

## ENVIRONMENTAL IMPACT ASSESSMENT ORDINANCE

## (CHAPTER 499)

## Section 10

## 環境影響評估條例

## (第499章)

## 第10條

## ENVIRONMENTAL PERMIT TO DECOMMISSION, CONSTRUCT AND OPERATE DESIGNATED PROJECTS

## 解除運作、建造及營辦指定工程項目的環境許可證

## PART A (MAIN PERMIT)

## A部 (許可證主要部分)

Pursuant to Section 10 of the Environmental Impact Assessment Ordinance (EIAO), the Director of Environmental Protection (the Director) grants this environmental permit to the Civil Engineering Department (hereinafter referred to as the “Permit Holder”) to decommission, construct and operate the designated projects described in Part B subject to the conditions specified in Part C. The issue of this environmental permit is based on the documents, approvals or permissions described below:

根據環境影響評估條例(環評條例)第10條的規定，環境保護署署長(署長)將本環境許可證批予土木工程署(下稱“許可證持有人”)以解除運作、建造及營辦B部所說明的指定工程項目，但須遵守C部所列明的條件。本環境許可證的發出，乃以下表所列的文件、批准或許可作為根據：

<b>Application No.</b> 申請書編號	AEP-116/2002
<b>Documents in the Register</b> 登記冊上的文件	(1) Decommissioning of Cheoy Lee Shipyard at Penny’ s Bay, EIA Report (Final) <ul style="list-style-type: none"> <li>- Volume 1 - Main Report and Figures</li> <li>- Volume 2 - Appendices</li> <li>- EM&amp;A Manual (Final)</li> <li>- Executive Summary</li> </ul> (Register No.: AEIAR-055/2002) [Hereinafter referred to as the “EIA Report” ]  (1) 竹篙灣財利船廠清拆工程環境影響評估報告 (定稿)

- 第一冊 – 主要報告及圖表
  - 第二冊 – 附錄
  - 環境監察及審核手冊 (定稿)
  - 行政摘要
- (登記冊編號：AEIAR-055/2002) [下稱“環評報告”]

- (2) The Director' s letter of approval of the EIA Report dated 24 April 2002, (ref: (7) in Annex (1) to EP2/N9/PT2/75 Pt.3)
- (2) 署長於二零零二年四月二十四日發出批准環評報告的信件 (檔案編號: (7) in Annex (1) to EP2/N9/PT2/75 Pt.3)
- (3) Application document for environmental permit on 14 December 2001 (Application No. AEP-116/2002)
- (3) 許可證持有人於二零零一年十二月十四日提交的环境許可證申請文件 (申請書編號：AEP-116/2002)

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Date  
日期

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(Robert J S Law)  
Director of Environmental Protection  
環境保護署署長  
羅樂秉

## PART B (DESCRIPTIONS OF DESIGNATED PROJECTS)

### B部 (指定工程項目的說明)

Part B is the description of the designated project mentioned in Part A of this environmental permit (hereinafter referred to as the "Permit")

本環境許可證(下稱“許可證”)A部所提述的指定工程項目的說明：

<b>Title of Designated Projects</b> 指定工程項目的名稱	(1) Decommissioning of Cheoy Lee Shipyard at Penny' s Bay (2) Construction and operation of a thermal desorption plant at To Kau Wan [The above designated projects are hereinafter referred to as "the Project"]  (1) 竹篙灣財利船廠清拆工程 (2) 在倒扣灣建造及營辦熱力解吸廠 [上述指定工程項目下稱“工程項目”]
<b>Nature of Designated Projects</b> 指定工程項目的性質	(1) Decommissioning of a facility for ship building and repairing more than 1 ha. in size. (2) Construction and operation of a waste disposal facility for chemical waste  (1) 解除佔地超逾1公頃的船舶建造與修理設施的運作。 (2) 建造及營辦化學廢物處置設施。
<b>Location of Designated Projects</b> 指定工程項目的地點	Penny' s Bay and To Kau Wan, Lantau The location of the Project is shown on <a href="#">Figure 1</a> attached to this Permit  大嶼山竹篙灣及倒扣灣 工程項目的位置載於本許可證圖1。
<b>Scale and Scope of Designated Project(s)</b> 指定工程項目的規模和範圍	(1) Decommissioning of the Cheoy Lee Shipyard with a site area of about 19 ha. Including demolition of the existing structures within the shipyard, land decontamination works, treatment and disposal of contaminated soils and associated works and environmental mitigation measures. (2) Construction and operation of a soil remediation facility by thermal desorption to treat contaminated soil from the former Cheoy Lee Shipyard.  (1) 解除佔地約19公頃的財利船廠的運作，包括清拆船廠內現有的構築物、進行土地除污工程、進行污泥處理及處置和相關工作，以及採取環境緩解措施。 (2) 建造及營辦以熱力解吸法運作的土壤復育設施，以處理前財利船廠的污泥。

## **PART C (PERMIT CONDITIONS)**

### **1. General Conditions**

- 1.1 The Permit Holder and any person working on the Project shall comply with all conditions set out in this Permit. Any non-compliance by any person may constitute a contravention of the Environmental Impact Assessment Ordinance (Cap.499) and may become the subject of appropriate action being taken under the Ordinance.
- 1.2 The Permit Holder shall ensure full compliance with all legislation from time to time in force including without limitation the Noise Control Ordinance (Cap.400), Air Pollution Control Ordinance (Cap.311), Water Pollution Control Ordinance (Cap.358), Waste Disposal Ordinance (Cap.354), Occupational Safety and Health Ordinance (Cap. 509) and Factories and Industrial Undertakings Ordinance (Cap.59). This Permit does not of itself constitute any ground of defense against any proceedings instituted under any legislation.
- 1.3 The Permit Holder shall make copies of this Permit together with all documents referred to in this Permit or the documents referred to in [Part A](#) of the Permit readily available at all times for inspection by the Director or his authorized officers at all sites/offices covered by this Permit. Any reference to the Permit shall include all documents referred to in the Permit and also the relevant documents in the Register.
- 1.4 The Permit Holder shall give a copy of this Permit to the person(s) in charge of the site(s) and ensure that such person (s) fully understands all conditions and all requirements incorporated by the Permit. The site(s) refers to site(s) of the Project and shall mean the same hereafter.
- 1.5 The Permit Holder shall display conspicuously a copy of this Permit on the work site(s) at all vehicular site entrances/exits or at a convenient location for public information at all times. The Permit Holder shall ensure that the most updated information about the Permit, including any amended permit, is displayed at such locations. If the Permit Holder surrenders a part or the whole of the Permit, the notice he sends to the Director shall also be displayed at the same locations as the original Permit. The suspended, varied or cancelled Permit shall be removed from display at the work site(s).
- 1.6 The Permit Holder shall decommission the Cheoy Lee Shipyard at Penny's Bay and construct and operate the thermal desorption plant at To Kau Wan as described in [Part B](#) of this Permit.
- 1.7 The Permit Holder shall ensure that the Project is designed and carried out in accordance with the information and recommendations described in the EIA report (Register No. AEIAR-055/2002); other relevant documents in the Register; and the information or mitigation measures described in this Permit, or mitigation measures to be recommended in submissions that shall be deposited with or approved by the Director as a result of permit conditions contained in this Permit, or mitigation measures to be recommended under on-going surveillance and monitoring activities during all stages of the Project. Where recommendations referred to in the documents of the Register are not

expressly referred to in this Permit, such recommendations are nevertheless to be implemented unless expressly excluded or impliedly amended in this Permit.

- 1.8 All submissions, as required under this Permit, shall be rectified and resubmitted in accordance with the comments, if any, made by the Director within one month of the receipt of the Director's comments or otherwise as specified by the Director.
- 1.9 All submissions approved by the Director, all submissions deposited without comments by the Director, or all submissions rectified in accordance with comments by the Director under this Permit shall be construed as part of the permit conditions described in [Part C](#) of this Permit. Any variation of the submissions shall be approved by the Director in writing or as prescribed in the relevant permit conditions. All submissions or any variation of the submissions shall be certified by the Environmental Team (ET) Leader and verified by the Independent Environmental Checker (IEC) referred to in Conditions 2.1 and 2.2 below, before submitting to the Director under the Permit.
- 1.10 The Permit Holder shall release all finalized submissions, as required under this Permit, to the public by depositing copies in the Environmental Impact Assessment Ordinance Register Office, or in any other places, or any internet websites as specified by the Director, or by any other means as specified by the Director for public inspection. For this purpose, the Permit Holder shall provide sufficient copies of the submissions.
- 1.11 The Permit Holder shall notify the Director in writing the commencement date of the Project no later than one month prior to the commencement of the Project. The Permit Holder shall notify the Director in writing immediately if there is any change of the commencement date.
- 1.12 All submissions to the Director required under this Permit shall be delivered either in person or by registered mail to the Environmental Impact Assessment Ordinance Register Office (currently at 27/F, Southorn Centre, 130 Hennessy Road, Wanchai, Hong Kong). Electronic copies of all finalized submissions required under this Permit shall be prepared in Hyper Text Markup Language (HTML) (version 4.0 or later) and in Portable Document Format (PDF version 4.0 or later), unless otherwise agreed by the Director and shall be submitted at the same time as the hard copies.
- 1.13 For the purpose of this Permit, “commencement of the Project” does not include works related to site preparation, archaeological rescue works for artifacts or other works as agreed by the Director.

## **2. Submissions or Measures before Commencement of Certain Parts of the Project**

### ***Employment of Environmental Monitoring and Audit (EM&A) Personnel***

- 2.1 An Environmental Team (ET) shall be established by the Permit Holder no later than one month before the commencement of the Project. The ET shall be headed by an ET Leader. The ET Leader shall be a person who has at least 7 years' experience in environmental monitoring and auditing (EM&A) or environmental management. The ET

team and the ET Leader shall be responsible for the duties defined in the EM&A Manual submitted and approved under Condition 2.3 of this Permit. The ET Leader shall be responsible for the implementation of the EM&A programme in accordance with the EM&A requirements as contained in the EM&A Manual. The ET Leader shall keep a contemporaneous log-book of each and every instance or circumstance or change of circumstances which may affect the environmental impact assessment and each and every non-compliance with the recommendations of the EIA Report (Register No. AEIAR-055/2002) or this Permit. This log-book shall be kept readily available for inspection by all persons assisting in supervision of the implementation of the EIA Report recommendations and this Permit or by the Director or his authorized officers. Failure to maintain records in the log-book, failure to discharge the duties of the ET Leader as defined in the EM&A Manual or failure to comply with this Condition would entitle the Director to require the Permit Holder by notice in writing to replace the ET Leader. Failure by the Permit Holder to make replacement, or further failure to keep contemporaneous records in the log-book despite the employment of a new ET Leader may render the Permit liable to suspension, cancellation or variation. The ET shall not be in any way an associated body of the Independent Environmental Checker (IEC) for the Project.

2.2 An Independent Environmental Checker (IEC) shall be employed by the Permit Holder no later than one month before the commencement of the Project. The IEC shall be a person who has at least 7 years' experience in environmental monitoring and audit (EM&A) or environmental management. The IEC shall be responsible for duties defined in the EM&A Manual submitted and approved under Condition 2.3 of this Permit, and shall audit the overall EM&A programme described in the EIA Report (Register No. AEIAR-055/2002), including the implementation of all environmental mitigation measures, submissions required in the EM&A Manual, and any other submissions required under this Permit. In addition, the IEC shall be responsible for verifying the environmental acceptability of permanent and temporary works, relevant design plans and submissions under this Permit. The IEC shall verify the log-book(s) mentioned in Condition 2.1 of this Permit. The IEC shall notify the Director by fax, within 24 hours of each and every occurrence, change of circumstances or non-compliance with the EIA Report (Register No. AEIAR-055/2002) or this Permit, which might affect the monitoring or control of adverse environmental impact. Where the IEC fails to so notify the Director of the same, fails to discharge the duties of the IEC as defined the EM&A Manual or fails to comply with this Condition, the Director may require the Permit Holder by notice in writing to replace the IEC. Failure to replace the IEC as directed or further failure to so notify the Director despite employment of a new IEC may render the Permit liable to suspension, cancellation or variation. Notification by the Permit Holder is the same as notification by the IEC for the purpose of this Condition. The IEC shall not be in any way an associated body of the Contractor or the Environmental Team for the Project.

***Submission of the Environmental Monitoring and Audit (EM&A) Manual including Environmental Management System, Safety and Precautionary Measures, etc.***

2.3 No later than one month before the commencement of the Project, the Permit Holder shall submit to the Director for approval four hard copies and one electronic copy of an EM&A Manual for the Project. Before submission to the Director, the EM&A Manual shall be certified by the ET Leader and verified by the IEC as conforming to the information and recommendations contained in the EIA Report. The EM&A Manual shall include requirements of setting up an environmental management system and health and safety plan (as stated in Section 4.220 – 4.222 of the EIA Report) for the entire project period, monitoring of dioxin emission at the thermal desorption plant, as described in

Condition 4.9 of this Permit, monitoring of Rice Fish at the re-created habitat at the Mong Tung Hang Stream (MTHS), as described in Condition 4.10 of this Permit, and monitoring of restricted/protected plants at Tai Tam, as described in Condition 4.11 of this Permit. All measures recommended in the approved EM&A Manual shall be fully and properly implemented in accordance with the requirements and time schedule(s) set out in the EM&A Manual. The EM&A Manual approved under this Condition shall hereinafter be referred to as the “EM&A Manual”.

***Submission of Method Statement of the Project***

2.4 Five hard copies and one electronic copy of the Method Statement of the Project shall be submitted to the Director for approval. The Method Statement shall be certified by the ET Leader and verified by the IEC as conforming to the information and recommendations contained in the EIA Report prior to submission. No soil excavation shall be commenced before the Method Statement is approved by the Director. The Method Statement shall detail methodologies, procedures and associated environmental mitigation measures on the following events:

- (i) soil excavation at the Cheoy Lee Shipyard (CLS) site including the details of confirmation sampling and testing at boundary of excavation to verify complete excavation of contaminated soils;
- (ii) treatability tests for thermal desorption process, cement solidification and biopiling;
- (iii) transportation of dioxin contaminated soils from the CLS site to To Kau Wan (TKW) site, storage and handling of dioxin contaminated soils at TKW site
- (iv) transportation of oily residue generated from the thermal desorption process from TKW site to the Chemical Waste Treatment Centre (CWTC) in Tsing Yi;
- (v) provision and operation requirements of equipment and personal decontamination facilities (e.g. wheel wash facilities and decontamination sheds);
- (vi) control measures for explosion and fire hazards (including use of nitrogen/inert gas as sweep gas to provide inert environment, negative pressure to prevent fugitive emissions, air sealed system, pressure relief vent, explosion proof equipment, fire suppression system, redundant temperature alarms, automated computer control and no gaseous fuel storage facility at the TKW site); and
- (vii) contingency Plan for handling of accidents including spillage of contaminated soils and/or oily residue.

The Method Statement approved under this Condition shall hereinafter be referred to as the “Method Statement”. All measures recommended in the Method Statement shall be fully and properly implemented by the Permit Holder and any person working on the Project throughout the project period. The locations of the CLS site and the TKW site are shown in [Figure 1](#) of this Permit.

***Submission of Treatability Test Report for Thermal Desorption Process***

2.5 A treatability test on thermal desorption process with dioxin-contaminated soils taken from representative location at the CLS site shall be conducted in accordance with the Method Statement to demonstrate treatment efficiency and determine the operating parameters. Three hard copies and one electronic copy of the treatability test report shall be submitted to the Director for approval within 4 weeks after the availability of the analytical results. The thermal desorption process for soil remediation shall not be commenced prior to the approval of the treatability test report.

### ***Submission of Treatability Test Report for Biopiling and Cement Solidification***

- 2.6 Treatability tests on biopiling and cement solidification processes with contaminated soils taken from representative locations at the CLS site shall be conducted in accordance with the Method Statement to demonstrate treatment efficiency and determine the operating parameters. Three hard copies and one electronic copy of the treatability test report shall be submitted to the Director for approval within 4 weeks after the availability of the analytical results. The biopiling and cement solidification processes for soil remediation shall not be commenced prior to the approval of the treatability test report.

### ***Submission of Remediation Plan***

- 2.7 Five hard copies and one electronic copy of Remediation Plan of the Project shall be submitted to the Director for approval. The Remediation Plan shall detail the methodologies, procedures and environmental mitigation measures on remediation process for different types of contaminated soils and a confirmation sampling and testing plan for treated soils to verify that the cleanup target levels have been reached. The Remediation Plan shall be certified by the ET Leader and verified by the IEC as conforming to the information and recommendations contained in the EIA Report prior to submission. The thermal desorption, biopiling and cement solidification processes for soil remediation shall not be commenced prior to approval of the Remediation Plan by the Director. All measures recommended in the approved Remediation Plan shall be fully and properly implemented by the Permit Holder and any person working on the Project throughout the project period.

### ***Submission of Demolition Plan***

- 2.8 Building sampling shall be carried out in buildings containing contaminated indoor surfaces to characterize the contaminants present on the building surface and identify suitable methods for decontamination.. After contaminants characterisation, three hard copies and one electronic copy of a Demolition Plan shall be prepared and deposited with the Director prior to any building demolition to recommend the indoor surface decontamination protocols, the demolition method and the associated environmental mitigation measures. All measures recommended in the submitted Demolition Plan shall be fully and properly implemented by the Permit Holder and any person working on the Project throughout the project period.

### ***Submission of Detailed Transplantation Proposal for Restricted/Protected Plant Species***

- 2.9 The Permit Holder shall deposit with the Director three hard copies and one electronic copy of a Detailed Transplantation Proposal for restricted/protected plant species at least 8 weeks before commencement of any construction work (except for the site preparation works as described in Conditions 3.4 to 3.10 of this Permit) within Area A as shown in [Figure 2](#) of this Permit. The detailed transplantation proposal shall include the following information:
- (i) Qualification of the specialists to be involved in the seed collection, transplantation and preparation of receptor sites;
  - (ii) Detailed arrangements for the preparation of receptor sites, including details on site locations, works schedule, site works required and any pre-transplantation monitoring required;

- (iii) Detailed schedule for collecting seeds and transplantation of each restricted/protected plant species that will be affected by the Project;
- (iv) Transportation arrangement between the project site and the receptor sites;
- (v) Detailed arrangements with specialist storage facilities (including both local and overseas facilities where applicable); and
- (vi) Contingency plan in case the transplantation is unsuccessful including personnel or parties to be responsible for implementing the contingency plan.

All measures recommended in the submitted Detailed Transplantation Proposal shall be fully and properly implemented by the Permit Holder and any person working on the Project throughout the project period.

***Submission of Detailed Translocation Proposal for Rice Fish at MTHS***

2.10 The Permit Holder shall deposit with the Director three hard copies and one electronic copy of a Detailed Translocation Proposal for Rice Fish at the MTHS at least 8 weeks before commencement of any construction work (except for the site preparation works as described in Conditions 3.4 to 3.10 of this Permit) within Area A as shown in [Figure 2](#) of this Permit. The detailed translocation proposal shall include the following information:

- (i) Qualification of the specialists to be involved in the Rice Fish survey, maintenance of the holding facilities for Rice Fish and care for the captive fish, and preparation of the re-created habitat at the MTHS for Rice Fish;
- (ii) Detailed arrangements for the preparation of the re-created habitat at the MTHS, including details on site locations, works schedule, site works required and any pre-translocation monitoring required;
- (iii) Detailed arrangement for the preparation of the holding facilities (if required), including details on site locations, work schedule, set up required and any pre-holding monitoring required;
- (iv) Detailed schedule for the field survey and translocation for Rice Fish; and
- (v) Transportation arrangement between the project site and the holding facilities if Rice Fish are found;
- (vi) Detailed arrangement with the holding facilities.

All measures recommended in the submitted Detailed Translocation Proposal shall be fully and properly implemented by the Permit Holder and any person working on the Project throughout the project period.

***Measures to Mitigate Ecological Impacts***

2.11 No construction work, except for site preparation works as described in Conditions 3.4 to 3.10 of this Permit, within Area A as shown in [Figure 2](#) of this Permit shall be commenced prior to the completion of the following ecological mitigation measures:

- (i) transplantation of the restricted/protected plants as described in Condition 3.55 of this Permit; and
- (ii) field surveys for Rice Fish at the MTHS and translocation of the Rice Fish to holding facilities (if found) as described in Condition 3.56 of this Permit.

### ***High Degree of Transparency of the Project***

- 2.12 All environmental monitoring and audit data and results, the approved EM&A Manual and all submissions required by this Permit and all performance test data and results required by this Permit shall be made available by the Permit Holder to the public through a dedicated web site to be set up by the Permit Holder under Condition 5.2 below, in the shortest possible time and in no event later than two weeks after such information is available.

### **3. Submissions or Measures for Certain Parts of the Project**

#### ***Management Organization of Main Construction Companies***

- 3.1 The Permit Holder shall, within one month after the commencement of the Project, inform the Director in writing the management organization of the main construction companies and/or any form of joint ventures associated with the Project. The submitted information shall include at least an organization chart, names of responsible persons and their contact details.

#### ***Submission of the Waste Management Plan (WMP)***

- 3.2 The Permit Holder shall, within one month after the commencement of the Project, submit to the Director for approval three hard copies and one electronic copy of a Waste Management Plan (WMP) for the Project. Before submission to the Director, the WMP shall be certified by the ET Leader and verified by the IEC as conforming to the information and recommendations contained in the EIA Report. The WMP shall describe the arrangements for avoidance, reuse, recovery and recycling, storage, collection, treatment including dewatering of spoil and disposal of different categories of waste to be generated from the activities of the Project and shall indicate the disposal location(s) of all surplus excavated spoil and other waste. A trip ticket system shall be included in the WMP. Decontaminated soils, surplus clean excavated spoil and other wastes shall only be disposed of at designated disposal locations unless otherwise approved by the Director. All measures recommended in the approved WMP shall be fully and properly implemented by the Permit Holder and any person working on the Project throughout the project period.
- 3.3 No disposal of waste, spoil, soil, excavated materials or materials alike arising from the Project shall be allowed at any locations unless otherwise approved by the Director under Condition 3.2.

#### ***Measures for Site Preparation and Subsequent Control of Contamination***

- 3.4 Catchpits, perimeter channels and silt removal facilities shall be constructed in advance of site formation works and earthworks. Channels, earth bunds or sand bag barriers shall be provided on site to direct stormwater to silt removal facilities. Clearance of the deposited silt and grit in the silt removal facilities shall be conducted at least once per week

for all silt removal facilities and associated channels and manholes.

- 3.5 The contaminated zone of the project site, including areas of excavation, storage of contaminated soils, storage of treated soils waiting for results of compliance tests and any treatment facilities, shall be clearly defined with 2 metre high fencing prior to any soil excavation for land remediation to avoid unauthorized entry.
- 3.6 A decontamination pad/unit shall be provided and maintained at every exit of the contaminated zone for vehicles, equipment and personal decontamination at both the CLS site and the TKW site. All vehicles and equipment shall be cleaned by steam cleaning or other cleaning methods as described in the Method Statement before leaving the contaminated zone.
- 3.7 A wheel washing bay shall be constructed and maintained at every site exit throughout the entire period of decontamination and treatment works at both the CLS site and the TKW site to avoid soils depositing on roads during transportation.
- 3.8 Two wastewater treatment facilities shall be provided and maintained, one at the CLS site and the other at the TKW site to treat the wastewater from wheel wash, the wastewater from equipment decontamination, leachate and other contaminated water. Each of the wastewater treatment facilities shall have an influent holding tank of at least 180 m<sup>3</sup> in capacity.
- 3.9 The wastewater treatment facilities as described in Condition 3.8 of this Permit shall deploy flocculation, sedimentation and activated carbon filtering for treatment unless otherwise agreed with the Director.
- 3.10 The storage areas for fuel tanks and/or chemicals shall be surrounded by bunds with a holding capacity of at least 110% of the storage capacity of the largest tank to prevent any spilled oil, fuel and chemicals from reaching the receiving waters. All fuel tanks and chemical storage areas shall be provided with locks and be sited on areas paved with concrete or impermeable sheet.

#### ***Measures for Soil Excavation and Soil Handling***

- 3.11 The top layer soils shall be sprayed with fine misting of water immediately before the excavation to control dust emissions.
- 3.12 During excavation, where free product of Total Petroleum Hydrocarbons (TPH) is detected at groundwater surface including the excavation at Building D as shown in [Figure 3](#) of this Permit, the free product shall be skimmed off, containerised and disposed of properly in accordance with the Waste Management Plan as approved under Condition 3.2 of this Permit. Monitoring of free product and sampling/analysis of groundwater shall be conducted to ensure complete removal of the free product.
- 3.13 Where dewatering is necessary during excavation, the groundwater shall be recharged within 10m of the extraction point and below the water table. Monitoring of groundwater level shall be undertaken to ensure insignificant migration of contaminant in groundwater or soils due to locally risen groundwater level.
- 3.14 Excavation of dioxins contaminated soils shall be limited to 200 m<sup>3</sup>/hr. Excavation of styrene and chromium VI

contaminated soils shall be limited to 20 m<sup>3</sup>/hr. The actual hourly excavation rates for dioxin contaminated soils and chromium VI contaminated soils shall be recorded in the log-book described in Condition 2.1 of this Permit and reported in the monthly EM&A Reports as described in Condition 4.3 of this Permit. The locations of contaminated soils as identified in the EIA report are shown in [Figure 4](#) of this Permit.

3.15 Excavated soils shall be loaded directly onto vehicles for transportation of contaminated soils at the point of excavation to avoid stockpiling of contaminated soils and minimise double handling and any associated loss.

3.16 After excavation, confirmation sampling and testing shall be conducted in accordance with the Remediation Plan as described in Condition 2.7 of this Permit to ensure complete excavation of contaminated soils.

3.17 Handling process of contaminated soils such as screening and crushing shall be conducted in an roofed and sheltered environment which shall be bottom lined with concrete or impermeable sheet.

#### ***Measures for Transportation of Contaminated Soils from CLS Site to TKW Site***

3.18 All contaminated soils which require to be transported from the CLS site to the TKW site shall be transported via a dedicated road access as shown in [Figure 5](#) of this Permit to minimise interface with public road. No other transportation route shall be used unless otherwise agreed with the Director. The entire dedicated road access shall be properly illuminated if there are any night works.

#### ***Action Levels and Cleanup Targets for Land Remediation***

3.19 Land decontamination works of the Project shall be carried out to comply with the action levels as described in [Appendix A](#) of the Permit and the cleanup targets as described in [Appendix B](#) of this Permit. The action levels and cleanup targets for dioxins are 1ppb I-TEQ for soils that will be left or placed below 3m of clean fill; and 0.1ppb I-TEQ for soils that will be left or placed from ground surface to 3m deep.

#### ***Measure for Treatment of Non-Dioxin Contaminated Soils***

3.20 Soil contaminated with Total Petroleum Hydrocarbons (TPH) and/or Semi-Volatile Organic Compounds (SVOCs) only shall be treated by biopiling method at the TKW site.

3.21 Soil contaminated with metals and TPH / SVOCs shall be treated by biopiling method for organic contaminants and followed by cement solidification for metal contaminants at the TKW site.

3.22 Soil contaminated with metals only shall be treated by cement solidification method at the CLS site.

#### ***Measure for Transportation of Dioxin Contaminated Soils***

3.23 Dioxin contaminated soils shall be transported in enclosed, sealed containers securely attached to the transportation vehicle. The trucks delivering dioxin-contaminated soils from the CLS site to TKW site shall be escorted by two other vehicles, one in the front and the other at the back. The escort shall be undertaken by personnel trained on chemical waste handling. The vehicles for escorting shall be equipped with equipment for handling and clean-up of spillage of dioxin contaminated soil.

### ***Measure for Storage of Dioxin Contaminated Soils***

- 3.24 All storage facilities for dioxin-contaminated soils shall be enclosed and bottom lined with concrete to prevent generation of contaminated runoff. A leachate sump shall be installed at each facility to collect any leachate from the soil stack. All leachate collected shall be directed to the wastewater treatment facilities as described in Condition 3.8 of this Permit for treatment.

### ***Measure for Treatment of Dioxin Contaminated Soils***

- 3.25 Soil contaminated with dioxins, Total Petroleum Hydrocarbons (TPH) / Semi-Volatile Organic Compounds (SVOCs) and metals shall be processed by thermal desorption system followed by cement solidification method as defined in the Remediation Plan as described in Condition 2.7 of this Permit. Oily residue generated from the thermal desorption process shall be incinerated at the Chemical Waste Treatment Centre (CWTC) in Tsing Yi.

### ***Measure for Handling of Dioxin Contaminated Soils***

- 3.26 Handling process of dioxin contaminated soils such as screening and crushing shall be conducted in the storage facility at the TWK site as described in Condition 3.24 of this Permit or a similar sheltered and paved environment as agreed with the Director.

### ***Measures for Thermal Desorption Process***

- 3.27 Indirect thermal desorption process shall be used and no direct fire shall contact with the dioxin contaminated soil.
- 3.28 The indirect fired kiln of the thermal desorption plant at the TKW site shall be of fully enclosed design so that no vapour desorbed from the contaminated soils will be allowed to escape. The vapour desorbed shall be treated by cooling and quenching, filter bag house, condensing, mist eliminators, HEPA filters and thermal oxidiser with backup activated carbon filter system unless otherwise approved by the Director.
- 3.29 The design of the thermal desorption plant shall allow no more than 0.0001% of dioxins, SVOCs and Polycyclic Aromatic Hydrocarbons (PAHs) from the soils to escape as gaseous pollutants. The emission limits from the thermal desorption plant shall be limited to 0.1ng I-TEQ/m<sup>3</sup> for dioxins (expressed at 298K, 1 atmosphere, dry and 11% oxygen content condition) with exhaust gas flow rate of no more than 60m<sup>3</sup>/min. Any flue stack of the thermal desorption plant shall be of at least 10m above ground.
- 3.30 The thermal desorption plant shall be equipped with computerised fail safe system that will automatically shut off the soil feed system if malfunction of the thermal desorption plant is detected.
- 3.31 The feed tanks for the oil/water separator, the oil/water separator, the dissolved air flotation unit and the storage tank for the oily residue of the thermal desorption plant shall all be enclosed and vented via the HEPA filter and the thermal oxidizer/activated carbon column.
- 3.32 Gaseous fuel shall be used for soil heating process in the thermal desorption plant unless otherwise approved by the Director.

- 3.33 The site of the thermal desorption plant at TKW shall be paved with concrete. A continuous, impermeable, concrete bund of at least 20cm high shall be constructed at the perimeter of thermal desorption plant to collect any runoff within the plant for treatment at the wastewater treatment facilities as described in Condition 3.8 of this Permit throughout the operation of the thermal desorption plant.

***Measures for Transportation of Oily Residue***

- 3.34 The oily residue shall be delivered in enclosed drums from the TKW site to the CWTC by vehicles licensed under the Waste Disposal (Chemical Waste)(General) Regulation. The delivery shall be undertaken during the period between 9 pm to 5 am on the next day to minimise potential impacts in case of accidents.
- 3.35 Delivery of the oily residue from the To Kau Wan site to the CWTC in Tsing Yi shall follow transport route as specified in [Figure 6](#) of this Permit to avoid residential areas, unless otherwise approved by the Director.
- 3.36 The vehicles for delivery of oily residue shall be escorted by two other vehicles, one in front and the other at the back.
- 3.37 To determine the treatment efficiency of oily residue, a batch of the oily residue shall be sent to the CWTC for a performance test. Three hard copies and one electronic copy of a report of the performance test shall be submitted to the Director for approval. The report shall include the results of the performance test, treatment efficiency, the air emission results during the incineration of the oily residue and a comparison of the air emission levels of incineration of other organic wastes. Delivery of the oily residue to the CWTC shall not begin until the performance test report is approved by the Director.

***Measure for Transportation of Non-dioxin Contaminated Soils***

- 3.38 All trucks used for transportation of non-dioxin contaminated soils shall be lined with impermeable sheet to prevent spills and leakage. The contaminated soil shall be fully covered with impermeable sheet.

***Measures for Biopiling Process at TKW Site***

- 3.39 Impermeable liner shall be placed at the bottom of the biopiles and leachate collection sump shall be constructed along the perimeter of the biopiles to prevent leachate from contaminating the underlying soil/groundwater. A continuous, impermeable, concrete bund of at least 20cm high shall be constructed along the perimeter of biopiles to prevent the runoff coming out from the contaminated soil. All leachate collected shall be treated in the wastewater treatment facilities as described in Condition 3.8 of this Permit. Biopiles after formation shall be covered by anchored impermeable geotextiles to prevent contaminated runoff.
- 3.40 All biopiles shall be at all times covered by impermeable sheeting to control air and water pollution.
- 3.41 Emission characterisation study for biopiling process shall be conducted to determine parameters of the emission control system of the biopiling process for identifying exact concentration of individual species of Volatile Organic Compounds (VOCs).

- 3.42 All gases generated in the biopiling process shall be collected and treated through carbon absorber with at least 99% removal efficiency of Total Organic Compounds (TOC).

***Measures for Cement Solidification at CLS Site***

- 3.43 The designated stockpiling area at CLS site before receiving any contaminated soils shall be concrete-paved or lined with impervious floor membrane and shall have its perimeter constructed of a continuous, impermeable, concrete bund of at least 20cm high in order to avoid any contaminated leachate from migrating out of the area. The leachate shall be collected and treated at the wastewater treatment facilities as described in Condition 3.8.
- 3.44 The cement solidification facility at the CLS site including area of soil unloading, loading and stockpiling shall be roofed and sheltered to avoid generation of dust and contaminated runoff.
- 3.45 The lowest part of any pits used for solidification area at the CLS site shall be above the water table to minimize the leaching of the contaminated soils. The bottom of any solidification pit shall be completed lined with an impermeable membrane/sheet during the solidification process.

***Measure for Cement Solidification at To Kau Wan***

- 3.46 The designated stockpiling area for cement solidification at TKW site before receiving any contaminated soils shall be concrete-paved or lined with impervious floor membrane and shall have its perimeter constructed of a continuous, impermeable, concrete bund of at least 20cm high in order to avoid any contaminated leachate from migrating out of the area. The leachate shall be collected and treated at the wastewater treatment facilities as described in Condition 3.8.
- 3.47 The cement solidification facility at the TKW site including area of soil unloading, loading and stockpiling shall be roofed and sheltered to avoid generation of dust and contaminated runoff.

***Measures for Treated Soils***

- 3.48 Upon completion of decontamination process including thermal desorption process, biopiling treatment and solidification treatment, confirmation sampling and testing shall be undertaken to ensure the cleanup targets, as described in Condition 3.19 of this Permit, have been attained. The confirmation sampling frequency for treated soils shall not be less than one sample per 50 m<sup>3</sup> for dioxin contaminated soils, and shall not be less than one sample per 100 m<sup>3</sup> for non-dioxin contaminated soils, unless otherwise approved by the Director.
- 3.49 The loading equipment/machines for handling contaminated soils at the CLS site and the TKW site shall not be used to handle treated soils to avoid recontamination of treated soil.

***Measure for Closure of the Decontamination Facilities at To Kau Wan***

- 3.50 Prior to the dismantlement of the thermal desorption plant at the TKW site, the plant shall be run with clean soil until the processed soil from the thermal desorption plant was found to be complying with the cleanup target of dioxins as described in Condition 3.19 of this Permit.

- 3.51 The containment structure and concrete floor at the TKW site shall be decontaminated by scrabbling or other decontamination method approved by the Director after completion of remediation. Confirmation sampling and testing on the structure and concrete floor shall be undertaken for to ensure the complete decontamination has been attained. A report of the confirmation sampling and testing shall be deposited with the Director prior to the demolition prior to the closure of the decontamination facilities of at the TKW site.
- 3.52 After breaking up and removal of the concrete floor at the TKW site, confirmation sampling and testing on soil at the TKW site shall be undertaken to confirm that remediation activities have not contaminated the TKW site. A confirmation sampling plan shall be submitted to the Director for approval prior to the soil sampling. The sampling and test results shall be submitted to the Director for approval before the reinstatement and landscaping works at the TKW site as described in Condition 3.53 of this Permit.
- 3.53 After the closure of the decontamination facilities at the TKW site, the TKW site shall be reinstated to site condition similar to that prior to any works of the Project and shall be landscaped at least by hydroseeding on completion of the Project.

#### ***Measures to Mitigate Ecological Impacts***

- 3.54 The two areas of the protected Pitcher's Plants (*Nepenthes mirabilis*) shall be protected *in situ* by fencing off the two areas with at least 2 metre high fence with 10 metre buffer from the protected plants, as shown in [Figure 7a](#) of this Permit, to prevent tipping, vehicle movement and encroachment of site workers onto these areas.
- 3.55 Restricted/protected plants directly affected by the Project shown in [Figures 7a, 7b](#) and [7c](#) of this Permit shall be transplanted to suitable receptor sites that have been identified at Tai Tam Country Park as shown in [Figure 8](#). The transplantation works shall be undertaken in accordance with the Detailed Transplantation Proposal deposited under Condition 2.9 of this Permit. To maximize the transplantation success, seeds shall be collected prior to transplantation and kept in specialist storage facilities. In case the transplantation is unsuccessful, the stored seeds shall be germinated and cultivated, and reintroduced to the receptor sites. A 3-year post-transplantation monitoring of the restricted/protected plants at Tai Tam will be undertaken to ensure successful establishment of the plants concerned.
- 3.56 At least two detailed surveys for the Rice Fish shall be carried out at the Mong Tung Hang Stream (MTHS) in Penny's Bay. If Rice Fish are found in future surveys, they shall be temporarily relocated to holding facilities. A recreated habitat suitable for the fish as described in [Figure 9](#) of this Permit shall then be constructed at Mong Tung Hang Stream (MTHS), and the fish returned to the habitat. Maintenance of the holding facilities and care for the captive fish shall be undertaken prior to relocation to the re-created habitat. If no Rice Fish are found in future surveys, a captive population shall be sourced and the fish shall be re-introduced to a re-created habitat at MTHS. The surveys for Rice Fish, translocation and re-creation of Rice Fish habitat shall be undertaken in accordance with the Detailed Translocation Proposal deposited under Condition 2.10 of this Permit.
- 3.57 At least 100m long of the future drainage channel immediate downstream from the re-created Rice Fish Habitat as described in Condition 3.56 of this Permit shall be designed to mimic natural streams. Small weirs (10-20cm above the substrate level) shall be provided along the course of the drainage channel to create a pool/rifle sequence similar to natural stream habitats. Cobbles and boulders from the existing stream course shall be added to the pool sections, to

provide a suitable habitat for benthic macro-invertebrates and other stream wildlife. Slopes of the drainage channel above the high water mark shall be grasscreted.

3.58 Shotcrete shall not be used for the slope works of the Project including Area A as shown in [Figure 2](#).

3.59 Hydroseeding and planting of trees and shrubs including native species will be undertaken on newly created slopes.

3.60 The following measures will be implemented to minimize disturbance to the potential Ardeid nesting sites near the TKW site:

- (i) The construction of biopiles shall take place from October-February, outside of the Ardeid breeding season.
- (ii) The thermal desorption plant shall be located at the west of the TKW site.

#### ***Measures to Mitigate Cultural Heritage Impacts***

3.61 Archaeological rescue excavation for artifacts shall be conducted at locations as shown in [Figure 10](#).

3.62 The archaeological rescue excavation team shall adopt the following precautionary measures during the rescue excavation:

- (i) Impermeable sheet shall be placed at the bottom of the stockpile of excavated soil to prevent leachate from contaminating the underlying soil/groundwater.
- (ii) Temporary stockpiles of excavated soil beside excavation areas shall be covered by impermeable sheet to prevent dust emission and contaminated runoff.
- (iii) Any excavated soils shall be backfilled on site after completion of the rescue works.

3.63 Impermeable sheeting shall be used to cover the archaeological potential site for areas which are not subject to rescue excavation as shown in [Figure 10](#).

3.64 Filling work or ground level adjustment work shall be carried out to prevent any waterlogged conditions in the archaeological potential site areas. The detailed design of the filling works shall be deposited with the Director at least 4 weeks prior to the commencement of the filling works.

## **4 Environmental Monitoring and Audit for the Project**

4.1 The EM&A programme shall be implemented as set out in the EM&A Manual approved under Condition 2.3. Any changes to the EM&A programme shall be justified by the IEC as conforming to the requirements set out in the EM&A Manual and shall be submitted to the Director for approval.

4.2 Four hard copies of the Baseline Monitoring Report and one electronic copy in the formats as specified in Condition 5.1 below shall be submitted to the Director at least two weeks before the commencement of the Project. Additional copies of the submission shall be provided to the Director upon request from the Director.

- 4.3 Four hard copies and one electronic copy of monthly EM&A Reports shall be submitted to the Director within 2 weeks after the end of the reporting month. Additional copies of the submission shall be provided to the Director upon request from the Director.
- 4.4 To ensure a high degree of transparency regarding the monitoring data and results in view of the public concern about the Project, all environmental monitoring and audit data and results, the approved EM&A Manual and all submissions and all performance test data and results required by this Permit shall be made available by the Permit Holder to the public through a dedicated web site to be set up by the Permit Holder under Condition 5.2 below, in the shortest possible time and in no event later than 2 weeks after such information is available.
- 4.5 All environmental monitoring and audit results submitted under this Permit shall be true, valid and correct.
- 4.6 The actions described in the Event/Action Plans of the EM&A Manual shall be fully and properly carried out, in accordance with the time frame(s) set out in the Event/Action Plan, or as agreed by the Director.
- 4.7 The Permit Holder shall relay all environmental complaints regarding the Project to the Environmental Team, IEC and the independent Environmental Project Office (ENPO) in accordance with the EM&A Manual.

***Visual Monitoring by Web Cameras***

- 4.8 Within three months of the commencement of construction of the Project, the Permit Holder shall install and thereafter maintain a system of web cameras covering all major works areas at the CLS site and the TKW site. The system shall provide real time visual monitoring of the site condition accessible by public through the dedicated web site set up by the Permit Holder under Condition 5.2. Within one month of the commencement of the Project, the Permit Holder shall propose a plan and a system of web cameras for the Director's agreement.

***Monitoring of Air Quality (including Dioxin Emission)***

- 4.9 Throughout the entire period of the commissioning and operation of the thermal desorption plant, both the stack monitoring of dioxin emissions from the air treatment unit of the thermal desorption plant and the ambient monitoring of dioxins at air sensitive receivers including (i) Penny's Bay Power Station, (ii) Dockyard next to TKW site and (iii) Toll Plaza Administration Building of North Lantau Highway should be conducted at least once a month. Continuous emission monitoring for surrogate gases including carbon monoxide, carbon dioxide, oxygen and Total Organic Compounds (TOC) at the stack of the thermal desorption process shall be carried out.

***Monitoring of Rice Fish***

- 4.10 The monitoring of Rice Fish at the re-created habitat in the Mong Tung Hang Stream (MTHS) shall be at least three years after the re-recreation of the habitat and the translocation of the Rice Fish. When establishment of Rice Fish population at the re-created habitat is found to be unsuccessful during the monitoring period, further mitigation measures shall be submitted to the Director for agreement.

***Monitoring of Restricted/Protected Plants***

- 4.11 The monitoring of the transplanted restricted/protected at Tai Tam shall be at least three years.

## 5. **Electronic Reporting of EM&A Information**

- 5.1 To facilitate public inspection of the Baseline Monitoring Report and monthly EM&A Reports via the EIA Ordinance Internet Website and at the EIA Ordinance Register Office, electronic copies of these Reports shall be prepared in Hyper Text Markup Language (HTML) (version 4.0 or later) and in Portable Document Format (PDF version 4.0 or later), unless otherwise agreed by the Director and shall be submitted at the same time as the hard copies as described in Conditions 4.2 and 4.3 of this Permit. For the HTML version, a content page capable of providing hyperlink to each section and sub-section of the EM&A Reports shall be included in the beginning of the document. Hyperlinks to all figures, drawings and tables in the EM&A Reports shall be provided in the main text from where the respective references are made. All graphics in the report shall be in interlaced GIF format unless otherwise agreed by the Director. The content of the electronic copies of these Reports shall be the same as the hard copies.
- 5.2 The Permit Holder shall, set up a dedicated web site and notify the Director in writing the internet address where the environmental monitoring and project data is to be placed, within six weeks after the commencement of the Project. All environmental monitoring data described in Condition 5.1 above shall be made available to the public via a dedicated web site to be set up by the Permit Holder in the shortest possible time and in no event later than 2 weeks after the relevant environmental monitoring data are collected or become available, unless otherwise agreed with the Director.
- 5.3 The internet website as described in Condition 5.2 above shall enable user-friendly public access to the monitoring data and project data including the EIA report and the environmental permit(s) and project profile of the Project. The internet website shall have features capable of : -
- (a) providing access to all environmental monitoring data collected since the commencement of work;
  - (b) searching by date;
  - (c) searching by types of monitoring data (air quality and construction waste); and
  - (d) hyperlinks to relevant monitoring data after searching;
- or otherwise as agreed by the Director.

### Notes :

1. This Environmental Permit consists of three parts, namely, **Part A** (Main Permit), **Part B** (Description of Designated Project) and **Part C** (Permit Conditions). Any person relying on this Permit should obtain independent legal advice on the legal implications under the Ordinance, and that the following notes are for general information only.
2. If there is a breach of any condition of this Permit, the Director or his authorised officer may, with the consent of the Secretary, order the cessation of associated work until the remedial action is taken in respect of the resultant

environmental damage, and in that case the Permit Holder shall not carry out any associated works without the permission of the Director or his authorised officer.

3. The Permit Holder may apply under Section 13 of the Environmental Impact Assessment Ordinance (the “Ordinance”) to the Director for a variation of the conditions of this Environmental Permit. The Permit Holder shall replace the original Permit displayed on the work site, by the amended Permit.
4. A person who assumes responsibility for the whole or a part of the Project may, before he assumes responsibility of the Project, apply under Section 12 of the Ordinance to the Director for a further Environmental Permit.
5. Under Section 14 of the Ordinance, the Director may with the consent of the Secretary for Environment and Food, suspend, vary or cancel this Permit. The suspended, varied or cancelled shall be removed from the display at the work site.
6. If this Permit is cancelled or surrendered during the implementation of the Project, another environmental permit must be obtained under the Ordinance before the Project could be continued. It is an offence under Section 26(1) of the Ordinance to carry out a designated project listed in Schedule 2 of the Ordinance without a valid environmental permit.
7. Any person who carry out the Project contrary to the conditions in the Permit, and is convicted of an offence under the Ordinance, is liable :
  - (i) on a first conviction of indictment to a fine of \$2 million and imprisonment for 6 months;
  - (ii) on a second or subsequent conviction on indictment to a fine of \$5 million and imprisonment for 2 years;
  - (iii) on a first summary conviction to a fine at level 6 and imprisonment for 6 months;
  - (iv) on a second or subsequent summary conviction to a fine of \$1 million and imprisonment for 1 year; and
  - (v) in any case where the offence is of a continuing nature, the court or magistrate may impose a fine of \$10,000 for each day on which he is satisfied that the offence continued.
8. The Permit Holder may appeal against any condition of this Permit under Section 17 of the Ordinance within 30 days of receipt of this Permit.
9. The Notes are for general reference only and that the Permit Holder should refer to the EIA Ordinance for details and seek independent legal advice.
10. Occupational safety and health issues are governed by the Occupational Safety and Health Ordinance (Cap. 509), and Factories and Industrial Undertakings Ordinance (Cap.59). The Permit Holder is advised to contact the Labour Department for requirements relating to occupational safety and health issues.

**Environmental Permit No.: EP-116/2002**

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[Appendix A](#) | [Appendix B](#) | [Figure 1](#) | [Figure 2](#) | [Figure 3](#) | [Figure 4](#) | [Figure 5](#) | [Figure 6](#)  
[Figure 7a](#) | [Figure 7b](#) | [Figure 7c](#) | [Figure 8](#) | [Figure 9](#) | [Figure 10](#)

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