

**Central Reclamation, Phase III  
Quarterly EM&A Report No. 5  
(August through October 2004)**

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	<b>Page</b>
<b>1. Introduction.....</b>	<b>1</b>
1.1 Basic Project Information.....	1
1.2 Project Organisation and Management Structure.....	1
1.3 Works Undertaken.....	1
<b>2. EM&amp;A Requirements .....</b>	<b>2</b>
2.1 Summary of Impact EM&A Requirements.....	2
2.2 Environmental Quality Performance Limits .....	3
2.3 Event Action Plan .....	3
<b>3. Environmental Status .....</b>	<b>4</b>
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 .....	5
3.7 Landscape and Visual Audit.....	5
<b>4. Environmental Complaint and Non-Compliance .....</b>	<b>6</b>
4.1 Environmental Exceedances.....	6
4.2 Summary of Actions Taken for Non-Compliance.....	6
4.3 Environmental Enquiries .....	6
4.4 Environmental Complaints and Prosecutions.....	6
4.5 Record of Environmental Complaints and Summons & Prosecutions .....	6
<b>5. Conclusion .....</b>	<b>9</b>

**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 Noise Quality Monitoring Results
Annex G	Graphical Representation of Water Quality Monitoring Results
Annex H	IEC's Environmental Site Inspections Reports
Annex I	Quarterly Assessment of Construction Impacts on Suspended Solids

**List of Tables**

Table 2.1 - Summary of Impact EM&A Requirements .....	2
Table 4.1 - Summary of Complaints Received .....	7

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 fifth 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 August to 31 October 2004.

### ***Environmental Monitoring and Audit Progress***

Noise and water quality monitoring was conducted during this quarter. Weekly environmental site inspections were also conducted during the reporting quarter. Joint site inspections with the IEC were also carried out on 19 August, 23 September and 21 October 2004. The IEC's environmental site inspection reports are included in **Annex H**.

### ***Exceedances of Action and Limit Levels***

Continuous noise monitoring was carried out during the reporting period and noise quality exceedances were recorded on 10 August 2004 and on 1, 16, 21 and 23 October 2004. The exceedances were investigated and it was found that the exceedances on 1, 21 and 23 October were not due to the project works.

An investigation into the exceedance recorded on 10 August found that the noise levels were attributed to the surface breaking works near City Hall. The Event Action Plan for noise quality was followed and all relevant parties were informed of the exceedances. The Contractor immediately stopped concurrent breaking works with more than one breaker as a mitigation measure. Subsequent noise monitoring found that no further exceedances were attributed to project works.

As for the exceedance recorded on 16 October, the noise levels were likely attributed to the cooling water mains work in front of City Hall. One excavator-mounted breaker was used for breaking concrete surfacing at the works area. The Event Action Plan for noise quality was followed and all relevant parties were informed of the exceedances. The Contractor advised that the concrete breaking work is substantially complete, and therefore, no significantly noisy construction activities near City Hall are expected to continue. The Contractor also advised that should breaking works need to be carried out again near City Hall, they would use a handheld breaker instead of an excavator mounted breaker and would install a portable noise barrier in front of the works to mitigate noise. Subsequent noise monitoring found no further exceedances attributed to project works.

### ***Complaint Log***

One complaint with regard to dust emissions from concrete breaking work at the old heliport was received by EPD on 18 August 2004 and the ET was notified on 20 August 2004. The complaint was investigated and an ad-hoc dust measurement was taken at the site boundary. The investigation found that the measured dust level is well below the EM&A Action and Limit Levels and no dust emissions were observed during the works. Further, the Contractor

implemented additional mitigation measures (increased watering of demolition area and installation of impervious sheeting around breaker) after receipt of complaint.

***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<sup>th</sup> 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:

- Dredging, rockfilling and surcharge material works at IRAW and IRAE;
- Marine piling and obstruction clearing for marine piles at IRAW;
- Installation of caisson units at IRAW;
- Placing of underlayer, armour rock and levelling stone;
- Superstructure work at Pier No. 7;
- Substructure works for the Central Terminal Building (CTB);
- Demolition at the former heliport;
- Cooling water mains work at Lung Wui Road; and
- Maintenance and necessary repair work for seawater intake silt screens.

## 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**

<b>Parameters</b>	<b>Descriptions</b>	<b>Locations</b>	<b>Frequencies</b>	<b>Duration</b>
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 <sub>10</sub> , L <sub>90</sub> .	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 dust, 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. Seawater intake silt screens have been installed prior to the start of the dredging works and a silt curtain attached to a floating steel frame has been installed around the grab dredger.

#### **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**

Once dust generating construction works as identified in the EIA have commenced, air quality monitoring will be undertaken and the results of air quality monitoring will be presented with graphical plots. In the interim, an ad-hoc 1-hour TSP measurement was undertaken at the site boundary of CR13 on 24 August 2004 to assess whether dust emissions from the nearby demolition works at the old heliport are excessive. The measurement recorded an 1-hour TSP level of 310  $\mu\text{g}/\text{m}^3$ , which is well below the EM&A Action and Limit Levels. Further, no visible dust emissions were observed at the works area and it was noted appropriate air quality mitigation measures are being implemented. Based on this information, there is no indication to suggest that significantly dusty construction activities with the potential to impact air quality are within range of the ASR at this stage.

#### **3.4 Noise Quality Monitoring Results**

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

#### **3.5 Water Quality Monitoring Results**

The graphical plot of water quality monitoring results for this quarter is provided in **Annex G**. A statistical analysis (**Annex I**) of the monitoring results generally did not find any construction impacts on suspended solids (SS) at the project site.

Although elevated levels of SS were found, particularly at the seawater intake stations (M1 to M6 and M11 and M12), these were investigated and were generally found not to be due to project works. The elevated SS levels were generally localised and occurred at seawater intake stations located near outfalls. Silty discharges from outfalls that are unrelated to the project works have been observed and documented in the reporting period. Additional SS sampling were also undertaken at Culvert J and at the Queensway Government Offices outfall during September and October. The results indicate that the discharges from these locations contained high SS levels, and as such, may have significantly influenced water quality in the surrounding area.

However, investigations into elevated SS levels recorded at several seawater intake stations on 7 sampling days between August and October 2004 found that the elevated levels may have been attributable to project works. Appropriate actions were undertaken in accordance with the Event and Action Plan and the Contractor has implemented additional mitigation measures to further reduce SS impacts. The Contractor has installed floating frame type silt curtains for all rock filling works and has installed an additional layer of nonporous geotextile around the existing silt curtain used for dredging works.

### **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 month were mainly related to marine works, the landscape and visual impacts are considered to be minimal.

#### **4. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE**

##### **4.1 Environmental Exceedances**

There were no exceedances of air and noise quality attributable to the project works found during the reporting quarter.

The exceedances of the SS Limit Level on 7 samplings days between August and October 2004 may have been attributable to project marine works. Appropriate actions were undertaken in accordance with the Event and Action Plan for Water Quality and the Contractor has implemented additional mitigation measures to further reduce SS impacts.

##### **4.2 Summary of Actions Taken for Non-Compliance**

The Event and Action Plan for Water Quality was undertaken immediately after investigations into the SS exceedances found that the increase in SS levels may have been due to project marine works. Following the exceedances, the Contractor has installed floating frame type silt curtains for all rock filling works and has installed an additional layer of nonporous geotextile around the existing silt curtain used for dredging works. Further, increased visual inspections of the seawater intake silt screens are being undertaken.

##### **4.3 Environmental Enquiries**

No environmental enquiries were received during the reporting quarter.

##### **4.4 Environmental Complaints and Prosecutions**

One complaint with regard to dust emissions from concrete breaking works at the old heliport was received by EPD on 18 August 2004 and was forwarded to the ET on 20 August 2004. The complaint was immediately investigated after notification and an ad-hoc dust measurement was taken at the site boundary to identify any dust impacts. The investigation found that the measured dust level is well below the EM&A Action and Limit Levels and no visual dust emissions were observed during the works. Further, the Contractor implemented additional mitigation measures, such as increased watering of demolition area and installation of impervious sheeting around breaker, to further reduce potential dust impacts.

No environmental complaints or prosecutions were received during September and October 2004.

##### **4.5 Record of Environmental Complaints and Summons & Prosecutions**

The following table summarises all the complaints attributable to project works received (both written and verbal) and the liaison/consultation undertaken, and the actions and follow-up procedures taken.

**Table 4.1 - Summary of Complaints Received**

<b>Month/ Date of Complaint</b>	<b>Media</b>	<b>Complaint &amp; Action</b>	<b>Liaison/ Consultation Taken</b>	<b>Follow-up Action</b>
August 2004	Noise	1 dust complaint; investigated complaint	Contractor, EPD, IEC, RE, ET, TDD (CEDD)	Ad-hoc dust measurement at site area
September 2004	N/A	None	N/A	N/A
October 2004	N/A	None	N/A	N/A

There were no notifications of summons and prosecutions for the reporting quarter.

## 5. CONCLUSION

During the reporting quarter, exceedances of the water quality criteria were generally attributed to ambient water quality. The water quality within the project area was found to be generally good, but ambient SS levels in Victoria Harbour showed an increase during mid to late September 2004. Low DO levels have also been recorded at seawater intake and marine-based stations. However, investigations into the DO levels found that they were not due to project works as control stations recorded similar levels.

It should be noted that elevated SS levels recorded at several seawater intake stations on 7 sampling days between August and October 2004 may have been attributable to project works. Appropriate actions were undertaken in accordance with the Event and Action Plan and the Contractor implemented additional mitigation measures to further reduce SS impacts.

Although elevated SS levels were recorded at a few seawater intake stations, the results from the marine-based impact monitoring stations showed that offshore marine water quality was generally good. The marine-based stations established to monitor the overall impact of the reclamation activities on water quality in Victoria were shown to have similar results as the control stations, which are located outside the influence of project works. As such, the water quality monitoring results did not indicate that the marine works were adversely affecting water quality outside the works boundary in Victoria Harbour

During environmental site inspections conducted during the reporting quarter, minor deficiencies were noted. However, the Contractor rectified all deficiencies after receipt of notification.

One complaint regarding dust emissions was received during the quarter. The environmental complaint handling procedure as stipulated in the EM&A Manual and the Environmental Site Inspection Procedure Report was undertaken immediately following the complaints. The complaint was immediately investigated and an ad-hoc dust measurement was carried out. The investigation found that the measured dust level is well below the EM&A Action and Limit Levels and no visual dust emissions were observed during the works. Following the complaint, the Contractor implemented additional mitigation measures to further reduce potential dust impacts.