

**Central Reclamation, Phase III  
Quarterly EM&A Report No. 21  
(August 2008 through October 2008)**



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**Abbreviations & Acronyms**

ACL	Atkins China Limited
AL	Action Level
CEDD	Civil Engineering and Development Department
CRIII	Central Reclamation Phase III
DO	Dissolved Oxygen
EIA	Environmental Impact Assessment
EIAO	Environmental Impact Assessment Ordinance
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
LL	Limit Level
PLA	People's Liberation Army Forces Hong Kong
TDD	Territory Development Department
TSP	Total Suspended Particulates
SS	Suspended Solids
WMP	Waste Management Plan

*Not Used*

## **Executive Summary**

The Central Reclamation Phase III (CRIII) Works, Contract No. HK 12/02, was awarded to Leighton China State Van Oord Joint Venture (LCSVO-JV) by the Civil Engineering and Development Department (CEDD). (Previously called the Territory Development Department before merger with the Civil Engineering Department on 1<sup>st</sup> July 2004.)

The works under the Contract HK 12/02 commenced on 28<sup>th</sup> February 2003. Contract HK 16/03 for the CRIII Hinterland Drainage Improvement Works was awarded to Wang Kee Construction Co. Ltd., and works for this contract commenced on 17<sup>th</sup> December 2003.

Atkins China Limited (ACL) has been commissioned by CEDD as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme described in the approved EM&A Manual for the CRIII Project.

This is the 21<sup>st</sup> 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<sup>st</sup> August 2008 to 31<sup>st</sup> October 2008.

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

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

### ***Exceedance of Action and Limit Levels***

No exceedance in TSP level was recorded at the two monitoring stations during this reporting quarter.

Forty exceedances of noise were recorded at the City Hall monitoring station on 1<sup>st</sup> August 2008, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup>, 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> September 2008.

The exceedances may have been attributed to the Project works, possibly due to the concurrent operation of the backhoe and the sheet piling activity. The Contractor was advised to schedule the works at the former Queen's Pier carefully such that the backhoe operation and the sheeting piling activity will not be undertaken concurrently. The Contractor had rescheduled their works at the former Queen's Pier to avoid concurrent operation of the backhoe and vibrating hammer on 2<sup>nd</sup> August 2008

The exceedances between 2<sup>nd</sup> September and 5<sup>th</sup> September may have been caused by the drilling machine penetrating the former seawall during the drilling process. The ET communicated this with the Contractor on 5<sup>th</sup> September 2008. It was suggested that the drilling works at the former Queen's Pier should be scheduled and operated carefully.

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The exceedances between 8<sup>th</sup> September and 10<sup>th</sup> September may have been attributed to the Project works, possibly due to the concurrent operation of both the drilling and sheet piling activities. The ET communicated this with the Contractor representative on 10<sup>th</sup> September 2008. The Contractor was advised to schedule the construction activities at the former Queen's Pier carefully and that concurrent operation of both the drilling and sheet piling activities should be avoided. It was also advised that short breaks between noisy activities should be taken as far as practicable. In addition, the Contractor was reminded to provide clear guidelines for the frontline staff to prevent the concurrent operation of both the drilling activities and the sheet piling activity in the former Queen's Pier works area. No exceedances occurred after the communication on 10<sup>th</sup> September 2008.

Water quality exceedances were recorded on 38 sampling days in this reporting quarter. All exceedances have been investigated and the exceedances of Action/Limit Level for SS that occurred on 29<sup>th</sup> October 2008 were considered to be potentially attributed to the Project as well as other external factors. All exceedances of Action/Limit Level for DO were considered to have not been related to the Project works.

***Complaint Log***

There were no complaints received in relation to environment impact during this reporting quarter.

***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. Minor deficiencies noted during the site inspections were rectified by the Contractor upon receipt of notification. The observations and findings are outlined below:

#### 7<sup>th</sup> August 2008

The silt curtain near caisson 15 was observed detached due to the typhoon which occurred on 6<sup>th</sup> August 08. The Contractor was reminded to repair the silt curtain and to check the other curtain to ensure that they work properly. A skip (situated near the sub-contractor office at IRAW) containing general waste was observed as overflowing. The Contractor was reminded to arrange for the skip to be emptied appropriately.

#### 14<sup>th</sup> August 2008

A part of the access road was observed dry in the works area of FRAW. The Contractor was reminded to maintain watering of the access roads to prevent dust emission.

#### 21<sup>st</sup> August 2008

Stagnant water was observed in the low-lying area near the site entrance of Tun Wo lane. The Contractor was reminded to backfill the low-lying area as soon as possible. Grey smoke emission was observed from the bulldozer in the works area of FRAW. The Contractor was reminded to maintain the equipment properly.

#### 28<sup>th</sup> August 2008

Stagnant water was found in the unused sedimentation tank. The Contractor was reminded to remove the stagnant water and to relocate the unused sedimentation tank to avoid water accumulation. Greyish discharge was observed from existing Culvert J Outfall during the site inspection.

#### 4<sup>th</sup> September 2008

Chemical waste containers were placed on the ground without drip trays in the FRAE works area near former Queen's Pier. The Contractor was reminded to store the chemical waste in a designated chemical waste storage area.

#### 11<sup>th</sup> September 2008

Dark smoke emission was observed from an excavator in the FRAW works area. The Contractor was reminded to provide appropriate maintenance for equipments to prevent dark smoke emission.

#### 18<sup>th</sup> September 2008

The surface of the filling area near pier 10 was not compacted – potential dust emission issues. The Contractor was reminded to prevent dust emission from the filling area. The Contractor arranged to compact the surface after the site inspection.

#### 25<sup>th</sup> September 2008

Sand and silt was observed on the access road near to the public road and site entrance of the Contractor Office. The Contractor was reminded that vehicle wheel washing should be undertaken before vehicles leave the site area. In addition, some rubbish was observed in the site area. The Contractor was reminded to keep the site tidy.

#### 2<sup>nd</sup> October 2008

A part of the access roads in FRAE was observed dry during inspection. The Contractor was reminded to ensure that access roads are watered appropriately.

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9<sup>th</sup> October 2008

The temporary storage area of sand in IRAE was not compacted (potential dust emission issues). The Contractor was reminded to prevent dust emission from the site area. Two chemical containers were placed on the ground without drip trays. The Contractor was reminded to ensure that chemicals should be placed in the chemical storage area or to provide drip trays for temporary storage. Part of the access road at IRAE was observed as dry. The Contractor was reminded to keep access roads wet

16<sup>th</sup> October 2008

A small pool of water near the entrance to IRAE could become stagnant. The Contractor was reminded to prevent fill in the small pool of water near the entrance to IRAE.

23<sup>rd</sup> October 2008

A part of the access roads in FRAE and IRAE were observed as dry with some dust emission noted. The Contractor was reminded to prevent dust emission from the access roads by watering. An additional observation was made where muddy discharge was observed at the outfall of Culvert J from out of the site boundary (from unidentifiable sources).

30<sup>th</sup> October 2008

No findings were reported. An additional observation was made where a small amount of muddy discharge was observed at the outfall of Culvert J from out of the site boundary (from unidentifiable sources).

## **1. INTRODUCTION**

### **1.1 Basic Project Information**

The Main Works Contract HK 12/02 for CRIII commenced on 28<sup>th</sup> February 2003 and was awarded to Leighton-China State-Van Oord Joint Venture (LCSVO-JV) 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.

This is the 21<sup>st</sup> 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<sup>st</sup> August 2008 to 31<sup>st</sup> October 2008.

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 CEDD as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme described in the approved EM&A Manual and required under Clause 4 of the Variation of Further Environmental Permit (No. EP-01/122/2003/A) issued to Leighton-China State-Van Oord Joint Venture in December 2007 for the CRIII Project. A variation of the Further Environmental Permit for the Project (EP-01/122/2003/B) was granted on 26<sup>th</sup> May 2008. This was then superseded by another variation of Further Environmental Permit for the Project (No. EP-01/122/2003/C) granted on 17<sup>th</sup> July 2008. The CRIII Project Organisation is shown 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 this reporting quarter include:

- Rockfilling and geotextile layer behind the seawall in FRAW;
- Type A filling in FRAW and FRAE
- Deep compaction and surcharging in FRAW
- Rockfilling behind the seawalls in FRAE;
- Pre-drilling and piling for Culvert F
- Sheet piling and excavation for Culvert F
- Structural works for Public Pier East (Pier No.10);
- *In situ* works for Pumping Stations P6.1 and P7.1
- Excavation for the MTRC 40 metre EOT;
- Remedial and outstanding works at and around Piers 7 & 8, Public Pier West and the CTB;
- Remedial and outstanding works at MYS Footbridge;
- General filling works above +2.5 mPD in IRAE;
- Construction of storm and foul drainage and gullies in hinterlands for Road P2, Road D7, Road D8 and Road D9 and adjacent to the GPO;
- Structural works for western tunnel and excavation for eastern tunnel at Road P2

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Underpass;

- Roadworks along Lung Wui Road and Tim Wa Avenue (Road) D8;
- Excavation and structural works for Culvert K extension – bays 4 to 6
- Piling for Culvert K
- Precasting for Culvert K
- Installation of cooling water mains for Tamar Development Project at IRAE

## 2. EM&A REQUIREMENTS

### 2.1 Summary of Impact EM&A Requirements

The EM&A programme requires environmental monitoring for air quality, noise, waster 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 <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.	16 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

Additional impact water quality monitoring is required for the marine filling works using “Type A Fill” at FRAW as per Condition 3.3 of EP No. EP-01/122/2003/A, No. EP-01/122/2003/B and No. EP-01/122/2003/C. Monitoring parameters include SS, in situ measurements for DO, temperature, turbidity and salinity at M9, M8, and 4 monitoring stations, respectively. The additional water quality monitoring is conducted by the Contractor and the monitoring results are reported in the EM&A monthly report in accordance with the Additional Water Quality Monitoring Programme certified by the ET and verified by the IEC.

## 2.2 Environmental Quality Performance Limits

Environmental Quality Performance Limits for air quality, 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 quality, 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**

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

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

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

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

The graphical plot of water quality monitoring results for this reporting quarter is provided in **Annex H**. The water quality monitoring on 6<sup>th</sup> and 22<sup>nd</sup> August 2008 was cancelled due to the bad weather (Typhoon signal No.8 was issued). The water quality monitoring on 24<sup>th</sup> September 2008 was cancelled due to the bad weather (Typhoon signal No.3 was issued).

#### **3.6 Solid and Liquid Waste Management Status**

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

#### **3.7 Landscape and Visual Audit**

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

*Not Used*

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

**4.1 Environmental Exceedances**

No exceedance in TSP level was recorded at the two monitoring stations during this reporting quarter.

Forty exceedances of noise were recorded at the City Hall monitoring station on 1<sup>st</sup> August 2008, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup>, 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> September 2008.

The exceedances may have been attributed to the Project works, possibly due to the concurrent operation of the backhoe and the sheet piling activity. The Contractor was advised to schedule the works at the former Queen’s Pier carefully such that the backhoe operation and the sheet piling activity will not be undertaken concurrently. The Contractor had rescheduled their works at the former Queen’s Pier to avoid concurrent operation of the backhoe and vibrating hammer on 2<sup>nd</sup> August 2008

The exceedances between 2<sup>nd</sup> September and 5<sup>th</sup> September may have been caused by the drilling machine penetrating the former seawall during the drilling process. The ET communicated this with the Contractor on 5<sup>th</sup> September 2008. It was suggested that the drilling works at the former Queen’s Pier should be scheduled and operated carefully.

The exceedances between 8<sup>th</sup> September and 10<sup>th</sup> September may have been attributed to the Project works, possibly due to the concurrent operation of both the drilling and sheeting piling activities. The ET communicated this with the Contractor representative on 10<sup>th</sup> September 2008. The Contractor was advised to schedule the construction activities at the former Queen’s Pier carefully and that concurrent operation of both the drilling and sheeting piling activities should be avoided. It was also advised that short breaks between noisy activities should be taken as far as practicable. In addition, the Contractor was reminded to provide clear guidelines for the frontline staff to prevent the concurrent operation of both the drilling activities and the sheet piling activity in the former Queen’s Pier works area. No exceedances occurred after the communication on 10<sup>th</sup> September 2008.

Water quality exceedances were recorded on 38 sampling days in this reporting quarter. All exceedances have been investigated and the exceedances of Action/Limit Level for SS that occurred on 29<sup>th</sup> October 2008 were considered to be potentially attributed to the Project as well as other external factors. Additional sampling was undertaken on 31<sup>st</sup> October by the Contractor. The exceedance of SS was recorded but it was not related to project works. In addition, no underwater filling at FRAE will take place after 31<sup>st</sup> October 2008. Therefore, No further action was considered necessary.

All exceedances of Action/Limit Level for DO were considered to have not been related to the Project works. The water quality exceedances during this reporting quarter are summarised in Table 4.1.

**Table 4.1 - Summary Water Quality Exceedances from May 2008 to July April 2008**

Date	Tide	Parameter	Exceedance	Station
<b>Water Quality Monitoring in Accordance with EM&amp;A Manual</b>				
1 <sup>st</sup> August 2008	Mid-ebb	DO	AL	M6 and M12
4 <sup>th</sup> August 2008	Mid-flood	DO	AL	M6
8 <sup>th</sup> August 2008	Mid-ebb	DO	AL	M2A, M3_M5A, M4B, M5B, M6, M11 and M12

Date	Tide	Parameter	Exceedance	Station
	Mid-flood	DO	AL	M3_M5A, M5B, M6 and M12
11 <sup>th</sup> August 2008	Mid-ebb	DO	AL	M1A, M2A, M3_M5A, M4B, M5B, M6, M11 and M12
	Mid-flood	DO	AL	M1A, M2A, M3_M5A, M4B, M5B, M6, M11 and M12
13 <sup>th</sup> August 2008	Mid-ebb	DO	AL	M1A, M2A, M3_M5A, M4B, M5B, M6, M10(S/M), M11 and M12
	Mid-flood	DO	AL	M1A, M2A, M3_M5A, M4B, M5B, M6, M10(S/M), M11 and M12
15 <sup>th</sup> August 2008	Mid-flood	DO	AL	M6
18 <sup>th</sup> August 2008	Mid-flood	DO	AL	M2A, M3_M5A, M4B and M5B
20 <sup>th</sup> August 2008	Mid-flood	DO	AL	M6
25 <sup>th</sup> August 2008	Mid-ebb	DO	AL	M1A, M2A, M3_M5A, M4B, M5B and M11
	Mid-flood	DO	AL	M1A, M2A, M3_M5A, M4B, M5B, M6, M11 and M12
1 <sup>st</sup> September 2008	Mid-flood	DO	AL	M2A, M4B and M8(S/M)
3 <sup>rd</sup> September 2008	Mid-ebb	DO	AL	M1A, M2A, M3_M5A, M4B, M5B, M6 M8(S&M), M10(S&M) and M11
	Mid-flood	DO	AL	M1A, M2A, M3_M5A, M4B, M5B, M6 M8(S&M), M11 and M12
			LL	M10(S&M)
5 <sup>th</sup> September 2008	Mid-ebb	DO	AL	M1A, M2A, M3_M5A, M4B, M5B, M6 M8(S&M), M10(S&M), M11 and M12
	Mid-flood	DO	AL	M1A, M2A, M3_M5A, M4B, M5B, M6 M8(S&M), M10(S&M), M11 and M12
8 <sup>th</sup> September 2008	Mid-ebb	DO	AL	M8(S&M) and M10(S&M)
	Mid-flood	DO	AL	M2A, M3_M5A, M4B, M5B, M6, M8(S&M) and M10(S&M)
10 <sup>th</sup> September 2008	Mid-flood	DO	AL	M6
12 <sup>th</sup> September 2008	Mid-ebb	DO	AL	M10 (B)
	Mid-flood	DO	AL	M2A and M4B
16 <sup>th</sup> September 2008	Mid-ebb	DO	AL	M1A, M2A, M3_M5A, M4B, M5B, M6, M8(S&M), M10(S&M), M11 and M12
	Mid-flood	DO	AL	M1A, M2A, M3_M5A, M4B, M5B, M6, M11 and M12
18 <sup>th</sup> September 2008	Mid-ebb	DO	AL	M2A, M3_M5A, M4B, M5B, M8(S&M), M11 and M12
			LL	M1A, M6 and M10(S&M)
	Mid-ebb	DO	AL	M1A, M8(S&M), M10(S&M), M11 and M12
20 <sup>th</sup> September 2008	Mid-ebb	DO	AL	M1A and M11
			LL	M2A, M3_M5A, M4B, M5B, M6, M8(S/M), M10(S/M) and M12
	Mid-flood	DO	AL	M10(B)
			LL	M1A, M2A, M3_M5A, M4B, M5B, M6, M8(S/M), M10(S/M), M11 and M12
22 <sup>nd</sup> September 2008	Mid-ebb	DO	AL	M1A and M11
			LL	M2A, M3_M5A, M4B, M5B, M6, M8(S/M), M10(S/M) and M12
	Mid-flood	DO	AL	M10(B)

Date	Tide	Parameter	Exceedance	Station
			LL	M1A, M2A, M3_M5A, M4B, M5B, M6, M8(S/M), M10(S/M), M11 and M12
26 <sup>th</sup> September 2008	Mid-ebb	DO	AL	M1A, M2A, M3_M5A, M4B, M5B, M6, M8(S/M), M10(S/M), M11 and M12
	Mid-flood	DO	AL	M1A, M2A, M3_M5A, M4B, M5B, M6, M8(S/M), M10(S/M), M11 and M12
26 <sup>th</sup> September 2008	Mid-ebb	SS	LL	M8 and M10
30 <sup>th</sup> September 2008	Mid-ebb	DO	AL	M1A, M2A, M3_M5A, M4B, M5B, M6, M8(S/M), M10(S/M), M11 and M12
	Mid-flood	DO	AL	M1A, M2A, M3_M5A, M4B, M5B, M8(S/M), M10(S/M), M11 and M12
30 <sup>th</sup> September 2008	Mid-ebb	SS	LL	M10
2 <sup>nd</sup> October 2008	Mid-ebb	DO	AL	M1A, M2A, M3_M5A, M4B, M5B, M6, M8(S/M), M10(S/M), M11 and M12
	Mid-flood	DO	AL	M1A, M2A, M3_M5A, M4B, M5B, M6, M8(S/M), M10(S/M), M11 and M12
4 <sup>th</sup> October 2008	Mid-ebb	DO	AL	M1A, M2A, M3_M5A, M4B, M5B, M6, M8(B), M10(B), M11 and M12
	Mid-flood	DO	AL	M1A, M2A, M3_M5A, M4B, M5B, M6, M8(B), M10(B), M10(S/M), M11 and M12
6 <sup>th</sup> October 2008	Mid-ebb	DO	AL	M8 (S/M), M8 (B) and M10 (B)
	Mid-flood	DO	AL	M1A, M2A, M3_M5A, M5B, M6, M8 (S/M), M8 (B), M10 (B) and M12
8 <sup>th</sup> October 2008	Mid-ebb	DO	AL	M1A, M2A, M3_M5A, M4B, M5B, M6, M11 and M12
	Mid-flood	DO	AL	M1A, M2A, M3_M5A, M4B, M5B, M6, M8 (B), M10(B), M11 and M12
10 <sup>th</sup> October 2008	Mid-ebb	DO	AL	M1A, M2A, M3_M5A, M4B, M5B, M6, M10(S/M), M8(B), M10(B) and M12
	Mid-flood	DO	AL	M1A, M2A, M3_M5A, M4B, M5B, M6, M10 (B), M11 and M12
13 <sup>th</sup> October 2008	Mid-ebb	DO	AL	M3_M5A, M4B, M5B and M10(B)
	Mid-flood	DO	AL	M2A, M3_M5A, M4B, M5B, M6, M11 and M12
		SS	AL	M10, M6 and M12
15 <sup>th</sup> October 2008	Mid-ebb	DO	AL	M1A, M5B, M6, M8(B), M10(B), M11 and M12
	Mid-flood	DO	AL	M1A, M2A, M3_M5A, M4B, M5B, M6, M11 and M12
		SS	AL	M1A
		LL	LL	M12
17 <sup>th</sup> October 2008	Mid-ebb	DO	AL	M1A, M2A, M3_M5A, M4B, M5B, M6, M11 and M12
		SS	AL	M1A and M11
	Mid-flood	DO	AL	M1A, M2A, M3_M5A, M4B, M5B, M6, M11 and M12
		SS	AL	M1A
		LL	LL	M6 and M12
20 <sup>th</sup> October 2008	Mid-ebb	DO	AL	M1A, M2A, M3_M5A, M4B, M5B, M6, M11 and M12
	Mid-flood	DO	AL	M1A, M2A, M3_M5A, M4B, M5B, M6, M11 and M12
22 <sup>nd</sup> October 2008	Mid-ebb	DO	AL	M8(B) and M10(B)
	Mid-flood	DO	AL	M1A, M2A, M3_M5A, M5B, M11 and M12
		SS	AL	M3_M5A and M5B

Date	Tide	Parameter	Exceedance	Station
24 <sup>th</sup> October 2008	Mid-ebb	DO	AL	M8(S/M), M8(B), M10(S/M) and M10(B)
	Mid-flood	DO	AL	M8(S/M), M8(B), M10(S/M) and M10(B)
		SS	AL	M1A and M11
27 <sup>th</sup> October 2008	Mid-ebb	DO	AL	M1A
		SS	AL	M8
	Mid-flood	DO	AL	M1A, M2A, M3_M5A, M4B, M5B, M11 and M12
		SS	AL	M1A, M8 and M11
29 <sup>th</sup> October 2008	Mid-ebb	DO	AL	M1A
		SS	AL	M1A and M5B
	Mid-flood	DO	AL	M1A, M2A, M3_M5A, M4B, M5B, M11 and M12
31 <sup>st</sup> October 2008	Mid-ebb	DO	AL	M1A, M6, M8(B), M11 and M12
	Mid-flood	DO	AL	M1A, M2A, M3_M5A, M4B, M5B, M6, M11 and M12
		SS	AL	M1A and M5B
		LL		M6, M11 and M12

Date	Tide	Parameter	Exceedance	Station
<b>Additional Water Quality Monitoring for "Type A fill" Filling Works Conducted by the Contractor</b>				
29 <sup>th</sup> August 2008	Mid-flood	SS	LL	Combined marine impact monitoring station (AM7-AM9)
8 <sup>th</sup> September 2008	Mid-flood	SS	AL	Combined marine impact monitoring station (AM7-AM9)
15 <sup>th</sup> October 2008	Mid-flood	SS	AL	Combined marine impact monitoring station (AM7-AM9)
22 <sup>nd</sup> October 2008	Mid-flood	SS	AL	Combined marine impact monitoring station (AM7-AM9)
29 <sup>th</sup> October 2008	Mid-ebb & Mid-flood	SS	AL,LL	Combined marine impact monitoring station (AM7-AM9)
31 <sup>st</sup> October 2008	Mid-flood	SS	AL	Combined marine impact monitoring station (AM7-AM9)

A statistical analysis (presented in **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 did not cause adverse impacts during the reporting period with respect to the baseline condition.

#### **4.2 Non-Compliance**

No non-compliance with regard to site environmental audit was recorded during the reporting period.

### **4.3 Summary of Actions Taken by the Contractor**

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

- Contractor has implemented 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 paths where possible to prevent erosion, creation of drainage channels and soak pits;
- Provision of 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 and increased frequency of cleaning of catch-pits; and
- Water browsing of haul roads and other areas of the site and covering of stockpiles.

### **4.4 Environmental Enquiries**

No environmental enquiries were received during this reporting quarter.

### **4.5 Environmental Complaints and Prosecutions**

No environmental complaints were received during this reporting quarter.

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

There was no record of environmental complaints during this reporting quarter.

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

## **5. CONCLUSION**

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

No exceedance in TSP level was recorded at the two monitoring stations during this reporting quarter.

Forty exceedances of noise were recorded at the City Hall monitoring station on 1<sup>st</sup> August 2008, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup>, 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> September 2008.

The exceedances may have been attributed to the Project works, possibly due to the concurrent operation of the backhoe and the sheet piling activity. The Contractor was advised to schedule the works at the former Queen's Pier carefully such that the backhoe operation and the sheeting piling activity will not be undertaken concurrently. The Contractor had rescheduled their works at the former Queen's Pier to avoid concurrent operation of the backhoe and vibrating hammer on 2<sup>nd</sup> August 2008.

The exceedances between 2<sup>nd</sup> September and 5<sup>th</sup> September may have been caused by the drilling machine penetrating the former seawall during the drilling process. The ET communicated this with the Contractor on 5<sup>th</sup> September 2008. It was suggested that the drilling works at the former Queen's Pier should be scheduled and operated carefully.

The exceedances between 8<sup>th</sup> September and 10<sup>th</sup> September may have been attributed to the Project works, possibly due to the concurrent operation of both the drilling and sheet piling activities. The ET communicated this with the Contractor representative on 10<sup>th</sup> September 2008. The Contractor was advised to schedule the construction activities at the former Queen's Pier carefully and that concurrent operation of both the drilling and sheet piling activities should be avoided. It was also advised that short breaks between noisy activities should be taken as far as practicable. In addition, the Contractor was reminded to provide clear guidelines for the frontline staff to prevent the concurrent operation of both the drilling activities and the sheeting piling activity in the former Queen's Pier works area. No exceedances occurred after the communication on 10<sup>th</sup> September 2008.

Water quality exceedances were recorded on 38 sampling days in this reporting quarter. All exceedances have been investigated and the exceedances of Action/Limit Level for SS that occurred on 29<sup>th</sup> October 2008 were considered to be potentially attributed to the Project as well as other external factors. Additional sampling was undertaken on 31<sup>st</sup> October by the Contractor. The exceedance of SS was recorded but it was not related to project works. In addition, no underwater filling at FRAE will take place after 31<sup>st</sup> October 2008. Therefore, No further action was considered necessary. All exceedances of Action/Limit Level for DO were considered to have not been related to the Project works.