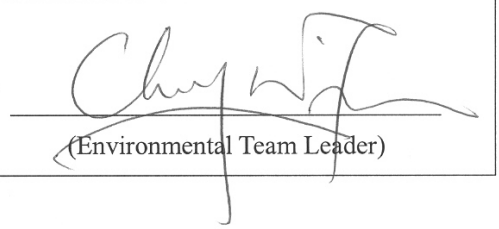
Harbour City Estates Limited

Maintenance Dredging for Ocean Terminal and Sea Water Pump House

Environmental Monitoring and Audit Monthly Report

May 2005

(Version 1.0)

Certified By 

(Environmental Team Leader)

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

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ABBREVIATION AND ACRONYM

AL Levels	Action and Limit Levels
DO	Dissolved Oxygen
EM&A	Environmental Monitoring and Audit
EMIS	Environmental Mitigation Implementation Schedule
EP	Environmental Permit
EPD	Environmental Protection Department
ET	Environmental Team
QA/QC	Quality Assurance / Quality Control
SS	Suspended Solids

EXECUTIVE SUMMARY

Introduction

1. This is the first monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited (the ET) for the project "Maintenance Dredging for Ocean Terminal and Sea Water Pump House" (the Project).

2. The dredging works were commenced on 26th April and completed on 20th May 2005. This document reported the findings of EM&A Works conducted during the dredging period.

Environmental Monitoring Works

3. Environmental monitoring for the Project was performed regularly as stipulated in the EM&A Manual and the results were checked and reviewed. The implementation of the environmental mitigation measures, Event Action Plans and environmental complaint handling procedures were also checked.

4. Summary of the non-compliance of the reporting period is tabulated Table I.

Table I Summary Table for Non-compliance Recorded in the Reporting Period

Media / Nature	No of Exceedances		Action Taken	Results of action taken	Remarks
	Action Level	Limit Level			
SS	0	1	N/A	N/A	The exceedance was not due to the Project works

Water Quality

5. Water quality monitoring was conducted as scheduled in this reporting period.

6. One Limit level exceedance for SS was recorded at station I3 on 9th May 2005 during flood tide. However, no direct evidence showed that the exceedance was due to the Project works and the elevation of SS concentration at I3 was due to the surface run-off generated from the rain. No further action was required.

Environmental Licenses and Permits

7. License/Permits granted to the Project include the Environmental Permit (EP), Marine Dumping Permit and Construction Noise Permit.

Complaints and Prosecutions

8. No environmental complaint or prosecution was received in this reporting period.

Future Key Issues

9. No environmental impact is anticipated as the dredging works have been completed.

1. INTRODUCTION

Background

1.1 Harbour City Estates Limited (hereinafter called the "Project Proponent") has planned to conduct maintenance dredging for navigation improvement for Ocean Terminal Pier and reinstatement of the designed seabed level in front of the sea water pump room (hereinafter called "the Project"). There are two sea water intakes located in the vicinity of the site area. Seawater is extracted through the sea water intakes for cooling the chiller plants of Harbour City. Another sea water intake of Star Ferry is located about 65m away from the dredging site. The locations of the dredging areas and the seawater intakes are shown in Figure 1 of this Manual

1.2 The Project is classified as a designated project under Schedule 2 Part I – Category C12 of the Environmental Impact Assessment Ordinance (Cap. 499) as three sea water intakes of Harbour City fall within 100m of the dredging sites, and the dredging operation is less than 500m from the nearest boundary of the site of cultural heritage, Former Kowloon-Canton Railway Clock Tower. An Environmental Permit (EP-204/2004) has been issued for the Project. An Updated EM&A Manual was submitted in accordance with the requirements of Condition 2.2 of the EP.

1.3 China Harbour Engineering Company (Group) (hereinafter called the "Contractor") was commissioned by the Project Proponent to carry out the dredging works. Cinotech Consultants Limited was commissioned by the Contractor to undertake the Environmental Team (ET) Services for the Project. The dredging works were commenced on 26th April 2005 and completed on 20th May 2005. This is the monthly EM&A report summarizes the EM&A works for the Project during the dredging period.

Project Organizations

1.4 Different parties with different levels of involvement in the project organization include:

- Project Proponent – Harbour City Estates Limited
- Contractor – China Harbour Engineering Company (Group)
- Environmental Team (ET) – Cinotech Consultants Limited

1.5 The responsibilities of respective parties are detailed in Section 1.4 of the Updated EM&A Manual. The project organization chart is presented in Figure 2.

1.6 The key contacts of the ET are shown in Table 1.1.

Table 1.1 Key Contacts of ET

Party	Name	Role	Phone No.	Fax No.
ET	Dr. Priscilla Choy	The ET Leader	2151 2089	3107 1388
	Ms. Winniss Kong	ET's coordinator	2151 2068	3107 1388
	Mr. Henry Leung	Monitoring Team Leader	2151 2087	3107 1388

Construction Programme

1.7 The dredging works were commenced on 26th April 2005 and completed on 20th May 2005.

Summary of EM&A Requirements

1.8 The EM&A programme requires construction phase monitoring for water quality. The EM&A requirements are described in following sections, including:

- All monitoring parameters;
- Action and Limit levels for all environmental parameters;
- Event / Action Plans;
- Environmental mitigation measures, as recommended in the EP; and
- Environmental requirements in contract documents.

1.9 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 3 of this report.

1.10 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely water quality and audit works for the Project in this reporting period.

2. WATER QUALITY

Monitoring Requirements

2.1 Water quality monitoring was conducted in accordance with the Updated EM&A Manual. Appendix A shows the established Action Limit Levels for the environmental monitoring parameters.

Monitoring Equipment

2.2 The water sampler used for water quality monitoring was Kahlsico Water-Bottle Model 135DW150. The sampler with associated equipment complied with the specifications stipulated in the Updated EM&A Manual.

2.3 Table 2.1 summarizes the equipment used in the water quality monitoring program. All the monitoring equipment complied with the specifications stipulated in the Updated EM&A Manual. Copies of the calibration certificates of are attached in Appendix B.

Table 2.1 Water Quality Monitoring Equipment

Equipment	Model and Make	Qty.
Water Sampler	Kahlsico Water-Bottle Model 135DW 150	1
Multi-parameter Water Quality System	YSI 6820	2
Monitoring Position Equipment	"Magellan" Handheld GPS Model GPS-320	1

Monitoring Parameters, Frequency and Duration

2.4 Table 2.2 summarizes the monitoring parameters, monitoring period and frequencies of water quality monitoring.

Table 2.2 Frequency and Parameters of Water Quality Monitoring

Station	Parameters	Frequency	No. of depth
I1	DO, SS, turbidity, salinity & temperature	three days per week, at mid-flood and mid-ebb tides	3
I2			3
I3			3

Monitoring Locations

2.5 In accordance with the Updated EM&A Manual, three water quality monitoring locations (Stations I1, I2 and I3) were specified for impact water quality monitoring. The locations are also shown on Figure 1

Monitoring Methodology, Calibration Details and QA/QC Procedures

Instrumentation

2.6 A multi-parameter meter (Model YSI 6820 CE-C-M-Y) was used to measure DO, turbidity, salinity and temperature.

Operating/Analytical Procedures

2.7 At each measurement, two consecutive measurements of salinity, turbidity, pH and temperature were taken. The probes were retrieved out of the water after the first measurement and then re-deployed for the second measurement. Where the difference in the value between the first and second readings of each set was more than 25% of the value of the first reading, the reading was discarded and further readings were taken.

2.8 For SS measurement, duplicate water samples for SS were taken and analysed at each monitoring station at each sample depth. The sample bottles were then packed in cool-boxes (cooled at 4°C without being frozen), and delivered to Wellab Ltd. for the analysis of suspended solids concentrations within 24 hours.

Maintenance and Calibration

2.9 Before each round of monitoring, a zero check in distilled water was performed with the turbidity probe of YSI 6820. The probe was kept in wet condition and then calibrated with a solution of known NTU.

2.10 Quality Control Reports for SS analysis by the HOKLAS-accredited laboratory, WELLAB Ltd. are attached in Appendix D.

Results and Observations

2.11 The monitoring data and graphical presentations of the monitoring results are shown in Appendix E. Note that in Appendix E, the "sea condition" is given as indicative information and does not necessarily adhere to any standard sea state descriptions. In general, "calm" means small or no waves were observed; "rough" includes white-capped sea or rougher; and "moderate" means all conditions in between "calm" and "rough".

2.12 Water quality monitoring was conducted as scheduled in this reporting period.

2.13 One Limit level exceedance for SS was recorded at station I3 on 9th May 2005 during flood tide. However, no direct evidence showed that the exceedance was due to the Project works and the elevation of SS concentration at I3 was due to the surface run-off generated from the rain. No further action was required.

2.14 No Action or Limit Level exceedance for SS concentrations was recorded at the three monitoring stations at the rest of the monitoring days.

3. ENVIRONMENTAL AUDIT

Review of Environmental Monitoring Procedures

3.1 The monitoring works conducted by the monitoring team were inspected regularly. The following observations have been recorded for the monitoring works:

Water Quality Monitoring

- The monitoring team recorded all observations around the monitoring stations, which might affect the monitoring result.
- The monitoring team recorded the weather and sea conditions on the monitoring day.

Status of Environmental Licensing and Permitting

3.2 License/Permits granted to the Project include the EP, Marine Dumping Permit and Construction Noise Permit.

Environmental Mitigation Implementation Schedule (EMIS)

3.3 According to the EP, the mitigation measures are required to be implemented. A summary of the EMIS is presented in Appendix H.

Implementation Status of Event Action Plans

3.4 The Event Action Plans for water quality are presented in Appendix G.

3.5 One Limit level exceedance for SS was recorded at station I3 on 9th May 2005 during flood tide. However, no direct evidence showed that the exceedance was due to the Project works and the elevation of SS concentration at I3 was due to the surface run-off generated from the rain. No further action was required.

Summary of Complaints and Prosecutions

3.6 No environmental complaint was received for the Project in this reporting period.

4. FUTURE KEY ISSUES

Key Issues for the Coming Month

4.1 No environmental impact is anticipated as the dredging works have been completed.

Monitoring Schedule for the Next Month

4.2 According to the Updated EM&A Manual, a 2-week post project monitoring is required. The tentative environmental monitoring schedule for the post project is shown in Appendix C.

5. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

5.1 Environmental monitoring works were performed in this reporting period and all monitoring results were checked and reviewed.

5.2 Water quality monitoring was conducted as scheduled in this reporting period.

5.3 One Limit level exceedance for SS was recorded at station I3 on 9th May 2005 during flood tide. However, no direct evidence showed that the exceedance was due to the Project works and the elevation of SS concentration at I3 was due to the surface run-off generated from the rain. No further action was required.

5.4 No environmental related complaint or prosecution was received in this reporting period.

Recommendations

5.5 According to the environmental audit performed in this reporting period, the following recommendations were made:

- To ensure accurate barge loading to avoid splashing of dredged material to the surrounding water.
- To identify any wastewater discharges from site.
- To remove the sediment collected in the de-silting facilities.