

**Contract No. : DE/99/12**  
**Outlying Islands Sewerage – Stage 1 Phase 1**  
**Upgrading of Siu Ho Wan Sewage Treatment Plant**  
**– E&M Works**

**ENVIRONMENTAL MONITORING AND AUDIT**

**MONTHLY EM&A REPORT No. 10**

**BioEnviroLink Technologies Limited**  
**March 2004**

## **APPROVAL & DISTRIBUTION SHEET**

DOCUMENT DATE: 31 March 2004

### **APPROVAL**

Prepared by: ET Leader (BioEnviroLink Technologies Limited)

Signature: \_\_\_\_\_  
Miss Patricia Chung

Date: \_\_\_\_\_

Audited by: \_\_\_\_\_  
Mr. Ivan Ng

Date: \_\_\_\_\_

## **TABLE OF CONTENTS (PROPOSED)**

### **EXECUTIVE SUMMARY**

#### **1. BACKGROUND INFORMATION**

- 1.1 Introduction
- 1.2 Project Organization and Management

#### **2. SUMMARY OF WORK ACTIVITIES**

#### **3. IMPLEMENTATION OF WASTE MANAGEMENT PLAN**

#### **4. STATUS OF ENVIRONMENTAL PROTECTION AND SITE INSPECTIONS**

- 4.1 Site Inspections
- 4.2 Status of Environmental Protection

#### **5. SUMMARY OF DEFICIENCY, NON-COMPLIANCE AND REMEDIAL ACTIONS**

#### **6. CUMULATIVE LOG OF COMPLAINTS AND REMEDIAL ACTIONS**

#### **7. CUMULATIVE LOG OF NOTIFICATION OF SUMMONS AND PROSECUTIONS**

#### **8. FUTURE KEY ISSUES**

#### **9. CONCLUSION**

### **APPENDIX**

Appendix 1 - The contact persons, telephone numbers of key personnel for upgrade of Siu Ho Wan sewage treatment works

Appendix 2 – Site Layout Plan

Appendix 3 – Cumulative log of complaints, details of complaints and remedial actions

Appendix 4 – Photos of Recycling of Cable Drums and Cable Armour at Site

## **EXECUTIVE SUMMARY**

This is the tenth monthly Environmental Monitoring and Audit (EM&A) Report for the Drainage Services Department Contract No. DE/99/12 entitled “Upgrading of Siu Ho Wan STP – E&M Works Outlying Islands Sewerage – Stage 1 Phase 1C”. (Environmental Permit No. EP-076/2000)

This report contains the results and findings of site inspection activities and EM&A works carried out by the Environmental Team (ET) of the E&M Contractor as required in the contract during March 2004.

The site activities in the reporting period mainly consisted of installation of centrifuge feed pumps and pipework at centrifuge pump area of Centrifuge Building, anionic polymer stock tanks, preparation unit and pipework at Chemical Building, building services, electrical equipment and HVAC system air ductwork at Administration Building, as well as scraper and 3T overhead crane at Primary Tanks.

There were no complaints received or notifications of summons or successful prosecutions during March 2004.

The main planned activities for April 2004 with regard to E&M equipment installation consist of

1. Installation of centrifuge feed pumps and pipework at centrifuge pump area of Centrifuge Building
2. Installation of cationic polymer pipework for stock tanks and preparation unit at polyelectrolyte area of Centrifuge Building
3. Installation of anionic polymer pipework for stock tanks and preparation unit at Chemical Building
4. Installation of building services, electrical equipment and HVAC system air ductwork at Administration Building, Centrifuge Building and Chemical Building
5. Installation of flight scrapers at Primary Tanks
6. E&M installation of sludge transfer pump and associated equipment at Sludge Transfer Chamber
7. E&M installation of grit pump and associated equipment at Grit Pumping Station
8. Installation of odour duct at Odour Plant and Sludge Buffer Tanks
9. Installation of cable trays and accessories at Cable Trenches and all Buildings

10. E&M installation of return liquor pumps and associated equipment at Return Liquor P/S
11. Installation of centrifuge control panel on steel platform and LV & control panel in Centrifuge MCC & Control Room
12. E&M installation of rail train system and fast rolling doors
13. Installation of odour plant, including electrical installation & cable wiring
14. Installation of runways for A-frame overhead crane on Mixing Tanks
15. Installation of mixers at Primary Tanks
16. Installation of cable trays and accessories at Primary Tanks
17. Cable wiring and termination in all buildings

## **1. BACKGROUND INFORMATION**

### **1.1 Introduction**

This is the tenth monthly Environmental Monitoring and Audit (EM&A) Report for the Drainage Services Department Contract No. DE/99/12 entitled “Upgrading of Siu Ho Wan STP – E&M Works Outlying Islands Sewerage – Stage 1 Phase 1C”. The site layout plan, with the indication of a temporary storage of installation items as well as the designated waste storage area, is shown in Appendix 1. The report was prepared by the Environmental Team, BioEnviroLink Technologies Limited, of the E&M Contractor, Mitsubishi Corporation (Hong Kong) Limited. The report is to be submitted to the Contractor, the Engineer and the Environmental Protection Department.

This report presents the results of the environmental monitoring of the project activities conducted during the month of March 2004. This included regular site inspections once per week for verification of implementation of the mitigation measures as recommended in the EM&A Manual.

The E&M installation works has already commenced in June 2003 and is anticipated to be completed on 11 October 2004 .

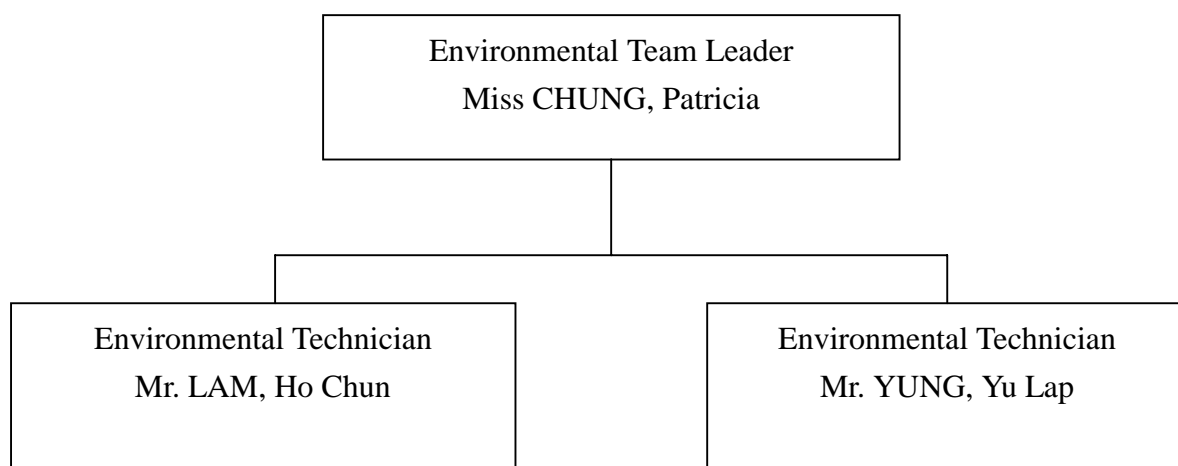
The contact persons and telephone number of key personnel for the captioned project are shown in Appendix 2.

### **1.2 Project Organization and Management**

The Environmental Team, which comprises the environmental team leader and the environmental technicians to undertake the environmental monitoring and audit work for this project, has commissioned BioEnviroLink Technologies Limited. The project Organization Chart of Environmental Team is shown in Figure 1.2.

Figure 1.2 Organization Chart of Environmental Team

Environmental Team Organization Chart



## 2. SUMMARY OF WORK ACTIVITIES

A summary of the site works in this month, with the information of locations, details of each activity, equipment/materials and dates of occurrence, is listed in Table 1.

Table 1: Work Activities for March 2004

<b>Item</b>	<b>Location</b>	<b>Work Activities</b>	<b>Date of Occurrence</b>
1	Primary Tank	- Installation of scraper - Setting out and installation of 3T overhead crane	17 – 30 March 1 – 31 March
2	Chemical Building	- Installation of electrical services equipment - Installation of Anionic Polymer Stock Tanks, Preparation Unit & Pipework - Installation of Anionic Polymer and Alum Pumps & associated pipework	1 – 31 March 1 – 27 March 1 – 27 March
3	Centrifuge Building	- Installation of centrifuge feed pumps and Pipework at centrifuge pump area - Installation of Cationic Polymer Stock Tanks, Preparation Unit & Pipework - Setting out and installation of electrical services - Installation of rail & baseplate set for Sludge rail train system - Installation of fast rolling doors	1 – 31 March 1 – 31 March 1 – 31 March 1 – 27 March 10 – 31 March
4	Administration Building	- Installation of building services and electrical equipment - Installation of chiller unit & associated pipework - Installation of HVAC system air ductwork - Installation of fire services system	1 – 31 March 1 – 31 March 1 – 31 March 1 – 31 March
5	Sludge Buffer Tanks	- Installation of Odour Duct & Cable Bridge & Electrical Cabling	3 – 25 March
6	Detritor	- Installation of Detritor & Grit pump - Installation of Sump pump - Installation of Detritor cover	10 – 31 March 22 – 31 March 10 – 20 March



### **3 IMPLEMENTATION OF WASTE MANAGEMENT PLAN**

A Waste Management Plan has been prepared for governing a good waste management, which is essential to avoid, minimize, salvage for reuse, recycle, dispose of waste and reduce the load on landfills to improve the standards of environmental protection.

The information and the implementation status of waste management are summarized in Table 2.

Table 2: Information and the implementation status of  
Waste Management in March 2004

<b>Information of Waste Management Plan</b>	<b>Implementation Status</b>	<b>Remarks</b>
<p><u>Municipal Solid Waste Management</u> Sorting and classification of aluminum cans, plastics are required at site. Paper and cardboard generated from site office should be reused or recycled.</p>	<p>Sorting and classification of municipal solid waste are available at work site. Waste sorting facilities (bins) are provided.</p>	<p>Collection of municipal solid waste has been carried out since September 2003.</p>
<p><u>Construction &amp; Demolition (C&amp;D) Waste Management</u> Waste sorting and classification by using a 100 m<sup>2</sup> sorting shed at site are required.</p>	<p>No inert C&amp;D Wastes were produced at site up to March 2004. Waste dumper for temporary storage of C&amp;D Waste are provided.</p>	<p>The non-inert portion of C&amp;D Wastes has been appropriately handled since 14 October 2003.</p>
<p><u>Chemical Waste Management</u> A licensed chemical waste collector is engaged for collecting the chemical wastes generated from this project. Storage facilities must follow the Code of Practice.</p>	<p>No chemical wastes were generated in March 2004. The E&amp;M Contractor has registered with EPD as chemical waste producer. Chemical waste storage enclosure was provided in September located near the site office.</p>	<p>The permit has been issued in September.  Proper label and signage for Chemical waste storage enclosure and container(s) are provided.</p>
<p><u>Disposal and Recording</u> A complete record, in the format of compiled logbook is maintained for every vehicle trip transporting C&amp;D materials. Adequate record of recycled and reused waste materials must be well kept.</p>	<p>Adequate record forms for recycled &amp; reused waste materials for municipal waste are available and are in proper use.  C&amp;D wastes generated at site have been recorded and filed adequately.</p>	<p>C&amp;D waste collector was arranged to collect the wastes on 1, 8, 19 and 26 March 2004.  ET has escorted the waste collector to public landfill on 1, 8, 19 and 26 March 2004 to ensure proper waste disposal  C&amp;D wastes such as timbers are reused at site.</p>

## **4 STATUS OF ENVIRONMENTAL PROTECTION AND SITE INSPECTIONS**

### 4.1 Site Inspections

The Environmental Team conducted four site inspections on 4, 11, 18 and 25 March 2004.

All environmental aspects in the work areas were inspected during the weekly site walk, including air dust, surface water quality, waste management, site tidiness and hygiene.

A detailed checklist of each site inspection together with comments, relevant photos and maps have been filed and kept in site office.

The findings and results of site inspections in March 2004 are provided in Section 4.2.

### 4.2 Status of Environmental Protection

#### Air Dust

Stockpile of excavated material were accumulated at storage area in Portion G. The Contractor is required to cover the material with plastic sheets or spray water for dust suppression.

In order to comply with the Air Pollution (Construction Dust) Regulation, the contractor has to arrange water truck to spray water for dust suppression at least twice a day. However, the frequency of watering was not maintained as scheduled, sometimes due to rainy conditions.

#### Surface Water Quality

In general, the E&M installation work does not cause significant environmental impact on surface water.

The contractor has applied mosquito drugs to such locations as Flowmeter Chamber, Flow Separation Chamber, Return Liquor Pump Station, Detritor as well as Ferric

Chloride Tank, once per week to prevent mosquito breeding.

Two chemical toilets have been provided by a licensed contractor, of which sewage generated is collected weekly without causing contamination on surface water. Weekly records are kept properly for each sewage collection.

A wastewater discharge permit has been issued effective since 29 November 2003.

#### Noise

All installation activities were being carried out within normal working hours during March 2004. There are no existing sensitive receivers identified in the vicinity of Siu Ho Wan works. A noise permit for working during restricted hours has been issued effective since 26 September 2003.

#### Waste / Chemical Waste

Site activity has started in June 2003. A designated waste storage area is provided for the storage of general wastes and C&D wastes, as specified in the waste management plan.

No chemical waste was produced at site up to March 2004. An adequate chemical waste storage enclosure and containers for storage of chemical wastes in accordance with WMP have already been provided on-site (See Appendix 1).

The follow-up work for proper handling of C&D Wastes has been carried out in March. No *inert C&D Wastes* were produced at site up to March 2004. A C&D waste dumper has been provided since October 2003 for the disposal of the non-inert portion of C&D waste. ET has taken measures to ensure the waste collector has properly dumped the waste in public landfill; photos are taken for reference and record.

Sorting and classification of municipal solid wastes have been carried out at work site during March 2004. Properly labeled waste collection bins are available for sorting and collecting aluminum cans, waste paper and plastic bottles.

Information of recycled and collected wastes (for the month of March 2004) are summarized as follows:

<b>Types of wastes Recycled</b>		<b>Estimated quantity</b>
Municipal	Paper	40 kg
Municipal	Aluminum Cans	240 pcs
Municipal	Plastic Bottles	34 pcs
C&D Waste	Timber	7 kg

<b>Types of Waste Disposed</b>		<b>Estimated quantity</b>
C& D Waste	Non-inert Type	6.0 tonnes

The Municipal wastes are temporarily stored in the sorting bins at site whereas C&D wastes, such as timber, are reused on-site. Records of recycled and collected wastes are properly kept and filed at site.

The Contractor has reused cable armours as knots to tie up cables in cable trenches. Suppliers of cables are contacted to collect and reuse emptied cable drums at site, as shown in photos in Appendix 4.

Registered waste collectors, as listed in the following table, have been arranged to collect and transport the wastes whenever necessary.

<b>Type of Wastes</b>	<b>Collector Company Name</b>	<b>Tel No.</b>
Municipal Waste Recycler	Luen Hop Environment Dev. Ltd.	6083 3208
C&D wastes	Strong Base Environmental Services & Engineering Co. Ltd.	2797 9812
Chemical waste	Enviropace Ltd.	2435 7700
	Strong Base Environmental Services & Engineering Co. Ltd.	2797 9812

## 5 SUMMARY OF DEFICIENCY, NON-COMPLIANCES AND REMEDIAL ACTIONS

Deficiency	Action taken
<ul style="list-style-type: none"> <li>• It was noted that ponding water and accumulated rainwater have been found at Primary Tank in March.</li> </ul>	<ul style="list-style-type: none"> <li>• The Contractor has installed pumping facilities to pump away ponding water; however, ponding water remains occasionally.</li> <li>• Mosquito drug was applied in the accumulated water to prevent mosquito breeding.</li> </ul>
<ul style="list-style-type: none"> <li>• It was noted that some wasted packaging materials were found at site, including the Centrifuge building, Chemical Building and the temporary storage area.</li> </ul>	<ul style="list-style-type: none"> <li>• The contractor has disposed the packaging materials accordingly and properly.</li> </ul>
<ul style="list-style-type: none"> <li>• Stockpiles of excavated materials were accumulated at Storage Area in Portion G. It could possibly cause dust problem.</li> <li>• The open area of the Primary Tanks and site accesses were dusty in very dry and windy days</li> </ul>	<ul style="list-style-type: none"> <li>• The Contractor should apply dust suppression measures such as cover with plastic/canvas sheets or watering; The Contractor should pay more effort to carry out action as recommended.</li> <li>• The Contractor has provided watering but the frequency was not enough.</li> </ul>
<ul style="list-style-type: none"> <li>• The Wheel Washing Basin provided by the civil contractor was demolished</li> </ul>	<ul style="list-style-type: none"> <li>• The Contractor has arranged an alternative washing facility, namely a water hose, for vehicles exiting the site.</li> </ul>

## 6. CUMULATIVE LOG OF COMPLAINTS AND REMEDIAL ACTION

There is no complaint received in association with installation activities during March 2004. The cumulative of complaints is referred in Appendix 3.

## 7. CUMULATIVE LOG OF NOTIFICATION OF SUMMONS AND PROSECUTIONS

No notification of summons and no prosecutions occurred during March 2004.

## 8. FUTURE KEY ISSUES

The planned activities for the coming three months (April 2004 – June 2004) and anticipated environmental issues with regard to E&M equipment are summarized as follows:

Item	Location	Works	Anticipated Environmental Issues
1	Administrative Building	<ul style="list-style-type: none"> <li>- Building services and electrical equipment installation</li> <li>- HVAC air ductwork, chilled water pipework &amp; condensation pipework installation</li> </ul>	<ul style="list-style-type: none"> <li>- Plastic packaging material will be generated and should be re-used on site or disposed properly.</li> </ul>
2	Primary Tank	<ul style="list-style-type: none"> <li>- Sludge scraper and scum collector installation</li> <li>- Mixers installation</li> <li>- Electrical system installation</li> </ul>	<ul style="list-style-type: none"> <li>- Ponding water should be pumped away.</li> <li>- Plastic and timber will be generated and should be re-used on site or disposed properly</li> </ul>
3	Chemical Building	<ul style="list-style-type: none"> <li>- Electrical system installation</li> <li>- Polymer preparation system, Alum &amp; Anionic Polymer Stock Tanks installation</li> <li>- Chemical pumps &amp; pipework installation</li> <li>- Water pipe installation</li> </ul>	<ul style="list-style-type: none"> <li>- Plastic and armored cable will be generated and should be re-used on site or disposed properly</li> </ul>
4	Centrifuge Building	<ul style="list-style-type: none"> <li>- Centrifuge feed pumps and pipework installation</li> <li>- Cationic Polymer and Preparation unit installation</li> </ul>	<ul style="list-style-type: none"> <li>- Plastic &amp; timber will be generated and should be re-used on site, or disposed properly.</li> </ul>

		<ul style="list-style-type: none"> <li>- Fast rolling door installation</li> <li>- Sludge rail train installation</li> <li>- LV &amp; MCC panels installation</li> </ul>	
5	Sludge Transfer Chamber	<ul style="list-style-type: none"> <li>- Sludge transfer pump &amp; pipework installation</li> <li>- Odour duct &amp; cable bridge installation</li> </ul>	- Timber will be generated and should be re-used on site, or disposed properly.
6	Detritor	<ul style="list-style-type: none"> <li>- Grit pump &amp; pipework installation</li> <li>- Electrical system installation</li> <li>- FRP cover installation</li> </ul>	- Ponding water should be pumped away.
7	Chemical Pipe Trench	<ul style="list-style-type: none"> <li>- Containment pipework installation</li> </ul>	- Plastic packaging material will be generated and should be re-used on site or disposed properly.
8	Cable Trench	<ul style="list-style-type: none"> <li>- Electrical power cable installation</li> </ul>	- Timber will be generated and should be re-used on site, or disposed properly.
9	Odour Plant	<ul style="list-style-type: none"> <li>- Odour scrubber &amp; centrifugal fan installation</li> <li>- Odour duct installation</li> <li>- Chemical / water pipework installation</li> <li>- Electrical system installation</li> </ul>	- Plastic & timber will be generated and should be re-used on site, or disposed properly.
10	Other Area	<ul style="list-style-type: none"> <li>- Booster pump, pressure vessel and pipework installation</li> <li>- Electrical system installation</li> <li>- Lamp Pole installation</li> </ul>	<ul style="list-style-type: none"> <li>- Timber will be generated and should be re-used on site, or disposed properly.</li> <li>- Plastic &amp; timber will be generated and should be re-used on site, or disposed properly.</li> </ul>
11	Open Area & Site Accesses	<ul style="list-style-type: none"> <li>- Earthwork and vehicle movements</li> </ul>	- Regular watering should be provided

The site inspection schedule for the next month (April 2004) is designated on 1, 8, 15, 22 and 29 April 2004.



## 9. CONCLUSION

No non-compliances were found during the weekly site inspections being conducted. Also there is no summon nor prosecutions reported during March 2004.

The contractor has taken some actions to meet environmental requirements such as applying pumping facilities to pump out stagnant water, proper sorting out and disposal of municipal wastes, reusing C&D wastes (timbers) at site, provision of chemical waste storage facility, C&D waste dumper, and application of relevant environmental permits. However, some deficiencies were found in certain areas including ponding water in the hoppers of the Primary Tanks, inadequate covering of the excavated material at storage area in Portion G and the watering of open area and site accesses.

The contractor was reminded to pay more efforts on environmental concerns and awareness such as maintaining site cleanliness, removal of ponding water; proper action taken on disposal of wasted packaging material; full implementation of dust suppression measures for open site areas as well as stockpiles of soil, and proper management of site activities which may lead to any possible environmental impacts.

Improvement of site tidiness is an urgent need. Scattered waste found around site, e.g. lunch boxes, bottles and plastic bags etc, should be cleared immediately. The Contractor should always keep the site tidy and clean.

ET has taken proper action, including vehicle escort, to ensure that the registered waste collector properly dispose the waste at public landfill.

The environmental condition at site was acceptable in March 2004, though the contractor should make more effort to rectify the deficiencies in future.



Appendix 2

**THE CONTACT PERSONS, TELEPHONE NUMBERS OF KEY PERSONNEL  
FOR UPGRADE OF SIU HO WAN SEWAGE TREATMENT WORKS**

<b>Company/Department</b>	<b>Name</b>	<b>Position</b>	<b>Telephone</b>
Maunsell Environmental Management Consultants Limited	Mr. Ivan Ng	Independent Environmental Checker	61917256
Maunsell Environmental Management Consultants Limited	Mr. Titus Yeung	Resident Site Engineer	90209585
Mitsubishi Corporation (Hong Kong) Limited	Mr. W B Chu	Site Agent	29840779
Mitsubishi Corporation (Hong Kong) Limited	Mr. Stephen Gu	Site Engineer	29840779
BioEnviroLink Technologies Limited	Miss. Patricia Chung	Environmental Team Leader	2185 0123
BioEnviroLink Technologies Limited	Mr. Ho-Chun Lam	Environmental Technician	2185 0154

Appendix 3

**CUMULATIVE LOG OF COMPLAINTS**

<b>Environmental Parameters</b>	<b>Cumulative no. Brought forward</b>	<b>No. of complaint March 2004</b>	<b>Overall Total</b>
<b>Air</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Noise</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Water</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Waste</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>

**DETAILS OF COMPLAINTS AND REMEDIAL ACTIONS**

<b>Log Ref.</b>	<b>Date of Complaint received</b>	<b>Location</b>	<b>Complainant /Date</b>	<b>Details of Complaint</b>	<b>Investigation /Mitigation Action</b>	<b>Investigated by/ Date</b>
--	---	---	---	---	---	---

#### Appendix 4

#### SUPPLIER COLLECT CABLE DRUM FOR REUSE



#### RECYCLING OF CABLE ARMOUR AT CABLE TRENCH

