AECOM

China Harbour Engineering Company Limited

Contract No. HY/2010/02

Hong Kong – Zhuhai – Macao Bridge Hong Kong Boundary Crossing Facilities – Reclamation Works

Quarterly EM&A Report for June 2012- August 2012

[12/2012]

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ENVIRON

Ref.: HYDHZMBEEM00_0_0555L.12

7 December 2012

Engineer's Representative
Ove Arup & Partners
Level 5, Festival Walk
80 Tat Chee Avenue
Kowloon Tong, Kowloon
Hong Kong

By Fax (2268 3970) and By Post

Attention: Mr. Michael Lo

Dear Mr. Lo,

Re: Agreement No. CE 48/2011 (EP)
Environmental Project Office for the
HZMB Hong Kong Link Road, HZMB Hong Kong Boundary Crossing Facilities, and Tuen Mun-Chek Lap Kok Link – Investigation

Contract No. HY/2010/02
Hong Kong – Zhuhai – Macao Bridge
Hong Kong Boundary Crossing Facilities – Reclamation Works
Quarterly Environmental Monitoring & Audit Report for June to August 2012 (Rev.0)

Reference is made to the Environmental Team's submission of the Quarterly Environmental Monitoring & Audit Report for June to August 2012 (letter ref. 60249820/C/RMKY12120603 dated 6 December 2012) copied to us by E-mail on 6 December 2012.

Please be informed that we have no adverse comment on the captioned report.

In addition, we would like to remind the Environmental Team Leader (ETL) to manage the dolphin specialist team as part of the ET such that the quality of dolphin monitoring report will be improved and to ensure all environmental monitoring and audit data submitted are true, valid and correct.

Thank you very much for your kind attention and please do not hesitate to contact the undersigned should you have any queries.

Yours sincerely,

Raymond Dai
Independent Environmental Checker

c.c.	HyD	Mr. Matthew Fung	(By Fax: 3188 6614)
	HyD	Mr. Wai-ping Lee	(By Fax: 3188 6614)
	AECOM	Ms. Echo Leong	(By Fax: 2317 7609)
	CHEC	Mr. C M Wong	(By Fax: 2578 0413)

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EXECUTIVE SUMMARY

Contract No. HY/2010/02 – Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Reclamation Work (here below, known as "the Project") mainly comprises reclamation at the northeast of the Hong Kong International Airport of an area of about 130-hectare for the construction of an artificial island for the development of the Hong Kong Boundary Crossing Facilities (HKBCF), and about 19-hectare for the southern landfall of the Tuen Mun - Chek Lap Kok Link (TMCLKL). It is a designated project and is governed by the current permits for the Project, i.e. the amended Environmental Permits (EPs) issued on 7 March 2012 (EP-353/2009/D) and 8 December 2011 (EP-354/2009/A) (for TMCLKL Southern Landfall Reclamation only).

Ove Arup & Partners Hong Kong Limited (Arup) was appointed by Highways Department (HyD) as the consultants for the design and construction assignment for the Project's reclamation works (i.e. the Engineer for the Project).

China Harbour Engineering Company Limited (CHEC) was awarded by HyD as the Contractor to undertake the construction work of the Project.

ENVIRON Hong Kong Ltd. was employed by HyD as the Independent Environmental Checker (IEC) and Environmental Project Office (ENPO) for the Project.

AECOM Asia Co. Ltd. (AECOM) was appointed by CHEC to undertake the role of Environmental Team for the Project for carrying out the environmental monitoring and audit (EM&A) works.

The construction phase of the Project under the EPs was commenced on 12 March 2012 and will be tentatively completed by early Year 2016. The EM&A programme, including air quality, noise, water quality and dolphin monitoring and environmental site inspections, was commenced on 12 March 2012.

This report documents the findings of EM&A works conducted in the period between 1 June 2012 and 31 August 2012. As informed by the Contractor, major activities in the reporting period were:-

Marine-based Works
- Geotextile laying and fabrication;
- Stone column installation trial;
- Stone column installation
- Construction of cellular walls;
- Silt curtain fabrication and deployment; and
- Stone blankets laying

Land-based Works
- Site office erection and construction at Works Area WA2;
- Silt curtain fabrication at Works area WA2&WA4;
- Constructing site access at Works Area WA2 to Ying Hei Road, Tung Chung;
- Public Works Regional Laboratory erection and construction at Works Area WA3;
- Geotextile fabrication at Works Area WA2 & WA4; and
- Stone column and cellular wall installation barges setup and their maintenance works at Works Area WA4.
- Maintenance works of Public Works Regional Laboratory at Works Area WA3;

A summary of monitoring and audit activities conducted in the reporting period is listed below:

24-hour Total Suspended Particulates (TSP) monitoring	16 sessions
1-hour TSP monitoring	16 sessions
Noise monitoring	13 sessions
Impact water quality monitoring	40 sessions
Impact dolphin monitoring	8 surveys
Joint Environmental site inspection	13 sessions

Breaches of Action and Limit Levels for Air Quality

No exceedance of Action and Limit Level was recorded for 1-hour TSP and 24-hour TSP monitoring in the reporting quarter.

Nevertheless, the Contractor was recommended to continue implementing existing dust mitigation measures.

Breaches of Action and Limit Levels for Noise

One (1) Limit Level exceedance of impact noise monitoring was recorded in the reporting quarter.

Investigation results show that the exceedances were not due to the Project works. The Contractor was recommended to continue implementing existing noise mitigation measures.

Breaches of Action and Limit Levels for Water Quality

Two (2) Action Level exceedances were recorded at measured suspended solid (SS) in the reporting quarter.

Investigation results show that the exceedances were not due to the Project works. Nevertheless, the Contractor was reminded to ensure provision of ongoing maintenance to the silt curtains.

Triggering of Event and Action Plan for Impact Dolphin Monitoring

No triggering of Event and Action Plan for impact dolphin monitoring was noted in the reporting quarter.

Implementation Status and Review of Environmental Mitigation Measures

Most of the recommended mitigation measures, as included in the EM&A programme, were implemented properly in the reporting quarter, except inability of setting up and carrying out impact air quality monitoring at AMS6 (Dragonair/CNAC (Group) Building) were noted. Liaison with relevant parties for permission on access to the premise for setting up and carrying out impact air quality monitoring works at AMS6 will be continued.

Supplementary dolphin surveys have been conducted during June and July 2012 to supplement insufficient dolphin survey efforts in the previous reporting quarter and to ensure that adequate survey efforts will be maintained.

The recommended environmental mitigation measures effectively minimize the potential environmental impacts from the Project. The EM&A programme effectively monitored the environmental impacts from the construction activities and ensure the proper implementation of mitigation measures. No particular recommendation was advised for the improvement of the programme.

Moreover, regular review and checking on the construction methodologies, working processes and plants were carried out to ensure the environmental impacts were kept minimal and recommended environmental mitigation measures were implemented effectively.

Complaint, Notification of Summons and Successful Prosecution

No Project related environmental complaint was received in the reporting quarter.

No notification of summons and successful prosecution was received in the reporting quarter.

1 INTRODUCTION

1.1 Background

1.1.1 Contract No. HY/2010/02 – Hong Kong-Zhuhai-Macao Bridge Hong Kog Boundary Crossing Facilities – Reclamation Work (here below, known as "the Project") mainly comprises seawall construction and reclamation at the northeast of the Hong Kong International Airport of an area of about 130-hectare for the construction of an artificial island for the development of the Hong Kong Boundary Crossing Facilities (HKBCF), and about 19-hectare for the southern landfall of the Tuen Mun - Chek Lap Kok Link (TMCLKL).

1.1.2 The environmental impact assessment (EIA) reports (Hong Kong – Zhuhai – Macao Bridge Hong Kong Boundary Crossing Facilities – EIA Report (Register No. AEIAR-145/2009) (HKBCFEIA) and Tuen Mun – Chek Lap Kok Link – EIA Report (Register No. AEIAR-146/2009) (TMCLKLEIA), and their environmental monitoring and audit (EM&A) Manuals (original EM&A Manuals), for the Project were approved by Environmental Protection Department (EPD) in October 2009.

1.1.3 EPD subsequently issued the Environmental Permit (EP) for HKBCF in November 2009 (EP-353/2009) and the Variation of Environmental Permit (VEP) in June 2010 (EP-353/2009/A), November 2010 (EP-353/2009/B), November 2011 (EP-353/2009/C) and March 2012 (EP-353/2009/D). Similarly, EPD issued the Environmental Permit (EP) for TMCLKL in November 2009 (EP-354/2009) and the Variation of Environmental Permit (VEP) in December 2010 (EP-354/2009/A).

1.1.4 The Project is a designated project and is governed by the current permits for the Project, i.e. the amended 1.1.5 EPs issued on 7 March 2012 (EP-353/2009/D) and 8 December 2011 (EP-354/2009/A) (for TMCLKL Southern Landfall Reclamation only).

1.1.5 A Project Specific EM&A Manual, which included all project-relation contents from the original EM&A Manuals for the Project, was issued in May 2012.

1.1.6 Ove Arup & Partners Hong Kong Limited (Arup) was appointed by Highways Department (HyD) as the consultants for the design and construction assignment for the Project's reclamation works (i.e. the Engineer for the Project).

1.1.7 China Harbour Engineering Company Limited (CHEC) was awarded by HyD as the Contractor to undertake the construction work of the Project.

1.1.8 ENVIRON Hong Kong Ltd. was employed by HyD as the Independent Environmental Checker (IEC) and Environmental Project Office (ENPO) for the Project.

1.1.9 AECOM Asia Co. Ltd. (AECOM) was appointed by CHEC to undertake the role of Environmental Team for the Project for carrying out the EM&A works.

1.1.10 The construction phase of the Project under the EPs was commenced on 12 March 2012 and will be tentatively completed by early Year 2016.

1.1.11 According to the Project Specific EM&A Manual, there is a need of an EM&A programme including air quality, noise, water quality and dolphin monitoring and environmental site inspections. The EM&A programme of the Project commenced on 12 March 2012.

1.2 Scope of Report

1.2.1 This is the second quarterly EM&A Report under the Contract No. HY/2010/02 Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Reclamation Works. This report presents a summary of the environmental monitoring and audit works, list of activities and mitigation measures proposed by the ET for the Project from 1 June 2012 and 31 August 2012.

1.3 Project Organization

1.3.1 The project organization structure is shown in Appendix A. The key personnel contact names and numbers are summarized in Table 1.1.

Table 1.1 Contact Information of Key Personnel

Party	Position	Name	Telephone	Fax
Engineer's Representative (ER) (Ove Arup & Partners Hong Kong Limited)	Chief Resident Engineer	Michael Lo	2528 3031	2668 3970
IEC / ENPO (ENVIRON Hong Kong Limited)	Independent Environmental Checker	Raymond Dai	3743 0788	3548 6988
	Environmental Project Office Leader	Y.H. Hui	3743 0788	3548 6988
Contractor (China Harbour Engineering Company Limited)	General Manager (S&E)	Daniel Leung	3157 1086	2578 0413
	Environmental Officer	C. M. Wong	3157 1086	2578 0413
	24-hour Hotline	Alan C.C. Yeung	9448 0325	--
ET (AECOM Asia Company Limited)	ET Leader	Echo Leong	3922 9280	2317 7609

1.4 Summary of Construction Works

1.4.1 The construction phase of the Project under the EP commenced on 12 March 2012.

1.4.2 As informed by the Contractor, details of the major works carried out in the reporting quarter are listed below:-

Marine-based Works
- Geotextile laying and fabrication;
- Stone column installation trial;
- Stone column installation
- Construction of cellular walls;
- Silt curtain fabrication and deployment; and
- Stone blankets laying

Land-based Works
- Site office erection and construction at Works Area WA2;
- Silt curtain fabrication at Works area WA2 & WA4;
- Constructing site access at Works Area WA2 to Ying Hei Road, Tung Chung;
- Public Works Regional Laboratory erection and construction at Works Area WA3;

- Geotextile fabrication at Works Area WA2 & WA4; and
- Stone column and cellular wall installation barges setup and their maintenance works at Works Area WA4.
- Maintenance works of Public Works Regional Laboratory at Works Area WA3;

1.4.3 The 3-month rolling construction programme of the Project is shown in Appendix B.

1.4.4 The general layout plan of the Project site showing the detailed works areas is shown in Figure 1.

1.4.5 The environmental mitigation measures implementation schedule are presented in Appendix C.

2 SUMMARY OF EM&A PROGRAMME REQUIREMENTS

2.1 Monitoring Parameters

2.1.1 The Project Specific EM&A Manual designated 4 air quality monitoring stations, 2 noise monitoring stations, 21 water monitoring stations (9 Impact Stations, 7 Sensitive Receiver Stations and 5 Control/Far Field Stations) to monitor environmental impacts on air quality, noise and water quality respectively. Pre-set and fixed transect line vessel based dolphin survey was required in two AFCD designated areas (Northeast and Northwest Lantau survey areas). The impact dolphin monitoring at each survey area should be conducted twice per month.

2.1.2 For impact air quality monitoring, monitoring locations AMS2 (Tung Chung Development Pier) and AMS7 (Hong Kong SkyCity Marriott Hotel) were set up at the proposed locations in accordance with Project Specific EM&A Manual. For AMS6 (Dragonair/CNAC (Group) Building), permission on setting up and carrying out impact monitoring works was sought, however, access to the premise has not been granted yet on this report issuing date. Liaison with relevant parties for permission on access to the premise for setting up and carrying out impact air quality monitoring works at AMS6 will be continued. For monitoring location AMS3 (Ho Yu College), as proposed in the Project Specific EM&A Manual, approval for carrying out impact monitoring could not be obtained from the principal of the school. Permission on setting up and carrying out impact monitoring works at nearby sensitive receivers, like Caribbean Coast and Coastal Skyline, was also sought. However, approvals for carrying out impact monitoring works within their premises were not obtained. Impact air quality monitoring was conducted at site boundary of the site office area in Works Area WA2 (AMS3A) respectively. Same baseline and Action Level for air quality, as derived from the baseline monitoring data recorded at Ho Yu College, was adopted for this alternative air quality location.

2.1.3 For impact noise monitoring, monitoring locations NMS2 (Seaview Crescent Tower 1) was set up at the proposed locations in accordance with Project Specific EM&A Manual. However, for monitoring location NMS3 (Ho Yu College), as proposed in the Project Specific EM&A Manual, approval for carrying out impact monitoring could not be obtained from the principal of the school. Permission on setting up and carrying out impact monitoring works at nearby sensitive receivers, like Caribbean Coast and Coastal Skyline, was also sought. However, approvals for carrying out impact monitoring works within their premises were not obtained. Impact noise monitoring was conducted at site boundary of the site office area in Works Area WA2 (NMS3A) respectively. Same baseline noise level, as derived from the baseline monitoring data recorded at Ho Yu College was adopted for this alternative noise monitoring location.

2.1.4 In accordance with the Project Specific EM&A Manual, twenty-one stations were designated for impact water quality monitoring. The nine Impact Stations (IS) were chosen on the basis of their proximity to the reclamation and thus the greatest potential for water quality impacts, the seven Sensitive Receiver Stations (SR) were chosen as they are close to the key sensitive receives and the five Control/ Far Field Stations (CS) were chosen to facilitate comparison of the water quality of the IS stations with less influence by the Project/ ambient water quality conditions.

2.1.5 Due to safety concern and topographical condition of the original locations of SR4 and SR10B, alternative impact water quality monitoring stations, naming as SR4(N) and SR10B(N), were adopted, which are situated in vicinity of the original impact water quality monitoring stations (SR4 and SR10B) and could be reachable. Same baseline and Action Level for water quality, as derived from the baseline monitoring data recorded, were adopted for these alternative impact water quality monitoring stations.

2.1.6 The monitoring locations used during the reporting period are depicted in Figures 2, 3 and 4 respectively.

2.1.7 The Project Specific EM&A Manual also required environmental site inspections for air quality, noise, water quality, chemical, waste management, marine ecology and landscape and visual impact.

2.2 Environmental Quality Performance (Action/Limit Levels)

2.2.1 The environmental quality performance limits (i.e. Action and/or Limit Levels) of air and water quality monitoring were derived from the baseline air and water quality monitoring results at the respective monitoring stations, while the environmental quality performance limits of noise monitoring were defined in the EM&A Manual.

2.2.2 The environmental quality performance limits of air quality, noise and water monitoring are given in Appendix D.

2.3 Environmental Mitigation Measures

2.3.1 Relevant environmental mitigation measures were stipulated in the Particular Specification and EPs (EP-353/2009/D and EP-354/2009/A) (for TMCLKL Southern Landfall Reclamation only) for the Contractor to adopt. A list of environmental mitigation measures and their implementation statuses are given in Appendix C.

3 MONITORING RESULTS

3.1 Air Quality Monitoring

3.1.1 In accordance with the Project Specific EM&A Manual, impact 1-hour Total Suspended Particulates (TSP) monitoring was conducted for at least three times every 6 days, while impact 24-hour TSP monitoring was carried out for at least once every 6 days at the 4 monitoring stations (AMS2, AMS3A, AMS6 and AMS7).

3.1.2 The monitoring locations for impact air quality monitoring are depicted in Figure 2. However, for AMS6 (Dragonair/CNAC (Group) Building), permission on setting up and carrying out impact monitoring works was sought, however, access to the premise has not been granted yet on this report issuing date.

3.1.3 The weather was mostly sunny, with occasional cloudy and occasional rainy in the reporting quarter. The major dust source in the reporting period included construction activities from the Project, as well as nearby traffic emissions.

3.1.4 The number of monitoring events and exceedances recorded in each month of the reporting quarter are presented in Table 3.1 and Table 3.2 respectively.

Table 3.1 Summary of Number of Monitoring Events for 1-hr & 24-hr TSP Concentration

Monitoring Parameter	Location	No. of monitoring events		
		Jun 12	Jul 12	Aug 12
1-hr TSP	AMS2	15	15	18
	AMS3A	15	15	18
	AMS7	15	15	18
24-hr TSP	AMS2	5	5	6
	AMS3A	5	5	6
	AMS7	5	5	6

Table 3.2 Summary of Number of Exceedances for 1-hr & 24-hr TSP Monitoring

Monitoring Parameter	Location	Level of Exceedance	Level of Exceedance		
			Jun 12	Jul 12	Aug 12
1-hr TSP	AMS2	Action	0	0	0
		Limit	0	0	0
	AMS3A	Action	0	0	0
		Limit	0	0	0
	AMS7	Action	0	0	0
		Limit	0	0	0
		Total	***0***	***0***	***0***
24-hr TSP	AMS2	Action	0	0	0
		Limit	0	0	0
	AMS3A	Action	0	0	0
		Limit	0	0	0
	AMS7	Action	0	0	0
		Limit	0	0	0
		Total	***0***	***0***	***0***

3.1.5 All impact 1-hour TSP monitoring results at all monitoring locations were below the Action and Limit Levels in the reporting quarter.

3.1.6 All impact 24-hour TSP monitoring results at all monitoring locations were below the Action and Limit Levels in the reporting quarter.

Nevertheless, the Contractor was recommended to continue implementing existing dust mitigation measures.

3.1.7 The graphical plots of the impact air quality monitoring results are provided in Appendix E. No specific trend of the monitoring results or existence of persistent pollution source was noted.

3.2 Noise Monitoring

3.2.1 Impact noise monitoring was conducted at the 2 monitoring stations (NMS2 and NMS3A) for at least once per week during 07:00 – 19:00 in the reporting quarter.

3.2.2 The monitoring locations used during the reporting period are depicted in Figure 2.

3.2.3 Major noise sources during the noise monitoring included construction activities of the Project and nearby traffic noise.

3.2.4 The number of impact noise monitoring events and exceedances are summarized in Table 3.3 and Table 3.4 respectively

Table 3.3 Summary of Number of Monitoring Events for Impact Noise

Monitoring Parameter	Location	No. of monitoring events		
		Jun 12	Jul 12	Aug 12
	NMS2	4	4	5
	NMS3A	4	4	5

Table 3.4 Summary of Number of Monitoring Exceedances for Impact Noise

Monitoring Parameter	Location	Level of Exceedance	Level of Exceedance		
			Jun 12	Jul 12	Aug 12
	NMS2	Action	0	0	0
		Limit	0	0	0
	NMS3A	Action	0	0	0
		Limit	**1 (27 Jun 12)**	0	0
		Total	***1***	***0***	***0***

3.2.5 One (1) Limit Level exceedance of impact noise monitoring was recorded in the reporting quarter at NMS3A: Site Boundary of Site Office (WA2) on the 27th June 2012.

3.2.6 According to information provided by the Contractor and on-site observations, trench excavation (near access road) and general site clearance were the major land-based construction activity being undertaken at Works Area WA2 during the monitoring period.

3.2.7 As informed by the Contractor, stone blanket laying at Portion B and Portion E1 was the major marine-based construction activities being undertaken during the monitoring period.

3.2.8 Construction activities, like sheet piling, percussive piling and excavation, were carrying out in other private developments (which are located at eastern and southern side of the Works Area WA2) during the course of monitoring, which are close to the monitoring station NMS3A and contribute to the measured noise level.

3.2.9 The noise exceedance was therefore considered not to be due to the Project works.

3.2.10 The Contractor was recommended to continue implementing existing noise mitigation measures.

3.2.11 The graphical plots of the trends of the monitoring results are provided in Appendix F. No specific trend of the monitoring results or existence of persistent pollution source was noted.

3.3 Water Quality Monitoring

3.3.1 Impact water quality monitoring was conducted 3 times per week during mid-ebb and mid-flood tides at 21 water monitoring stations (9 Impact Stations, 7 Sensitive Receiver Stations and 5 Control/Far Field Stations).

3.3.2 The monitoring locations used during the reporting period are depicted in Figure 3.

3.3.3 Two (2) exceedances were recorded for measured suspended solid (SS) in the reporting quarter. Number of exceedances recorded in the reporting quarter at each impact station are summarised in Table 3.5.

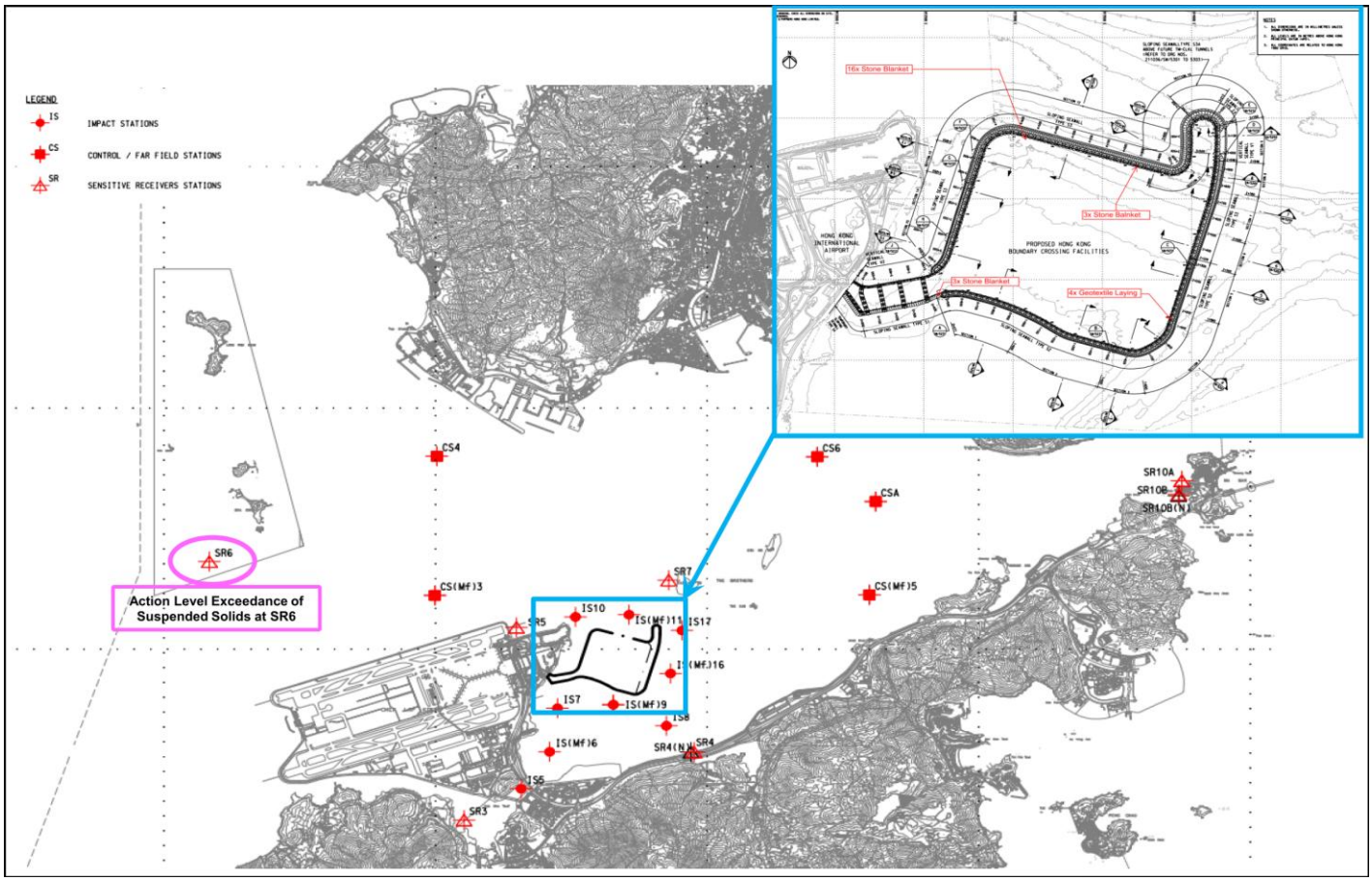
Table 3.5 Summary of Water Quality Exceedances in Jun-Aug 2012

Station	Exceedance Level	DO (S&M)		DO (Bottom)		Turbidity		SS		Total	
		Ebb	Flood	Ebb	Flood	Ebb	Flood	Ebb	Flood	Ebb	Flood
IS5	Action	0	0	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0	0	0
IS(Mf) 6	Action	0	0	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0	0	0
IS7	Action	0	0	0	0	0	0	0	1 **(18 June 12)**	0	1 **(18 June 12)**
	Limit	0	0	0	0	0	0	0	0	0	0
IS8	Action	0	0	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0	0	0
IS(Mf) 9	Action	0	0	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0	0	0
IS10	Action	0	0	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0	0	0
IS(Mf) 11	Action	0	0	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0	0	0
IS(Mf) 16	Action	0	0	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0	0	0
IS17	Action	0	0	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0	0	0
SR3	Action	0	0	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0	0	0
SR4 (N)	Action	0	0	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0	0	0
SR5	Action	0	0	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0	0	0
SR6	Action	0	0	0	0	0	0	1 **(4 June 12)**	0	1 **(4 June 12)**	0
	Limit	0	0	0	0	0	0	0	0	0	0
SR7	Action	0	0	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0	0	0
SR10A	Action	0	0	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0	0	0
SR10B (N)	Action	0	0	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0	0	0
Total	**Action**	0	0	0	0	0	0	0	0	2 **(4&18 June 12)**	
	Limit	0	0	0	0	0	0	0	0	0	

Note: S: Surface;
M: Mid-depth;

3.3.4 Two (2) Action Level exceedances were recorded at measured suspended solid (SS) in the reporting month. The Action Level exceedances were recorded on 4 June 2012 during mid-ebb tide at Sensitive Receiver Station SR6 and 18 June 2012 during mid-flood tide at Impact Station IS7, where 34.0mg/L and 30.0 mg/L of SS was recorded for SR6 and IS7 respectively.

3.3.5 For exceedance recorded at SR6, it was found that only preparation works, like geotextile laying and stone blanket laying, which are not likely to cause water quality impact, were carried out during the monitoring period at mid-ebb tide. Location plan showing the locations of the mentioned works is shown below:

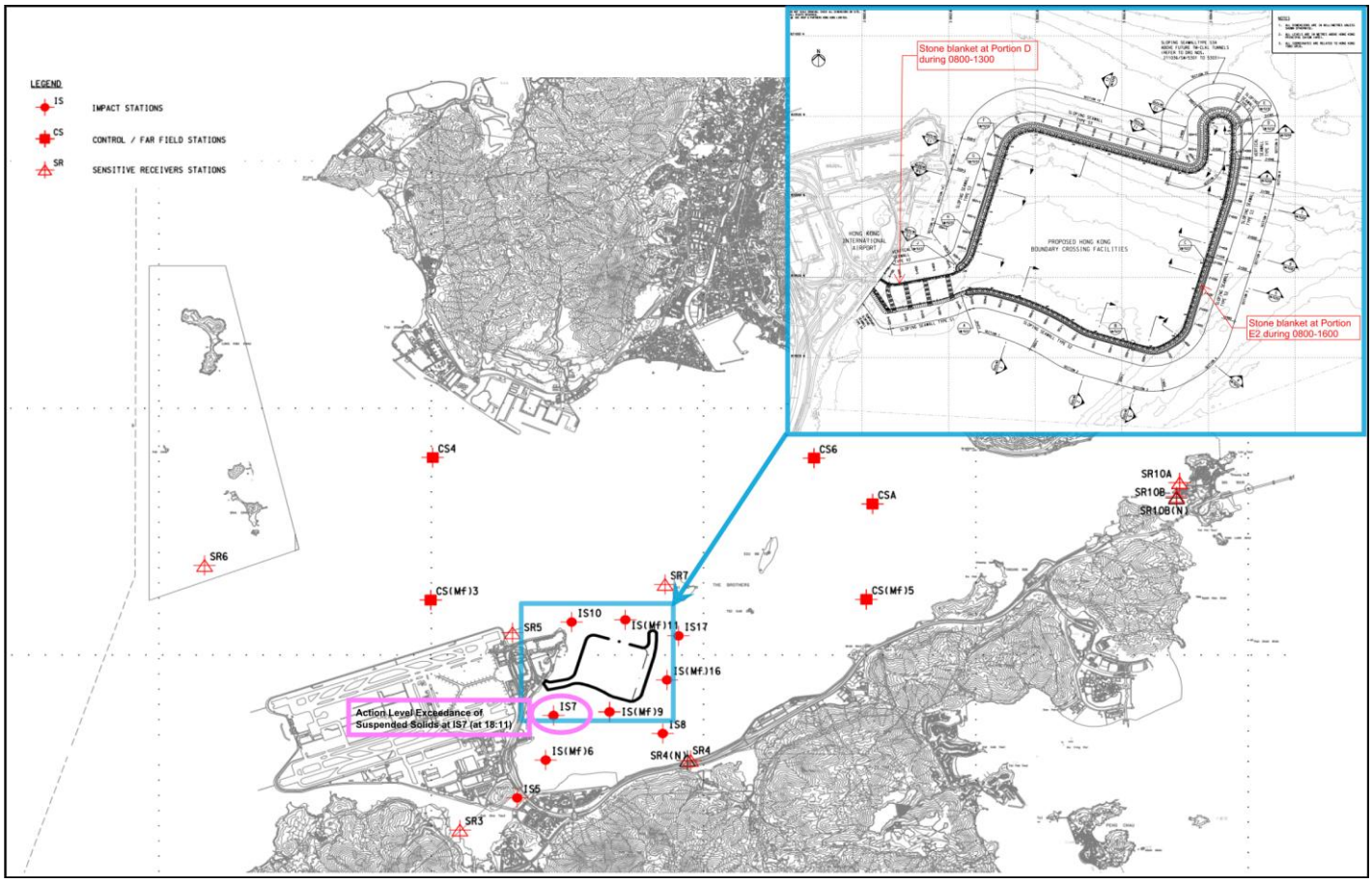


3.3.5.1 Monitoring Station at SR6 was considered as an upstream station during mid-ebb tide. Turbidity and SS levels recorded at CS(Mf)3 and CS4 on the monitoring sate were well below the Action and Limit Levels.

3.3.5.2 Turbidity and SS values recorded at Impact Stations closer to the works area (e.g. IS10, IS(Mf)11 and IS17) were all below the Action and Limit Level during the mid-ebb tide on the same day.

3.3.5.3 The exceedance was then considered as non-Project related.

3.3.6 For exceedance recorded at IS7, it was found that only preparation works, like stone blanket laying, which is not likely to cause water quality impact, was carried out between 08:00 to 16:00 on the monitoring day. No stone column installation trial was conducted on the monitoring day. No major marine based construction activity was carried out during the monitoring period of mid-flood tide. A location plan showing the locations of the mentioned works is shown below:



3.3.6.1 Turbidity and SS values recorded at Impact Stations closer to the works area (e.g. IS(Mf)9 and IS10) were all below the Action and Limit Level during the mid-flood tide on the same day.

3.3.6.2 Based on the on-site observation, strong rough current was noted during the monitoring period. Also, Tropical Cyclone Warning Signal No.1 was hoisted by HKO during the monitoring period.

3.3.6.3 It is considered that the Action Level exceedance as non-Project related.

3.3.7 Generally, water quality impact sources during the water quality monitoring were potentially activities of the Project and nearby operating vessels by other parties.

3.3.8 Nevertheless, the Contractor was reminded to ensure provision of ongoing maintenance to the silt curtains.

3.3.9 Please refer to the monthly EM&A report (June 2012 Version 0) for the details of the captioned exceedances.

3.3.10 The graphical plots of the trends of the monitoring results are provided in Appendix G. No specific trend of the monitoring results or existence of persistent pollution source was noted.

3.4 Dolphin Monitoring

3.4.1 In accordance with the Project Specific EM&A Manual, pre-set and fixed transect line vessel based dolphin survey was required in two AFCD designated areas (Northeast (NEL) and Northwest Lantau (NWL) survey areas). The impact dolphin monitoring at each survey area should be conducted twice per month.

3.4.2 The impact dolphin monitoring conducted is vessel-based and combines line-transect and photo-ID methodology, which have adopted same survey methodologies as that adopted during baseline monitoring to facilitate comparisons between datasets.

3.4.3 The layout map of impact dolphin monitoring have been provided by AFCD and is shown in Figure 4.

3.4.4 The effort summary and sighting details during the reporting period are shown in the Appendix H. A summary of key findings of the dolphin surveys completed during the reporting quarter is shown below:

Table 3.6 Summary of Key Dolphin Survey Findings in Jun-Aug 2012

Number of Impact Surveys Completed^	8[#]
Planned Distance Travelled under Favourable On-Effort Condition	678km
Survey Distance Travelled under Favourable On- Effort Condition	916.2km
Number of Sightings	62 sightings (47 sightings are ”on effort” (which are all under favourable condition), 15 “sightings are opportunistic”)
Number of dolphin individual sighted	182 individuals (the best estimated group size)
Dolphin Encounter Rate	NEL: 6.0% NWL: 5.3%
Dolphin Group Size (for both NEL and NWL)	Average of 3.2±2.4(SD) Varied from 1-11 individuals
Most Often frequent dolphin sighting area	NWL: Lung Kwu Chau and Sha Chau Marine Park NEL: area adjacent to the northeast adge of the airport platform and to the north of HKBCF.

Remarks:

^ Completion of line transect survey of NEL and NWL survey area once was counted as one complete survey.

[#] 2 supplementary dolphin surveys have been conducted during June and July 2012 to supplement insufficient dolphin survey efforts in the previous reporting quarter and to ensure that adequate survey efforts will be maintained.

3.4.5 No triggering of Event and Action Plan for impact dolphin monitoring was noted in the reporting quarter.

3.4.6 Details of the comparison and analysis methodology and their findings and discussions are annexed in Appendix H.

3.4.7 Also, the recommended mitigation measures, such as implementation of dolphin exclusion zone during deployment of perimeter silt curtain system, implementation of dolphin watching plan for enclosed areas after deployment of perimeter silt curtain system, controlling of vessel speed and travelling routes and provision of decoupling measures to compressors and other equipment on working vessels, which are in place to lessen direct impact from construction activities to individual dolphins, are currently being implemented consistently. (Please refer to Appendix C -EMIS for more mitigation measures).

3.5 Environmental Site Inspection and Audit

3.5.1 Site Inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. In the reporting quarter, 13 site inspections were carried out. Recommendations on remedial actions were given to the Contractors for the deficiencies identified during the site audits.

3.5.2 Particular observations during the site inspections are described below:

Air Quality

3.5.3 The Contractor was reminded to check the operating plants on barge regularly and carry out maintenance /repair (if necessary), to avoid any dark smoke emission.

Noise

3.5.4 No adverse observation was identified in the reporting month.

Water Quality

3.5.5 Parts of the curtains were found distorted. Distorted silt curtains were noted at boundaries of the works areas, at Portion C2a and Portion A and parts of the silt curtain system at Portion B, D and E2. The Contractor was informed to rectify the situation swiftly.

3.5.6 Debris and wastes were found inside the drainage channel at Works Area WA4. The Contractor was reminded to clear the debris and wastes regularly and maintain the drainage channels properly.

3.5.7 Silty plume was noted around the stone column installation areas of FTP19 at Portion C2c. The Contractor was advised to check the condition of the silt curtain systems installed regularly and review the arrangement of localized primary silt curtains to minimize any leakage from works. (Under follow-up status)

Chemical and Waste Management

3.5.8 Chemical container was found improperly stored on the barge FTP23 at Portion A and on barge FTB 16 at Portion D. The Contractor was reminded to properly store chemical container in works area with provision of drip tray.

3.5.9 Oil drums were found improperly stored on barge San Hang Bo 601 at Portion C2a, San Hang Bo 208 (at Portion E2), San Hang Bo 402 (at Portion B) and FTB 17 (at Portion C2a) and Works Area WA4., and used oil drums on barge San Hang Bo 208 at Portion C2a were found improperly treated. Oil drums were also found improperly stored on barge Ever Shine 668 at Portion C2a and FTB 20 at Portion A. Drip trays should be provided to oil drums stored within works areas to retain any leaked oil if there is such case. On the other hand, used oil drums should be properly cleaned and labeled.

3.5.10 Oil drums, chemical containers and batteries were found improperly stored on barge San Hang Bo 401 at Portion C2a. Drip trays should be provided to oil drums, chemical containers and batteries stored within works areas to retain any leaked chemicals/oil if there is such case.

3.5.11 Moreover, oil stains were noted on the barge San Hang Bo 208 (where power pack where vibratory clamp placed), on the barge Ever Shine 668 at Portion C2a (where power pack and vibratory clamp placed) and on the barge deck of barge FTB 17 at Portion C2a. Also, similar case was noted near the wire bundle at the barge FTB19. Proper measures like drip trays/tarpaulin sheets should be provided to retain any leaked oil and oil stains should be cleared and disposed of as chemical wastes.

3.5.12 Power packs, generators and vibratory clamp were found improperly stored on barge San Hang Bo 208 (at Portion E2) and 402 (at Portion B). The Contractor should provide proper measures, like drip

trays and tarpaulin sheet coverage, to retain any leaked oil from the plants. Oil stains on barge decks should be cleared and the absorbents should be treated as chemical wastes.

3.5.13 Waste skip placed at Works Area WA4 was full and stockpile of C&D wastes was also noted. The Contractor was reminded to sort the C&D wastes properly and dispose of the C&D wastes timely.

3.5.14 General refuse was stockpiled on barge San Hang Bo 208, 601 at Portion C2a and on barge FTB 16 at Portion D. The Contractor was reminded to remove the general refuse in a timely manner, designate areas and provide proper containers to store general refuse generated in works areas. The Contractor was reminded to clear and sort the general refuse within works areas regularly and properly.

3.5.15 Oily mixtures accumulated in the bunding area and drip tray were observed at barge Ever Shine 668 at Portion A, barge San Hang Bo 401 at Portion C2a, barge FTB20 at Portion D, inside the drip trays provided at ring-type sheetpile installation frame (type B) at Portion B and the bunded areas and bin on barge FTP19 at Portion C2c. The Contractor was reminded to clear the oily mixture within works area regularly and disposal of as chemical waste. Regular review should be conducted for working barges to ensure sufficient measures and spill control kits were provided on working barges to avoid any spreading of leaked oil/chemicals. Tarpaulin sheet coverage was recommended to minimize the chance of water accumulation inside drip trays during rainstorm. Regular checking of the drip tray conditions should be carried out.

3.5.16 As a reminder, the Contractor should maintain patrol boats with Spill Kits, for control of any spills and collection of any floating waste, within marine works area.

3.5.17 It was noted that provision of drip tray to the power pack at barge San Hang Bo 209 at Portion E2 was undergoing, the Contractor was reminded to complete the drip tray construction work swiftly in order to retain any leaked oil if there is such case.

Landscape and Visual Impact

3.5.18 No adverse observation was identified in the reporting quarter.

Others

3.5.19 No adverse observation was identified in the reporting month.

3.5.20 The Contractor has rectified most of the observations as identified during environmental site inspection in the reporting quarter. Rectifications of remaining identified items are undergoing by the Contractor. Follow-up inspections on the status on provision of mitigation measures will be conducted to ensure all identified items are mitigated properly.

4 ADVICE ON THE SOLID AND LIQUID WASTE MANAGEMENT STATUS

4.1 Summary of Solid and Liquid Waste Management

4.1.1 The Contractor registered as a chemical waste producer for this project. Sufficient numbers of receptacles were available for general refuse collection and sorting.

4.1.2 As advised by the Contractor, 13.49 tonnes of general refuse were generated and disposed of in the reporting period. 272,809.2 m^3 of rock fill was imported for the Project use in the reporting period. Summary of waste flow table is detailed in Appendix I.

4.1.3 The Contractor is advised to properly maintain on site C&D materials and wastes collection, sorting and recording system, dispose of C&D materials and wastes at designated ground and maximize reuse / recycle of C&D materials and wastes. The Contractor is reminded to properly maintain the site tidiness and dispose of the wastes accumulated on site regularly and properly.

4.1.4 The Contractor is reminded that chemical waste containers should be properly treated and stored temporarily in designated chemical waste storage area on site in accordance with the Code of Practise on the Packaging, Labelling and Storage of Chemical Wastes.

5 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

5.1 Implementation Status of Environmental Mitigation Measures

5.1.1 In response to the site audit findings, the Contractors carried out corrective actions.

5.1.2 A summary of the Implementation Schedule of Environmental Mitigation Measures (EMIS) is presented in Appendix C. Most of the recommended mitigation measures, as included in the EM&A programme, were implemented properly in the reporting quarter, except inability of setting up and carrying out impact air quality monitoring at AMS6 (Dragonair/CNAC (Group) Building) were noted. Liaison with relevant parties for permission on access to the premise for setting up and carrying out impact air quality monitoring works at AMS6 will be continued.

5.1.3 Supplementary dolphin surveys have been conducted during June and July 2012 to supplement insufficient dolphin survey efforts in the previous reporting quarter and to ensure that adequate survey efforts will be maintained.

5.1.4 Moreover, regular review and checking on the construction methodologies, working processes and plants were carried out to ensure the environmental impacts were kept minimal and recommended environmental mitigation measures were implemented effectively.

5.1.5 Regular marine travel route for marine vessels were implemented properly in accordance to the submitted plan and relevant records were kept properly.

5.1.6 Regarding the implementation of dolphin monitoring and protection measures (i.e. implementation of Dolphin Watching Plan, Dolphin Exclusion Zone and Silt Curtain integrity Check), regular checking were conducted by the experienced MMOs within the works area to ensure no dolphin was trapped by the enclosed silt curtain systems. Any dolphin spotted within the enclosed silt curtain systems was reported and recorded. Relevant procedures were followed and measures were well implemented. Silt curtain systems were also inspected timely in accordance to the submitted plan. All inspection records were kept properly.

5.1.7 Acoustic decoupling measures on noisy plants on construction vessels were checked regularly and these measures were well implemented.

6 SUMMARY OF EXCEEDANCES OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMIT

6.1 Summary of Exceedances of the Environmental Quality Performance Limit

6.1.1 All 1-hour TSP and 24-hour TSP results were below the Action and Limit Level at all monitoring locations in the reporting quarter.

6.1.2 One (1) Limit Level exceedance of impact noise monitoring was recorded in the reporting quarter at NMS3A: Site Boundary of Site Office (WA2) on the 27th June 2012.

6.1.3 Construction activities carried out was obtained and analyzed. Investigation results show that the exceedances were not due to the Project works.

6.1.4 Two (2) Action Level exceedances were recorded at measured suspended solid (SS) in the reporting quarter. The Action Level exceedances were recorded on 4 June 2012 during mid-ebb tide at Sensitive Receiver Station SR6 and 18 June 2012 during mid-flood tide at Impact Station IS7.

6.1.5 Construction activities carried out, monitoring results recorded from other monitoring stations and on-site observations during the monitoring periods were obtained and analyzed. Based on the investigation findings, it was found that these exceedances were not due to the Project works.

6.1.6 Please refer to Section 3.1-3.3 and/or monthly EM&A report (June 2012 Version 0) for the details of the captioned exceedances.

6.1.7 Cumulative statistics on exceedances is provided in Appendix J.

7 SUMMARY OF COMPLAINTS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

7.1 Summary of Environmental Compliants, Notification of Summons and Successful Prosecutions

7.1.1 The Environmental Complaint Handling Procedure is annexed in Figure 5.

7.1.2 There was no Project related environmental complaint received in the reporting period.

7.1.3 No notification of summons and prosecution was received in the reporting period.

7.1.4 Statistics on complaints, notifications of summons and successful prosecutions are summarized in Appendix J.

8 COMMENTS, RECOMMENDATIONS AND CONCLUSIONS

8.1 Comments on mitigation measures

8.1.1 According to the environmental site inspections performed in the reporting quarter, the following recommendations were provided:

Air Quality Impact

- All working plants and vessels on site should be regularly inspected and properly maintained to avoid dark smoke emission.
- All vehicles should be washed to remove any dusty materials before leaving the site.
- Haul roads should be sufficiently dampened to minimize fugitive dust generation.
- Wheel washing facilities should be properly maintained and reviewed to ensure properly functioning.
- Temporary exposed slopes and open stockpiles should be properly covered.
- Enclosure should be erected for cement debagging, batching and mixing operations.
- Water spraying should be provided to suppress fugitive dust for any dusty construction activity.

Construction Noise Impact

- Quieter powered mechanical equipment should be used as far as possible.
- Noisy operations should be oriented to a direction away from sensitive receivers as far as possible.
- Proper and effective noise control measures for operating equipment and machinery on-site should be provided, such as erection of movable noise barriers or enclosure for noisy plants. Closely check and replace the sound insulation materials regularly
- Vessels and equipment operating should be checked regularly and properly maintained.
- Noise Emission Label (NEL) shall be affixed to the air compressor and hand-held breaker operating within works area.
- Better scheduling of construction works to minimize noise nuisance.

Water Quality Impact

- Regular review and maintenance of silt curtain systems, drainage systems and desilting facilities in order to make sure they are functioning effectively.
- Construction of seawall should be completed as early as possible.
- Regular inspect and review the loading process from barges to avoid splashing of material.
- Silt, debris and leaves accumulated at public drains, wheel washing bays and perimeter u-channels and desilting facilities should be cleaned up regularly.
- Silty effluent should be treated/ desilted before discharged. Untreated effluent should be prevented from entering public drain channel.
- Proper drainage channels/bunds should be provided at the site boundaries to collect/intercept the surface run-off from works areas.
- Exposed slopes and stockpiles should be covered up properly during rainstorm.

Chemical and Waste Management

- All types of wastes, both on land and floating in the sea, should be collected and sorted properly and disposed of timely and properly. They should be properly stored in designated areas within works areas temporarily.
- All chemical containers and oil drums should be properly stored and labelled.
- All plants and vehicles on site should be properly maintained to prevent oil leakage.
- All kinds of maintenance works should be carried out within roofed, paved and confined areas.
- All drain holes of the drip trays utilized within works areas should be properly plugged to avoid any oil and chemical waste leakage.
- Oil stains on soil surface and empty chemical containers should be cleared and disposed of as chemical waste.
- Regular review should be conducted for working barges and patrol boats to ensure sufficient measures and spill control kits were provided on working barges and patrol boats to avoid any spreading of leaked oil/chemicals.

Landscape and Visual Impact

- All existing, retained/transplanted trees at the works areas should be properly fenced off and regularly inspected.

8.2 Recommendations on EM&A Programme

8.2.1 The impact monitoring programme for air quality, noise, water quality and dolphin ensured that any deterioration in environmental condition was readily detected and timely actions taken to rectify any non-compliance. Assessment and analysis of monitoring results collected demonstrated the environmental impacts of the Project. With implementation of recommended effective environmental mitigation measures, the Project's environmental impacts were considered as environmentally acceptable. The weekly environmental site inspections ensured that all the environmental mitigation measures recommended were effectively implemented.

8.2.2 The recommended environmental mitigation measures, as included in the EM&A programme, effectively minimize the potential environmental impacts from the Project. Also, the EM&A programme effectively monitored the environmental impacts from the construction activities and ensure the proper implementation of mitigation measures. No particular recommendation was advised for the improvement of the programme.

8.3 Conclusions

8.3.1 The construction phase and EM&A programme of the Project commenced on 12 March 2012.

8.3.2 Impact 1-hour TSP, 24-hour TSP, noise, water quality and dolphin monitoring were carried out in the reporting period.

8.3.3 All impact 1-hour TSP and 24-hour TSP monitoring results complied with the Action and Limit Levels in the reporting period.

8.3.4 One (1) Limit Level exceedance of impact noise monitoring was recorded in the reporting quarter. The Contractor was recommended to continue implementing existing noise mitigation measures

8.3.5 Two (2) Action Level exceedances were recorded at measured suspended solid (SS) in the reporting quarter. Investigation results show that the exceedances were not due to the Project works. Nevertheless, the Contractor was reminded to ensure provision of ongoing maintenance to the silt curtains.

8.3.6 No triggering of Event and Action Plan for impact dolphin monitoring was noted in the reporting quarter.

8.3.7 Environmental site inspection was carried out twelve times in the reporting quarter. Recommendations on remedial actions were given to the Contractors for the deficiencies identified during the site audits.

8.3.8 No Project related environmental complaint was received in the reporting period.

8.3.9 No notification of summons and successful prosecution was received in the reporting period.

8.3.10 Apart from the above mentioned monitoring, most of the recommended mitigation measures, as included in the EM&A programme, were implemented properly in the reporting quarter, except inability of setting up and carrying out impact air quality monitoring at AMS6 (Dragonair/CNAC (Group) Building) were noted. Liaison with relevant parties for permission on access to the premise for setting up and carrying out impact air quality monitoring works at AMS6 will be continued.

8.3.11 Supplementary dolphin surveys have been conducted during June and July 2012 to supplement insufficient dolphin survey efforts in the previous reporting quarter and to ensure that adequate survey efforts will be maintained.

8.3.12 The recommended environmental mitigation measures effectively minimize the potential environmental impacts from the Project. The EM&A programme effectively monitored the environmental impacts from the construction activities and ensure the proper implementation of mitigation measures. No particular recommendation was advised for the improvement of the programme.

8.3.13 Moreover, regular review and checking on the construction methodologies, working processes and plants were carried out to ensure the environmental impacts were kept minimal and recommended environmental mitigation measures were implemented effectively.