

**Central Reclamation, Phase III
Environmental Monitoring & Audit
Monthly Report No. 10
May 2004**

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ACL	Atkins China Limited
CRIII	Central Reclamation Phase III
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
TDD	Territory Development Department
TSP	Total Suspended Particulates
WMP	Waste Management Plan

Executive Summary

The Central Reclamation Phase III Works, Contract No. HK 12/02, was awarded to Leighton China State Van Oord Joint Venture (LCSVO-JV) by the Territory Development Department (TDD), Hong Kong Islands and Islands Development Office. The works under the Contract HK 12/02 commenced on 28 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 December 2003.

Atkins China Limited (ACL) has been appointed by TDD 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 (ET) services during the duration of the construction works.

This is the tenth Monthly EM&A Report under the EIAO 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 programme during the reporting period from 1 to 31 May 2004.

Environmental Monitoring and Audit Progress

The monthly EM&A programme was undertaken in accordance with the EM&A Manual. A summary of the monitoring activities performed in this reporting month is listed below:

- Environmental site inspections were undertaken on 6, 13, 20 and 27 May 2004.
- Noise monitoring was performed continuously for 24 hours.
- Water quality monitoring was undertaken on the following days:
 - 3 May 2004
 - 5 May 2004
 - 7 May 2004
 - 10 May 2004
 - 12 May 2004
 - 14 May 2004
 - 17 May 2004
 - 19 May 2004
 - 21 May 2004
 - 24 May 2004
 - 26 May 2004
 - 28 May 2004
 - 31 May 2004

Exceedance of Action and Limit Levels

There was no environmental air quality monitoring required during the reporting period.

The noise monitoring carried out during the reporting did not find any exceedances that were attributable to the project works. Although the continuous monitoring data recorded instances where the Leq (30 minutes) exceeded 75 dB(A), investigations into these levels found that they were due to local noise conditions at the City Hall monitoring location and were not due to the project. Previous off-site inspections carried out by the IEC noted that the main sources of noise near City Hall were from helicopter and vehicle traffic and passer-by activities in the area.

From the analysis of water quality monitoring results collected during the reporting period, no exceedances were identified as being directly attributable to the project marine works. However, the dissolved oxygen (DO) and suspended solids (SS) levels exceeded the Action and Limit Levels on one occasion and six occasions respectively. Investigations found that they were due to natural variation in ambient conditions and/or local influencing factors. A review of the monitoring results showed that control stations located outside the project's influence had similar values as marine impact stations and seawater intake monitoring data showed variable results with localised exceedances near stormwater outfalls. These findings were similar to the conditions observed during baseline monitoring and silty discharges from outfalls within the project area were documented during the reporting month.

Complaint Log

There were no environmental complaints received during this reporting period.

Notifications of Summons and Prosecutions

There were no notifications of summons or prosecutions received with regard to the environment during this reporting period.

Site Inspection and Audit

Environmental site inspections for the CRIII project works area were undertaken on 6, 13, 20 and 27 May 2004. No environmental non-conformance and deficiencies were observed during the site inspections.

Future Key Issues

Future Key Issues are as follows:

- The temporary installation of pre-cast seawall caissons in IRAW is planned for early June 2004. Previously, Cinotech Consultants Ltd. on behalf of the Contractor has conducted an environmental review of the unloading operation. The review did not find any significant environmental impacts with the planned works.
- Dredging work for the remaining portions in IRAE.
- Marine piling works and rock filling works.
- Landside piling for the Central Terminal Building (CTB).

1. INTRODUCTION

1.1 Basic Project Information

The Territory Development Department (TDD) 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 28th 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. 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 December 2003. Construction works undertaken during the reporting month include dredging, reclamation up to the original seabed level only, marine site investigation, demolition preparation work at General Post Office (GPO) Walkway and remedial works at Culvert F.

Atkins China Limited (ACL) has been commissioned by TDD to undertake the environmental monitoring and audit work for the project in accordance with the Environmental Permit (EP No. EP-122/2002) issued to TDD on 7 March 2002. The CRIII Project Organisation is shown in **Annex A**.

This is the tenth monthly EM&A Report under the EIAO, which presents the results of EM&A work conducted during the period from 1 to 31 May 2004, inclusive.

2. ENVIRONMENTAL STATUS

2.1 Works Undertaken

The works undertaken during the reporting month include dredging and rock filling works, marine piling at IRAW, pre-bored H-piles work for Central Terminal Building (CTB), watermain diversion at the CTB, superstructure works for Pier No. 7, cooling watermain work at Lung Wui Road and maintenance and necessary repair work for seawater intake silt screens.

2.2 Environmental Permits

A summary of the status of all environmental permits, license, and/or notification to EPD for this project during the reporting period are presented in **Table 2.1**.

Table 2.1 - Summary of the Environmental License / Permit Status

Item	Item Description	Date of Application	Permit Status
1	LCSVO-JV submitted a clarification of application material for an Application for a Permit to Dump Material (Contaminated Sediment) at Sea Under the Dumping at Sea Ordinance (Ref. H2189/U2c/7115/MP/EY/ST/atm)	21 May 2004	–
2	LCSVO-JV submitted an Application for Construction Noise Permit for Unloading and Temporary Storage of Pre-cast Caisson Units (Ref. H2189/U2c/6922/MP/EY/MB/ST/cm)	13 May 2004	–
3	LCSVO-JV submitted an Application for a Permit to Dump Material (Contaminated Sediment) at Sea Under the Dumping at Sea Ordinance (H2189/U2c/6768/MP/EY/ST/cm).	10 May 2004	–
4	LCSVO-JV submitted a letter informing the termination of employment of Hopper Barge (HB SHB 1026) for Dumping Operation Under the Dumping at Sea Ordinance (H2189/U2c/6829/MP/EY/ST/cm)	10 May 2004	–

2.3 Environmental Document Submission

A summary of the status of the submissions provided during the reporting month is presented in **Table 2.2**.

Table 2.2 - Summary of the Contractor's Environmental Related Document Submissions to the Engineer's Representatives (ER)

Item	Document Title	Version	Date of Submission to ER
1	<i>Photographs of Silty Discharge (19, 22 and 24 May 2004)</i>	-	29 May 2004
2	<i>Construction Noise Permit GW-TS0219-04</i>	-	28 May 2004
3	<i>Construction Noise Permit GW-TS0193-04</i>	-	18 May 2004
4	<i>Photographs of Silty Discharge</i>	-	17 May 2004
5	<i>Construction Noise Permit GW-TS0189-04</i>	-	14 May 2004
6	<i>Construction Noise Permit GW-TS0185-04</i>	-	12 May 2004
7	<i>Photographs of Silty Discharge (7 & 10 May 2004)</i>	-	10 May 2004
8	<i>Photographs of Silty Discharge (5 & 6 May 2004)</i>	-	6 May 2004
9	<i>Marine Dumping Permit (Uncontaminated) EP/MD/ 04-149</i>	-	5 May 2004

A summary of the Environmental Certification Sheet submissions to EPD during the reporting month is presented in **Table 2.3**.

Table 2.3 - Summary of Environmental Certification Sheet Submissions to the Environmental Protection Department (EPD)

No	Certification Subject	Letter Ref.	Date of Submission to EPD	Approved Status
1	<i>Certification of Monthly Environmental Report No. 9 - April 2004</i>	3128/M45/200/OC6016/AC/al	21 May 2004	-
2	<i>Certification of Quarterly Environmental Report No. 3 - February 2004 through April 2004</i>	3128/M45/200/OC6017/AC/al	21 May 2004	-

2.4 Environmental Meetings

No environmental meetings were held during the reporting month.

2.5 Environmental Monitoring Locations

The environmental monitoring locations are provided in **Annex C**.

3. EM&A REQUIREMENTS

3.1 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 3-1**.

Table 3.1 - 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
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

3.2 Environmental Quality Performance Limits

Environmental Quality Performance Limits for air, noise and water quality as provided in the Baseline Monitoring Report (Final) are shown in Annex D.

3.3 Event Action Plan

The Event Action Plans for air, noise and water quality as provided in the Baseline Monitoring Report (Final) are shown in **Annex E**.

3.4 Implementation of Environmental Measures

The Contractor is required to implement mitigation measures listed in the EIA Report, EM&A Manual and Further Environmental Permit. During routine site inspections, the Contractor's implementation of mitigation measures is reviewed. With regard to mitigation measures for water quality, the Contractor carried out daily visual inspection of the silt screens for seawater intakes. Bi-weekly diving inspections for the silt screens were also carried out in May 2004. During the reporting month, there were no records of the Contractor not implementing relevant mitigation measures.

4. MONITORING RESULTS

4.1 Impact Monitoring Schedule in May 2004

Regular site inspections were carried out to assess whether the project's environmental protection and pollution control measures are in compliance with the contract specifications. Inspections were conducted on 6, 13, 20 and 27 May 2004.

Air quality monitoring has not commenced yet as no work areas or construction activities with the potential to impact air quality are within range of the closest air quality sensitive receivers.

Continuous 24-hour noise monitoring was conducted during this reporting period.

Impact water quality monitoring at all monitoring stations was undertaken during this reporting month. The water quality monitoring schedule for May 2004 is presented in **Table 4-1**.

Table 4.1 - Water Quality Monitoring Programme (Seawater Intakes Stations)

Date of Sampling	Tidal State	Timing of Sampling
3 May 2004	Mid Ebb	10:06 - 13:01
	Mid Flood	15:33 - 18:07
5 May 2004	Mid Ebb	10:53 - 13:40
	Mid Flood	15:46 - 18:15
7 May 2004	Mid Ebb	12:32 - 15:06
	Mid Flood	07:25 - 10:48
10 May 2004	Mid Ebb	15:30 - 18:01
	Mid Flood	07:43 - 10:44
12 May 2004	Mid Ebb	15:24 - 17:54
	Mid Flood	10:40 - 13:26
14 May 2004	Mid Ebb	08:11 - 11:07
	Mid Flood	13:08 - 15:51
17 May 2004	Mid Ebb	10:40 - 14:06
	Mid Flood	15:17 - 17:55
19 May 2004	Mid Ebb	11:11 - 14:10
	Mid Flood	15:50 - 18:11
21 May 2004	Mid Ebb	11:43 - 14:10
	Mid Flood	07:03 - 09:50
24 May 2004	Mid Ebb	13:32 - 16:25
	Mid Flood	07:40 - 10:36
26 May 2004	Mid Ebb	15:20 - 17:48
	Mid Flood	07:26 - 10:42
28 May 2004	Mid Ebb	15:13 - 17:44

Date of Sampling	Tidal State	Timing of Sampling
	Mid Flood	10:50 - 13:33
31 May 2004	Mid Ebb	09:02 - 11:55
	Mid Flood	14:47 - 17:28

4.2 Monitoring Methodology

4.2.1 Air Quality Monitoring

Air quality monitoring will be performed in accordance with the methodology described in the EM&A Manual once construction activities requiring air quality monitoring commence. The locations of the monitoring stations at City Hall and PLA Headquarters are shown in **Annex C**.

4.2.2 Noise Quality Monitoring

Continuous 24-hour noise monitoring was performed in accordance with the methodology described in the EM&A Manual in the reporting period. The location of the noise monitoring station at City Hall is shown in **Annex C**.

4.2.3 Water Quality Monitoring

Water quality monitoring was performed in accordance with the methodology described in the EM&A Manual. Monitoring for the reporting month was conducted at all stations, which comprises of 6 marine-based stations and 8 seawater intake stations. The locations of the monitoring stations are shown in **Annex C**.

4.3 Monitoring Equipment

4.3.1 Air Quality

The equipment that is used for air quality monitoring is listed in **Table 4-2**.

Table 4.2 - Equipment for Air Quality Monitoring

Parameter Measured	Equipment
24-Hour Sampling	High Volume Sampler Model GS2310 by Anderson Instruments to be used for both monitoring stations.
1-Hour Sampling	MicroDust pro Aerosol Monitoring System to be used for both monitoring locations.

4.3.2 Noise Quality

The equipment used for continuous noise quality monitoring is listed in **Table 4-3**.

Table 4.3 - Noise Monitoring Equipment

Equipment	Model
Integrated Sound Level Meter (SLM)	B&K 2238
Calibrator	B&K 4231, Class 1

4.3.3 Water Quality

The equipment that was used for water quality monitoring is listed in **Table 4-4**.

Table 4.4 - Equipment Used for Marine Water Quality Monitoring

Parameter Measured	Equipment
Dissolved Oxygen and Temperature Measuring Equipment	<p>A Dissolved Oxygen meter YSI model 58 was used.</p> <ul style="list-style-type: none"> This instrument was portable and weatherproof and used a DC power source. The equipment was capable of measuring: DO levels in the range of 0-20 mg/l and 0-200% saturation; and Temperature of between 0 - 45 degree Celsius. The equipment had a membrane electrode with an automatic temperature compensation complete with a cable. In addition, a Wirling Psychrometer was used as a reference thermometer during the sampling.
Turbidity Measurement Instrument	<p>A Turbidimeter, HACH model 2100P was used for determining turbidity levels. The instrument is portable and weatherproof and uses a DC power source. The instrument includes a photoelectric sensor capable of measuring turbidity between 0-1000 NTU.</p>
pH	<p>A MP125 pH Meter from Mettler Toledo was used to measure pH.</p>
Salinity / Conductivity Meter	<p>A Salinity / Conductivity meter YSI model 63 and model 30 was used for determining salinity concentrations.</p>
Sample Containers and Storage	<p>Water samples for SS analysis were stored in high density polythene bottles with no preservative added, packed in ice and delivered to the laboratory, and analysed as soon as possible after collection.</p>

4.3.4 Equipment Calibration

The calibration frequencies of the monitoring equipment are provided in the following table.

Table 4.5 - Equipment Calibration Frequencies

Equipment	Calibration Frequency
Dissolved Oxygen Meter	Every 6 months
Turbidimeter	Every 3 months for secondary standards; meter is calibrated prior to each measurement to the secondary standards
pH Meter	Prior to each sampling day
Psychrometer	Every 6 months
Integrated SLM	Every year

4.4 Impact Monitoring Results

4.4.1 Air Quality & Noise Monitoring Results

No air quality monitoring work was undertaken during the reporting period as no significantly dusty construction activities with the potential to impact air quality are within range of the closest air quality sensitive receivers.

Noise quality monitoring work was undertaken during the reporting period. The noise monitoring results are provided in **Annex F**. Graphical representation of the noise monitoring data is provided in **Annex G**.

4.4.2 Water Quality Monitoring Results

Water quality monitoring was undertaken at all water quality monitoring locations during the reporting period. The water quality monitoring results from this reporting period are presented in **Annex H**. Graphical representation of the water quality data is provided in **Annex I**. Summaries of the results are provided in Tables 4.5 to 4.9.

Marine-Based Stations

Monitoring stations M8 and M10 were selected as the marine-based impact stations as they are located outside the predicted influence of the dredging and reclamation works. The detection of water quality degradation at these two stations may indicate that project marine works are adversely affecting water quality in Victoria Harbour. Stations M7 and M9 are within the expected influence of the reclamation activities and are located along the works area boundary (or extent of the predicted sediment plume). As such, M7 and M9 are used as indicator stations to note any significant elevations in SS, turbidity or reductions in DO that may affect the marine-based impact monitoring stations.

Table 4.5 is a summary of the marine-based stations monitoring results during mid-ebb tide.

Table 4.5 - Summary of Mid-Ebb Results for Marine-Based Stations

Station		Parameter				
		DO (S&M) mg/L	DO (B) mg/L	DO % Sat. (DA)	Turbidity (DA) NTU	SS (DA) mg/L
C1	min	5.1	4.1	72.7	4.4	3
	max	6.1	6.2	90.3	8.1	9
	avg	5.7	5.4	80.0	5.8	6
	sd	0.4	0.6	6.1	1.2	2
C2	min	4.6	4.4	70.2	4.0	5
	max	6.2	6.0	91.5	7.4	9
	avg	5.5	5.3	77.8	5.4	6
	sd	0.5	0.6	7.1	1.1	1
M7	min	4.9	4.5	69.3	4.1	4
	max	5.7	5.8	86.5	8.6	9
	avg	5.3	5.1	75.2	6.0	7

Station		Parameter				
		DO (S&M) mg/L	DO (B) mg/L	DO % Sat. (DA)	Turbidity (DA) NTU	SS (DA) mg/L
	sd	0.3	0.3	5.0	1.3	1
M8	min	4.7	4.5	67.4	4.1	5
	max	5.9	6.3	86.9	8.7	9
	avg	5.3	5.2	75.2	5.8	6
	sd	0.4	0.5	5.4	1.4	1
M9	min	4.8	4.2	67.9	4.4	3
	max	6.0	5.6	86.7	9.9	11
	avg	5.4	5.0	75.3	6.1	7
	sd	0.4	0.4	5.3	1.6	3
M10	min	4.8	4.3	68.7	4.7	3
	max	6.1	5.5	89.7	8.4	8
	avg	5.4	5.0	76.3	5.6	6
	sd	0.4	0.4	5.9	1.1	2

As Table 4.5 shows, DO levels at marine-based impact stations (M8 & M10) in the surface to middle layer during mid-ebb survey ranged between 4.6 and 6.2 mg/L with an average value of 5.7 mg/L and DO measurements in the bottom layer ranged from 4.1 to 6.2 mg/L with an average level of 5.4 mg/L. Similar DO levels were recorded at the control stations at which DO levels in the surface to middle layer during mid-ebb survey ranged from 4.7 to 6.1 mg/L with an average value of around 5.4 mg/L; DO measurements in the bottom layer ranged between 4.3 and 6.3 mg/L with an average level of 5.2 mg/L.

SS levels during mid-ebb tide ranged from 3 to 9 mg/L with an average value of 6 mg/L at the marine-based impact stations (M8 & M10), which is comparable to results from the control stations in which SS content ranged from 3 to 9 mg/L with an average of 6 mg/L. The results showed no clear gradient effect (high SS and low DO levels from near-field stations M7 and M9 to far-field stations M8 and M10), which indicates that dredging works are not adversely affecting marine water quality outside the work site boundary in Victoria Harbour. Marine water quality at impact monitoring stations was found to be similar to that at the control stations also indicating that project marine works were not adversely affecting water quality in Victoria Harbour.

Table 4.6 is a summary of monitoring results from marine-based stations during mid-flood tide.

Table 4.6 - Summary of Mid-Flood Results for Marine-Based Stations

Station		Parameter				
		DO (S&M) mg/L	DO (B) mg/L	DO % Sat. (DA)	Turbidity (DA) NTU	SS (DA) mg/L
C1	min	5.0	4.3	72.4	4.0	4
	max	6.0	5.9	90.8	8.4	11
	avg	5.5	5.1	78.3	5.4	7
	sd	0.3	0.4	5.3	1.5	2
C2	min	4.9	4.5	68.5	3.3	3
	max	6.0	6.3	90.5	6.8	8

Station		Parameter				
		DO (S&M) mg/L	DO (B) mg/L	DO % Sat. (DA)	Turbidity (DA) NTU	SS (DA) mg/L
	avg	5.3	5.2	77.5	5.2	6
	sd	0.4	0.6	7.0	1.0	1
M7	min	4.1	4.5	62.9	4.4	4
	max	5.8	5.4	85.3	7.9	9
	avg	5.0	4.8	72.3	5.5	6
	sd	0.5	0.3	6.4	0.9	1
M8	min	4.8	4.5	67.6	3.7	3
	max	5.6	5.6	80.8	7.2	9
	avg	5.2	4.9	74.2	5.3	6
	sd	0.3	0.3	4.3	0.9	2
M9	min	4.5	4.5	65.2	3.9	3
	max	5.9	5.4	85.6	7.3	9
	avg	5.0	4.8	72.9	5.3	6
	sd	0.4	0.3	5.8	1.2	2
M10	min	4.7	4.6	68.4	4.1	3
	max	5.9	5.6	84.3	7.8	9
	avg	5.2	4.8	74.4	5.4	6
	sd	0.4	0.3	5.4	1.2	2

During mid-flood tide, DO levels at marine-based impact stations (M8 & M10) in the surface to middle layer ranged from 4.7 to 5.9 mg/L with an average level of 5.2 mg/L while DO values in the bottom layer ranged between 4.5 and 5.6 mg/L with an average of 4.9 mg/L. Similar DO concentrations were recorded at the control stations in the surface to middle layer during mid-flood survey ranged between 4.3 and 6.3 mg/L with an average value of 5.4 mg/L and DO results in the bottom layer ranged from 4.3 and 6.3 mg/L with an average of 5.1 mg/L.

SS content ranged between 3 and 9 mg/L (for stations M8 & M10) with an average of 6 mg/L during mid-flood tide and ranged from 3 to 11 mg/L with an average value of 6 mg/L at the control stations. Again, the results showed no clear gradient effect and no significant difference between control stations and marine-based impact stations. Therefore, the marine-based station results indicate that during the reporting month the dredging works were not adversely affecting water quality outside the work site boundary.

Seawater Intake Stations

Table 4.7 is a summary of monitoring results from seawater intake stations during mid-ebb tide.

Table 4.7 - Summary of Mid-Ebb Results for Seawater Intake Stations

Station		Parameter			
		DO mg/L	DO % Sat.	Turbidity NTU	SS mg/L
M1	min	4.1	63.8	5.9	6
	max	5.9	88.4	13.8	11
	avg	4.8	71.1	8.3	9
	sd	0.5	7.9	2.0	2
M2	min	3.6	52.9	6.4	7
	max	5.3	78.3	10.6	18
	avg	4.3	64.0	8.6	13
	sd	0.6	7.9	1.5	4
M3	min	3.8	55.8	3.9	6
	max	5.6	82.5	7.7	10
	avg	4.6	68.2	6.2	8
	sd	0.5	6.8	1.0	1
M4	min	4.3	62.5	4.7	6
	max	6.1	90.0	8.7	12
	avg	4.9	72.9	6.2	8
	sd	0.6	8.4	1.1	2
M5	min	4.3	64.2	4.2	6
	max	6.2	87.2	9.8	12
	avg	5.0	73.4	6.0	8
	sd	0.6	7.8	1.5	2
M6	min	4.3	62.5	5.2	5
	max	5.9	86.6	8.7	15
	avg	5.2	76.0	6.6	9
	sd	4.3	62.5	5.2	5
M11	min	4.2	61.1	4.8	5
	max	6.1	90.6	7.2	13
	avg	5.0	73.8	6.0	7
	sd	0.6	9.3	0.7	2
M12	min	4.3	63.4	4.6	5
	max	5.5	80.5	8.4	13
	avg	5.1	74.4	5.9	7
	sd	0.4	5.5	1.1	2

Seawater intake results during mid-ebb tide, Table 4.7, show that DO levels ranged from 3.6 to 6.2 mg/L with an average of 5.2 mg/L. SS ranged between 5 and 18 mg/L with an average value of 9 mg/L. The monitoring results show that water quality at seawater intake stations was generally good. Only a few elevated SS levels, such as at stations M4 and M6, were found during the reporting month. Low DO levels at the intake stations were also recorded during the reporting month but investigations found that they were not due to project works. The poor water quality at these stations are likely due to adverse impacts from outfalls located adjacent to the

station. During the reporting month silty discharges from outfalls were observed and documented near stations M4 to M6 on 5-7, 10, 15, 19, 22 and 24 May 2004. Observations noted that the large patches of brown silty water generally dispersed westwards after discharging from the outfall. A figure showing the location of various outfalls along the seawall within the project area is shown in **Annex C**.

Table 4.8 is a summary of monitoring results from seawater intake stations during mid-flood tide.

Table 4.8 - Summary of Mid-Flood Results for Seawater Intake Stations

Station		Parameter			
		DO mg/L	DO % Sat.	Turbidity NTU	SS mg/L
M1	min	4.3	62.5	4.6	6
	max	5.8	86.4	10.2	12
	avg	4.8	72.1	7.1	8
	sd	4.3	62.5	4.6	6
M2	min	3.8	55.8	6.9	7
	max	5.9	86.7	14.2	18
	avg	4.5	67.0	8.9	12
	sd	0.7	9.9	2.0	3
M3	min	3.4	53.8	4.2	6
	max	6.4	94.6	9.8	14
	avg	4.6	67.4	6.9	9
	sd	0.8	11.1	1.5	2
M4	min	3.9	58.2	4.8	5
	max	6.3	91.9	9.4	13
	avg	5.0	73.8	6.8	8
	sd	0.7	10.6	1.3	2
M5	min	3.6	53.8	4.5	5
	max	6.1	90.8	10.1	13
	avg	4.7	69.9	6.6	8
	sd	0.8	12.1	1.8	2
M6	min	3.7	53.7	4.3	5
	max	6.5	95.9	9.7	14
	avg	4.8	70.6	7.2	9
	sd	0.8	11.9	2.0	3
M11	min	4.0	60.7	5.2	5
	max	6.3	92.5	8.9	13
	avg	5.1	74.7	7.0	8
	sd	0.7	10.4	1.0	2
M12	min	3.6	52.2	4.4	5
	max	6.2	91.4	8.8	15
	avg	4.8	70.8	6.2	7
	sd	0.8	11.4	1.4	3

During mid-flood survey, Table 4.8 shows that DO levels at seawater intake stations ranged from 3.4 to 6.5 mg/L with an average of 5.1 mg/L. SS ranged from 5 to 18 mg/L with an average SS content of 9 mg/L. The above results show that water quality during mid-flood tide was also generally good. Again, localised high SS levels and low DO levels were found but these were found to be not due to project works. The instances of poor water quality at several seawater intake stations were either due to adverse impacts from outfalls located adjacent to the stations or local ambient conditions in the area. As mentioned previously, large quantities of silty discharges from outfalls near stations M4 to M6 have been observed and documented on various occasions during the reporting month. A figure showing the location of various outfalls along the seawall within the project area is shown in **Annex C**.

4.4.3 Waste Management

No waste management audit was scheduled within this reporting period. The arrangement of waste management audit is detailed in the Waste Management Plan.

4.4.4 Landscape and Visual

As the works undertaken during the reporting month were related to site investigation works, demolition works and dredging works, the landscape and visual impacts are considered to be minimal.

5. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

5.1 Environmental Exceedances

The total number of exceedances for air, noise and water quality are presented in following sections.

5.1.1 Air Quality

No air quality monitoring work was undertaken during the reporting period.

5.1.2 Noise Quality

No exceedances of noise quality attributable to project works were observed during the reporting period. Although there were a few instances where the Leq (30 minutes) was found to be above 75 dB(A), these levels were investigated and found to be not due to project works. The noise levels above 75 dB(A) recorded on 2 May were due to a large public gathering outside City Hall.

The noise monitoring station situated at City Hall is under the influence of a variety of noise sources in the area that include helicopter traffic and vehicle movement at the drop off area in front of City Hall. Pedestrian activity in the area is another contributor of noise and tour groups also frequent the site.

5.1.3 Water Quality

Based on investigations and analyses of water quality monitoring results collected during the reporting month, it was found that no exceedances of the Action and Limit Levels were attributable to the project marine works. Although DO levels below the Action Level were observed at seawater intake stations, investigations found that they were due to natural variation or changes in ambient conditions and not caused by the project marine works. It was noted that during the reporting month, water quality at marine-based impact monitoring stations (M8 and M10) was found to be similar to the control stations.

The May 2004 monitoring results showed, on a few occasions, elevated concentrations of SS were recorded above the Action and/or Limit Level at seawater intake stations. Investigations into these monitoring results found that the SS levels are likely attributed to discharge influences from outfalls located in proximity of seawater intake monitoring stations. All of the higher SS concentrations recorded were shown to be localised conditions as no increased SS levels were detected at the marine-based impact stations and no unusual concentrations were measured at adjacent monitoring stations during the same time. High SS levels were often recorded at locations (stations M1 to M6) with outfalls and stormwater culverts that discharge into the harbour. Baseline monitoring results showed similar localised elevated concentrations of SS.

5.1.4 Waste Management

No non-compliances with regard to waste management were recorded in the reporting month.

5.1.5 Landscape and Visual

No non-compliance with regard to landscape and visual aspects were recorded in the reporting month.

5.1.6 Site Environmental Audit

No environmental non-compliances were found during environmental site inspections conducted during the reporting period. A joint site inspection with the IEC was conducted on 27 May 2004, and the IEC's site inspection report is provided in **Annex L**.

During the site inspections conducted on 6 and 13 May 2004, slightly dark smoke emissions from a diesel generator were observed and the Contractor was asked to check the plant. The Contractor was also reminded to thoroughly cover any sandy stockpiles near Pier No. 7.

During the site inspection conducted on 20 May 2004, slight grey exhaust emission from a diesel generator was observed at CR-12 and the Contractor was asked to check the plant. The Contractor was also asked to provide clear signage for the wheel washing facilities at Pier No. 7 and CR-10. Additionally, the Contractor was asked to enhance the prevention of muddy water from entering the gully during the pre-boring works at Pier No. 7. It was noted a silt removal system is used to remove suspended solids from the wastewater before it is discharged. Storm drains were also seen to be banded by sand bags to prevent muddy water from entering the drainage channel.

A faint oil sheen on top of a patch of ponding water was seen at Pier No. 7 during the site inspection on 27 May 2004. The Contractor was advised to clear the ponding water, which was immediately carried out. Also, a grease stain was found under a diesel generator at CR-13 and the Contractor was asked to replace or repair the generator and clean up the grease patch.

5.2 Environmental Complaint and Prosecution

Two environmental complaints regarding construction noise were received in May 2004. The first complaint, received by EPD on 5 May 2004, was with regard to noise generated from marine piling near Two International Finance Centre (Two IFC). Upon receipt of the complaint, the environmental complaint handling procedures as stipulated in the EM&A Manual and the Environmental Site Inspection Procedure Report were followed. An investigation was conducted and on 19 May 2004, the ET and EPD measured noise levels at the outside area, third floor of Two IFC during a joint site inspection. Marine piling works were being undertaken at the time and the recorded noise levels were within the acceptable noise level.

Premier Management Services, on behalf of Two IFC, lodged the second complaint addressed to TDD on 20 May 2004. The complaint was referred to the ET and an investigation was carried in accordance with the environmental complaint handling procedure. Based on the findings of the investigation, it was found that the daytime construction activities generating noise in the vicinity of Two IFC are: marine piling works near Pier No. 7, drilling works for pre-bored H piles near Pier No. 7 and superstructure works for Pier No. 7. The predominate noise generating activities are the marine piling works, which the Contractor has a valid Construction Noise Permit (CNP) for undertaking these works. Additional noise measurements were taken by the ET at the outside area, third floor of Two IFC during the marine piling works. The measured noise levels were within the acceptable noise level.

Based on the investigations of the complaints, it was found that the noise generated from construction activities are within the acceptable noise level and have been found to be compliant with the CNP and Noise Control Ordinance (NCO).

No prosecution notices or summons were received during the reporting period.

5.3 Environmental Enquiries

No environmental enquiries were received during the reporting month.

6. FORECAST AND SCHEDULE

6.1 Key Issues for the Coming Month

The key issues to be considered in the coming month include the following:

- Remaining dredging works at IRAE;
- Temporary installation of pre-cast caissons in IRAW;
- Marine piling and rock filling works;
- Pre-bored H piles work for landside piling at the Central Terminal Building (CTB);
- Superstructure works at Pier No. 7;
- Cooling watermain work at Lung Wui Road; and
- Maintenance and necessary repairs to the seawater intake silt screens.

6.2 Monitoring Schedules for the Next 3 Months

The construction works scheduled in May 2004 include marine piling, temporary storage of pre-cast caissons and superstructure works at Pier No. 7. Based on the Contractor's programme, the Environmental Monitoring Programme for the next three months is planned as follows:

TSP (24 hr and 1 hr monitoring)

Upon commencement of dust generating activities within range of the closest air quality sensitive receiver, dependent upon the Contractor's programme.

Noise (Continuous Measurements)

The noise monitoring programme throughout the entire construction period is 24-hour continuous.

Water Quality Monitoring

The water quality monitoring schedule for the next 3 months is provided in the following table.

Table 6.1 - Water Quality Monitoring Programme

Date of Sampling	Sampling Time	
2 June 2004	11:27	17:00
4 June 2004	08:00	13:30
7 June 2004	08:30	15:48
9 June 2004	10:21	17:00
11 June 2004	08:30	14:00
14 June 2004	10:31	16:54
16 June 2004	11:30	17:00
18 June 2004	12:00	17:30
21 June 2004	08:30	14:17

Date of Sampling	Sampling Time	
23 June 2004	08:30	15:38
25 June 2004	10:10	17:00
28 June 2004	08:44	15:07
30 June 2004	10:20	17:00
2 July 2004	12:00	17:30
5 July 2004	08:30	14:40
7 July 2004	09:13	16:11
9 July 2004	11:13	17:00
12 July 2004	09:27	15:59
14 July 2004	10:46	17:00
16 July 2004	11:53	17:00
19 July 2004	08:30	14:00
21 July 2004	08:30	14:46
23 July 2004	09:17	15:58
26 July 2004	08:30	14:00
28 July 2004	09:12	16:50
30 July 2004	11:02	17:00
2 August 2004	08:30	14:00
4 August 2004	08:30	14:55
6 August 2004	09:51	16:07
9 August 2004	08:30	14:38
11 August 2004	09:34	17:00
13 August 2004	10:53	17:00
16 August 2004	12:00	17:30
18 August 2004	08:30	14:38
20 August 2004	08:38	15:04
23 August 2004	11:56	17:00
25 August 2004	08:30	17:00
27 August 2004	10:03	17:00
30 August 2004	12:00	17:30

6.3 Construction Programme for the Next 3 Months

The construction programme for the next 3 months is provided in **Annex B** and will be updated by the Contractor.

The ET will follow the Contractor’s proposed programme to ensure the compliance of environmental performance and proper implementation of all necessary mitigation measures.