

**Central Reclamation, Phase III
Quarterly EM&A Report No. 11
(February 2006 through April 2006)**

	Page
1. Introduction	1
1.1 Basic Project Information	1
1.2 Project Organisation and Management Structure	1
1.3 Works Undertaken	1
2. EM&A Requirements	2
2.1 Summary of Impact EM&A Requirements	2
2.2 Environmental Quality Performance Limits	3
2.3 Event Action Plan	3
3. Environmental Status.....	4
3.1 Implementation of Environmental Measures	4
3.2 Environmental Monitoring Locations.....	4
3.3 Air Quality Monitoring Results.....	4
3.4 Noise Quality Monitoring Results	4
3.5 Water Quality Monitoring Results	4
3.6 Solid and Liquid Waste Management Status.....	4
3.7 Landscape and Visual Audit	4
4. Environmental Complaint and Non-Compliance.....	1
4.1 Environmental Exceedances	1
4.2 Non Compliance.....	3
4.3 Summary of Actions Taken by the Contractor	3
4.4 Environmental Enquiries	3
4.5 Environmental Complaints and Prosecutions	4
4.6 Record of Environmental Complaints and Summons & Prosecutions	4
5. Conclusion.....	4

List of Annexes

[Annex A](#) Project Organisation/ Contact Information
[Annex B](#) Quality Performance Limits for Air, Noise and Water Quality
[Annex C](#) Event and Action Plans for Air, Noise and Water Quality
[Annex D](#) Monitoring Stations Locations
[Annex E](#) Contractor's Works Programme
[Annex F](#) Graphical Representation of Air Quality Monitoring Results
[Annex G](#) Graphical Representation of Noise Quality Monitoring Results
[Annex H](#) Graphical Representation of Water Quality Monitoring Results
[Annex I](#) Quarterly Assessment of Construction Impacts on Suspended Solids

List of Tables

Table 2.1 - Summary of Impact EM&A Requirements.....2

ACL	Atkins China Limited
CEDD	Civil Engineering and Development Department
CRIII	Central Reclamation Phase III
EIA	Environmental Impact Assessment
EM&A	Environmental Monitoring and Audit
EPD	Environmental Protection Department
ER	Engineer’s Representatives
ET	Environmental Team
IEC	Independent Environmental Checker
LCSD	Leisure and Cultural Services Department
LCSVO-JV	Leighton-China State-Van Oord Joint Venture
TDD	Territory Development Department
TSP	Total Suspended Particulates

Executive Summary

Atkins China Limited (ACL) has been appointed by TDD (now called the Civil Engineering and Development Department (CEDD) after the merger of the Civil Engineering Department and the Territory Development Department on 1 July 2004) to implement the Environmental Monitoring and Audit (EM&A) programme that was identified in the EIA Report for the CRIII Project and is providing Environmental Team services during the duration of the construction works.

This is the eleventh quarterly EM&A Report for the works specified in Section 1.3 of the CRIII EIA Report. This report summarises the monitoring results and audit findings of the EM&A program during the reporting period from 1 February 2006 to 30 April 2006.

Environmental Monitoring and Audit Progress

Air, Noise and water quality monitoring were conducted during this quarter. Weekly environmental site inspections were also conducted during the reporting quarter.

Exceedances of Action and Limit Levels

In February there were no exceedance of the AL or LL for TSP recorded during the reporting period. However, on the 16 March 2006, an exceedance of the AL for 1-hr TSP at the City Hall air quality monitoring station and an exceedance of the LL for 1-hr TSP at both the PLA and City Hall monitoring stations were recorded. On 25 April 2006, there were two exceedances of the AL for 1-hr TSP and one exceedance of the LL for 1-hr TSP recorded at PLA air quality monitoring station.

When the above TSP Exceedances were recorded, the general weather conditions on Hong Kong Island were very hazy with relatively low visibility. It is noted that Respirable Suspended Particulates (RSP) and API level recorded at EPD's air quality monitoring stations in Central were also high. The weather and background air quality may have resulted in the exceedance of the AL and LL rather than the site activities which appear to be controlled, nevertheless the Contractor was reminded to suppress potential dust generation during the construction works to minimize possible.

Noise exceedances were recorded on the 6 and 20 February 2006 at City Hall but were not attributed to CRIII project works but more likely caused by a combination of noise sources including peak busy period traffic movements and other periodic sources that contributed to general background noise in the area.

One noise exceedances was recorded in March 2006 (i.e. on 3 March 2006) but was attributed to maintenance works being carried out by the ET on the SLM containment box. The exceedance at City Hall was, therefore, not attributed to CRIII project works.

During April 2006, two noise exceedances were recorded on the 19 and 20 April 2006, these were attributed to the Tian Hau Festival Activities, which included a boat moored on the Queens Pier broadcasting festive music. In the early hours of Monday the 24 April, two exceedances were recorded due to a thunderstorm. Further exceedances were recorded on the 28, 29 and 30 of April 2006. It was reported that a rally was held in the City Hall area between 28 April and 30 April 2006. The Contractor has also confirmed that there were no major project activities in the immediate vicinity of the City Hall during the above-mentioned days. In general, therefore, the exceedances at City Hall were not attributed to CRIII project works.

Normal DO levels were recorded in February 2006 along the seawall, in general, the majority of the stations showing levels within the AL although on a few occasions a few exceedances of DO and / or SS were reported. In March 2006 water quality along the seawall for most of the month was within the AL, however, the number of exceedances of the AL had increased slightly. During April 2006, DO levels along the seawall remained mostly within the AL, however, towards the end of the month DO levels began to fall.

Suspended Solid concentrations along the seawall were for the most part low during February 2006, although there were a few spikes which exceeded the AL. In March this pattern was repeated although the AL and / or LL was exceeded on a few occasions. During April SS levels were also for the most part low, although one spike in SS levels at one station did exceed the AL.

For both DO and SS the above-mentioned exceedances were not found to be attributable to the project works but rather natural variation in water quality across the site and beyond.

Particular precautionary mitigation measures implemented during this quarter included: commencement of Contractors Drainage Management Plan measures for the wet season, provision/renewal of four silt curtains inside culvert J, provision of a WetSep Water Treatment Plant, and improvement to Public Pier West Rock Socket Drilling spoil containment methods, as well as water bowing to reduce dust generation.

Complaint Log

No new complaints were received during the reporting period.

Notifications of Summons and Prosecutions

There were no notifications of summons or prosecutions received during this reporting quarter.

Site Inspection and Audit

Weekly environmental site inspections were carried out during this quarter. Any minor deficiencies noted during the site inspections were rectified by the Contractor upon receipt of notification.

1. INTRODUCTION

1.1 Basic Project Information

The Territory Development Department (TDD) (now called the Civil Engineering and Development Department (CEDD) after the merger of the Civil Engineering Department and the Territory Development Department on 1 July 2004) of the Hong Kong Special Administrative Region (HKSAR) is constructing the Central Reclamation Phase III project (CRIII).

The Main Works Contract HK 12/02 for CRIII commenced on 28 February 2003. Leighton China State Van Oord Joint Venture (LCSVO-JV) was awarded the Contract No. HK 12/02 for the construction of the CRIII Engineering Works. The main construction works that were identified in the EIA Report for the Project, requiring environmental monitoring and audit, have commenced.

The Contractor's works programme for the quarter is provided in **Annex E**.

1.2 Project Organisation and Management Structure

Atkins China Limited (ACL) has been commissioned by TDD (now called CEDD), the employer, to undertake the environmental monitoring and audit work for the project. ACL is also the Resident Engineers for the project and LCSVO-JV is the main contractor. An Independent Environmental Checker (IEC) has been employed to audit the EM&A programme. The contacts of key management are provided in **Annex A**.

1.3 Works Undertaken

The works undertaken in the project area requiring environmental monitoring and audit as identified in the EIA Report (not including Chai Wan Basin) during the quarter included:

- IRAW and IRAE – placement of fill;
- General finishing works for Pier 7;
- Pier 8; Architectural and E&M works;
- Piling work and sub-structure concreting works at Public Pier West;
- Central Terminal Building (CTB), Architectural and E&M works;
- Culvert J Extension – pile testing and construction of Bays 1 to 5;
- Testing of concreted piles for Road P2 underpass at IRAE;
- E&M installation works and testing at the IRAE pumping stations;
- Eastern Seawall bored piling;
- ESB Building – Construction, EM&A installation and testing;
- Maintenance and necessary repair works for seawater intake silt screens; and
- Cooling water main construction in IRAW and IRAE.

2. EM&A REQUIREMENTS

2.1 Summary of Impact EM&A Requirements

The EM&A programme requires environmental monitoring for air quality, noise, water quality, waste management and landscape and visual aspects as specified in the CRIII Project EIA. The EM&A requirements for each issue area are described in subsequent sections including:

- All required monitoring parameters;
- Action and Limit Levels; and
- Event-Action Plans.

A summary of impact EM&A requirements is presented in **Table 2-1**.

Table 2.1 - Summary of Impact EM&A Requirements

Parameters	Descriptions	Locations	Frequencies	Duration
TSP	24-Hour TSP	2 Locations	Once every 6 days	During dust generating construction works
	1-Hour TSP	2 Locations	Three times in every 6 days	During dust generating construction works
Noise	Leq (30 mins), L ₁₀ , L ₉₀ ,	1 Location	Continuous measurements	Two weeks before Construction and During Construction
Water Quality	Dissolved Oxygen; Salinity; Temp; Suspended Solids; Turbidity.	14 Locations	3 times a week, Mid-ebb/flood tides	During Marine Works and for 4 weeks after completion of Marine Works
Waste	On-Site Waste Audit	Active Work Sites	Periodically	During Construction
	On-Site Waste Inspection			
Landscape and Visual	Audits to ensure effective implementation of mitigation measures			During Construction
General Site Conditions	Environmental Site Inspection	Works areas and areas affected by works	Periodically	During Construction

2.2 Environmental Quality Performance Limits

Environmental Quality Performance Limits for air, noise and water quality have been established as part of the Baseline Monitoring Report and are provided in **Annex B**.

2.3 Event Action Plan

Event Action Plans for air, noise and water quality have been developed as part of the Baseline Monitoring Report and are provided in **Annex C**.

3. ENVIRONMENTAL STATUS

3.1 Implementation of Environmental Measures

The Contractor has implemented relevant mitigation measures listed in the EIA Report, EM&A Manual and Further Environmental Permit.

3.2 Environmental Monitoring Locations

Drawings showing the project area and locations of the monitoring stations are provided in **Annex D**.

3.3 Air Quality Monitoring Results

Air quality monitoring commenced on 21 April 2005 at PLA Barracks in Central. Monitoring was not conducted at the City Hall monitoring station until March 2006 because exterior renovation works were undertaken by City Hall at the elevated walkway area. The graphical plot of air quality monitoring results is provided in **Annex F**.

3.4 Noise Quality Monitoring Results

The original noise meter was returned to station in mid March 2006 after repair by the manufacturer in Denmark. However, readings in late March and early April were partially lost due to a combination of power and software failure.

The graphical plot of noise monitoring results for this quarter is provided in **Annex G**.

3.5 Water Quality Monitoring Results

The graphical plot of water quality monitoring results for this quarter is provided in **Annex H**.

3.6 Solid and Liquid Waste Management Status

Solid and liquid waste management was implemented according to the Waste Management Plan during the reporting quarter.

3.7 Landscape and Visual Audit

As the works undertaken during the reporting quarter were mainly related to reclamation, buildings and infrastructure works, the landscape and visual impacts are considered to be minimal.

4. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

4.1 Environmental Exceedances

In February there were No exceedance of the AL or LL for TSP recorded during the reporting period. However, on the 16 March 2006, an exceedance of the AL for 1-hr TSP at the City Hall air quality monitoring station and an exceedance of the LL for 1-hr TSP at both the PLA and City Hall monitoring stations were recorded. On 25 April 2006, there were two exceedances of the AL for 1-hr TSP and one exceedance of the LL for 1-hr TSP recorded at PLA air quality monitoring station.

When the above TSP Exceedances were recorded, the general weather conditions on Hong Kong Island were very hazy with relatively low visibility. It is noted that Respirable Suspended Particulates (RSP) and API level recorded at EPD's air quality monitoring stations in Central were also high. The weather and background air quality may have resulted in the exceedance of the AL and LL rather than the site activities which appear to be controlled, nevertheless the Contractor was reminded to suppress potential dust generation during the construction works to minimize possible.

Noise exceedances were recorded on the 6 and 20 February 2006 at City Hall but were not attributed to CRIII project works but more likely caused by a combination of noise sources including peak busy period traffic movements and other periodic sources that contributed to general background noise in the area.

One noise exceedances was recorded in March 2006 (i.e. on 3 March 2006) but was attributed to maintenance works being carried out by the ET on the SLM containment box. The exceedance at City Hall was, therefore, not attributed to CRIII project works.

During April 2006, two noise exceedances were recorded on the 19 and 20 April 2006, these were attributed to the Tian Hau Festival Activities, which included a boat moored on the Queens Pier broadcasting festive music. In the early hours of Monday the 24 April, two exceedances were recorded due to a thunderstorm. Further exceedances were recorded on the 28, 29 and 30 of April. It was reported that a rally was held in the City Hall area between 28th April 2006 and 30th April 2006. The Contractor has also confirmed that there were no major project activities in the immediate vicinity of the City Hall during the above-mentioned days. In general, therefore, the exceedances at City Hall were not attributed to CRIII project works.

DO levels recorded during February, March and April were for the most part in compliance with the AL. However, some exceedances of the AL were recorded and these are detailed below.

SS concentrations along the seawall were for the most part low during February, March and April 2006. However, a few exceedances of the AL and / or LL were recorded in February, March and April 2006, these are detailed below:

Date	Tide	Parameter	Exceedance	Station
17 Feb. 06	Mid-Flood	DO	AL	M5
20 Feb. 06	Mid-Ebb	DO	AL	M4A

22 Feb. 06	Mid-Ebb	DO	AL	M4A
22 Feb. 06	Mid-Ebb	SS	AL	M5
1 March 06	Mid-Ebb	DO	AL	M2, M3, M4A, M5, M6 and M11
	Mid-Flood	DO	AL	M4A
1 March 06	Mid-Ebb	SS	LL	M5
	Mid-Flood	SS	AL	M11
3 March 06	Mid-Ebb	DO	AL	M4A
	Mid-Ebb	SS	LL	M12
6 March 06	Mid-Ebb	DO	AL	M4A
8 March 06	Mid-Flood	DO	AL	M2
13 March 06	Mid-Ebb	DO	AL	M4A and M12
15 March 06	Mid-Ebb	DO	AL	M4A
17 March 06	Mid-Ebb	DO	AL	M4A
22 March 06	Mid-Ebb	DO	AL	M2, M3, M4A, and M5
	Mid-Flood	DO	AL	M2, M6 and M12
27 March 06	Mid-Ebb	SS	LL	M3 and M4A
29 March 06	Mid-Ebb	SS	AL&LL	M3 and M4A respectively
31 March 06	Mid-Ebb	DO	AL	M3
5 April 06	Mid-Flood	DO	AL	M4A, and M5
10 April 06	Mid-Flood	DO	AL	M2, M4 and M6
10 April 06	Mid-Ebb	SS	AL	M10
17 April 06	Mid-Ebb	DO	AL	M2, M3, M4A, M5 and M6
19 April 06	Mid-Ebb	DO	AL	M2, M3, M4, M5, M6 and M12
	Mid-Flood	DO	AL	M3 and M5

21 April 06	Mid-Ebb	DO	AL	M3
24 April 06	Mid-Ebb	DO	AL	M3, M4A, M5, M6 and M12
	Mid-Flood	DO	AL	M3, M4A, M5, M6 and M12
28 April 06	Mid-Ebb	DO	AL	M3, M5 and M12
	Mid-Flood	DO	AL	M2, M3, M4A, M5 and M12

The exceedances observed were not directly attributable to project works as no marine works that would greatly disturb the seabed were being carried out during the reporting period and they are, therefore, attributed to natural variation in ambient conditions along the seafront and not project works.

A statistical analysis (**Annex I**) of the suspended solids monitoring results found that the quarterly mean is significantly less than 1.3 times of the ambient mean recorded during the baseline period. This indicates that the Project construction works generally did not cause adverse impacts during the reporting period with respect to the baseline condition.

4.2 Non Compliance

No environmental no-compliances were reported in the quarter.

4.3 Summary of Actions Taken by the Contractor

The Contractor has implemented the following measures to prevent air, and water impacts:

- Contractor has commenced implementation of their Drainage Management Plan to Control Site Run-off for the wet season – actions completed and underway include: repair and improvement of existing bunds/sandbags on the edge of the reclamation; installation of additional bunds; compaction of soil surface and pathing where possible to prevent erosion, creation of drainage channels and soak pits.
- Culvert J, IRAE - Provision of four silt curtains to contain seepage of silty water from the adjacent works on the New Culvert J extension;
- Provision a single *WetSep* flocculation based water treatment plant and additional settlement tanks to remove suspended solids from discharge waters;
- Provision of catch pits to collect spill over from wheel washing facilities; increased frequency of cleaning of catch-pits;
- Rock Socket Drilling at Public Pier West – Contractor contained surrounding bore area with silt curtains, provision of tarpaulin sheets and sand bags on deck surface to contain bore sediments. Installed long tarpaulin curtain on drill rigging to contain splashes.
- Water bowing of haul roads and other areas of the site and covering of stock piles.

4.4 Environmental Enquiries

No environmental enquiries were received during the reporting quarter.

4.5 Environmental Complaints and Prosecutions

No environmental complaints were received or prosecutions made during the quarter.

4.6 Record of Environmental Complaints and Summons & Prosecutions

N/A for this quarter.

5. CONCLUSION

During environmental site inspections conducted during the reporting quarter, no non-compliances were noted and no prosecutions were received.

Generally air quality measurements at the PLA and City Hall Stations were within the AL for TSP, although some exceedances were recorded in March and April 2006, these were not attributed to project works but rather regionally poor air quality which does indicate that the project was not having an adverse impact on local air quality.

Noise levels at the City Hall Station were generally below the exceedance level, although some exceedances were recorded in February, March and April 2006, these were not attributed to project works but rather various individual events including general rush hour traffic noise, ET maintenance work on the noise meter housing, a thunderstorm and a nearby rally which does indicate that the project was not having an adverse noise impact.

Water quality was generally good over the monitoring period, although some exceedances were observed at the Sea Water Intake Station and one exceedance at a Marine Based Station, these were not attributed to project works but rather more reflective of general water quality conditions.