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# DECOMMISSIONING AND DISPOSAL OF CLINICAL WASTE INCINERATORS AT BLOCK K, QUEEN MARY HOSPITAL SITE AUDIT REPORT NO. 2

MARCH 29, 2018





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## SITE AUDIT REPORT NO. 2

HONG KONG WEST CLUSTER  
HOSPITAL AUTHORITY




(VERSION 0)

PROJECT NO.: 2535419A  
DATE: 29 MARCH 2018

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ISSUE/REVISION	FIRST ISSUE	REVISION 1	REVISION 2	REVISION 3
Remarks				
Date	29 March 2018			
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Signature				
Project number				
Report number	2535419A			
File reference	2535419A - QMH Decommissioning\ Report\Demolition Works\Site Audit			

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# 1 INTRODUCTION

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## 1.1 PROJECT BACKGROUND

- 1.1.1 Established in 1937, Queen Mary Hospital (QMH) is a major acute hospital in the Hong Kong West Cluster (HKWC) of the Hospital Authority (HA), serving a population of over 531,000 in the Central and Western and Southern Districts as well as treating many patients in other geographical districts in Hong Kong. It provides a full range of acute and tertiary services, including 24-hour Accident and Emergency (A&E) services, in-patient services, ambulatory care and rehabilitation services, as well as specialist services covering a wide range of specialties and subspecialties for the residents.
- 1.1.2 The redevelopment plan, featuring the use of QMH's northern site to fit the hospital's future service model as an academic health sciences center, involves the decanting of existing facilities of the north end of QMH complex to the ex-Senior Staff Quarters (SSQ) (which had been converted to and renamed as Block T). It presents a golden opportunity to enable the hospital to enhance its role as a premier teaching hospital, as well as further improving the hospital environment for our patients, medical students, academic partners and colleagues.
- 1.1.3 The Phase 1 Redevelopment Project of Queen Mary Hospital is conducted in two stages:
- Stage I Preparatory Works:
- Conversion works at the vacated SSQ (renamed as Block T)
  - Construction of a link bridge connecting Block T and the buildings in the hospital complex
  - Road widening works within the hospital boundary
- Stage II Main Works (Commence August 2018):
- Demolition of Clinical Pathology Building (CPB) and Housemen Quarters (HQ) of QMH as well as Pathology Building (UPB) of the University of Hong Kong
  - Construction of New Block
  - Provision of an additional access road
  - Construction of a proposed rooftop helipad
- 1.1.4 As part of the demolition of CPB, the existing Body Storage Room at CPB will be relocated to LG4/F of Block K. One of the preparatory works would be decommissioning and disposal of the two existing clinical waste incinerators at Incinerator Room at LG4/F of Block K.
- 1.1.5 The decommissioning of the incinerator is classified as a Designated Project under Item 3 of Part II, Schedule 2 of Environmental Impact Assessment Ordinance (EIAO). The Designated Project covered two clinical waste incinerators and associated horizontal ductworks at Incinerator Room, LG4/F of Block K, and the two vertical flues (chimneys) from the ceiling of Incinerator Room, LG4/F to the Rooftop of Block K inside the Service Duct 1. Decommissioning and demolition works will be carried out in 2 Phases. In Phase 1, the incinerator units, the wall-mounted control panel and the horizontal ductworks section will be decommissioned and demolished. The two vertical flues of the incinerators will be decommissioned, and disconnected from the horizontal ductworks section (at ceiling level) and sealed up only in Phase 1. The chimneys will be demolished in Phase 2 when Block K is to be demolished.



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## 1.2 TASKS UNDER ASSIGNMENT

- 1.2.1 With reference to the Environmental Permit (EP-545/2017), environmental monitoring is considered not necessary as no adverse environmental impacts are anticipated with the implementation of recommended mitigation measures. Environmental site audit should be conducted by an Independent Environmental Checker (IEC) during both phases of decommissioning and demolition works to check, review, verify and validate the overall environmental performance of the project, including the implementation of all the environmental protection and mitigation measures, submissions relating to environmental monitoring and auditing, and any other submissions required under the Environmental Permit for the project or the requirements outlined in the EIAO through report to EPD before and upon completion of the works.
- 1.2.2 WSP (Asia) Ltd (WSP) has been commissioned as the Independent Environmental Checker (IEC) for the Phase 1 of the Decommissioning and Demolition works.
- 1.2.3 The following monitoring procedures should be adopted and WSP as the IEC would be responsible for the monitoring operations:
- (a) To ensure that the general aspects of environmental quality will comply with the project requirements;
  - (b) To monitor the smoke test to ensure the tightness of the containment;
  - (c) To supervise the Contractor to ensure that the requirements in the Project Profile are fully complied with;
  - (d) To instruct the Contractor when action is required to reduce or prevent any impacts;
  - (e) To effectively and efficiently deal with any complaints on environmental performance; and
  - (f) To prepare a summary of the environmental performance of the Contractor on completion of the Project.

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## 1.3 OBJECTIVES

- 1.3.1 The objective of this Site Audit Report No.2 is to present the key findings of the site audit and smoke test conducted during the reporting period from 2 March 2018 to 27 March 2018.



## 2 INDEPENDENT ENVIRONMENTAL CHECKER

2.1.1 The staff organisation chart for this Project is shown in **Figure 2.1**.



**Figure 2.1 Organisation Chart of Project Team**

2.1.2 Independent Environmental Checker – Dr. James Xiong

Dr. James Xiong is the Director of WSP, in charge of consultancy services relating to environment and sustainability. James has over 25 years of academic and practical experience in environmental studies, especially, EIA, EM&A and environmental issues for urban development master plan, infrastructure and industry environmental protection including the IEC for Pillar Point Sewerage Treatment Works and Tsim Sha Tsui Station Carnarvon Road Subway and Wan Chai Station Lee Tung Street Subway for MTR Corporation Ltd. and the EIA Study of the Tai Po Sewage Treatment Works Stage 5.

2.1.3 Deputy Independent Environmental Checker – Dr. Alex Cheung

Dr. Alex Cheung is an Associate of WSP with over 25 years' experience. He has been involved in numerous research projects and environmental assessment for a wide range of development projects in Hong Kong, Macau and Australia as Project Manager including the IEC for Pillar Point Sewerage Treatment Works and Tsim Sha Tsui Station Carnarvon Road Subway and Wan Chai Station Lee Tung Street Subway for MTR Corporation Ltd.

# 3 WORK CONDUCTED AND KEY FINDINGS

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## 3.1 WORKS CONDUCTED

3.1.1 The IEC works conducted in this reporting period are as follows:

- (1) IEC site audit on 02 March 2018
  - (2) Smoke test on 02 March 2018
  - (3) IEC site audit on 15 March 2018
  - (4) IEC site audit on 20 March 2018
  - (5) Smoke test on 27 March 2018
- 

## 3.2 KEY FINDINGS OF SITE AUDITS

3.2.1 Following the construction of the containment, site audits and smoke tests were carried out for the Incinerator Room for the two existing clinical waste incinerators at LG4/F of Block K. Photos showing the site conditions and the smoke tests are shown in Figures 3.1 to 3.15 during the site audits.

3.2.2 02 March 2018 – Site Preparation and Containment



**Figure 3.1 View of Incinerator Room**



**Figure 3.2 Chimneys sealed with fire retardant polythene sheets**



**Figure 3.3 Personal Protective Equipment**

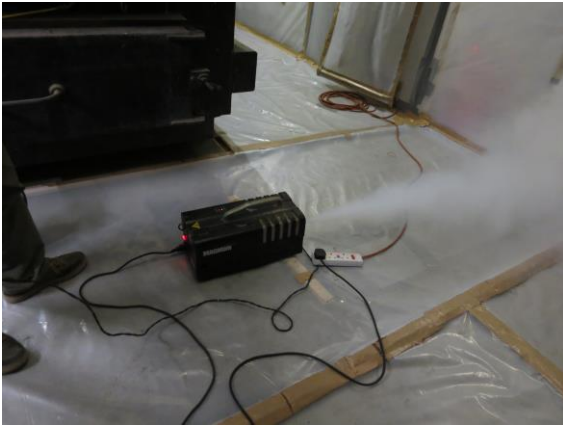


**Figure 3.4 Environmental and Safety Notices and Warning Signs were posted in the entry of the three-compartment decontamination unit**



**Figure 3.5 Three-compartment decontamination unit for entry and exit into the works area**

### 3.2.3 02 March 2018 – Smoke Test



**Figure 3.6 Smoke generator**



**Figure 3.7 Air movers**



**Figure 3.8 Pressure monitor with audible alarm and records printing out**



**Figure 3.9 View of Incinerator Room during smoke test**

- 3.2.4 During the site audit conducted on 2 March 2018, no specific observation was identified from the site inspection.
- 3.2.5 Construction of containment was finished. A three-compartment decontamination unit was constructed for entry and exit into the works area. Environmental and safety notices, as well as warning signs were provided in conspicuous locations at place of work. Personal Protective Equipment (PPE) that filters particulate was provided on-site.
- 3.2.6 Smoke test was carried out with non-toxic smoke to ensure the tightness of the containment and to check whether there are any stagnant pockets of air.
- 3.2.7 After the smoke test, the air mover was switched on to exhaust smoke from the containment, and to visually check that the absolute filters screen out the smoke effectively and that the pressure gauges read normal. The pressure was kept within the normal range from 0.05 to 0.15 inch of water (negative pressure). The audible alarm's integrity was ensured with the trigger level of 0.05 inch of water (negative pressure).



3.2.8 15 March 2018 – IEC Site Audit



**Figure 3.10 Notice posted in conspicuous location in corridor at LG4/F of Block K**

3.2.9 20 March 2018 – IEC Site Audit



**Figure 3.11 Environmental and Safety Notices and Warning Signs were posted in the entry of Incinerator Room**



**Figure 3.12 Notice posted in conspicuous location of corridor at LG4/F of Block K**



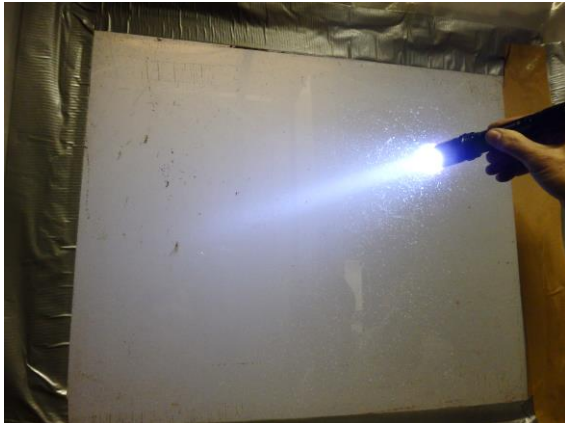
**Figure 3.13 Sealed Chimneys at the Rooftop**

3.2.10 During the site audits conducted on 15 March 2018 and 20 March 2018, no specific observation was identified from the site inspection.

3.2.11 The two chimneys connected to the Incinerators were sealed at the Rooftop.

3.2.12 Notices of the Project and the demolition works were posted in conspicuous locations in Block K.

3.2.13 28 March 2018 – Smoke Test



**Figure 3.14 View of Incinerator Room during smoke test**



**Figure 3.15 Pressure monitor was kept within the normal range during smoke test**

3.2.14 Demolition of gaskets were commenced on 24 March 2018 and finished on 26 March 2018.

3.2.15 Smoke test was carried out to ensure the tightness of the containment and to check whether there are any stagnant pockets of air on 28 March 2018. After the smoke test, the air mover was switched on to exhaust smoke from the containment. The pressure was kept within the normal range from 0.05 to 0.15 inch of water (negative pressure).

3.2.16 Based on the findings of the site audits during the reporting period, the overall EM&A performance of the Project is satisfactory.

3.2.17 Removal and decommissioning of clinical waste incinerators and associated ductworks will be commenced on 3 April 2018 and completed in mid-April 2018 tentatively.

## 4 CONCLUSION

- 4.1.1 Site audits and smoke tests have been conducted during the reporting period from 2 March 2018 to 27 March 2018. No specific observation was identified from the site inspection.
- 4.1.2 Construction of containment was finished. A three-compartment decontamination unit was constructed for entry and exit in to the works area. Environmental and safety notices, as well as warning signs were provided in conspicuous locations at place of work. Personal Protective Equipment (PPE) that filters particulate was provided on-site.
- 4.1.3 The two chimneys connected to the Incinerators were sealed at the Rooftop.
- 4.1.4 Demolition of gaskets was commenced on 24 March 2018 and finished on 26 March 2018.
- 4.1.5 Smoke tests were carried out with non-toxic smoke to ensure the tightness of the containment and to check whether there are any stagnant pockets of air on 2 March 2018 and 28 March 2018.
- 4.1.6 After the test, the air mover was switched on to exhaust smoke from the containment, and to visually check that the absolute filters screen out the smoke effectively and that the pressure gauges read normal.
- 4.1.7 Based on the findings of the site audits during the reporting period, the overall EM&A performance of the Project is satisfactory.
- 4.1.8 Removal and decommissioning of clinical waste incinerators and associated ductworks will be commenced on 3 April 2018 and completed in mid-April 2018 tentatively.