

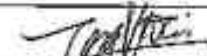


**Contract No. SS M333
Reprovisioning of Diamond Hill
Crematorium**

Sampling and Analysis Plan

(For the Existing CLP Secondary
Substation at Phase I Area)

January 2005

		
Reviewed by (Florence Yuen)	Checked by: (Lawrence Tsui)	Approved by: (ET Leader - Y T Tang)

Report Version: <u>Revision 1</u>	Date of Submission: <u>3 January 2005</u>
<p>The information contained in this report is, to the best of our knowledge, correct at the time of printing. The interpretation and recommendations in the report are based on our experience, using reasonable professional skill and judgment, and based upon the information that was available to us. These interpretations and recommendations are not necessarily relevant to any aspect outside the restricted requirements of our brief. This report has been prepared for the sole and specific use of our client and MEMCL accepts no responsibility for its use by others.</p> <p><i>This report is copyright and may not be reproduced in whole or in part without prior written permission.</i></p>	

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COI Number 126012*

14 January 2004

BY POST & FAX (2524 8194)

Architectural Services Department
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Your
Ref:

Our 1148-04/E05-3891
Ref:

For attention of: Mr Michael Mak

Dear Michael

**Reprovisioning of Diamond Hill Crematorium
Sampling and Analysis Plan for Existing CLP Secondary Substation at Phase 1 Area**

We refer to the fax, ref.: S07904/C/cglw501031 dated 3 January 2005, from MEMCL copied to us enclosing the Sampling and Analysis Plan for the Existing CLP Secondary Substation at Phase I Area, Revision 1 (Sampling Plan).

We have no comment and hereby verified the Sampling Plan.

Should you have any queries, please do not hesitate to contact the undersigned on 2911 2719.

Yours sincerely

**Coleman Ng
Independent Environmental Checker
HYDER CONSULTING LIMITED**

cc MEMCL – Mr. Y. T. Tang/Ms Florence Yuen (Fax: 2891 0305)
CRCCCL – Mr. Eric To (Fax: 2827 2921)

CN/AL



TABLE OF CONTENTS

1	INTRODUCTION.....	1
2	SAMPLING LOCATIONS	1
3	SAMPLING METHODOLOGY	1
4	INTERPRETATION OF RESULTS.....	3

List of Table

Table 1	Sampling and Testing Plan For the Existing CLP Secondary Substation.....	3
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List of Figure

Figure 1	Proposed Sampling Location for the Existing CLP Secondary Substation at Phase I Area
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1 INTRODUCTION

- 1.1 According to the Environmental Permit (EP) (No. EP-179/2004) of the 'Reprovisioning of Diamond Hill Crematorium EIA (Register No. AEIAR-076/2004)' ('The Project'), a supplementary contamination assessment (SCA) shall be carried out for the existing CLP secondary substation ('Subject Site') during the construction and demolition of certain parts of the Project (Phase I works).
- 1.2 This sampling and analysis plan is prepared following the Environmental Permit Clauses 3.6 and 3.7 and the Particular Specification PS.G11 4.5.4 of the Project in order to provide a site investigation and testing schedule for the assessment of polychlorinated biphenyls (PCBs) and Total Petroleum Hydrocarbons (TPH) at the Subject Site.

2 SAMPLING LOCATIONS

- 2.1 A site visit to the Subject Site was conducted on 7 October 2004. It was observed that the CLP secondary substation was divided into two compartments, with the smaller room containing the switch board and wire facilities and the other room with a transformer situated in the centre. Locations of the Subject Site and relevant ancillary facilities are shown in **Figure 1**.
- 2.2 A sampling point, TR1, is proposed underneath the existing transformer in order to investigate any potential contamination caused by the leakage of transformer oil. The proposed sampling location of TR1 is shown in **Figure 1**. The exact sampling location shall be determined on site and subject to fine adjustment due to site-specific conditions (e.g. presence of foundations and underground utilities).

3 SAMPLING METHODOLOGY

Soil Sampling Method

- 3.1 Excavation of a trial pit by hand tools is proposed as the sampling method. Soil samples shall be collected from the trial pit by stainless steel hand tools.

Depth of Soil Sampling

- 3.2 Three soil samples (i.e. immediately below, 1m below and 2m below the concrete layer or the greatest depth achieved by the trial pit) are proposed to be collected in order to delineate the vertical profile of contamination, as specified in **Table 1**.
- 3.3 Before excavation and between sampling at the trial pit, the sampling equipment and all equipment in contact with the ground shall be thoroughly decontaminated prior to use by laboratory-grade detergent followed by distilled water rinsing.

- 3.4 The soil samples shall be collected using stainless steel hand tools. At each sampling point, sufficient soil sample shall be taken to fill up the sample container upon sample collection. The sample container shall be wide mouth amber glass jar with Teflon lid liner provided by the laboratory.
- 3.5 The soil samples shall be properly labelled and stored in cool boxes chilled at a temperature of around 4°C until delivered to the analytical laboratory.

Strata Logging

- 3.6 Strata logging for the trial pit shall be undertaken during the course of digging and sampling by qualified geologist. The logs shall include the general stratigraphic descriptions, depth of soil sampling, sample notation and level of groundwater (if encountered). The presence of rocks/boulders/cobbles and foreign materials such as metals, wood and plastics shall be recorded. Photographic records for the trial pit shall also be taken.

Free Product and Groundwater Level Measurement

- 3.7 The thickness of any free product and groundwater level if present at the sampling location shall be measured with an interface probe. The free product if encountered in sufficient amount shall be collected for laboratory analysis to determine the composition.

Groundwater Sampling

- 3.8 Groundwater sample shall be collected if groundwater is encountered during excavation. The trial pit shall be pumped dry and allowed to stand for 24 hours. Groundwater sample shall be collected using clean bucket. All sampling equipment shall be thoroughly decontaminated by laboratory-grade detergent followed by distilled water rinsing prior to use.
- 3.9 Immediately after collection, the groundwater sample shall be transferred to a new, clean, laboratory-supplied glass jar with zero headspace and promptly sealed with a septum-lined cap. The groundwater sample shall then be placed in ice-chests, cooled and maintained at a temperature of between 0-4°C until delivered to the analytical laboratory.
- 3.10 **Table 1** summarises the sampling and testing details for the existing CLP secondary substation
- 3.11 For sampling and laboratory analyses, chain of custody procedure shall be included as QA/QC procedure.
- 3.12 All laboratory analyses for soil and groundwater samples shall be conducted in an HOKLAS accredited laboratory.
- 3.13 Extra soil samples shall be stored at 0-4°C and tested for Toxicity Characteristics Leaching Procedure (TCLP) before submission of remediation proposal if excavation and landfill disposal is proposed as the remediation method.

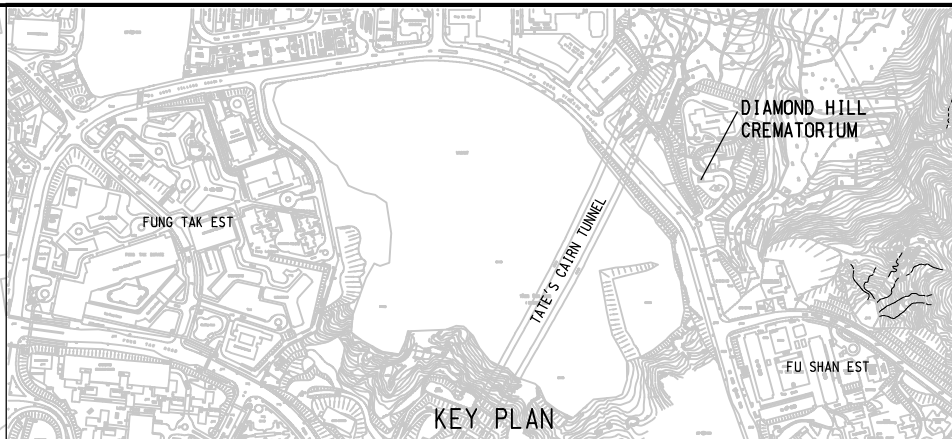
Table 1 Sampling and Testing Plan For the Existing CLP Secondary Substation

Sampling Location	Sampling Method	Sample Matrix		Testing Parameter	Detection Limit or otherwise stated	Reference Method
TR1	Trial pit excavated down to 2m below concrete layer by means of hand tools	Soil	Immediately below the concrete layer	Total PCBs TPH	Total PCBs: 0.05 mg/kg	USEPA 8270
		Soil	1m below the concrete layer	Total PCBs TPH	TPH: C6-C9: 2 mg/kg C10-C14: 50 mg/kg C15-C28: 100 mg/kg C29-C36: 100 mg/kg	USEPA 8015
		Soil	2m below the concrete layer or the greatest depth achieved by trial pit	Total PCBs TPH		
		GW	If present	Total PCBs TPH	Total PCBs: 0.2 µg/L TPH: C6-C9: 20 µg/L C10-C14: 25 µg/L C15-C28: 25 µg/L C29-C36: 25 µg/L	USEPA 8270 USEPA 8015

Remarks: Total PCBs = Sum of PCB 28, 52, 101, 118, 138, 153 and 180 (according to the New Dutch List).
 GW = Groundwater

4 INTERPRETATION OF RESULTS

4.1 After the completion of investigation works, a Supplementary Contamination Assessment (SCA) Report detailing the sampling and analysis results, identification of contaminants and quantity of contaminated soil shall be submitted to the EPD for approval at least two months before the demolition of CLP Secondary Substation. If contamination exceeding the ‘Dutch B’ levels as listed out in Appendix A of the Environmental Permit is detected at the CLP Secondary Substation area, a remediation proposal with disposal outlet for contaminated soil shall be included in the SCA Report for EPD’s approval.



DIAMOND HILL CREMATORIUM
ROAD

Subway

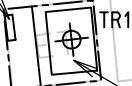
Lat

Columbarium

Columbarium

SWITCH BOARD
AND WIRE

EXISTING CLP
SECONDARY SUBSTATION



LOCATION OF
TRANSFORMER

Columbarium

ROAD

ROAD

LEGEND:



TR1

PROPOSED SAMPLING
LOCATION

Maunsell

ENVIRONMENTAL MANAGEMENT CONSULTANTS LTD.

茂盛環境管理顧問有限公司

CONTRACT NO. SS M333 REPROVISIONING
OF DIAMOND HILL CREMATORIUM

PROPOSED SAMPLING LOCATION
FOR THE EXISTING CLP SECONDARY
SUBSTATION AT PHASE 1 AREA

SCALE
比例 A4 1:500

DATE
日期 OCT 2004

JOB No.
項目編號 S07904

DRAWING No.
圖號 1