In view that WSD17 was located in upstream of the Project during flood tide, the SS exceedance is definitely non-works related under the Project.
				Turbidity	11.53	10.01	11.54	
				Suspended Solid	15.00	16.26	19.74	
X_W226	18-May-11	Mid-flood	WSD17	DO (mg/L)	4.26	3.17	2.63	Possible reason: Natural variation or changes in ambient conditions Action taken / to be taken: Silt screen & silt curtain were in proper condition during monitoring. Checked with Contractor's works on 18 May 2011, no marine works were undertaken after 1800hr. Remarks / Other Obs: In view that WSD17 was located in upstream of the Project during flood tide, the SS exceedance is definitely non-works related under the Project.
				Turbidity	6.58	10.01	11.54	
				Suspended Solid	17.00	16.26	19.74	



Ref no.	Date	Tidal	Location	Parameters (Unit)	Measured	Action Level	Limit Level	Follow-up action
X_10C239	28-Apr-11 21:01	Mid-ebb	C8	DO (mg/L)	4.83	3.36	2.73	Possible reason: Accumulation of particles discharged from outfalls near monitoring station
				Turbidity (NTU)	6.71	9.1	10.25	Action taken / to be taken: Checked with the contractor marine work activities; Sediment dredging was completed on 21 Apr 2011. No any marine works were undertaken after 18:00 on that day.
				SS (mg/L)	17.50	15.00	22.13	Remarks / Other Obs: SS value was within the tolerance of baseline range at C8. No consecutive exceedance was recorded in the next monitoring. In view that the no marine works were undertaken after 18:00, the exceedances were considered not related to the Project works.
X_10C240	28-Apr-11	Mid-flood	C9	DO (mg/L)	5.67	3.36	2.73	Possible reason: Accumulation of particles discharged from outfalls near monitoring station
				Turbidity (NTU)	4.38	9.1	10.25	Action taken / to be taken: Silt screen & silt curtain were in proper condition during monitoring.
				SS (mg/L)	19.00	15.00	22.13	Remarks / Other Obs: SS value was within the tolerance of baseline range at C9. In view that C9 was located in upstream of the Project during flood tide, the SS exceedance is definitely non-works related under the Project.
X_10C244	3-May-11	Mid-ebb	C9	DO (mg/L)	6.43	3.02	2.44	Possible reason: Accumulation of particles discharged from outfalls near monitoring station
				Turbidity (NTU)	11.53	11.35	12.71	Action taken / to be taken: Checked with the contractor marine work activities; Sediment dredging was completed on 21 Apr 2011. Only installation of concrete blocks under water for the open channel where in front of the Hong Kong Electric and concreting works on top of installed caisson seawall were undertaken.
				SS (mg/L)	10.50	18.42	27.54	Remarks / Other Obs: No consecutive exceedance was recorded in the next monitoring. The silt screen and silt curtain were in proper condition during the monitoring. In view that no major marine work was undertaken, the exceedances were considered to be caused from the accumulation of particles discharged from the outfalls near monitoring station and not related to the Project works.
X_10C245	5-May-11 19:10	Mid-flood	C8	DO (mg/L)	4.15	3.02	2.44	Possible reason: Accumulation of particles discharged from outfalls near monitoring station
				Turbidity (NTU)	12.98	11.35	12.71	Action taken / to be taken: Checked with the contractor marine work activities; Sediment dredging was completed on 21 Apr 2011. No any marine works were undertaken after 18:00 on that day.
				SS (mg/L)	19.00	18.42	27.54	Remarks / Other Obs: SS value was within the tolerance of baseline range at C8. No consecutive exceedance was recorded in the next monitoring. In view that the no marine works were undertaken after 18:00, the exceedances were considered not related to the Project works.

Remarks: AL-LL for the wet season are applied after the approval of Updated EM&A Manual on 29 April 2011.



Ref no.	Date	Tidal	Location	Parameters (Unit)	Measured	Action Level	Limit Level	Follow-up action
X_10C246	5-May-11	Mid-ebb	C1	DO (mg/L)	6.15	3.02	2.44	Possible reason: Natural variation or changes in ambient conditions Action taken / to be taken: Silt screen was in proper condition and no potential water impact was observed near Station C1 during monitoring. Checked with the Contractor's marine work, there was no dredging works at cross harbour water main on 5 May 2011. Remarks / Other Obs: In view that no potential water impact near station C1, the turbidity exceedance was considered not related to the contractor's works.
				Turbidity (NTU)	11.45	11.35	12.71	
				SS (mg/L)	17.00	18.42	27.54	
X_10C250	10-May-11 21:02	Mid-flood	C9	DO (mg/L)	5.35	3.02	2.44	Possible reason: Accumulation of particles discharged from outfalls near monitoring station Action taken / to be taken: Checked with the contractor marine work activities; Sediment dredging was completed on 21 Apr 2011. No any marine works were undertaken after 18:00 on that day. Remarks / Other Obs: SS value was within the tolerance of baseline range at C9. No consecutive exceedance was recorded in the next monitoring. In view that the no marine works were undertaken after 18:00, the exceedances were considered not related to the Project works.
				Turbidity (NTU)	4.62	11.35	12.71	
				SS (mg/L)	19.00	18.42	27.54	
X_10C255	18-May-11	Mid-flood	C9	DO (mg/L)	4.14	3.02	2.44	Possible reason: Accumulation of particles discharged from outfalls near monitoring station Action taken / to be taken: Checked with the contractor marine work activities; No sediment dredging was undertaken on 18 May 2011. Remarks / Other Obs: In view of no consecutive exceedance was recorded in the next monitoring, the exceedances were considered not related to the Project works.
				Turbidity (NTU)	13.45	11.35	12.71	
				SS (mg/L)	20.00	18.42	27.54	
X_10C261	25-May-11	Mid-ebb	EX-WPCWA SE	DO (mg/L)	3.11	3.55	3.00	Possible reason: Floating grease and debris from the outfall Action taken / to be taken: Repeated the measurement to confirm the result. No odour nuisance was noted during the DO monitoring. Checked with Contract works, there was no marine works undertaken at ex-WPCWA on 25 May 2011. Remarks / Other Obs: In view that there was no marine works at ex-WPCWA, it was considered not related to Project works.

Ref no.	Date	Time	Tidal	Location	Parameters (Unit)	Measured	Action Level	Limit Level	Follow-up action
X_10C237	28-Apr-11	15:15	Mid-flood	C3	DO (mg/L)	4.67	3.36	2.73	Possible reason: Trapping of material inside the silt screen and not adequately removed by Contractor in time.
					Turbidity (NTU)	11.58	9.1	10.25	
					SS (mg/L)	16.50	15.00	22.13	
X_10C238	28-Apr-11	21:25	Mid-ebb	C3	DO (mg/L)	4.56	3.36	2.73	Action taken / to be taken: Immediate repeated measurements had conducted to confirm the exceedances. Notification of exceedances were immediate informed to Contractor of HK/2009/01, RE and IEC when the exceedances were recorded.
					Turbidity (NTU)	14.20	9.1	10.25	
					SS (mg/L)	20.50	15.00	22.13	
X_10C241	30-Apr-11	15:16	Mid-flood	C3	DO (mg/L)	5.85	3.02	2.44	Additional turbidity measurement was immediately taken outside the silt screen when the Action Level or Limit Level exceedance was recorded inside the silt screen. The turbidity levels outside the silt screen were as below: 28 Apr 2011 Mid-flood: 6.59NTU 28 Apr 2011 Mid-ebb: 7.56NTU 30 Apr 2011 Mid-flood: 8.75NTU  Investigation found that the turbidity levels outside the silt screen on 28 and 30 Apr 2011 were well below the Action Level while turbidity exceedances were recorded inside the silt screen. Checked with RE and Contractor that the filling by mud barge, conveyor belt and end-tipped were undertaken on 28 and 30 Apr 2011. Based on the investigation, it represented that the silt curtain for the filling operation was in proper function on 28 and 30 Apr 2011. ET and RE recommended Contractor to check any outfall pipe under the promenade deck and they had checked and replied there is no any outfall under it.  ET keep in view the trend of water monitoring data and mitigation measures any further deterioration of water quality in water channel and the effectiveness of the remedial measures.
					Turbidity (NTU)	20.80	11.35	12.71	
					SS (mg/L)	18.00	18.42	27.54	
									Remarks / Other Obs: The turbidity and SS exceedances were related to the lack of attention to remove the trapping of material inside the silt screen.

Remarks: AL-LL for the wet season are applied after the approval of Updated EM&A Manual on 29 April 2011.



Ref no.	Date	Time	Tidal	Location	Parameters (Unit)	Measured	Action Level	Limit Level	Follow-up action
X_10C242	3-May-11	17:45	Mid-flood	C3	DO (mg/L)	5.30	3.02	2.44	Possible reason: Trapping of material inside the silt screen and not adequately removed by Contractor in time.
					Turbidity (NTU)	11.55	11.35	12.71	
					SS (mg/L)	15.00	18.42	27.54	
X_10C243	3-May-11	12:10	Mid-ebb	C3	DO (mg/L)	5.73	3.02	2.44	Action taken / to be taken: Immediate repeated measurements had conducted to confirm the exceedances. Notification of exceedances were immediate informed to Contractor of HK/2009/01, RE and IEC when the exceedances were recorded.  Additional turbidity measurement was immediately taken outside the silt screen when the Action Level or Limit Level exceedance was recorded inside the silt screen. The turbidity levels outside the silt screen were as below: 3 May 2011 Mid-flood: 5.91NTU  Investigation found that the turbidity levels outside the silt screen on 3 May 2011 at mid-flood was well below the Action Level while turbidity exceedances were recorded inside the silt screen. Checked with RE and Contractor that the filling by conveyor belt and end-tipped were undertaken on 3 May 2011. Based on the investigation, it represented that the silt curtain for the filling operation was in proper function on 3 May 2011. ET and RE recommended Contractor to check any outfall pipe under the promenade deck and they had checked and replied there is no any outfall under it.  ET keep in view the trend of water monitoring data and mitigation measures any further deterioration of water quality in water channel and the effectiveness of the remedial measures.
					Turbidity (NTU)	8.99	11.35	12.71	
					SS (mg/L)	22.50	18.42	27.54	
									Remarks / Other Obs: The turbidity and SS exceedances were related to the lack of attention to remove the trapping of material inside the silt screen.



Ref no.	Date	Time	Tidal	Location	Parameters (Unit)	Measured	Action Level	Limit Level	Follow-up action
X_10C247	5-May-11	11:30	Mid-ebb	C3	DO (mg/L)	5.82	3.02	2.44	Possible reason: Silt screen defect and deployed silt curtain not properly maintained as identified during regular site inspections
					Turbidity (NTU)	52.45	11.35	12.71	
					SS (mg/L)	75.00	18.42	27.54	
X_10C248	7-May-11	11:43	Mid-ebb	C3	DO (mg/L)	5.22	3.02	2.44	Action taken / to be taken: Immediate repeated measurements had conducted to confirm the exceedances. Notification of exceedances were immediately informed to Contractor of HK/2009/01, RE and IEC when the exceedances were recorded. Additional turbidity measurement was immediately taken outside the silt screen when the Action Level or Limit Level exceedance was recorded inside the silt screen. The turbidity levels outside the silt screen were as below: 05 May 2011 Mid-ebb: 18.25NTU 07 May 2011 Mid-ebb: 17.38NTU Investigation indicated that the turbidity levels outside the silt screen were also higher than the Limit Level.  Site inspection on 4 May 2011 revealed that muddy dispersion from the silt curtain for the filling by conveyor belt and not fully enclosed silt curtain surrounding filling area of HKCEC1 were observed. ET and RE reminded Contractor to closely check and well maintain the mitigation measures for filling operation, especially the silt curtain deployment at site and silt screen maintenance.  In response to the recorded exceedances, Contractor checked the silt screen by diver inspection on 5 May 2011. A gap was found at the bottom of the frame type silt screen. Besides, blockage of silt screen was found in one of the frame type silt screens at C3, increasing the tendency of suction via the gap at the bottom of the silt screen frame.  The maintenance works including grouting of the gap and replacement of the existing geotextile enclosing the silt screen were then conducted on 6 and 7 May 2011. Furthermore, the existing geo-textile at the doom in the water channel had been replaced and an additional silt curtain at Expo Drive East has been installed on 7 May 2011.  ET continue to keep in view of the trend of water monitoring data, any continuous improvement of water quality in water channel and the effectiveness of the remedial measures.
					Turbidity (NTU)	12.25	11.35	12.71	
					SS (mg/L)	16.00	18.42	27.54	
									Remarks / Other Obs: The turbidity and SS exceedances were concluded in relation to silt screen defect and lack of response to the deficiencies in silt screen and silt curtain deployment



Ref no.	Date	Time	Tidal	Location	Parameters (Unit)	Measured	Action Level	Limit Level	Follow-up action
X_10C251	12-May-11	11:48	Mid-flood	C3	DO (mg/L)	5.79	3.02	2.44	Possible reason: Trapping of material inside the silt screen and not adequately removed by Contractor in time.
					Turbidity (NTU)	27.03	11.35	12.71	
					SS (mg/L)	32.00	18.42	27.54	
X_10C252	14-May-11	11:18	Mid-ebb	C3	DO (mg/L)	5.91	3.02	2.44	Action taken / to be taken: Immediate repeated measurements had conducted to confirm the exceedances. Notification of exceedances were immediate informed to Contractor of HK/2009/01, RE and IEC when the exceedances were recorded.  Additional turbidity measurement was immediately taken outside the silt screen when the Action Level or Limit Level exceedance was recorded inside the silt screen. The turbidity levels outside the silt screen were as below: 12 May 2011 Mid-flood: 8.63NTU 14 May 2011 Mid-ebb: 10.55NTU  Investigation found that the turbidity levels outside the silt screen on 12 and 14 May 2011 were well below the Action Level while turbidity exceedances were recorded inside the silt screen. Checked with RE and Contractor that the filling by mud barge, conveyor belt and truck were undertaken on 12 and 14 May 2011. Based on the investigation, it represented that the silt curtains for the filling operation were in proper function on 12 and 14 May 2011. The deployed silt curtains in the water channel were also observed in proper condition during the weekly site inspection on 11 May 2011.  ET keep in view the trend of water monitoring data and mitigation measures any further deterioration of water quality in water channel and the effectiveness of the remedial measures.
					Turbidity (NTU)	16.73	11.35	12.71	
					SS (mg/L)	19.00	18.42	27.54	
Remarks / Other Obs:									The turbidity and SS exceedances were related to the lack of attention to remove the trapping of material inside the silt screen.

Ref no.	Date	Time	Tidal	Location	Parameters (Unit)	Measured	Action Level	Limit Level	Follow-up action
X_10C253	16-May-11	11:25	Mid-ebb	C3	DO (mg/L)	5.79	3.02	2.44	Possible reason: Deployed silt curtain was not properly managed and controlled as identified during site inspections and monitoring
					Turbidity (NTU)	39.65	11.35	12.71	
					SS (mg/L)	40.50	18.42	27.54	
X_10C254	18-May-11	10:40	Mid-ebb	C3	DO (mg/L)	5.59	3.02	2.44	Action taken / to be taken: Immediate repeated measurements had conducted to confirm the exceedances. Notification of exceedances were immediate informed to Contractor of HK/2009/01, RE and IEC when the exceedances were recorded. Additional turbidity measurement was immediately taken outside the silt screen when the Action Level or Limit Level exceedance was recorded inside the silt screen. The turbidity levels outside the silt screen were as below: 16 May 2011 Mid-ebb: 67.85NTU 18 May 2011 Mid-ebb: 37.93NTU
					Turbidity (NTU)	16.03	11.35	12.71	
					SS (mg/L)	29.50	18.42	27.54	
X_10C256	19-May-11	10:27	Ebb	C3	DO (mg/L)	5.31	3.02	2.44	Investigation indicated that the turbidity levels outside the silt screen were also higher than the Limit Level. It revealed that the silt curtain were not proper managed and controlled to minimize the migration the filling material in water course. During the site inspection on 16 May 2011, improper silt curtain between southbound and northbound water channel was found at water channel causing the dispersion of muddy boom along the water channel. Contractor was immediately reminded to well maintain and keep the silt curtain always closed. Besides, Contractor was also reminded to comply with the relevant condition(s) under FEP-02/356/2009, the associated condition(s) under EP-356/2009 and relevant condition(s) of the applicable EIA report by ET and IEC on 16 and 17 May 2011.
					Turbidity (NTU)	11.93	11.35	12.71	
					SS (mg/L)	13.50	18.42	27.54	
									Remarks / Other Obs: The turbidity and SS exceedances were confirmed in relation to the improper management and control of silt curtain for filling operation. The trend of water quality monitoring data would be kept in view for any further deterioration of water quality in water channel and the effectiveness of the remedial measures. Filling operation was suspended from the 19 May 2011 morning until 23 May 2011 morning.





Ref no.	Date	Time	Tidal	Location	Parameters (Unit)	Measured	Action Level	Limit Level	Follow-up action
X_10C258	23-May-11	16:33	Mid-ebb	C3	DO (mg/L)	5.69	3.02	2.44	Possible reason: Accumulation of wastewater and debris from the uncharged discharge pipe inside the silt screen
					Turbidity (NTU)	13.30	11.35	12.71	
					SS (mg/L)	15.50	18.42	27.54	
X_10C259	25-May-11	17:15	Mid-ebb	C3	DO (mg/L)	5.59	3.02	2.44	Action taken / to be taken: Immediate repeated measurements had conducted to confirm the exceedances. Notification of exceedances were immediate informed to Contractor of HK/2009/01, RE and IEC when the exceedances were recorded.
					Turbidity (NTU)	15.13	11.35	12.71	
					SS (mg/L)	12.50	18.42	27.54	
									<p>Additional turbidity measurement was immediately taken outside the silt screen when the Action Level or Limit Level exceedance was recorded inside the silt screen. The turbidity levels outside the silt screen were as below:                  23 May 2011 Mid-ebb: 5.13NTU                  25 May 2011 Mid-ebb: 5.17NTU                  Investigation found that the turbidity levels outside the silt screen on 23 and 25 May 2011 were well below the Action Level while turbidity exceedances were recorded inside the silt screen.</p> <p>During the water quality monitoring on 23 May 2011, lot of floating debris was accumulated inside silt screen which was unlikely caused from the filling material. Contractor was advised to increase the frequency of the checking and removal of floating refuse to avoid the accumulation of debris inside the silt screen. Furthermore, tracing of any gap and double checking of any outfall at the frame type silt screen were recommended.</p> <p>A discharge pipe for HKCEC was discovered located in between the C3 intake inlets and inside the silt screen by Contractor on 24 May 2011. A site investigation with ARE and SIOW from AACL, ET, IEC, Contractor and stakeholder was conducted on 27 May 2011 morning to confirm the existence of discharge pipe under the dome. Cooling water and wastewater from the sump pit are irregularly discharged under the dome. Diversion deign of the discharge pipe is under discussion between Contractor and Stakeholder to minimize the impact from the discharge pipe. To avoid the influence on water quality monitoring from the wastewater discharge, the in-situ water quality monitoring will be conducted outside the silt screen for the checking of relation from the Project when the water quality inside the silt screen exceed the Action or Limit Level.</p>
									<p>Remarks / Other Obs: The turbidity exceedances were confirmed related to accumulation of wastewater and debris from the uncharged discharge pipe inside the silt screen, therefore it was concluded non-project related exceedances. As such, the monitoring frequency has returned to three times per week at mid-ebb and mid-flood since 27 May 2011.</p>



Ref no.	Date	Time	Tidal	Location	Parameters (Unit)	Measured	Action Level	Limit Level	Follow-up action
X_10C260	27-May-11	9:54	Ebb	C3	DO (mg/L)	5.24	3.02	2.44	Possible reason: Accumulation of wastewater and debris from the discharge pipe inside the silt screen
					Turbidity (NTU)	13.40	11.35	12.71	
					SS (mg/L)	19.50	18.42	27.54	
									<p>Action taken / to be taken: Immediate repeated measurements had conducted to confirm the exceedances. Notification of exceedances were immediate informed to Contractor of HK/2009/01, RE and IEC when the exceedances were recorded.</p> <p>Additional turbidity measurement was immediately taken outside the silt screen when the Action Level or Limit Level exceedance was recorded inside the silt screen. The turbidity levels outside the silt screen were as below:                  27 May 2011: 3.78NTU                  Investigation found that the turbidity levels outside the silt screen on 27 May 2011 was well below the Action Level while turbidity exceedances were recorded inside the silt screen.</p> <p>A discharge pipe for HKCEC was discovered located in between the C3 intake inlets and inside the silt screen by Contractor on 24 May 2011. Cooling water and wastewater from the sump pit are irregularly discharged under the dome. Diversion design of the discharge pipe is under discussion between Contractor and Stakeholder to minimize the impact from the discharge pipe. To avoid the influence on water quality monitoring from the wastewater discharge, the in-situ water quality monitoring will be conducted outside the silt screen for the checking of relation from the Project when the water quality inside the silt screen exceed the Action or Limit Level.</p> <p>Remarks / Other Obs: The turbidity exceedances were confirmed related to accumulation of wastewater and debris from the uncharged discharge pipe inside the silt screen, therefore it was concluded non-project related exceedances. As such, the monitoring frequency has returned to three times per week at mid-ebb and mid-flood since 27 May 2011.</p>