KINGSFORD ENVIRONMENTAL (H.K.) LTD. Consultancy Engineering & Contracting



CONTRACT NO. DE/2005/03

SUPPLY AND INSTALLATION OF ELECTRICAL AND MECHANICAL EQUIPMENT FOR EXPANSION OF SHEK WU HUI SEWAGE TREATMENT WORKS

ENVIRONMENTAL MONITORING AND AUDIT

QUARTERLY EM&A SUMMARY REPORT NO. 11

FROM DECEMBER 2008 TO FEBRUARY 2009

for

Biwater Man Lee Limited

Submitted by

Kingsford Environmental (H.K.) Ltd.

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TABLE OF CONTENTS

Approval & Distribution Sheet

Executive Summary

- 1 Introduction
- 2 Basic Project Information
- 3 Environmental Requirements
- 4 Implementation Status of Environmental Protection
- 5 Summary of Deficiencies and Remedial Actions
- 6 Summary of Complaints and Remedial Actions
- 7 Summary of Summons and Prosecutions
- 8 Comments, Conclusions and Recommendations

Tables:

Table 1	Master Construction Program for E&M Works
Table 2	Contact Information for Key Environmental Personnel
Table 3	Status of Permits and Licenses
Table 4	Site Inspections/Audits for December 2008 to February 2009
Table 5	Work Activities from December 2008 to February 2009

Table 6 Type and Quantity of Waste Disposed of from December 2008 to February 2009

Appendices:

- 1 Reporting Structure and Contractor Project Management Structure
- 2 Master Construction Work Program and Contractor's Schedule
- 3 EM&A Key Requirements List, Relevant Contract Requirements and Remedial Action
- 4 Permits
- 5 Site Layout of Work Areas, Sensitive Receivers, Locations of Monitoring and Control Stations, Action and Limited Levels and Event/Action Plan
- 6 Deficiency Investigation Reports
- 7 Complaint Reports
- 8 Summons and Prosecutions Records

APPROVAL & DISTRIBUTION SHEET

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APPROVAL

Certified by : ET Leader Signature: Date: 7/3/09 Mr. Stanley/Lau

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E&M Contractor (Biwater Man Lee Limited)	Mr. W. S. Lui	1
Independent Environmental Checker (CH2M HILL Hong Kong Limited)	Mr. Y. T. Tang	1

EXECUTIVE SUMMARY

This is the eleventh Quarterly Environmental Monitoring and Audit (EM&A) Summary Report for the Drainage Services Department Contract No. DE/2005/03 entitled "Supply and Installation of Electrical and Mechanical Equipment for Expansion of Shek Wu Hui Sewage Treatment Works". The E&M Contractor has employed an independent Environmental Team (ET), Kingsford Environmental (H.K.) Ltd., to monitor the implementation of the environmental protection measures, as required in the contract.

The ET's duties are to review/comment on the contractor's method statements regarding actions, investigate complaints, provide monthly and quarterly reports on the environmental status, and certification of reports and all submissions under the EP in accordance to the requirement of the EM&A manual and the Environmental Permit. The Independent Environmental Checker (IEC) for the project is to review and verify the reports and all submissions under the EP.

For the environmental monitoring activities, Action and Limit (A/L) Levels are defined levels of impact recorded which represent levels at which a prescribed response is required. Action Limit is an indication of a deteriorating ambient environment for which appropriate remedial actions are likely to be necessary to prevent environmental quality from falling outside the Limit Levels. If these are exceeded, construction works should not be preceded without appropriate remedial action, including critical review of the methods. Baseline monitoring was conducted by the Civil Contractor in November 2005 (Report No. 01284R0012).

In the eleventh quarter (December 2008 – February 2009), the major site activities mainly consisted of E&M equipment installation for Air Blower House No.2, Bioreactor No.5, Flow Division Pump Pit No.1 & 2, RAS/SAS Pumping Station No.2 & its Switchroom, Final Sedimentation Tank (FST) No.9 & 10 and Sludge Press House Extension.

Weekly site inspections, as recommended in the EM&A Manual, by an ET technician were commenced, as required. Joint site audits with the ER, the Contractors and environmental teams were also conducted in this quarter.

No deficiencies were found during the site inspections in this quarter. Thus, the work activities and mitigation measures were in compliance with the environmental protection regulations and contract requirements during this quarter.

Three monthly EM&A meetings were attended for the months of December 2008 to February 2009 with all of the parties (DSD, civil and E&M contractors, ETs, and the IEC) to review the environmental issues and communication between the parties.

There was no EPD visit during the quarter and no abatement notice or prosecution was raised by EPD.

There were no complaints received or notifications of summons or successful prosecutions during the quarter.

There was no reporting change during the reporting quarter.

The planned activities for March 2009 - May 2009 as regards E&M equipment are mainly the installation and T&C (if required) in i) new Air Blower House No.2, ii) Bioreactor No.5, iii) Flow Division Pump Pits No.1 & 2, iv) Final Sedimentation Tank Nos.9 and 10 and v) RAS/SAS Pumping Station No.2, vi) Switch Room for RAS/SAS Pumping Station No.2, vii) Sludge Press House Extension, viii) Sludge Conditioning Tank Nos.3 and 4, ix) Bunded Area for Ferric Chloride Storage Tank, and x) Defects rectification of SAS Thickening System in SAS Consolidation House.

1 Introduction

This is the eleventh Quarterly Environmental Monitoring and Audit (EM&A) Summary Report for the Drainage Services Department Contract No. DE/2005/03 entitled "Supply and Installation of Electrical and Mechanical Equipment for Expansion of Shek Wu Hui Sewage Treatment Works". The report was prepared by the Environmental Team, Kingsford Environmental (H.K.) Ltd., of the E&M Contractor, Biwater Man Lee Limited. This report is submitted to the Client, the Drainage Services Department, and her Independent Environmental Checker, CH2M HILL Hong Kong Limited, for the project. In addition, this report is to be submitted to EPD in accordance with the requirement of the environmental permit (EP218-2005) and EM&A manual of the project.

This report presents the summary results of the environmental auditing of the project activities conducted during the months of December 2008 to February 2009. The auditing works include regular site inspections for verification of the mitigation measures implementation as recommended in the EM&A Manual and as detailed in the Project Profile for the project.

The contact information for the key personnel is shown in Appendix 1.

2 Basic Project Information

The major parties involved in the project with respect to environmental protection are shown in Appendix 1 (Ref.: EM&A Manual). These include the E&M Contractor and their Environmental Team, the DSD Client, and the Independent Environmental Checker, or IEC and EPD. A chart showing the duties of the parties regarding inspections and follow-up is also shown.

The E&M Contractor's management and project team is shown in Appendix 1. The ET consists of an ET Leader and 2 environmental technicians. The ET site inspections are co-ordinated with the E&M Contractor's Site Agent.

The works for the installation of the E&M equipment and for testing and commissioning of the various systems has commenced on 19 June 2006 and to be completed by 15 May 2009. The master construction program schedule from the Particular Specification and the Contractors current detailed work schedule are attached in Appendix 2. The major E&M work packages are listed below in Table 1.

Section	Task Description	Date	
Ι	- Submissions and approval of Process Design, Equipment, Schematics, GA and Civil Works Requirements.	14 Feb '06 – 13 Jun '06	
II	 E&M equipment installation, T&C for Density Current Baffles for 3 Existing Final Sedimentation Tanks. 	19 Jun '06 – 6 Oct '06	
III	- E&M equipment installation, T&C for pH Control System for Bioreactors.	19 Jun '06 – 8 Jan '07	
IV	 E&M equipment installation, T&C for Density Current Baffles for 4 Existing Final Sedimentation Tanks. 	18 May '07 – 19 Sep '07	
V	 E&M equipment installation, T&C for SAS Thickening Centrifuges. 	18 May '07 – 6 May '08	
VI	- E&M equipment installation, T&C for New Air Blower House No. 2.	10 Oct '07 – 28 Nov'08 (Tentative)	
VII	- E&M equipment installation, T&C for New Flow Division Pump Pits.		
	- E&M equipment installation, T&C for Bioreactor No. 5.	18 Feb '08 – 23 Feb '09 (Tentative)	
	- E&M equipment installation, T&C for Final Sedimentation Tank Distribution Chamber.		
VIII	- E&M equipment installation, T&C for New Final Sedimentation Tanks.	11 Apr 200 1 Apr 200 (Tradation)	
	- E&M equipment installation, T&C for RAS/SAS Pumping Station.	11 Apr '08 – 1 Apr '09 (Tentative)	
IX	- E&M equipment installation, T&C for New Sludge Conditioning Tanks.		
	- E&M equipment installation, T&C for Press House Extension.	18 Jul '08 – 15 May '09 (Tentative)	
	- E&M equipment installation, T&C for DG Store and Chemical Waste Store.		
X	- E&M equipment installation, Remaining Works.	14 Feb '06 – 15 May '09 (Tentative)	

Table 1:Master Construction Program for E&M Works

The contact information for the key personnel is shown in Table 2.

Name	Title	Telephone	Fax
Mr. K. K. Cheung (DSD)	Engineer's Representative	2594-7338	2827-8532
Mr. Ben Yuen (BML)	Deputy Site Agent	2671-2350	2671-2351
Mr. Kenneth Leung (BML)	Deputy Site Agent	2671-2350	2671-2351
Mr. S. M. Ho (BML)	Site Waste Manager/Co-ordinator	2671-2350	2671-2351
Mr. Stanley Lau (KEL)	ET Leader	2612-2817	2614-7012
Mr. Tony Yeung (KEL)	ET Site Inspector	2612-2817	2614-7012
Mr. Y. T. Tang (CH2M)	The Independent Environmental Checker	3105-8686	2891-0305

Table 1:Contact Information for Key Personnel

3 Environmental Requirements

The works performed for this contract shall comply with the relevant Hong Kong government ordinances, regulations, guidelines, practice notes, etc. as regards environmental protection, as detailed in the Project Profile, the Environmental Monitoring and Audit Manual and Environmental Permit.

The EM&A Manual specifies environmental auditing to ensure that the mitigation measures recommended in the Project Profile are effectively implemented. A summary of the required environmental protection and mitigation measures for the construction phase extracted from Appendix B of the Manual ("Implementation Schedule of Mitigation Measures") is attached in Appendix 3.

The environmental aspects for the construction phase include plant noise, dust, water quality, and waste materials (including chemicals). Action and Limit (A/L) Levels are defined levels of impact recorded by the environmental monitoring activities which represent levels at which a prescribed response is required. The Event and Action Plans (EAPs) is to provide, in association with the monitoring and audit activities, procedures for ensuring that if any significant environmental incident (either accidental or through inadequate implementation of mitigation measures) does occur, the cause will be quickly identified and remediated, and the risk of a similar event recurring is reduced. This also applies to the exceedances of A/L criteria identified in the EM&A Manual. A summary of the event/action plant for the construction phase and operation phase extracted from EM&A Manual is attached in Appendix 5.

The job nature of the E&M contractor is mainly for installation of E&M equipment, all hand-held's breakers, bulldozer, concrete lorry mixer, dump truck and hand-held's poker, vibratory would not be frequently used so that the impact from noise and dust would be low. Also, the distance to the nearest sensitive receivers is large. Therefore, the potential environmental impact imposed to the sensitive receivers would be low. Routine environmental monitoring would only be considered when deficiencies and complaints were received.

The Environmental Permit conditions, i.e. section 1.39 of the Particular Specification, are shown in Appendix 3. The Permit is attached in Appendix 4.

4 Implementation Status of Environmental Protection

The status of permits and licenses is summarized in Table 3 and shown in Appendix 4.

Description	Permit No.	Valid Period		Ref.	Status
		From	То		
Environmental Permit	EP-218/2005	16/06/05	End of Project	PS1.39*	Granted
Register as Chemical Waste Producer	WPN 5517-624-B1 039-02	14/06/07	End of Project	Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354)	Granted

Table 3: Status of Permits and Licenses

* Particular Specification of Contract No. DE/2005/03

Weekly site inspections were conducted during this quarter, as required. Frequency of the site inspections depends upon the work activities as regards environmental protection. The site inspections and audits conducted during this quarter are summarized in Table 4.

Month	Date of Site Insp	oections/Audits	
WOIIII	by ER/ET/BML	by EPD	
December 2008	1, 10, 15, 24 and 31	n/a	
January 2009	8, 13, 22 and 29	n/a	
February 2009	3, 10, 17 and 24	n/a	

Table 4: Site Inspections/Audits for December 2008 to February 2009

The work activities and dates of occurrence of each activity in this quarter are summarized in Table 5. Site layouts showing the areas of the work activities and the nearest sensitive receivers are attached in Appendix 5.

In the eleventh quarter (December 2008 – February 2009), the major site activities mainly consisted of E&M equipment installation for Air Blower House No.2, Bioreactor No.5, Flow Division Pump Pit No.1 & 2, RAS/SAS Pumping Station No.2 & its Switchroom, Final Sedimentation Tank (FST) No.9 & 10 and Sludge Press House Extension.

Table 5: Work Activities from December 2008 to February 2009

SAS Consolidation House		
Defects rectification of SAS thickening system	31 Jan 08 – 31 Mar 09*	
Air Blower House No.2		
Installation of E&M equipment	1 Apr 08 – 3 Nov 08*	
Testing and commissioning of Air Blowers	4 Nov 08 – 28 Nov 08*	
Bioreactor No.5		
Installation of E&M equipment	18 Mar 08 – 30 Oct 08*	
Testing and commissioning	1 Nov 08 – 28 Feb 09*	
Flow Division Pump Pit No.1	·	
Installation of E&M equipment	18 Mar 08 – 30 Oct 08*	
Testing and commissioning	1 Nov 08 – 28 Feb 09*	
Flow Division Pump Pit No.2	-	
Installation of E&M equipment	8 Sept 08 – 15 Nov 08*	
Testing and commissioning	16 Nov 08 –28 Feb 09*	
Switch Room for RAS/SAS Pumping Station No.	. 2	
Installation of E&M equipment	11 Apr 08 – 15 Nov 08*	
Testing and commissioning	8 Nov 08 – 28 Feb 09*	
RAS/SAS Pumping Station No.2	·	
Installation of E&M equipment	28 Apr 08 – 15 Nov 08*	
Testing and commissioning	16 Nov 08 – 28 Feb 09*	
Final Sedimentation Tank Nos. 9 & 10		
Installation of E&M equipment	11 Apr 08 – 14 Dec 08*	
Testing and commissioning 15 Dec 08 – 31 Mar 0		
Sludge Press House Extension		
Installation of E&M equipment	18 July 08 – 28 Apr 09*	
* Scheduled dates only for completion of the	e activities.	

Air Quality

Appropriate mitigation measures for the activities are in place in this quarter. Plastic covers with stakes/weights are readily available and used for covering of exposed material for control of dust. Water spray is available for dust suppression, if necessary.

No dusty material was found from the site areas or activities this month.

Water Quality

The plastic covers for exposed soil, etc. are available for minimization of silt in the run-off water during rainstorms, if necessary. Note that wastewater generated from the off-site project office was collected in a storage tank and tanker-away regularly by a licensed collector.

Anti-mosquito preventive measures, e.g. regular removal of stagnant water (if possible) and/or spraying larvicide (if necessary) at any site area, are taken for mosquito control and prevention, particularly for control of Dengue Fever and Japanese Encephalitis diseases.

No surface run-off or exposed soil was observed for the site activities during this quarter.

<u>Noise</u>

Plants with low noise emittance are preferred and are operated/maintained to reduce noise. In this quarter, work was carried out during normal working hours (7am - 7pm Monday to Saturday) or otherwise specified in the contract. In the event of a schedule change such that construction work would be performed during the restricted hours (11pm - 7am and during general public holidays including Sundays), a Construction Noise Permit would be required.

During this quarter, the work activities and equipment used did not generate significant noise for noise sensitive receivers (NSRs).

Waste / Chemical Management

The construction waste materials are preferred to be removed promptly from the site. Recyclable hard inert C&D materials should be taken to a public filling area (the fill bank at WENT landfill at Nim Wan) whereas the non-inert C&D waste should be disposed of to NENT landfill at Ta Kwu Ling or other disposal site approved by the control authority. Note that the inert C&D materials should be reduced, reused and recycled if possible, before disposal. Any substance identified as chemical waste would be disposed of properly by a licensed collector. A trip ticket system for the disposal of C&D waste should be conducted as required by the Waste Management Plan. Rubbish bins are provided on-site for collecting general refuses as necessary. The general refuse would be removed regularly and disposed to landfills by a licensed collector. A proper record of each waste disposal, including the new bar-coded disposal delivery form, would be kept to verify proper handling and disposal.

A refuse bins and waste storage/sorting area were provided for the collection of general refuse and sorting the C&D materials. No accumulation of the collected wastes in the refuse bins was observed in the project office/work areas during the site inspections this quarter.

Packaging wastes and construction wastes mainly from Air Blower House No.2 and RAS/SAS Pumping Station No.2 were disposed to WENT landfill by the licensed waste collector this quarter.

The type and quantity of waste for final disposal during December 2008 – February 2009 is shown in Table 6. Note that the new bar-coded disposal delivery form for each disposal of C&D wastes continued to be kept.

Types of Waste	Quantity
Inert C&D Material	Nil
Non-inert C&D Waste	1.07 tonnes (~ 6.95 m ³)
Chemical Waste	Nil
General Refuse*	3.96 m ³

Table 6:Type and Quantity of Waste Disposed of
from December 2008 to February 2009

* Included the site office

5 Summary of Deficiencies and Remedial Actions

A procedure for the EM&A site inspections, deficiency and remedial action reporting system was approved by the ER (Appendix 3), as required in the EM&A Manual (section 6.1.2). The site inspection checklists, reporting and interaction between the relevant parties was detailed.

There were no deficiencies noted from the site inspections in this quarter (December 2008 – February 2009).

6 Summary of Complaints and Remedial Actions

No complaints were received during this quarter (December 2008 – February 2009). In the event of complaints, the procedure for handling of the complaints is detailed in the EM&A Manual.

7 Summary of Summons and Prosecutions

No notification of summons and no prosecutions occurred in this quarter (December 2008 – February 2009).

8 Comments, Conclusions and Recommendations

The required weekly site inspections have been conducted. No deficiencies, i.e. non-compliances, were noted.

The planned activities for the coming three months (March – May 2009) as regards E&M equipment are to carry out installation, testing and commissioning for the following system/area:-

- New Blower House No.2
- Bioreactor No.5
- New Flow Division Pump Pits
- Final Sedimentation Tank Nos. 9 and 10
- RAS/SAS Pumping Station No.2
- Switch Room for RAS/SAS Pumping Station No. 2
- Sludge Press House Extension
- Sludge Conditioning Tank Nos. 3 and 4
- Bunded Area for Ferric Chloride Storage Tank.
- Defects rectification of SAS Thickening System in SAS Consolidation House

The anticipated environmental issues for March - May 2009 will be as follows:-

- New Air Blower House No.2
 - The anticipated environmental issues will be related to:-
 - the waste disposal from the E&M equipment installation.
- Bioreactor No.5
 - The anticipated environmental issues will be related to:-
 - the waste disposal from the E&M equipment installation.
- New Flow Division Pump Pits
 - The anticipated environmental issues will be related to:-
 - the waste disposal from the E&M equipment installation.
 - stagnant water since potential accumulation may occur in the flow division pump pits during rainy days.
- Final Sedimentation Tank Nos. 9 and 10
 - The anticipated environmental issues will be related to:-
 - the waste disposal from the E&M equipment installation.
 - stagnant water since potential accumulation may occur in the flow division pump pits during rainy days.
- RAS/SAS Pumping Station No.2
 - The anticipated environmental issues will be related to:-
 - the waste disposal from the E&M equipment installation.
- Switch Room for RAS/SAS Pumping Station No.2
 - The anticipated environmental issues will be related to:-
 - the waste disposal from the E&M equipment installation.

- Sludge Press House Extension
 - The anticipated environmental issues will be related to:-
 - the waste disposal from the E&M equipment installation.
- Sludge Conditioning Tank Nos. 3 and 4
 - The anticipated environmental issues will be related to:-
 - the waste disposal from the E&M equipment installation.
- Bunded Area for Ferric Chloride Storage Tank
 - The anticipated environmental issues will be related to:-
 - waste disposal from the E&M equipment installation.
- Defects rectification of SAS Thickening System in SAS Consolidation House
 - The anticipated environmental issues will be related to:-
 - waste disposal from the E&M equipment installation.