

**Central Reclamation, Phase III
Quarterly EM&A Report No. 7
(February through April 2005)**

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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 seventh 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 2005 to 30 April 2005.

Environmental Monitoring and Audit Progress

Noise and water quality monitoring was conducted during this quarter. Air quality monitoring commenced on 21 April 2005. Weekly environmental site inspections were also conducted during the reporting quarter. Joint site inspections with the IEC were also carried out on 24 February and 7 April 2005.

Exceedances of Action and Limit Levels

Continuous noise monitoring was carried out during the reporting period and noise exceedances were recorded on 7 and 8 April 2005. The exceedances were investigated and were found not to be attributed to the project works as no project works are located in the vicinity of City Hall.

No air quality exceedances were recorded during the reporting period.

Elevated SS levels were recorded on 16 occasions, where 13 exceedances were found to be attributed to the Project works. Investigation found that the exceedances were mainly due to sand filling and/ or movement of marine vessels in IRAE during the reporting period.

All parties were immediately informed of the exceedances and discussions with the relevant parties were undertaken. A sounding survey was also carried out in March to locate the high spots.

Mitigation measures such as relocating silt curtains closer to the sand filling works; replacing the geotextile for Central Barrack's seawater intake silt screen using an improved fixing method; revised sand filling method; reduction of sand filling rates; slowing down the speed of marine vessels; Using sampans to assist the movement of barges to reduce the effect of propeller wash; Using floatig silt curtains for laying of filter material and carrying out diving inspections of affected intakes, etc., have been undertaken in order to minimise SS dispersion.

During the reporting period, DO exceedances were recorded on 14 February, 25 April and 29 April 2005 respectively. Investigation found that the DO exceedances was not attributed to project works but to natural variations in ambient conditions.

Complaint Log

Two environmental complaints were received in April 2005. Investigations into the complaints found no non-compliances with respect to the EM&A requirements.

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:

- Architectural works for Pier 7;
- Piling work and preparation work for concreting at Public Pier West;
- Pile cap and beam construction at Pier 8;
- Cooling water main construction at Lung Wui Road;
- Sand filling and rock filling works at IRAE;
- Central Terminal Building (CTB) superstructure and sub-structure works;
- Seawall construction at IRAE;
- Advanced rock filling works at FRAW and FRAE for temporary caisson storage;
- In-situ work to caisson and pumping stations at IRAE;
- Temporary seawall construction at IRAE;
- Filter layer filling behind caisson units at IRAE;
- Piling works for Man Yiu Street Footbridge;
- Excavation to bored piling at Eastern Seawall;

- Rock filling works behind caisson units at IRAE;
- Temporary seawater cooling main construction for Central Barracks and relocation of water quality monitoring station M4; and
- Maintenance and necessary repair works 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

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 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**. On 8 April 2005, the seawater intake for Central Barracks was relocated to the western edge of IRAE. The monitoring station M4, now called M4A, was relocated in tandem to the new intake location. The location of station M4A is also provided in **Annex D**.

3.3 Air Quality Monitoring Results

Air quality monitoring commenced on 21 April 2005 at Central Barrack. Monitoring was not conducted at the City Hall monitoring station because exterior renovation works were undertaken by City Hall at the elevated walkway area. Air quality monitoring at the City Hall monitoring station will commence once the exterior renovation works are completed. The graphical plot of air quality monitoring results is provided in **Annex F**.

3.4 Noise Quality Monitoring Results

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**. A statistical analysis (**Annex I**) of the monitoring results generally found the quarterly mean is significantly less than 1.3 times of the ambient mean recorded during the baseline period. This indicates that although Project related exceedances of SS AL/LL levels were recorded during the reporting period, the Project construction works generally did not cause any adverse impact on SS levels during the reporting period with respect to the baseline condition.

Elevated levels of SS were found during the reporting period, particularly at the seawater intake stations near IRAE.

Two of the four exceedances recorded in February 2005 were found to be attributable to silty discharges not related to the project works. The other two exceedances were likely caused by sand filling works at IRAE. All parties were immediately informed of the exceedances and the Contractor implemented mitigation measures, such as relocating the impervious silt curtains closer to the sand filling area, to reduce SS dispersion.

During March 2005, elevated SS levels were recorded on 5 occasions. The exceedances on two occasions were attributed to sand filling works at IRAE. Another exceedance was due to sand filling at IRAE and movement of marine vessels near seawater intake M4. The Contractor implemented additional mitigation measures, including slowing down speed of marine vessels and replacement of geotextile for Central Barrack's seawater intake silt screen using an improved fixing method and the use of a revised sand filling method, to minimise SS dispersion. Two other exceedances were found to be caused by high spots of sand fill being carried away by tidal

currents. After being informed of the exceedances, the Contractor undertook a sounding survey to locate the high spots and subsequently trimmed down these high spots to mitigate the dispersion effect.

Elevated SS levels were recorded on 1, 4, 6, 18, 20, 25 and 27 April 2005.

The SS exceedances recorded on 1 and 4 April 2005 were found to be caused by the re-suspension of sand fill material due to marine vessel movements at IRAE. All parties were immediately informed of the exceedances and the Contractor immediately ordered all marine vessels in the area to reduce their speed. Further, the Contractor temporarily suspended sand filling works until the seawater intake at station M4 was relocated. The intake was relocated on 8 April 2005, and monitoring station M4 (now called M4A) was relocated in tandem to the new position.

The SS exceedance recorded at station M2 on 6 April 2005 was not project related. An investigation found that the exceedance was attributable to the routine cleaning of HSBC's seawater intake by HSBC's contractors.

The SS exceedances recorded on 18, 20, 25 April 2005 were investigated and were found to be due to the laying of filter material and propeller wash of pelican barges entering IRAE. All parties were immediately informed of the exceedances and an environmental meeting was held on 26 April 2005 to discuss measures to prevent SS dispersion from the works at IRAE. During the meeting, the Contractor proposed measures, which included the use of sampans to assist the movement of barges to reduce the effect of propeller wash, the reduction of sand filling rates, the use of floating silt curtains for laying of filter material, carry out diving inspections of affected intakes and to expedite the construction of the western rock mound at IRAE. Additionally, daily SS sampling at M3 and M4A was initiated on 27 April 2005 and was undertaken until end of April 2005. No further exceedances were recorded after 27 April 2005.

As for the SS exceedance recorded at M4A on 27 April 2005, an investigation found that it was likely attributable to silty water dispersing from the gap between caisson units C23 and P8.1. Tidal current likely carried SS towards the area near M4A. However, no exceedances were recorded at M3, likely because of its relatively sheltered location. The Contractor mitigated the situation by installing seawall blocks between the gap to enclose the reclamation area.

One DO exceedance was recorded during February 2005 and two DO exceedances were recorded during April 2005. Investigations found that the DO exceedances were attributed to natural variations in ambient conditions and not caused by project 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 quality attributable to the project works found during the reporting quarter.

Noise exceedances were recorded on 7 and 8 April 2005. The exceedances were investigated and were found not to be attributed to the project works as no project works are located in the vicinity of City Hall.

Elevated SS levels were recorded during the reporting quarter.

During February 2005, SS exceedances were recorded on five occasions. Of those occurrences, three were not related to project works and two were found to be caused by sand filling works at IRAE.

During March 2005, five SS exceedances were recorded. Two of those were found to be attributable to sand filling works at IRAE. Another two exceedances were investigated and were found to be due to high spots of sand fill in IRAE. The other SS exceedance was found to be due to marine vessel movements near the Central Barracks intake.

During April 2005, elevated SS levels were recorded on seven occasions. One of those exceedances were determined to be not project related. Two exceedances were found to be likely due to marine vessel movements in IRAE. Three exceedances were found to be likely due to the laying of filter material and propeller wash of pelican barges entering IRAE. The other exceedance was found to be likely attributable to silty water dispersing from the gap between caisson units C23 and P8.1.

Exceedances of the DO criteria were also recorded during the reporting quarter. One DO exceedance was recorded during February 2005 and one DO exceedance was also recorded during April 2005.

Upon notification of the above exceedances, 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 suspended solids 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 exceedances found that the increase in levels were likely due to project marine works. Following the exceedances, the Contractor has implemented the following measures to reduce SS dispersion:

- Relocate impervious silt curtain to fully enclose the sand filling area at IRAE;
- Replace the geotextile for Central Barrack's seawater intake silt screen using an improved fixing method;
- Revise sand filling method to minimise SS dispersion;
- Carry out sounding survey to locate high spots of sand fill and trim down these high spots to mitigate the dispersion effect;

- Decrease the speed of marine vessels entering IRAE to reduce the effect of the propeller wash;
- Decrease the daily sand filling rate;
- Relocate Central Barrack's seawater intake to the western edge of IRAE; and
- Install additional seawall blocks at the gap between the caisson units to prevent silty water from dispersing from the sand filling area.

4.3 Environmental Enquiries

No environmental enquiries were received during the reporting quarter.

4.4 Environmental Complaints and Prosecutions

Two environmental complaints were received during April 2005. However, investigations in the complaints found no non-compliances with respect to the EM&A requirements.

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

Month/ Date of Complaint	Media	Complaint & Action	Liaison/ Consultation Taken	Follow-up Action
February 2005	N/A	None	N/A	N/A
March 2005	N/A	None	N/A	N/A
April 2005	Noise	Noise complaint (outdated summary of CNP); updated summary to reflect latest issued CNPs for the project	Contractor, EPD, RE, IEC, ET	Immediately update summary records upon receipt of new CNPs for the project
	Air	White smoke found near Two IFC, Central; source of white smoke could not be identified; likely due to one-off event	Contractor, EPD, RE, IEC, ET	Advised Contractor to regularly maintain all plant and equipment on site

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

5. CONCLUSION

The water quality within the project area was found to be generally good during the reporting period. However, elevated SS levels were recorded on a number of occasions. While some of these exceedances are not project related, others were found to be caused by marine works at IRAE.

The SS exceedances recorded during the reporting quarter were found to be mainly due to marine activities at IRAE. All relevant parties were immediately notified of the exceedances and the Contractor implemented mitigation measures to reduce SS dispersion.

It was noted that the seawater intake for Central Barracks was relocated to the western edge of IRAE on 8 April 2005. The monitoring station M4, now called M4A, was relocated in tandem to the new intake location.

Two noise exceedances were recorded during April 2005. The exceedances were investigated and were found not to be attributed to the project works as no project works are located in the vicinity of City Hall.

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

Two environmental complaints were received during April 2005. However, investigation into the complaints found no non-compliances with respect to the EM&A requirements. No prosecutions were received during the reporting quarter.