



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. 9

FROM JUNE TO AUGUST 2008

for

Biwater Man Lee Limited

Submitted by

Kingsford Environmental (H.K.) Ltd.

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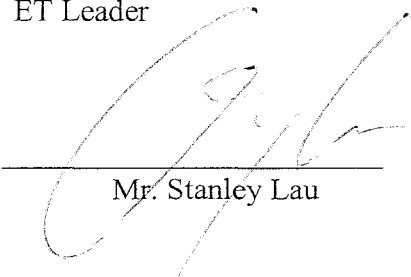
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EXECUTIVE SUMMARY

This is the ninth 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 ninth quarter (June – August 2008), 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, Switch Room for RAS/SAS Pumping Station No. 2, RAS/SAS Pumping Station No.2, Final Sedimentation Tank Nos.9 & 10 and Sludge Press House Extension. Sludge Press House Extension was handed over for our E&M equipment installation on 18 July 2008. In addition, defects rectification of SAS thickening system in SAS Consolidation House was in progress.

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 June to August 2008 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 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 September – November 2008 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, 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 ninth 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 June to August 2008. 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 16 November 2008. 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.

Table 1: Master Construction Program for E&M Works

Section	Task Description	Date
I	- 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 – 29 Jan '08
VI	- E&M equipment installation, T&C for New Air Blower House No. 2.	10 Oct '07 – 31 Oct'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. - E&M equipment installation, T&C for Final Sedimentation Tank Distribution Chamber.	18 Feb '08 – 9 Dec '08 (Tentative)
VIII	- E&M equipment installation, T&C for New Final Sedimentation Tanks. - E&M equipment installation, T&C for RAS/SAS Pumping Station.	11 Apr '08 – 18 Nov '08 (Tentative)
IX	- E&M equipment installation, T&C for New Sludge Conditioning Tanks. - E&M equipment installation, T&C for Press House Extension. - E&M equipment installation, T&C for DG Store and Chemical Waste Store.	18 Jul '08 – 20 Nov '08 (Tentative)
X	- E&M equipment installation, Remaining Works.	14 Feb '06 – 16 Nov '08 (Tentative)

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. W. S. Lui (BML)	Site Agent	2671-2350	2671-2351
Mr. K. H. Lau (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

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 plan 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.

Table 3: Status of Permits and Licenses

Description	Permit No.	Valid Period		Ref.	Status
		From	To		
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

* 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.

Table 4: Site Inspections/Audits for June to August 2008

Month	Date of Site Inspections/Audits	
	by ER/ET/BML	by EPD
June 2008	4, 10, 19 and 24	n/a
July 2008	3, 8, 15, 23 and 29	n/a
August 2008	7, 12, 21 and 28	n/a

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 ninth quarter (June – August 2008), 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, Switch Room for RAS/SAS Pumping Station No. 2, RAS/SAS Pumping Station No.2, Final Sedimentation Tank Nos.9 & 10 and Sludge Press House Extension. Sludge Press House Extension was handed over for our E&M equipment installation on 18 July 2008. In addition, defects rectification of SAS thickening system in SAS Consolidation House was in progress.

Table 5: Work Activities from June to August 2008

<i>SAS Consolidation House</i>	
Defects rectification of SAS thickening system	31 Jan '08 – 30 Sep '08*
<i>Air Blower House No.2</i>	
Installation of E&M equipment	1 Apr '08 – 30 Sep '08*
<i>Bioreactor No.5</i>	
Installation of E&M equipment	18 Mar '08 – 30 Sep '08*
<i>Flow Division Pump Pit No.1</i>	
Installation of E&M equipment	18 Mar '08 – 30 Sep '08*
<i>Switch Room for RAS/SAS Pumping Station No. 2</i>	
Installation of E&M equipment	11 Apr '08 – 30 Sep '08*
<i>RAS/SAS Pumping Station No.2</i>	

Installation of E&M equipment	28 Apr '08 – 30 Sep '08*
<i>Final Sedimentation Tank Nos. 9 & 10</i>	
Installation of E&M equipment	11 Apr '08 – 30 Sep '08*
<i>Sludge Press House Extension</i>	
Installation of E&M equipment	18 July '08 – 14 Nov '08*

* *Scheduled dates only for completion of the 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.

Due to the rains in this quarter, accumulations of rainwater were observed in the Bioreactor No.5, Final Sedimentation Tank Nos. 9 and 10 and the trench at the Switch Room for RAS/SAS Pumping Station and the Air Blower House No. 2. The accumulated water should be drained away regularly, if possible, while mosquito larvicide is only applied when it is not feasible to drain away the water immediately.

Noise

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.

Some refuses, i.e. a fallen leaf and little plastic bag, etc. were observed at Bioreactor No.5 after heavy rain this quarter. The Contractor indicated that the wastes would be removed accordingly. No chemical waste was generated during 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 June – August 2008 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.

Table 6: Type and Quantity of Waste Disposed of from June to August 2008

Types of Waste	Quantity
Inert C&D Material	Nil
Non-inert C&D Waste	4.05 tonnes (~ 26.29 m ³)
Chemical Waste	Nil
General Refuse*	3.96 m ³

* 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 (June – August 2008).

6 Summary of Complaints and Remedial Actions

No complaints were received during this quarter (June – August 2008). 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 (June – August 2008).

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 (September – November 2008) 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
- 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 June – August 2008 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.
 - stagnant water since potential accumulation may occur in the tank during rainy days.
- 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.