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土木工程署
Civil Engineering Department
The Government of the Hong Kong Special Administrative Region

顧問合約編號 CE 15/99
葵涌焚化爐及堅尼地城綜合發展區拆卸工程
環境影響評估研究
Agreement No. CE 15/99
Environmental Impact Assessment Study for Demolition of Kwai Chung Incineration Plant and Kennedy Town CDA

葵涌焚化爐
行政摘要
Kwai Chung Incinerator Plant
Executive Summary

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Note : App. and Auth. mean “Approved” and “Authorized” respectively.

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AAP	Asbestos Abatement Plan	石棉消減計劃
ACE	Advisory Committee on Environment	環境顧問委員會
ACM	Asbestos Containing Material	含石棉的物料
AIR	Asbestos Investigation Report	石棉調查報告
AP	Authorised Person	認可人士
APC	Air Pollution Control Ordinance	空氣污染管制條例
AQO	Air Quality Objective	空氣質素指標
ASR	Air Sensitive Receivers	易受空氣污染影響的受體
AST	American Society for Testing Materials	美國材料試驗學會
BTEX	Benzene, Toluene, Ethylbenzene and Xylene	苯、甲苯、乙苯及二甲苯
BOO	Building Ordinance Office	建築物條例執行處
CAP	Contamination Assessment Plan	污染評估計劃書
CAR	Contamination Assessment Report	污染評估報告書
CED	Civil Engineering Department	土木工程署
CP	Car Park	停車場
CPLD	Committee on Planning & Land Development	規劃地政署委員會
CZ	Consultation Zone	諮詢區
CSL	Registered Asbestos Consultant	註冊石棉顧問
DSD	Drainage Services Department	渠務署

EIA	Environmental Impact Assessment	環境影響評估
EIAO	Environmental Impact Assessment Ordinance	環境影響評估條例
EM&A	Environmental Monitoring & Audit	環境監察及審核
EMSD	Electrical & Mechanical Services Department	機電工程署
EPD	Environmental Protection Department	環境保護署
FIUO	Factories and Industrial Undertakings Ordinance	工廠及工業經營條例
G I/C	Government, Institutional/Community	政府/團體/社區用地
GDBL	Gin Drinker's Bay Landfill	醉酒灣堆填區
HOKLAS	Hong Kong Laboratory Accreditation Scheme	香港實驗所認可計劃
KCIP	Kwai Chung Incineration Plant	葵涌焚化爐
KCPTW	Kwai Chung Primary Treatment Works	葵涌初級污水處理廠
KTIP	Kennedy Town Incineration Plant	堅尼地城焚化爐
LGHAGN	Landfill Gas Hazard Assessment Guidance Note	堆填區沼氣危險評估指引
NCO	Noise Control Ordinance	噪音管制條例
NSR	Noise Sensitive Receiver	噪音感應強的地方
PCDD / PCDF	Dioxins and Furans	二惡英和呋喃
PCWA	Public Cargo Working Area	公眾貨物裝卸區
PFBP	Public Fill Barging Point	公眾填土躉船停泊處
PAC / PAH	Poly Aromatic Hydrocarbons	多環形碳水化合物
PME	Powered Mechanical Equipment	機動設備
RAC	Registered Asbestos Contractor	註冊石棉承建商
RAP	Remediation Action Plan	整治計劃書
RSE	Resident Site Engineer	駐地盤工程師
SB	Study Brief	研究概要
SR	Sensitive Receiver	感應強的地方
TMEIA	Technical Memorandum on the EIA Ordinance	環境影響評估條例技術備忘錄
TM	Technical Memorandum	技術備忘錄
TPH	Total Petroleum Hydrocarbons	汽油碳氫化合物總量
WDO	Waste Disposal Ordinance	廢物處置條例

1. INTRODUCTION

1.1 Background to the Study

1.1.1 The Civil Engineering Department (CED) of the Government of the Hong Kong Special Administrative Region presented to EPD a project profile for the demolition of Buildings and Structures within the Kwai Chung Incineration Plant (KCIP). A study brief (ESB-024/98) for the EIA of the demolition was issued by EPD under the EIAO. CED subsequently compiled a Study Brief (SB) for the consultants and appointed Atkins China Ltd to provide professional consulting services for the Environmental Impact Assessment for the Demolition of the Kwai Chung Incineration Plant (Agreement No. CE 15/99).

1.1.2 The demolition of a municipal incinerator constitutes a Designated Project under the provisions of the Environmental Impact Assessment Ordinance (EIAO). The Kwai Chung Incineration Plant (KCIP) site (Figure 1.1) that ceased to operate in May 1997, has been decommissioned and will require demolition in due course. The SB for Agreement No. 15/99 includes the requirements of the study brief issued under the EIAO (ESB-024/98).

1.1.3 This Executive Summary (ES) has been structured to present the key issues and available data in a form that reflects the topics indicated to be of concern as required under the SB. The preferred demolition methods have been agreed and noise, water and waste management assessments have been completed. Based on professional judgement air quality assessment is not required because the nature, scale and location of this Project is far from air sensitive receivers. In addition the elected demolition method will not include blasting techniques and the requirements of the Air Pollution Control (Construction Dust) Regulation, under the APCO will apply, ensuring air quality is in compliance with established standards and criteria. Dedicated reports on land contamination and asbestos assessments have been completed after Site Investigation and the investigations and assessments of asbestos and land contamination issues are therefore presented in this Executive Summary. A Landfill Gas Hazard Assessment has also been carried out and was also presented to EPD in a dedicated report in order to facilitate the Site Investigation process.

1. 引言

1.1 背景

1.1.1 香港特別行政區政府土木工程署向環境保護署遞交了一份關於拆卸葵涌焚化爐內建築物及構築物的工程項目簡介。環境保護署根據環境評估條例公佈了該項拆卸工程的環境影響評估研究概要（ESB-024/98）。隨後，土木工程署爲顧問公司編製了一份研究概要，並委派安建顧問公司就拆卸葵涌焚化爐的環境影響評估研究提供專業顧問服務（顧問合約編號 CE 15/99）。

1.1.2 根據環境影響評估條例的規定，拆卸市政焚化爐爲指定工程項目。已在 1997 年 5 月停止營運的葵涌焚化爐廠址（圖 1.1）已被解除運作，並將在適當的時候拆卸。顧問合約編號 CE15/99 的研究概要包括根據環境影響評估條例發出的研究概要（ESB-024/98）之內所訂規定。

1.1.3 此份行政摘要按照研究概要要求關注的項目，整理了各項主要課題及所獲得資料。較好的拆卸方法已獲同意，而噪音、水質及廢物管理評估亦已完成。根據專業意見，並無需要進行空氣質素評估，因該項工程項目，無論性質、規模及位置都遠離空氣易受影響的受體。此外，所選拆卸方法並不包括爆破方案，並遵守空氣污染管制條例中的空氣污染管制（建造工程塵埃）規例，以確保空氣質素達到所訂標準及準則。進行場地勘察後已完成土地污染及石棉評估專門報告，所以，此份行政摘要提出了石棉及土地污染課題的勘察及評估。爲使場地勘察工作順利進行，亦完成了堆填區沼氣危險評估，並向環境保護署遞交了一份專門報告。

1.2 Purpose and Objectives of the Assignment

1.2.1 The objectives of the EIA study are to describe the proposed project the elements of the community and environment likely to be affected, quantify emission sources and determine the significance of impacts on sensitive receivers and potential affected uses. Mitigation measures necessary to mitigate impacts to acceptable levels are proposed to minimise environmental disturbance and nuisance. Residual impacts and cumulative effects are identified as are any side-effects or constraints of proposed mitigation. Environmental monitoring and audit requirements are specified to ensure the implementation and the effectiveness of the environmental protection and pollution control measures adopted.

1.2.2 In order to satisfy the requirements of the EIA it is necessary to define clearly the nature of the works involved in the demolition process. A Preferred Demolition Methodology was presented and endorsed and this ES presents a summary of the methodology to describe the project. The conceptual scheme for demolition of the facilities has been developed based on practical experience and current demolition practice in Hong Kong and internationally.

1.2 作用與目的

1.2.1 環境影響評估研究的目的是說明可能受擬議的工程項目影響的社群及環境，表示排放源的數量及確定其對感應強的地方和潛在受影響用途的影響的重要性。建議採取必要的緩解措施，緩解影響至可接受的程度，使減少環境干擾及滋擾。確定剩餘影響，累積效應以及擬議緩解措施所產生的任何副作用或限制。另外亦會訂明環境監察及審核規定，以確保環境保護及污染管制措施的效用。

1.2.2 爲了達到環境影響評估研究的規定，必須清晰地說明拆卸過程中所有工程的性質。這份行政摘要將會闡述已獲通過的推薦拆卸方案，拆卸工程的概念計劃是根據本港及國際的實際經驗及現有拆卸作業經驗而擬訂的。

2. STUDY AREA, SENSITIVE RECEIVERS, CONSTRAINTS AND GENERAL APPROACH TO DEMOLITION

2.1 Study Area

2.1.1 The Kwai Chung Incineration Plant (KCIP) is located at Kwai Yue Street, Kwai Chung, facing the Rambler Channel and Tsing Yi South Bridge, with a site area of about 14,000 m^2 (Figure 1.1). The site is close to the Kwai Chung Park, the former Gin Drinkers Bay Landfill, and therefore may be impacted by contaminants and landfill gas generated from the landfill site. The site is adjacent to the Kwai Chung Primary Treatment Works and overlaps the "Sewerage Tunnel Protection Area" of the Strategic Sewerage Disposal Scheme administered by Drainage Services Department. The site is currently zoned as "G/IC" on the approved Kwai Chung Outline Zoning Plan No. S/KC/14, with no identified long term use of the area after demolition. However, the future land use is unlikely to be residential given the close proximity of the site to Gin Drinkers Bay Landfill and the Rambler Channel Bridge. A Public Fill Barging Point (PFBP), located on reclaimed land (Area 30D) to the north of the KCIP, is planned to be operational by 2005. The PFBP is also subject to a separate EIA study. The site is opposite the Rambler Channel Typhoon Shelter and Public Cargo Working Area. These facilities accommodate a range of cargo related activities including permanently moored barges.

2.1.2 The KCIP is not close to any residential development but there are a number of other and sensitive engineering locations other sensitive uses. The chimneys at KCIP have been found to contain some asbestos components that must be removed under controlled conditions in line with statutory requirements as the chimneys are progressively demolished. The risks, hidden costs and knock on effects of implementing any proposal which would include blasting techniques for the felling of the chimney or the main building structures have led to non-explosive demolition methods being selected for the demolition of Kwai Chung Incineration Plant. Consequently demolition methods have been proposed which avoid most of the complications associated with blasting and provide flexibility for the implementation stage of the works.

2. 研究地區、感應強的地方、限制及一般拆卸方法

2.1 研究地區

2.1.1 葵涌焚化爐位於葵涌葵裕街，面向藍巴勒海峽與青衣南橋，面積大約 14,000 平方米（圖 1.1）。該地點靠近葵涌公園(亦即以前醉酒灣堆填區)，因此可能受堆填區所產生的污染物及堆填區沼氣影響。該焚化爐鄰接葵涌初級污水處理廠，並位於渠務署管轄的策略性排污計劃的"污水隧道保護區"。目前，該地段已於批准的 S/KC/14 號葵涌分區計劃大綱圖中被劃作"政府/團體/社區用地"，在拆卸後並未確定其長遠用途。但是，由於該地靠近醉酒灣堆填區及藍巴勒海峽大橋，故此日後不大可能用作發展住宅。位於葵涌焚化爐北部填海區（30D 區）的公眾填土躉船停泊處計劃於 2005 年開始運作，該停泊處也須進行獨立的環境影響評估研究。該處位於藍巴勒海峽避風塘及公眾貨物裝卸區對面。這些設施包括永久停泊的駁船組成一系列與貨物運輸相關的設施。

2.1.2 葵涌焚化爐並不靠近任何住宅發展區，但附近有許多其他易受影響工程工地及易受影響用途。一些包含石棉成份的物質被發現於葵涌焚化爐的煙囪內，當逐步拆卸煙囪時，此類物質必須在符合法例規定所訂定的管制情況下拆除。已考慮各方案(包括使用爆破技術來拆卸煙囪或主要建築結構)所涉及的風險、隱含成本及影響，並選擇非爆破拆卸方法，進行拆卸葵涌焚化爐。因而，所建議方法可避免爆破技術所帶來困難，並可靈活地進行拆卸工程。

2.2 General Approach to Demolition of Buildings and Structures at KCIP

2.2.1 The intention has not been to prescribe a precise method or provide a work specification or a demolition plan but to indicate the approach that should be taken, in sufficient detail, to illustrate the agreed methodology and progress the Environmental Impact Assessment.

2.2.2 The general characteristics of the preferred demolition methods are common to Hong Kong and included in the draft code of practice issued by the Buildings Department. Methods that do not involve blasting, are appropriate. Whereas the eventual detailed demolition plan of the selected demolition contractor(s) may not be precisely as summarised here, the consultants believe that the methods are sufficiently effective and applicable for all the tasks such that confidence can be placed in the assessments.

2.2.3 Where possible methods that will help reduce noise and dust nuisances have been chosen. The options selected are also broadly in line with the Draft Code of Practice for Demolition of Buildings (Buildings Department 1998), which shall be observed at the detailed design stage.

2.2.4 The overriding concerns for the demolition Project will be safety and minimisation of environmental impacts. This will include the safety of the demolition operatives, safety of other workers on the site and safety of the general public, as well as protection of adjacent facilities and minimisation of nuisances. The Contractor shall also, during the course of demolition, ensure and verify that all utilities and services have been rendered safe.

Hoarding and Site Access

2.2.5 Typical hoardings and an indicative hoarding plan have been presented in the EIA. The hoardings structures will be totally within the proposed Project site and access would be controlled by security guards. No members of the public or unauthorised persons would be allowed entry to the site and only contractors' personnel and Government officials would be allowed within the Contractor's working area.

2.2 拆卸葵涌焚化爐建築物及構築物的一般方法

2.2.1 在此無意訂出一個精確的方法或提供一個工作規範或一個拆卸計劃，而是要足夠詳細說明將要採取的方法，並闡述已同意使用的方法及進行環境影響評估。

2.2.2 所推薦的拆卸方法的一般特徵對香港來說極爲普遍，並已包括在屋宇署所頒佈的工作守則擬稿中。不涉及爆破的方法會較爲合適。儘管所選拆卸承建商的最終具體拆卸計劃並沒有具體描述，但顧問們相信有關方法對所有任務來說是足夠有效的，故可放心進行評估。

2.2.3 在可能的情況下，選擇有助減低噪音及塵埃污染的方法。所選方案也大致符合應在具體設計階段遵守的拆卸建築物工作守則擬稿（屋宇署 1998）。

2.2.4 該拆卸工程項目的最重要關注是在於安全及最小環境影響方面。這包括地盤拆卸操作的安全、其他地盤工人的安全、公眾的安全以及附近設施的保護及最小滋擾。承建商也應在拆卸過期間內核實所有設施以確保其安全。

圍板與地盤出入口

2.2.5 在環境影響評估研究中提出了典型圍板及顯示圍板分佈計劃。圍板結構將會全部設在擬議的工程項目地盤範圍內，其出入口將由保安人員守衛。任何公眾或未經許可的人員均不許進入地盤，在承建商工作區僅允許承建商的工作人員及政府人員進入。

General Demolition Principles

2.2.6 Demolition of building and structures would generally be in the reverse order to that of construction, progressive, level by level, having regard to type of construction. Wherever possible, external non-load bearing cladding shall be removed first.

2.2.7 All asbestos containing materials shall be removed prior to commencement of demolition works, wherever possible. Other ACM may need to be removed as access is gained to particular areas and as the demolition progresses.

2.2.8 Debris to be removed at frequent intervals and stockpiles shall not be allowed to build up. Waste shall be removed on a daily basis as far as reasonably practicable

2.2.9 The Contractor will need to carry out works in accordance with the Factories and Industrial Undertakings Ordinance as well as all other statutory requirements and guidelines covering health and safety issues. Relevant legislation has been reviewed as part of the Site Investigation Report, the Contamination Assessment Report and the Asbestos Study Report (see also sections 4 and 3).

2.2.10 The use of all mobile cranes must be strictly controlled to ensure that cranes of adequate capacity will be used for lifting under different loading conditions. The Contractor shall also arrange for a competent person to visit site and inspect the scaffolding work, and to make any adjustments as the work proceeds, to ensure its stability and safety in line with statutory requirements, particularly the Construction Site (Safety) Regulations and the Code of Practice for Scaffold Safety.

一般拆卸原則

2.2.6 拆卸建築物及構築物通常與建造順序相反，根據建築類型一層一層逐層拆卸。如果可能，首先應拆除外牆不負載的覆蓋層。

2.2.7 如果可能，在開始拆卸工作之前，應拆除所有含石棉的物料。隨拆卸過程的進行，可能也需要拆除其他含石棉的物料。

2.2.8 應定期清理碎屑，不允許碎屑積存。應盡可能每天清理廢物。

2.2.9 承建商須依循工廠及工業經營條例以及所有其他涵蓋健康與安全課題的法定規定及指引進行工程。已審閱作爲場地勘察報告、污染物評估報告及石棉研究報告（參見第 3 與第 4 章），一部分的有關法例。

2.2.10 必須嚴格管制所有流動起重機的使用，以確保在不同負載情況下使用足夠負載量的起重機。承建商還應安排專業人員到地盤檢查棚架，並隨著工程的進度作出調整，以確保其符合法定規定的穩定性及安全性，尤其是建築地盤（安全）規例及棚架安全工作守則。

2.3 Principles of Chimney Demolition at KCIP

Access

2.3.1 The area beneath the chimney would be cordoned off and only authorized staff involved in the demolition of the chimneys would be allowed admission. Two crane shafts would be erected inside the chimney up to 150m high. A derrick would be mounted on the top of each crane shaft for hoisting & lowering of tools and debris. A working platform would be constructed at a level 2m below the top of the chimney within the concrete supporting weather shield.

2.3.2 The principle of the demolition procedure for the upper portion of the chimneys (10m from ground level or greater) is that the chimneys will be cut into small pieces by hand held tools on the spot by operatives who would work from working platforms inside the chimney. Hydraulic breakers would be used for the remaining lower portions of the chimneys.

2.3.3 The concrete supporting weather shield and the metal flues will be removed manually. The principle of the demolition procedure shall be that the chimney and flues would be cut up into pieces and these pieces lowered to the ground by derrick. This method would ensure that full control of the debris and that the pieces of reinforced concrete are not left to free fall.

2.3.4 An asbestos consultant will be required to be employed by the proponent to supervise the contractor to ensure that ACM is removed in line with the requirements of the Asbestos Abatement Plan and not accidentally removed in the demolition process.

2.3 拆卸葵涌焚化爐煙囪的原則

出入口

2.3.1 煙囪下的地區將被封鎖，僅允許授權拆卸煙囪的工作人員進入。在煙囪內將豎起兩根高達 150 米的起重機軸。在每根起重機軸的頂端將安裝一根吊杆以作升降工具與碎屑用途。在混凝土製成的防風雨屏障內低於煙囪頂部 2 米的地方將建造一個工作台。

2.3.2 煙囪上部（距地面 10 米以上）拆卸程序的原則是：由在煙囪內工作平台上工作的操作人員用手提工具將煙囪分割成小塊。煙囪下部則使用油壓破碎機來拆卸。

2.3.3 混凝土製成的防風雨屏障及金屬煙道將以人力移走。拆卸程序的原則是：把煙囪及煙道分割成小塊，並用吊杆把這碎片放到地面。這種方法將確保完全管制碎屑，及鋼筋混凝土碎片不會自由掉落。

2.3.4 倡議人應聘請一位石棉專家監督承建商，以確保按照石棉消減計劃拆除含石棉的物料，而不會在拆卸過程中意外地拆除含石棉的物料。

Duration of Demolition and Soil Remediation Works

2.3.5 The buildings and chimney at KCIP can be demolished and removed by the conventional top down demolition using hand held tools and mechanical breaking methods. In order to avoid hazards caused to the adjacent areas, all the structures and other buildings near to the chimneys would be demolished and removed prior to the demolition of the chimneys.

2.3.6 Professional experience and advice sought from local contractors suggests 12 months would appear to be ample time for demolition based on the above methodology. The chimney demolition shall follow demolition of the main building, and weighbridge.

2.3.7 Following the completion of the demolition, the soil remediation works described in the Contamination Assessment Report and Remediation Action Plan shall be carried out.

拆卸與土地整治工程時限

2.3.5 葵涌焚化爐的建築物與煙囪可使用傳統的由上至下拆卸方法，利用手提工具及機械破碎方法進行拆卸。爲了避免對臨近地區造成危險，在拆卸煙囪之前，所有靠近煙囪的構築物及其他建築物將會被拆卸及清除。

2.3.6 根據本地承建商的專業經驗及提供的建議，按照上述方法拆卸，十二個月應該足夠。應首先拆卸主要建築物及稱量台，其後才拆卸煙囪。

2.3.7 完成拆卸工作後，將進行污染評估報告及整治計劃書中說明的土壤整治工程。

3. ASBESTOS CONTROL

3.1 Site Location and Description

3.1.1 An Asbestos Investigation Report and Asbestos Abatement Plan for the site is required under the Air Pollution Control Ordinance (APCO) prior to the commencement of any asbestos abatement work. An Asbestos Study Report (ASR) including Asbestos Investigation Report (AIR) and Asbestos Abatement Plan (AAP) have been prepared by Registered Asbestos Consultants (EPD register 1014 and 1019) based on thorough site investigations.

3.1.2 The Asbestos Study has demonstrated the operation of the KCIP has not given rise to any residual contamination with Asbestos Containing Materials (ACM) dust or fibre. However there are some remaining ACM which will require removal before the buildings and chimney are demolished but these are not currently a hazard to the public or staff as they are not readily accessible.

3.1.3 The recommended approach is that any ACM present in the chimney and superstructures shall be removed before commencement of the demolition works. Whereas this is the preferred approach, experience suggests that in practice the removal of asbestos materials in certain locations may run more smoothly if both asbestos contractors and civil demolition contractors work in tandem. In general this is due to the convenience of the main civil demolition contractor providing access (scaffolding etc.) to the ACM, for the asbestos contractor and avoiding duplication of effort.

3.1.4 In this project, materials around the ACM, may in some cases, be dismantled by the civil demolition contractor, leaving the ACM in-situ (undisturbed). The work actually involving the removal of ACM, that involves the handling of the ACM (except those exempted by the APCO) shall be carried out by an RAC. The multi-party nature of the project and the involvement of non-asbestos contractor increase the risk of accidental disturbance of ACM. The proponent should ensure that there is a reliable supervision and co-ordination mechanism to guard against any accidental disturbance of the asbestos containing material (ACM) by non-asbestos professionals.

3. 石棉管制

3.1 地盤位置及說明

3.1.1 在開始任何石棉消減工程之前，根據空氣污染管制條例須具備該地盤石棉調查報告與石棉消減計劃。註冊的石棉顧問公司（環境保護署註冊 1014 與 1019），根據全面的地盤調查，擬備一份包括石棉調查報告及石棉消減計劃的石棉研究報告。

3.1.2 石棉研究證明葵涌焚化爐的作業，並沒有導致含石棉物料塵埃或纖維的剩餘污染。但是，在拆卸建築物與煙囪之前，還有一些需要拆除的含石棉物料，不過，由於這些地方不可輕易進入，目前對公眾或工作人員並無構成危險。

3.1.3 推薦的方法是在開始拆卸工程之前，應清除煙囪與上層建築物內的任何含石棉物料。但這僅是推薦的方法，經驗建議在實踐中，如果石棉承建商與建築拆卸承建商協力工作，可能可更順利地拆除在某些位置的含石棉物料。通常這是由於主要建築拆卸承建商爲石棉承建商提供方便接近含石棉物料的方法（棚架等），而且避免了工作的重複。

3.1.4 在本工程項目中，在某些情況下，建築拆卸承建商可能拆除了在含石棉物料周圍的物料，卻把含石棉物料留在原處（不受干擾）。由註冊石棉承建商進行拆除含石棉物料的工程，包括處理含石棉物料（根據空氣污染管制條例獲豁免的物料除外）。工程項目的多方參與性質及非石棉承建商的參與增加了意外干擾含石棉物料的風險。倡議人應確保有可靠的監督及協調機制來防止含石棉的物料，免受非石棉專業人員的意外干擾。

3.2 Asbestos Investigation and Results

3.2.1 The methodology employed for the investigation into the presence of ACM was based upon a combination of professional judgement, sampling for potential ACM, expertise, and qualified assumptions based upon an intricate knowledge of the site layout. Plans and suitable diagrams of the site have been examined. These procedures in parallel have enabled the identification of the remaining ACM, details of which are provided in the AIR & AAP.

3.3 Removal Methods

3.3.1 All remaining ACM on the site is not accessible to the general public. In general, the operation of the Premises has not given rise to any residual contamination of the buildings with ACM dust or fibre. Routine sampling, undertaken around the site, to check that no ACM dust and debris has accumulated around the potential ACM components, does not indicate contamination of the site.

3.3.2 The ACM to be removed appears to be in a good condition and unlikely to result in the release of asbestos fibres unless deliberately disturbed. However, some of the ACM identified is potentially friable and potentially difficult to extract and there are significant quantities overall. Asbestos Abatement work will be carried out in line with codes of practice for Asbestos Control, *Safe Handling of Low Risk ACM*, or, *Asbestos Work Using Full or Mini Containment Method* and supervised accordingly.

3.2 石棉調查及結果

3.2.1 所採用的調查含石棉物料的存在的方法是以專家判斷、對潛在含石棉物料採取樣本、專家意見以及根據地盤平面圖複雜知識的合理假設所結合爲基礎的。已檢查了場地的圖則及相配圖表。這些並列的程序使能確定可識別餘下的含石棉物料，在石棉調查報告及石棉消減計劃中提供了詳情。

3.3 拆除方法

3.3.1 一般公眾不會接觸到地盤的所有餘下含石棉物料。通常，該建築物的運作並未對其引起含石棉物料塵埃或纖維的任何剩餘污染。在地盤周圍進行常規採取樣本，以核實潛在含石棉物料成份周圍沒有累積含石棉物料的塵埃及碎屑，以表明地盤並沒有污染物。

3.3.2 將被拆除的含石棉物料好像處於較好的狀況，除非故意干擾，否則不大可能造成含石棉纖維的釋放。但是，一些已確認的含石棉物料可能很脆弱而且很難提取，總體來說數量也不少。應按照*石棉管制*、*低風險含石棉物料的安全處理*，或*使用全密封區或小型密封區方法的石棉工程工作守則*進行石棉拆除工作及相應地進行監督。

3.4 Programme for Asbestos Removal

3.4.1 An RAC (Registered Asbestos Contractor) shall be totally responsible for completing the asbestos abatement within the given time frame. It is anticipated that a minimum of 10 to 20 competent workers in various trades would be employed over the whole abatement period. The RAC will control and monitor their work progress and make the necessary adjustment to their workforce to meet the work requirements. A full time Safety Supervisor shall be required to assist the contracting regarding safety and health of the site personnel and to keep the necessary records. The final programme will be passed to EPD prior to the commencement of abatement works. Any subsequent amendments will also be passed to EPD prior to the reprogramming of abatement works so as to keep the authorities up to date with the works.

3.4 石棉拆除計劃

3.4.1 註冊石棉承建商應全權負責在指定的時間內完成石棉拆除工程。預計在整個清拆工程期要聘請最少十至二十位不同工職的合適工人。註冊石棉承建商要管制並監察他們的工作進度，並對其工人人數作必要調整，以達到工程的規定。還須有一位全職安全監督員，協助有關地盤人員的安全與健康的工作，並作必要的記錄。在開始拆除計劃之前，應把確定的計劃書遞交給環境保護署。倘若其後有任何修訂，應在重新編排拆卸工程之前將修訂提交環境保護署，使其獲悉工程的最新進展。

4. LAND CONTAMINATION

4.1 Requirement for Land Contamination Assessment

4.1.1 The preparation of a Contamination Assessment Plan (CAP) must be undertaken in accordance with the information and recommendations contained in Annex 19, Section 3 of the *Technical Memorandum on Environmental Impact Assessment Process*. A completed land Contamination Assessment Report including a Remedial Action Plan (CAR/RAP) has been submitted in line with the Professional Persons Environmental Consultative Committee (ProPECC) Practice Note for Professional Persons PN 3/94 'Contaminated Land Assessment and Remediation' issued by the EPD which sets out procedures and requirements for assessment of land contamination.

4.1.2 A number of industrial land uses, identified as having the potential for causing land contamination are of relevance to the current study, including, oil storage installations, power plant, chemical manufacture and processing plant and car repairing / dismantling workshops. The Contamination Assessment Report (CAR/RAP) presents details of the work carried out to investigate the extent and nature of land contamination at Kwai Chung Incineration Plant.

4. 土地污染

4.1 土地污染評估的規定

4.1.1 應按照*環境影響評估程序的技術備忘錄*第三節附件 19 所列明的資料與建議來擬備一份污染評估計劃。已向當局提交了一份包括整治計劃書的土地污染評估報告，該報告是符合環境保護署所發出的專業人員工作指引(ProPECC)PN3/94 "污染土地評估及整治"所制訂的土地污染評估的程序及規定。

4.1.2 許多已確定可能造成土地污染的工業用地與當前研究有關，包括燃油設施、發電廠、化學品製造及處理設施和修車及拆車場。污染評估報告詳細說明對葵涌焚化爐的土地污染程度與性質的調查工作。

4.2 Site Investigation

4.2.1 Site investigation included the drilling of boreholes and the extraction of soil samples from various depths. Groundwater samples were also taken. On the basis of the preliminary site investigation it was evident that few of any surface areas of the site were heavily contaminated with fuel and lubricants or other materials as a result of site storage. Nevertheless former site operators could have resulted in some land contamination and, although the principal work areas are covered with thick concrete hardstanding it was considered possible that contamination of sub-surface layers may have occurred. Intrusive investigations were undertaken to establish the presence of any such contamination. A contamination assessment plan was agreed with EPD in line with ProPECC PN 3/94. The planned investigation was completed and a dedicated Contamination Assessment Report and Remediation Action Plan was prepared. The following sections summarise conclusions from the CAR/RAP.

4.2 場地勘察

4.2.1 場地勘察包括地上鑿洞的鑽探及根據從不同深度提取土壤樣本，同時也提取地下水樣本。根據初步場地勘察，顯示如果地盤任何表面地區被燃料、潤滑劑或其他物料嚴重污染，極少是由地盤貯存所造成的。然而，以前土地作業者有可能造成一些土地的污染，儘管主要的工作區都覆蓋著厚厚的混凝土硬質路面，但次表面層有可能發生污染。進行深入勘察，以確定此類污染的存在。符合 ProPECC PN3/94 的污染評估計劃已獲得環境保護署的同意。已完成計劃中勘察及已擬備好專門的污染評估報告與整治行動計劃書。污染評估報告書/整治計劃書總結如下。

4.3 Methodology

4.3.1 Criteria for the assessment of land contamination levels and sampling protocols were agreed with EPD prior to the intrusive soil investigations. Soil samples were taken at various depths and a contaminated land specialist was present during all stages of the sampling to instruct and amend sampling strategies at the time of sampling as necessary to take account of particular site conditions. Groundwater samples were also taken.

4.3.2 Samples were tested at a HOKLAS accredited laboratory in accordance with standard international methods (USEPA or ASTM or equivalent) in line with best international practice. The rationale for the scope of parameters at each location was agreed with EPD prior to the site investigation. The overall sampling strategy has provided a framework for the site investigation study in order to determine the overall scale, nature and extent land contamination and have taken account of the former site activities (as far as they can be ascertained) and potential locations for contamination. Detailed photographic records and details of the analysis are presented in the CAR. The following section summarises the results and assessment.

4.3 方法

4.3.1 在進行深入場地勘察之前，土地污染程度的評估準則及採樣草案準則，已獲得環境保護署的同意。在所有採樣階段，在不同深度提取土壤樣本，並須有一位土地污染專家在場，以在必須考慮特殊地盤情況時，加以指導並修正採樣策略。同時提取地下水樣本。

4.3.2 根據標準國際方法（美國環境保護局或美國材料試驗學會或其他等同的機構）在香港實驗所認可計劃公認的實驗室，按照符合最佳國際慣例的方法對樣本進行測試。在進行場地勘察之前，每個位置參數範圍的基本原理，均已獲得環境保護署同意。爲了決定全部規模、性質、土地污染程度，整個採樣策略已爲場地勘察研究提供了一個大綱，並考慮到以前的土地用途（盡可能確定）及潛在污染位置。在污染評估報告書中提供了詳細的攝影記錄和詳細的分析。結果及評估總結如下。

4.4 Contamination Assessment

4.4.1 The results of a detailed Site Investigation, including the collection of sub-surface samples and chemical analyses, has indicated that the levels of contamination are generally below the criteria that indicate gross pollution of the site. However some localised areas of contamination are present and there is a requirement for remedial action at these localised areas of ground contamination. The entire site is currently paved in thick concrete and viable exposure pathways are minimal. In the context of the current EIA study, it is considered that the possibilities for contact with ground contaminants during the demolition of KCIP are relatively low, provided appropriate precautions are implemented. This is because ground excavations will not be necessary. However, remediation is necessary to comply with government policy. Contaminants present in ash on the ash bunker wall at KCIP must be cleaned up under controlled conditions prior to the demolition. Procedures to minimise pollution and for the protection of site workers have been proposed under the EIA to ensure environmental impacts are minimised and that the safety of the general public is protected.

4.4.2 At this stage the only opportunity for human exposure to any of the contamination on site will be if the materials are excavated. For this site and any potential redevelopment, the preferred approach with least environmental impact, is to cause minimal disturbance to the ground conditions, immobilise the contaminated soils where necessary and make provisions for the protection of workers. Where this is not appropriate the disposal of some material to landfill may be a more suitable remedial option.

4.4 污染評估

4.4.1 詳細的場地勘察包括採集次層樣本及化學分析，結果顯示污染的程度大致低於來衡量地盤總污染的準則。然而，仍存在一些局部污染地區，對這些地區來說，須規定採取整治行動。整個地盤目前鋪設厚厚的混凝土，因此，可讓污染物滲透出地面的途徑是很少的。在當前的環評研究中，認爲如果實施了適當的預防措施，在拆卸葵涌焚化爐過程中與地面污染接觸的可能性較低，這是因爲將不需要挖掘地面。然而，要符合政府政策則必須進行整治。在拆卸葵涌焚化爐之前，必須在管制的情況下，清除葵涌焚化爐牆上灰塵裏的污染物。環境影響評估已建議可減低污染程度並保護地盤工作人員的程序，以確保環境所受影響最小及保護一般公眾的安全。

4.4.2 在本階段人們暴露於任何土地污染的唯一機會是當物料被挖掘時。對本地盤與任何潛在重建計劃而言，對環境影響最小的推薦方法是要對地面狀況造成最小干擾，如需要則停用污染的土壤，並提供保護工作人員的規定。若不適用，將部份物料運往堆填區處理，可能是更恰當的整治方案。

4.4.3 The presence of soil contaminants does not necessarily imply that there are any implications for the demolition procedures or public health. The possibilities for contact with ground contaminants during the demolition of KCIP are relatively low, provided appropriate precautions are implemented. This is because ground excavations will not be necessary. Therefore in the context of the demolition activities associated with the current EIA study, worker contact with ground contaminants will not take place. However the possibilities for contact with ground contaminants during the site clean up cannot be ruled out and appropriate precautions have been proposed for implementation and detailed in the CAR/RAP. It is recommended that the planned remedial actions for underground contaminants take place after the civil demolition. This section draws attention to those samples where contamination has been identified and where remedial action is required.

4.4.3 土壤污染的存在並不一定表示對拆卸程序或對公眾健康有任何影響。如果實施了適當的預防措施的話，在拆卸葵涌焚化爐過程中與地面污染接觸的可能性則較低。這是因爲將不需要挖掘地面。因此，在與當前環評研究相關的拆卸行動中，工作人員不會接觸到地面的污染物。但是，不能排除在清理地盤過程中與地面污染物接觸的可能性。在污染評估報告書/整治計劃書中，建議了適當的預防措施，並有詳細說明。建議在建築拆卸後才進行計劃中地下污染整治行動。本章重點在於從樣本確定污染地區及需要進行整治行動的地方。

5. LAND FILL GAS HAZARD ASSESSMENT

5.1 Introduction

5.1.1 Qualitative landfill gas hazard assessment has been undertaken in accordance with the *Landfill Gas Hazard Assessment Guidance Note* issued by EPD. Since demolition works will be undertaken above ground level and in the open air they are not considered unduly susceptible to hazards caused by the accumulation of landfill gas. Intrusive ground investigations have been completed using safe and controlled conditions. All demolition and associated works can be completed and the risk of landfill gas hazard can be controlled to acceptable levels. A gas monitoring programme shall be implemented as necessary during the execution of the soil Remediation Action Plan (RAP).

5.2 Description and History of Gin Drinkers Bay Landfill

Landfill History

5.2.1 Prior to 1960, Gin Drinkers Bay (Pillar Island) was an open body of water between Pillar Island and Kowloon. Before tipping commenced, a rock bund was built connecting the island to the mainland. Initially, waste was received by barge and after being unloaded on the rock bund was pushed into the water. Tipping into the water ceased in 1967 although "open tipping" continued until 1973 when controlled landfilling was adopted. Waste deposition ceased in 1979. Restoration of the site, including the installation of landfill gas and leachate control measures has been commissioned by EPD as part of its programme to restore old landfill sites.

5. 堆填區沼氣危險評估

5.1 引言

5.1.1 根據環境保護署所發出的*堆填區沼氣危險評估指導說明*進行了定義性堆填區沼氣危險評估。由於拆卸工作將在地面露天進行，所以並不認爲拆卸工程過分地易受堆填區沼氣累積的危險所影響。已使用安全及可控制情況下完成深入地面勘察。而且可將堆填區沼氣危險的風險控制到可接受的程度下來完成所有拆卸及相關連工程。在執行土地整治計劃書的過程中，如有必要應實施沼氣監察計劃。

5.2 醉酒灣堆填區說明與歷史

堆填區歷史

5.2.1 1960 年以前，醉酒灣是青洲與九龍之間的一片廣闊水域。在廢物傾倒開始之前，建立了連接島嶼與大陸的岩石海堤。起初，由駁船接收廢物，在岩石海堤卸下廢物後倒入水中。傾倒廢物到水中的行動在 1967 年停止，但“露天傾倒”則持續到 1973 年採用了管制性的垃圾堆填方法爲止。廢物沈積在 1979 年停止。作爲修復舊堆填區方案的一部份，環境保護署已對該堆填區執行包括安裝堆填區沼氣及滲濾污水管制措施的修復工程。

Landfill Restoration

5.2.2 Gin Drinkers Bay is one of four North West New Territories (NWNT) landfills included in the restoration programme implemented by the Hong Kong Government. The purpose of the restoration works are to manage the environmental impacts arising from the site (i.e. landfill gas, leachate, odour etc.) and to enable the sites to be returned to suitable types of afteruse. Potential afteruses include public parks, open space, tennis courts, sitting out areas etc. Restoration of the GDBL site necessitates the installation of landfill gas and leachate control measures.

5.3 Landfill Gas Risk Assessment

5.3.1 A qualitative assessment of landfill gas risk posed by the Gin Drinkers Bay Landfill to the demolition of Kwai Chung Incinerator and associated activities has indicated the risk of gas hazard during demolition works as medium for demolition works and high for soil remediation works.

Proposed Protection and Precautionary Measures

5.3.2 The findings of the qualitative assessment have indicated that the risks posed to workers for the demolition of KCIP by Gin Drinkers Bay Landfill are medium. However, the assessment has also shown that potentially high risks are posed by ground remediation works needed in respect of the required land contamination assessment. Therefore, precautionary measures shall be taken during the execution of the RAP.

5.3.3 A working method statement (safety plan) is recommended for inclusion into the contract for demolition works. The document should set out the measures and implementation strategies proposed to minimise the risk of fires, uncontrolled explosions and asphyxiation of workers during the demolition phase. All work should be undertaken strictly in accordance with the safety plan.

堆填區修復

5.2.2 醉酒灣是香港政府實施的四個新界西北區修復計劃的堆填區之一。修復工程的目的在於管理堆填區造成的環境影響（例如，堆填區沼氣、滲濾污水、氣味等），以使堆填區可恢復到合適的可用途種類。潛在的可用用途包括公園、露天場所、網球場、休息區等。醉酒灣堆填區的修復致使有必要在堆填區安裝沼氣及實施滲濾污水管制措施。

5.3 堆填區沼氣風險評估

5.3.1 醉酒灣堆填區對拆卸葵涌焚化爐及有關連的活動所造成的堆填區沼氣風險，在定義性評估裏表示沼氣危險的風險對拆卸工程而言爲中等，對土壤整治工程而言的風險爲高。

擬議的保護及預防措施

5.3.2 定義性評估的結果表示醉酒灣堆填區對拆卸葵涌焚化爐的工作人員的風險爲中等。但是，評估還顯示根據土地污染評估所規定的地面整治工程會引致潛在的高風險。因此，在執行整治計劃書期間，應採取預防措施。

5.3.3 建議在拆卸工程合約中加入工作方法說明書（安全計劃）。文件應制訂可減少在拆卸期火災、失控爆炸及工作人員窒息的風險的建議措施及執行策略。所有工作均應按安全計劃嚴格進行。

5.3.4 All workers should undergo training on the risks and indications of landfill gas and should be thoroughly versed in first aid and emergency and evacuation techniques. A no smoking policy should be strictly implemented on site and applied at all times. The possibility of methane rich air being taken into diesel-engine plant should not be overlooked, although this is not likely to occur as machinery is likely to be located overground in the demolition and soil remediation phases.

5.3.4 所有工作人員應進行風險及堆填區沼氣徵象培訓，並應完全熟悉急救、緊急情況與挖掘方法。在地盤應嚴格執行不准吸煙的政策，並且貫徹執行。儘管機器很可能在拆卸與土壤整治階段位於地面，但仍不應忽視富甲烷的空氣進入柴油機器的可能性。

6. NOISE

6.1 Introduction

6.1.1 An assessment of the noise impacts associated with the demolition of the KCIP has been conducted in line with Annexes 5 and 13 of the TMEIA. Noise Sensitive Receivers (NSRs) within 700m of the site have been identified (Figure 1.1) and worst case impacts on these receivers modelled.

6.2 Government Legislation and Standards

6.2.1 Construction noise is controlled under the Noise Control Ordinance (NCO) and its subsidiary regulations. The NCO provides a statutory control on the noise from general construction work between 7p.m. to 7a.m. and on general holidays (including Sundays) by means of construction noise permits. For general construction work involving the use of powered mechanical equipment (PME) other than percussive piling, the NCO standards are contained in the Technical Memorandum on Noise from Construction Work other than Percussive Piling and the Technical Memorandum on Noise from Construction Work in Designated Areas. The project site falls within the Kwai Tsing Designated Area as shown in Plan No. EPD/NP/NT-03.

6.3 Baseline Conditions

6.3.1 A number of industrial uses, including Kwai Chung Preliminary Treatment Works and public cargo working areas are located around the Site. The approach viaduct of the Rambler Channel Bridge is within 40m of the chimney and the study area of the area is predominantly influenced by road traffic. Construction, commercial and waterfront noise also contribute to the background noise at the Site.

6. 噪音

6.1 引言

6.1.1 已根據環境影響評估條例技術備忘錄附件 5 及 13，完成了評估有關葵涌焚化爐拆卸工程所產生的噪音影響。確定了那些位於距離地盤 700 米以內的噪音感應強的地方(見圖 1.1)，並模擬了最壞的負面影響。

6.2 政府法例及標準

6.2.1 噪音管制條例及附屬的規例可用作管制建築工程噪音。噪音管制條例通過簽發建築噪音許可證的程序，來管制在晚上七時至翌晨七時及公眾假期(包括星期日)的任何時間內所進行一般性建築工程噪音。管制建築工程噪音技術備忘錄(撞擊式打樁除外)及管制指定範圍的建築噪音技術備忘錄中訂明對一般使用機動設備(撞擊式打樁除外)的建築工程的噪音標準。該工程項目位於葵青指定範圍，詳見計劃號碼環境保護署/NP/NT-03。

6.3 基線狀況

6.3.1 地盤附近有一些工業設施，包括葵涌污水處理廠和公眾貨物裝卸區。藍巴勒海峽的高架橋距煙囪不足四十米，而且該區域的研究區主要受公路交通噪音的影響。建築、商業及海濱的噪音也構成了背境噪音的一部分。

6.4 Noise Sensitive Receivers

6.4.1 No planned or committed Noise Sensitive Receiver (NSRs) have been identified within 700m of the study area but there are some existing NSRs such as domestic premises. There are no SRs which are so close to the works at KCIP as to be severely affected by conventional top down demolition method. NSRs, identified according to the criteria set out in the TMEIA within 700m have been included in the EIA including Cheung Ching Estate, Greenfield Garden and Grand Horizon (more than 600m away across the Rambler Channel, Figure 1.1).

6.5 Potential Sources of Impact

6.5.1 The likely noise impacts arising from the demolition of the Kwai Chung Incineration Plant are related to operation of demolition plant and vehicles. Debris storage will be temporary and waste materials would be taken off-site as soon as possible. The mechanical demolition of the buildings will be carried out at the beginning of the demolition period while the demolition of chimney would be undertaken at a later stage. These two activities will not, therefore, be carried out concurrently.

6.6 Noise Assessment

6.6.1 The assessment of the potential noise impact from the demolition works made reference to the technical memorandum on Noise from Construction Work other than Percussive Piling (the Technical Memorandum) issued under the NCO. The likely noise impacts on the NSRs were modelled and the modelling results showed that whereas the extent of construction activities will be significant no noise exceedance would be expected at all NSRs. During the peak of activity months 7 to 8 the predicted noise levels will not exceed the Noise Standards for Daytime Construction Activities of 75 dB(A) for domestic premises under the TM of the EIAO. No night time work is anticipated.

6.4 噪音感應強的地方

6.4.1 雖然距離研究區 700 米以內是沒有計劃或已承諾的噪音感應強的地方，但仍有一些現存噪音感應強的地方，如住用處所。沒有鄰近葵涌焚化爐的敏感受體，因採用傳統的自頂向下拆卸方法而受到嚴重的影響。根據環境影響評估條例技術備忘錄所設定的衡量準則，在距地盤方圓 700 米以內確定了一些噪音感應強的地方，已列在環評中包括長青村、翠怡花園和海悅花園（橫過藍巴勒海峽距離超過 600 米，見圖 1）

6.5 潛在污染源

6.5.1 拆卸葵涌焚化爐的噪音大概是從拆卸工程設備及車輛運作時產生的。拆卸後的碎屑只作臨時貯存，廢料應儘快搬離地盤。在拆卸工程早期會進行拆卸建築物，而拆卸煙囪會在較後階段進行，兩者不會同時動工。

6.6 噪音評估

6.6.1 噪音影響評估是根據噪音管制條例所發出的管制建築工程噪音技術備忘錄（撞擊式打樁除外）。結果顯示所有的噪音感應強的地方，無論距離地盤遠近，所受噪音的影響都沒有超出標準。在第七及第八個月的施工高峰期間，預測的施工噪音的水平不會超過環評技術備忘錄所訂明(適用於任何住用處所)日間建築活動噪音 75 分貝(A)的標準。預測沒有夜間施工。

6.7 Conclusions

6.7.1 Without mitigation, the predicted noise levels at the NSRs will be within the established criteria due to the great separation distance to the NSRs. Therefore, noise exceedances during the demolition works is not expected and although no EM&A is recommended at this stage, it is recommended that good site practices should be adopted so as to avoid unnecessary noise generated by any construction/demolition works (such as machine idling) as far as practicable. Noise impacts will not require mitigation due to the large distances to the nearest sensitive receivers.

6.7 總結

6.7.1 由於噪音感應強的地方的距離較遠，在沒有緩解措施情況下，預計噪音感應強的地方所受的噪音水平不會超出現行準則。因此預料在拆卸工程中沒有超標的情況。雖然在現階段沒有建議環境監察及審核，但仍建議採用更好的作業守則，以避免施工/拆卸工程中（如機械空轉）產生不必要的噪音。因爲施工地盤距離很遠，所以無需採取緩解措施。

7. AIR QUALITY

7.1 Introduction

7.1.1 The preferred demolition method, is not blasting, but is top-down deconstruction. In order to provide some reference material with regard to air quality, at this stage, all Air Sensitive Receivers (ASRs) within 700m proximity to the site have been identified (Figure 1.1).

7.1.2 Potential dust impacts on the ASRs are the major concern during the demolition of the incinerator. Mitigation measures are required under the Air Pollution Control (Construction Dust) Regulations, to reduce the air quality impacts at the ASRs. The Regulation came into operation in June 1997 and requires notification before carrying out of certain types of construction works and to adopt dust reduction measures while carrying out construction activities.

7.1.3 Air quality impacts will require mitigation in line with the Air Pollution Control (Construction Dust) Regulations (under the APCO). EM&A for dust is recommended at the site boundary as a proactive measure and to ensure that the dust criteria will not be exceeded and local nuisances do not arise.

7.2 Dust Suppression Measures

7.2.1 The fugitive dust emissions are associated with general deconstruction and mechanical demolition of structures, land clearing, and the movement of trucks on unpaved haul roads. These sources will essentially involve general disturbance of the existing structures above ground and waste-moving activities. In traditional demolition some portion of the dust associated with the demolition could also result from falling structures although this is ruled out by the preferred demolition method.

7. 空氣質素

7.1 引言

7.1.1 較好的方法不是爆破方法而是採用上至下拆卸方法。爲了在本階段提供有關空氣質素參考資料，已於距離地盤 700 米以內的地方確定了所有易受空氣污染影響的受體（見圖 1.1）

7.1.2 在拆卸焚化爐期間，主要關注塵埃對易受空氣污染影響的受體的潛在影響。根據空氣污染管制（建造工程塵埃）規例須採取緩解措施，以減低對受體的影響。該空氣管制規例是 1997 年 6 月開始實施的，規例要求在進行某項施工前要發佈通知，在施工過程中要採取抑制塵埃的措施。

7.1.3 根據空氣污染管制條例下的空氣污染管制（建造工程塵埃）規例，須採取緩解措施。建議在地盤界線對塵埃方面進行環境監察及審核，以作爲積極措施，並確保將不會超出塵埃準則和不會引起當地滋擾。

7.2 塵埃抑制方法

7.2.1 造成塵埃擴散的原因包括日常拆卸作業、機械拆卸、對建築物進行拆卸、土地平整以及在未鋪柏油的路面進行的車輛活動等。這些擴散源基本上都與地上建築物拆卸以及廢物清理活動有關。傳統的拆卸方法中，在建築物塌陷時也會產生塵埃，但經改進後的拆卸技術將可克服這問題。

7.2.2 Appropriate dust control measures should be implemented during construction stage in accordance with the requirements in the Air Pollution Control (Construction Dust) Regulation. Dust control techniques should be considered to control dust to a level not exceeding the Air Quality Objectives (AQOs) as well as the 1-hour TSP guideline level under the TMEIA (500 $\mu g\ m^{-3}$).

7.2.3 Statutory control of dust emissions from construction (demolition) works requires appropriate dust control measures to be implemented during the construction stage in accordance with the requirements in the Air Pollution Control (Construction Dust) Regulation. Using the measures and requirements in the Air Pollution Control (Construction Dust) Regulation, the dust nuisance to the surrounding air sensitive receivers can be minimised. With such mitigation, the predicted dust levels at the ASRs will be within the established criteria, therefore excessive dust during demolition works is not expected. In addition, as a proactive measure, the Environmental Monitoring and Audit (EM&A) for dust generated during the demolition is also recommended at the site boundary at the west to ensure that the dust criteria will not be exceeded at the Kwai Chung PTW. EM&A for dust is recommended at the site boundary to ensure that the dust criteria will not be exceeded and as a proactive measure and to ensure that local nuisances do not arise.

7.3 Conclusions

7.3.1 With the adoption of appropriate dust suppression measures, construction dust is unlikely to cause significant adverse impacts on surrounding sensitive receivers. Effective and adequate dust suppression measures could be ensured during the whole demolition period by the observation of the Air Pollution Control (Construction Dust) Regulations.

7.2.2 根據空氣污染管制（建造工程塵埃）規例的要求，在施工階段採取相應的塵埃抑制措施。所考慮的塵埃管制方法應管制塵埃達到不超過空氣質素指標的水平，以及環境影響評估條例技術備忘錄所訂明的每小時總懸浮粒子指引水平(每立方米 500 微克)。

7.2.3 建造(拆卸）工程塵埃排放的法定管制規定須在施工階段採取相應的塵埃抑制措施。採取上述措施後，對鄰近易受影響的地方的塵埃危害就會減至最小，而預測的塵埃水平會在指標內，並不會超標。另外，就拆卸過程產生塵埃的問題，建議在地盤西面界線處設立環境監察及審核點，要確保葵涌初級污水處理廠處不會超出塵埃的準則。建議在地盤界線對塵埃方面進行環境監察及審核，以作爲積極措施，並確保將不會超出塵埃準則和不會引起當地滋擾。

7.3 總結

7.3.1 通過採取適當的塵埃抑制措施，施工所產生塵埃就不會對鄰近易受影響的地方造成嚴重不良影響。有效的及足夠的塵埃抑制措施能確保整個拆卸過程中符合空氣污染管制（建造工程塵埃）規例。

8. WATER QUALITY

8.1 Introduction

8.1.1 The assessment of the potential water quality impacts associated with the demolition of KCIP was undertaken in line with the SB and Annexes 6 and 14 of the TMEIA.

8.1.2 The key issue addressed is the generation of demolition site run-off, surplus groundwater during soil remediation and wastewater that may cause adverse water quality impacts on water sensitive receivers if not properly controlled. Where appropriate, mitigation measures have been proposed to control potential water quality impacts.

8.2 Baseline Condition

8.2.1 In order to evaluate the water quality impacts resulting from the demolition of Kwai Chung Incineration Plant, the water sensitive receivers (WSRs) have been identified, based on the engineering requirements, methodology, mechanical equipment and waste disposal methodology expected for the demolition works. KCIP falls within the Victoria Harbour Water Control Zone (WCZ).

8.2.2 The WQOs for the Victoria Harbour are applicable as evaluation criteria for assessing the compliance of the Project. The EPD water monitoring location in the vicinity of the site VM13 have been reviewed in the assessment.

8.3 Potential Sources of Impacts and Mitigation

8.3.1 It is important that appropriate measures are implemented to control run-off and drainage and, thereby, prevent high loadings of SS from entering the Victoria Harbour WCZ causing impacts on the identified WSRs. Proper site management is essential to minimise surface water run-off, soil erosion, soil remediation activities and the impacts of sewage effluents.

8. 水質

8.1 引言

8.1.1 有關葵涌焚化爐拆卸的潛在水質影響，已就環境影響評估技術備忘錄的附錄 6 和 14 及研究概要進行了評估。

8.1.2 應要處理主要課題包括在拆卸地盤的徑流、整治土地時溢出的地下水和廢水，如果沒有適當的管制，這將對容易受水質污染影響的地方造成不良的影響。在適當情況下，已建議緩解措施以管制潛在水質影響。

8.2 基線狀況

8.2.1 爲了評估拆卸葵涌焚化爐所帶來的水質影響，容易受水質污染影響的地方已根據清拆的工程要求、方法、機械設備及廢物排放方法，加以確定。葵涌焚化爐位於維多利亞港水質管制區。

8.2.2 維多利亞港的水質指標可作爲本項目的評價準則，評估中亦曾審閱位於地盤附近的環保署水質監察點 VM13。

8.3 潛在污染源及緩解措施

8.3.1 爲避免大量懸浮固體進入維多利亞港水質管制區並對容易受水質污染影響的地方造成影響，採取適當的措施來控制地盤徑流及排放水是相當重要。適當的地盤管理對減少地面徑流、土壤沖蝕、土地整治行動及污水排放的影響亦屬必需。

Demolition Site Run-off and Surface Water Drainage

8.3.2 As the majority of the site has a hard concrete covering, the area of potentially exposed soil will be minimal. In line with the recommendations of the Practice Note for Professional Persons, Construction Site Drainage (ProPECC PN 1/94), such areas and the accumulation of dust and fine waste material shall be kept to a minimum to reduce the potential for siltation, contamination of run-off, and erosion. Run-off related impacts associated with demolition work and other general activities can be all readily controlled through the use of appropriate mitigation measures which include:

- The use of sediment traps, where appropriate; and
- The adequate maintenance of drainage systems to prevent flooding and overflow.

8.3.3 Critical areas within the Site shall be clearly marked and provided with protective measures to control site run-off. Temporary channels shall be provided to facilitate run-off discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels shall incorporate sediment basins or traps and baffles to enhance deposition rates.

8.3.4 Wheel washing facilities will be installed to ensure no earth, mud and debris is deposited on roads. Sand and silt in the wash water from such facilities shall be settled out and removed before (in line with effluent discharge standards, Appendix C) discharging the used water into storm drains. A section of the road between the wheel washing bay and the public road shall be paved with backfall to prevent wash water or other site run-off from entering public road drains.

Site Run-off during Soil Remediation

8.3.5 The above mitigation shall apply generally to all excavated stockpiled materials during the soil remediation process. In practice the consultants experience suggests that runoff from the site can be controlled even though the hard concrete covering is removed in places and the area of potentially exposed soil is greater than during the demolition. Surplus water arising from dewatering is to be collected on site for re-use (see below).

拆卸地盤的徑流及地面水排放

8.3.2 地盤主要由堅硬的混凝土所覆蓋，令有機會暴露土壤面積減至最少。根據專業人員的施工地盤排放(ProPECC PN 1/94)操作守則，此類地區的塵埃及細小的廢物的累積應減至最低以減少潛在的淤泥化、徑流的污染以及沖蝕。對拆卸工程及其他一般活動所引致與徑流有關的影響可透過以下的緩解措施進行管制：

- 在適當的地方使用沈澱分離裝置。
- 對排水系統進行足夠的保養以防外溢。

8.3.3 地盤內的特殊區域應作明顯標識，並採取有效措施管制地盤徑流。應設臨時管道將徑流在經沈澱分離池處理後排入適當的河道，固定的排放管道應設沈澱分離池或吸附裝置以提高沈澱率。

8.3.4 車輪沖洗設備將會安裝以防帶進路面上的泥土或碎屑等物。在排放沖洗水於排水管之前，應將沖洗水中的泥沙進行分離處理(根據污水排放標準，附錄 C），在車輪沖洗處與公共道路之間的路段應鋪設墊子以防沖洗水或其他徑流流入公共道路排放管道。

土地整治過程中的徑流

8.3.5 在土地整治的過程中，對所有挖掘出來的待整治物料都應採取上述管制措施。根據顧問實際經驗，儘管在拆卸過程中，一些地方混凝土面被移走或者暴露的土壤會增多，但地盤的徑流還是可以管制的。過剩的水可以被收集起來循環再用（參看下頁）。

General Demolition Activities

8.3.6 Debris and rubbish on site should be collected, handled and disposed of properly to prevent such material from entering the water column and causing water quality impacts. The solid waste management requirements are presented below.

8.3.7 The effects on water quality from these demolition activities are likely to be minimal provided that site boundaries are well maintained and good site practice is observed to ensure that litter and fuels are managed, stored and handled properly.

Sewage Effluent

8.3.8 Demolition workforce sewage discharges on site should be connected to the existing sewer or sewage treatment facilities where possible. Assuming that either the foul sewer or portable toilets are utilised throughout the demolition works no adverse water quality impacts should arise from the demolition workforce sewage.

Contaminated Groundwater and Leachate

8.3.9 Groundwater and leachate shall be reused and mixed with cement in the immobilisation process for contaminated soils. Surplus groundwater shall be tested for metals and other pollutants for compliance with standards for effluents discharged into the Victoria Harbour WCZ under the TM. If the concentrations of contaminants exceed the standards the surplus water shall be treated.

一般拆卸活動

8.3.6 碎屑和垃圾應收集起來及適當地處置以避免它們進入水管影響水質，固體廢物的管理要求會在以下說明。

8.3.7 只要妥善地保持地盤界線及適當地管理、儲存及處置垃圾和燃料，拆卸活動對水質的影響就能夠減至最低。

污水排放

8.3.8 拆卸地盤所排放的生活污水應盡量與現存的排放處理設施連接，假如在拆卸工程中利用污水排放下水道或使用便攜式廁所，拆卸工人的生活污水將不會對水質帶來不良影響。

被污染的地下水及滲濾污水

8.3.9 地下水及滲濾污水應循環再用和混合在處理污染土壤的過程所用的水泥。過剩的地下水，應進行金屬及其它污染物的化驗，以確保符合技術備忘錄中維多利亞港水質管制區的污水排放標準。如果污染物的濃度超標，過剩的地下水應加以處理。

8.3.10 Quantities of groundwater or leachate cannot be accurately predicted but if they are low it is possible that limited quantities could be discharged to the foul sewer. In this case the necessary permissions and discharge licences would need to be obtained from the authorities under the relevant legislation. However the contractor shall not discharge directly or indirectly into any public sewer stormwater drain any effluent or contaminated water without the prior written consent of the site engineer in consultation with the Director of Environmental Protection (DEP). In granting this permission the DEP may require the contractor to maintain suitable works for the treatment and disposal of such effluent or contaminated water (surplus groundwater or leachate). The contractor shall therefore make provisions to include for treatment of surplus groundwater or leachate to reduce chemical concentrations in order to comply with the standards for effluents discharged into the inshore waters of Victoria Harbour WCZ which should be in place before the commencement of the relevant works.

8.3.10 地下水及滲濾污水的數量並無法準確地估計，但如果在規例數量以下，可以排入污水管道，在這情況下需要具備有關部門發放的污水排放許可證。然而，在沒有得到駐地盤工程師及環境保護署署長的書面許可下，承建商不能將污水及被污染的水直接或間接排入任何公共污水排放管道。在獲得此項批准的過程中，環保署署長可能會要求承建商對受污染的水（包括過剩的地下水或滲濾污水）進行適當的處理，承建商需對包括過剩地下水和滲濾污水在內的水加以處理，以降低其化學濃度，並達到排入維多利亞港近海的污水排放標準，這些都必須在進行相關工作前就完成。

8.4 Conclusions

8.4 總結

8.4.1 Water quality impacts will require mitigation to ensure that any discharge meets the requirements of the Water Pollution Control Ordinance (WPCO) but impacts can be controlled within the established criteria by the use of established and routine site run off control techniques. The demolition works will not significantly modify the layout and hydraulics of the existing drainage network, or substantially alter the quantity of storm flows entering it. Provided the environmental guidelines for the handling and disposal of discharges from construction sites, as stipulated in the Practice Note for Professional Persons, Construction Site Drainage (ProPECC PN 1/94) are followed, there should be no adverse impacts from demolition on drainage. Discharges to sewers or drains from the works must comply with the TM standards of the Water Pollution Control Ordinance (WPCO). Discharges to coastal waters should be avoided if at all possible. Therefore, it is not expected that the Water Quality Objectives will be exceeded during the demolition works.

8.4.1 水質影響將需要緩解措施，以確保任何污水排放符合水污染管制條例的規定，採用已有的和常規的地盤徑流管制技術，可以將影響水質的因素加以管制，使其符合標準。拆卸工作將不會對地盤設計及現存排水設施作出顯注的更改，也不會改變其雨水管道的數量。在專業人員指引的環境指南中規定須對施工地盤進行污水處理，要遵守施工地盤排放規例（ProPECC PN 1/94），這樣拆卸地盤污水排放就不會對水質造成不良影響。從工廠排入污水管道必須符合水質污染管制條例的技術備忘錄標準，盡可能避免沿海排放。如此，拆卸工程期間將不會造成水質超標。

9. WASTE MANAGEMENT

9.1 Introduction

9.1.1 The potential environmental impacts from waste arising from the demolition has been assessed in line with Annexes 7 and 15 of the TMEIA.

9.1.2 The options for waste minimisation, recycling, treatment, storage, collection, transport and disposal of waste arisings from the demolition have been examined. Procedures for waste reduction and management are considered and mitigation measures for minimising the impacts of the wastes are recommended.

9.1.3 The wastes generated from demolition activities can be divided into categories based on the constituent elements and include:

- Construction and Demolition (C&D) materials (estimated 250 tonnes/day);
- Chemical waste (small volume + asbestos containing material); and
- General refuse (small volume).

9.2 Control Measures

9.2.1 Recycling, storage, transportation and disposal measures are recommended to avoid or minimise potential adverse impacts. The Contractor will incorporate these recommendations into a Waste Management Plan that incorporates site specific factors, such as the designation of areas for the segregation and temporary storage of reusable and recyclable materials.

9. 廢物管理

9.1 引言

9.1.1 有關拆卸工程所產生的廢物對環境造成的潛在影響，已就環境影響評估技術備忘錄的附錄 7 和 15 進行了評估。

9.1.2 由拆卸工程所產生的廢物的減少、循環再用、處理、儲存、收集、運輸和處置方案已作審查。已考慮廢物減少和管理過程，並推薦緩解措施使廢物影響降至最低。

9.1.3 可以根據組成元素將拆卸行動所產生的廢物分類，包括：

- 建築和拆卸物料(估計每天 250 噸)；
- 化學廢物(小量+含石棉的物料)；
- 一般垃圾(小量)

9.2 管制措施

9.2.1 推薦循環再用、儲存、運輸和處置的措施以避免或儘量減低潛在的不良影響。承建商應結合這些建議制訂一份《廢物管理方案》，包括場地方面的特定因素，例如指定範圍作可再用及循環再用物料的暫時儲存位置。

9.2.2 Waste management options can be categorised in terms of preference from an environmental viewpoint. The options considered to be more preferable have the least impacts and are more sustainable in a long term context. Hence, the hierarchy is as follows:

- Avoidance and minimisation by not generating waste;
- Reusing materials and therefore avoiding disposal;
- Recovery and recycling, avoiding disposal ; and
- Treatment and disposal, according to relevant laws, guidelines and good practice.

9.2.3 In accordance with the New Disposal Arrangement for Construction Waste, EPD, 1992, disposal of C&D material can either be at a specified landfill, or at a public filling area. However C&D materials currently comprise a high proportion of C&D waste inputs to landfills and in order to maximise landfill life, Government policy prohibits the disposal of C&D material to landfill if it contains more than 20% inert material by volume. The majority of waste at KCIP will be in this category.

9.2.4 Asbestos waste that is produced shall be handled in accordance with the Code of Practice on the Packaging, Handling Transportation and Disposal of Asbestos Waste. The detailed requirements are presented in the Asbestos Study Report.

9.2.2 廢物管理方案可以按照環境的優先觀點來分類。較可取的方案應是影響最少及最適合長遠實施的，因此其分級如下：

- 不產生廢物，以避免及減少影響；
- 重復使用物料，因此避免處置；
- 回收和循環使用，避免處置；及
- 依照有關法律、方針和實用經驗處理和處置。

9.2.3 根據環境保護署在 1992 年的《建築廢物最新處置安排》，建築及拆卸廢料可在指定堆填區或公眾填料區處置。然而現在送到堆填區的建築及拆卸物料中包含大量的建築及拆卸廢物，爲了儘量延長堆填區壽命，政府政策將禁止在堆填區處置(含體積超過百分之二十的惰性物料的建築及拆卸物料)。葵涌焚化爐的廢物主要屬此類別。

9.2.4 所產生的石棉廢物將按照《包裝、運輸和處置石棉廢物操作業守則》處理。詳細規例已在《石棉研究報告》中說明。

9.3 Waste Management Requirements

9.3.1 For unavoidable wastes, reuse, recycling and optimal disposal are most practical when segregation occurs on the demolition site, as follows:

- Public fill(inert) for disposal at public filling areas;
- C&D waste (non-inert) for landfill;
- Chemical waste for treatment at licensed facilities; and
- General refuse for disposal at landfill.

9.3 廢物管理規定

9.3.1 當在拆卸地點設置了隔離區，對於不可避免的廢物，最實際是重新使用、循環再用和最理想處置，詳述如下：

- 在公眾填料區處置公眾填料(惰性)；
- 在堆填區處置的建築及拆建廢物(非惰性)；
- 在領有牌照的設施處理化學廢物；及
- 在堆填區處置一般垃圾。

9.3.2 Specifically, it is recommended that:

- Wastes should be handled and stored in a manner which ensures that they are held securely without loss or leakage thereby minimising the potential for pollution;
- Only reputable waste collectors authorised to collect the specific category of waste concerned should be employed;
- Appropriate measures should be employed to minimise windblown litter and dust during transportation by either covering trucks or transporting wastes in enclosed containers;
- The necessary waste disposal permits should be obtained from the appropriate authorities, if they are required, in accordance with the Waste Disposal Ordinance (Cap 354), Waste Disposal (Chemical Waste) (General) Regulation and the Government Land Ordinance (Cap 28);
- Collection of general refuse should be carried out frequently, preferably daily;
- Waste should only be disposed of at licensed sites and site staff and the civil engineering Contractor should develop procedures to ensure that illegal disposal of wastes does not occur;
- Waste storage areas should be well maintained and cleaned regularly; and
- Records should be maintained of the quantities of wastes generated, recycled and disposed, determined by weighing each load.

9.3.3 Training and instruction of demolition staff should be given at the site to increase awareness and draw attention to waste management issues and the need to minimise waste generation. The training requirements may be included in a site waste management plan, if required by EPD.

9.3.2 有如下特定建議：

- 廢物處理和存放應該採取安全的方式，確保沒有廢物的遺失或涉漏，從而可盡量降低廢物對環境造成的潛在污染。
- 僱用認可而又有著良好聲譽的廢物收集商進行指定廢物的收集。
- 在密封貨柜或加蓋的貨車運送垃圾時，採取相應的措施，儘量減少在運輸過程中被風吹走的垃圾和塵埃。
- 按照廢物處置條例（第 354 章）、廢物處置（化學廢物）(一般)規例和土地條例（第 28 章），廢物處理商應取得適當政府機構頒發的必須廢物處置許可證。
- 一般的垃圾需要經常收集，最好是每天都進行。
- 有牌照地盤內的地盤工作人員及承建商的土木工程師應建立一套程序以杜絕非法處置廢物。
- 妥善保持廢物存放區域的清潔，並且經常進行清理。
- 每次廢物秤重後，記錄廢物產生、循環再用及處置數目。

9.3.3 拆卸工作人員需要在地盤進行適當的培訓和指導，增加他們對廢物管理課題及減少廢物產生的意識及注意。如果環境保護署需要，培訓的規定可包括在廢物處理計劃書內。

EM&A Requirements

9.3.4 It is recommended that auditing of each waste stream should be carried out periodically by the EM&A Team to determine if wastes are being managed in accordance with approved procedures. The audits should look at all aspects of waste management including waste generation, storage, recycling, treatment, transport, and disposal. An appropriate audit programme would be to undertake a first audit at the commencement of the demolition works, and then to audit quarterly thereafter.

9.3.5 It is likely that relatively small quantities of C&D materials will require disposal at landfill. The bulk of the C&D materials will be disposed at public filling areas and some, in particular reinforcement bar, will be recycled. Limited quantities of chemical wastes (mainly asbestos) and general wastes will be generated. Mitigation measures relating to good practice have been recommended to ensure that adverse environmental impacts are prevented and that opportunities for waste minimisation and recycling are followed.

9.3.6 Provided that the recommendations are thoroughly implemented the storage, handling, collection, transport, and disposal of wastes arising from the demolition of KCIP will be in full compliance with the regulatory requirements.

環境監察及審核規定

9.3.4 通常每種廢物處理的審核是分階段地進行，由環境監察及審核組來審定廢物是否已按照經認可的程序進行管理。這種審核對廢物處理的各方面都進行檢查，包括廢物的產生、存放、循環再用、運輸及處置。拆卸工作開始時進行首次審核，之後每一季都會進行一次。

9.3.5 一些相關的較小量拆建物料須在堆填區處置。而大部份拆建物料將可在公眾填料區處置，至於鋼筋鐵支將可循環再用。有限的化學廢物（主要是石棉）和一般的廢物將會產生。已經提出相應的緩解措施，防止產生不良環境影響，同時應儘量減少廢物的產生和進行循環再用。

9.3.6 假使完全實施了以上的各項建議，那麼在葵涌焚化爐的拆卸過程中廢物的收集、運輸、存放、處置方面便能符合有關規定。

10. ENVIRONMENTAL MONITORING AND AUDIT

10.1 Introduction

10.1.1 Recommendations for the environmental monitoring and audit (EM&A) programme for the demolition of the KCIP are presented in a dedicated EM&A Manual prepared in line with Annex 21 of the TM.

10.1.2 The Proponent will appoint an environmental professional acceptable to EPD to design, implement and supervise the EM&A. EM&A for dust is recommended to ensure that the dust criteria will not be exceeded. Waste stream auditing should also be undertaken versus the Contractor's proposed waste management plan.

10.2 Event Action Plans

10.2.1 EAP are provided in the EM&A Manual. The purpose of EAP is to provide procedures for ensuring that if any deterioration of environmental quality occurs as a result of the demolition works, in association with the monitoring and audit activities. Such deterioration may occur either accidentally or through inadequate implementation of mitigation measures on the part of the contractor. The procedures are established to ensure that the causes are quickly identified and remedied, and that the risk of a similar events re-occurring is reduced.

10.3 Implementation Schedule

10.3.1 The EM&A manual and the EIA include an implementation schedule for mitigation measures in the form of a checklist as required under the Study Brief.

10. 環境監察和審核

10.1 引言

10.1.1 葵涌焚化爐拆卸工程提出的環境監察及審核計劃的建議在其專門冊子上有介紹，符合技術備忘錄中附件 21 的規定。

10.1.2 建議者將要聘用一位環境專業人員(被環境保護署認可)設計、執行和監督環境監察和審核。建議不超出塵埃的環境監察和審核準則。污水的審核需與承建商的廢物處理計劃對照執行。

10.2 事件行動計劃

10.2.1 環境監察及審核手冊中提及事件行動計劃。事件行動計劃的目的是在於進行拆卸時，當任何環境變壞的情況出現，環境監察及審核計劃提供監察、審核方面的程序來處理。這種情況可能是意外或在承建商沒有完全執行緩解措施時出現，現有的程序確保迅速確定原因及糾正，減少類似事件的再發生。

10.3 計劃執行時間表

10.3.1 環境監察和審核手冊和環評包括了緩解措施的計劃執行時間表，並按研究概要中的要求以清單的形式列出來。

10.4 Reporting

10.4.1 Monthly Reports will be produced as part of the EM&A programme throughout the life of the project. EM&A Reports may include a brief account of construction activities during the month, an interpretation of the significance of the monitoring results by verifying compliance. Failures to comply with the target levels would be featured and an account of any necessary remedial measures recommended by the Proponents' site staff and implemented by the Contractor would be included.

10.4 報告

10.4.1 環境監察及審核計劃包括在整個項目工程中的每月報告。環境監察和審核報告包括當月簡短的建築活動情況、經證實的監察結果的闡述，如有未達到目標水平的情況必須加以註明，地盤工作人員提供的修正措施和承建商的實行情況也必須包括在內。

11. CONCLUSIONS AND RECOMMENDATIONS

11.1 Overview

11.1.1 In this Section the overall recommendations of the EIA are summarised. A preferred demolition methodology and soil remediation action plan has been proposed. The mitigation measures proposed to control noise, dust and water quality impacts in the demolition phase should be carried forward to the decontamination phase.

11.1.2 The EIA has covered the requirement of study brief ESB024/98 issued by EPD under the EIAO.

11.2 Demolition Methodology

11.2.1 The Preferred Demolition Methodology for above ground structures defines the nature of the works and the conclusion is that non-explosive demolition methods should be used for the demolition of all remaining structures at KCIP.

11.3 Asbestos

11.3.1 The operation of the KCIP has not given rise to any residual contamination with asbestos containing materials (ACM). However there are some remaining ACM which will require removal before the buildings and chimney are demolished. These ACM are not currently hazardous to the public and will be removed in line with asbestos abatement plans described in detail in the dedicated Asbestos Study Report submitted under the APCO with no residual effect to the surroundings.

11. 總結及推薦

11.1 概述

11.1.1 本節總結了環境影響評估中全部的推薦。推薦拆卸方案及土壤整治行動計劃書已被建議。來管制噪音，塵埃及水質影響的建議緩解措施，必須在拆卸及土壤除污期間，徹實執行。

11.1.2 環境影響評估亦包括根據環境影響評估條例發出的研究概要(ESB-024/98)之內所訂規定。

11.2 拆卸方案

11.2.1 推薦的地面構築物拆卸方案規定工程的性質。總結來說，應採用非爆破拆卸方法來拆卸位於葵涌焚化爐的所有構築物。

11.3 石棉

11.3.1 葵涌焚化爐的作業，並沒有導致含石棉物的剩餘污染。但是在拆卸建築物及煙囪之前，還需要拆除一些含石棉物料。目前這些含石棉物料，對公眾並無構成危險。按照石棉消減計劃書來清除，應不會對環境有剩餘的影響。此計劃書已詳述在根據空氣污染管制條例下所提交專門石棉報告中。

11.4 Land Contamination and Remediation.

11.4.1 The Land Contamination Assessment is based on a detailed Site Investigation. Where the levels of contamination are above the criteria at which remediation is required, remediation is necessary. The possibilities for contact with ground contaminants during the soil remediation phase are limited to site workers and are relatively low. A Remediation Action Plan has been proposed, in line with Government policy and provided appropriate precautions are implemented there should be no residual effect to the surroundings.

11.5 Landfill Gas Hazard Assessment

11.5.1 A qualitative landfill gas hazard assessment has demolition works will be undertaken above ground level and in the open air they are not considered unduly susceptible to hazards caused by the accumulation of landfill gas. Recommendations for safe site practices have been made and risks can be controlled to acceptable levels (e.g. by the implementation of a gas monitoring programme) and provided appropriate precautions are implemented there should be no residual effect to the surroundings.

11.6 Noise

11.6.1 Noise impacts will not require mitigation and there will be no residual effects as sensitive receivers are far away. However a proactive approach to EM&A is preferred and although no noise problems are predicted, it is proposed that a watching brief be adopted in line with proactive principles.

11.4 土地污染和整治

11.4.1 土地污染評估是根據一份詳細場地勘察。當污染水平超出準則，必須進行整治。與土壤污染接觸的可能性較低，並只限於場地工作人員。已建議附合政府政策的整治計劃書。如實施適當預防措施，應不會對環境帶來剩餘的影響。

11.5 堆填區沼氣危險評估

11.5.1 已完成定義性堆填區沼氣危險評估。由於拆卸工作將在地面露天進行，所以並不認爲拆卸工程過份地易受堆填區沼氣累積的危險所影響。已推薦安全場地操作，來將風險控制到可接受的程度(如實施沼氣監察計劃)。假如實施適當預防措施，應不會對環境帶來剩餘影響。

11.6 噪音

11.6.1 由於噪音感應強的地方遠離工地，並沒有剩餘影響，所以將不需要緩解措施。但仍建議環境監察及審核以作爲積極措施。雖然預測沒有噪音問題，已建議採用附合積極原則下案情摘要。

11.7 Air Quality.

11.7.1 Statutory control of dust emissions from construction (demolition) works requires appropriate dust control measures to be implemented during the construction stage in accordance with the requirements in the Air Pollution Control (Construction Dust) Regulation. Using these measures no residual effects are expected. As a proactive measure, the Environmental Monitoring and Audit (EM&A) for dust generated during the demolition is also recommended at the site boundary to ensure that the dust criteria will not be exceeded and to ensure that local nuisances do not arise.

11.8 Water Quality.

11.8.1 Water quality impacts will require mitigation in line with the Water Pollution Control Ordinance (WPCO) but impacts can be controlled within the established criteria by the use of established and routine site run off control techniques. Provided the environmental guidelines for the handling and disposal of discharges from construction sites are followed, there should be no adverse impacts from demolition on drainage. Therefore, it is not expected that the Water Quality Objectives will be exceeded during the demolition works and no residual effects should occur.

11.9 Waste Management.

11.9.1 A Waste Management Plan will be required for the demolition and soil remediation. This will ensure that wastes are handled and stored using appropriate methods to minimise the potential for pollution, and that authorised reputable waste collectors are used. Disposal shall be at licensed sites and records shall be maintained of the quantities of wastes generated, recycled and disposed. Provided that the recommendations put forward in this EIA report are conscientiously acted upon, disposal of wastes arising from the demolition of KCIP will be in full compliance

11.7 空氣質素

11.7.1 法定管制由建築(拆卸)工程所產生塵埃，須在工程期間實施適當塵埃管制方法，以附合空氣污染管制(建造工程塵埃)規例的規定。如採用上述措施，應預計沒有剩餘的影響。建議在地盤界線對塵埃方面進行環境監察及審核，以作爲積極措施，並確保將不會超出塵埃準則和不會引起當地滋擾。

11.8 水質

11.8.1 水質影響將需要緩解措施，以確保任何污水排放符合水污染管制條例的規定，採用已有的和常規的地盤徑流管制技術，可以將影響水質的因素加以管制，使其符合標準。要遵守對施工地盤進行污水處理的環境指南中規則，這樣拆卸地盤污水排放就不會對水質造成不良影響。如此拆卸工程期間將不會造成水質超標，並不會帶來剩餘的影響。

11.9 廢物管理

11.9.1 拆卸及土壤整治工程需要廢物管理計劃書。這樣確保採用適當方法來處理及儲存廢物，和僱用認可而又有著良好聲譽的廢物收集商，以減少污染的可能性。應在規定的地方處置廢物，及記錄廢物產生，循環再用及處置數目。假使完全實施了在環境影響評估中的建議，那麼在葵涌焚化爐的拆卸過程中廢物的處理方面，便能符合有關規定。

11.10 Environmental Monitoring and Audit.

11.10.1 An Environmental professional acceptable to EPD will be appointed to design, implement and supervise the clean up of the site. EM&A for dust is recommended to ensure that the dust criteria will not be exceeded. Monitoring of the removal of any contaminated materials is also recommended including a landfill gas monitoring programme during the land decontamination phase. Waste stream auditing should also be undertaken versus the Contractor's proposed waste management plan.

11.11 Summary of Environmental Outcome

11.11.1 The Environmental Outcome Profile has been included in Appendix A to provide basic project information on the main mitigation measures.

11.10 環境監察和審核

11.10.1 將會聘用一位被環保署認可的環境專業人員，設計、執行和監督環境監察和審核，以確保不會超出準則。亦建議監察任何污染物料的清除，包括在土地除污期間的沼氣監察計劃。廢物的審核需與承建商的廢物處理計劃對照執行。

11.11 環境成果總結

11.11.1 環境成果簡介已在附錄 A 列明，以提供有關主要緩解措施的基本項目工程的資料。