



Environmental Impact Assessment Study for Re-provision of Open Cycle Gas Turbines at Lamma Power Station

Environmental Monitoring and Audit Manual

22 November 2021

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1. INTRODUCTION

1.1 Purpose of the Manual

This *Environmental Monitoring and Audit (EM&A) Manual* (“the Manual”) has been prepared by ERM-Hong Kong, Limited (ERM) on behalf of The Hongkong Electric Co. Ltd (HK Electric). The Manual is a supplementary document to the Environmental Impact Assessment (EIA) Report of the Re-provision of Open Cycle Gas Turbines (OCGTs) at Lamma Power Station (LPS) (hereafter referred to as the Project).

The Manual has been prepared in accordance with the EIA Study Brief (No. ESB-331/2020) and the *Technical Memorandum of the Environmental Impact Assessment Process (EIAO-TM)*. The purpose of the Manual is to provide information, guidance and instruction to personnel charged with environmental duties and those responsible for undertaking EM&A work during decommissioning/ demolition, construction and operation of the Project. It provides systematic procedures for monitoring and auditing the environmental performance of the Project.

This Manual contains the following information:

- Responsibilities of the Contractor(s) for Project construction, Environmental Team (ET), and the Independent Environmental Checker (IEC) with respect to the EM&A requirements during the course of the Project;
- Project organisation;
- Requirements with respect to the decommissioning/ demolition, construction and operational programme schedule and the necessary EM&A programme to track the environmental performance of the Project;
- Requirements for reviewing pollution sources and working procedures required in the event of exceedances of applicable environmental criteria and/or receipt of complaints;
- Requirements for presentation of EM&A data and appropriate reporting procedures; and
- Requirements for review of EIA predictions and the effectiveness of the recommended mitigation measures/environmental management systems and the EM&A programme.

1.2 Structure of the EM&A Manual

The remainder of the Manual is set out as follows:

- **Section 1** describes the scope and location of the Project, as well as the objective, scope and organisation of the EM&A programme;
- **Section 2** sets out the EM&A requirements for air quality;
- **Section 3** sets out the EM&A requirements for noise;
- **Section 4** sets out the EM&A requirements for water quality;
- **Section 5** details the requirements for waste management;
- **Section 6** details the requirements for land contamination;
- **Section 7** describes the scope and frequency of site environmental inspection;
- **Section 8** details the reporting requirements for the EM&A;
- **Appendix A** contains the implementation schedule summarising all mitigation measures recommended in the EIA Report.

1.3 Project Description

1.3.1 Project Background

GT2, GT3, GT4, GT57 and GT6, with a total power generation capacity of 845MW, are located within the Gas Turbine Compound (GT Compound) of LPS. These units have been in operation since 1989 and are approaching the end of their service life. Therefore, HK Electric proposes to decommission and demolish these units sequentially from 2022 onwards, and to construct and commission up to four new OCGTs with a capacity of up to 130 MW each (i.e. the proposed GT8, GT9, GT10 and GT11, with a total power generation capacity of 520 MW) within the GT Compound. These proposed new OCGTs serve to take over the function of the aforementioned existing units in providing additional power generation during peak-opping and maintaining back-up power supply in case of emergency situations for the continuous operation of the LPS.

1.3.2 Project Scope and Location

The scope of the Project involves the decommissioning/ demolition of the existing units and auxiliary equipment, and subsequent construction and operation of the proposed new OCGTs within the GT Compound. Key project activities are summarised below:

- Decommissioning and demolition of existing OCGTs/Combined Cycle Gas Turbine (CCGT) (i.e. GT2, GT3, GT4, GT57 and GT6), the black start gas turbine (BSGT) and the adjacent miscellaneous storage shed, and the lube oil storage tank near GT5;
- Construction of the new GT8, GT9, GT10 and GT11, and installation of the new BSGT and Battery Energy Storage System (BESS);
- Construction of new cable trenches and the new staircase and lift, and reconstruction of the GT57 Auxiliary Building (GTAB) to a new 132kV Switching Station; and
- Operation of the new GT8, GT9, GT10 and GT11.

The following elements of the Project addressed in this EIA Report are classified as Designated Projects under the *Environmental Impact Assessment Ordinance (Cap. 499) (EIAO)*:

- Demolition of four existing OCGTs and one existing CCGT at LPS (Schedule 2, Part II, Item 4 A public utility --- electricity power plant); and
- Installation of up to four new OCGTs at LPS (Schedule 2, Part I, Item D.1 Public utility electricity power plant).

1.3.3 Work Programme and Works Locations

The tentative implementation programme of the Project is given in **Figure 1.2**. The works location is provided in **Figure 1.1**.

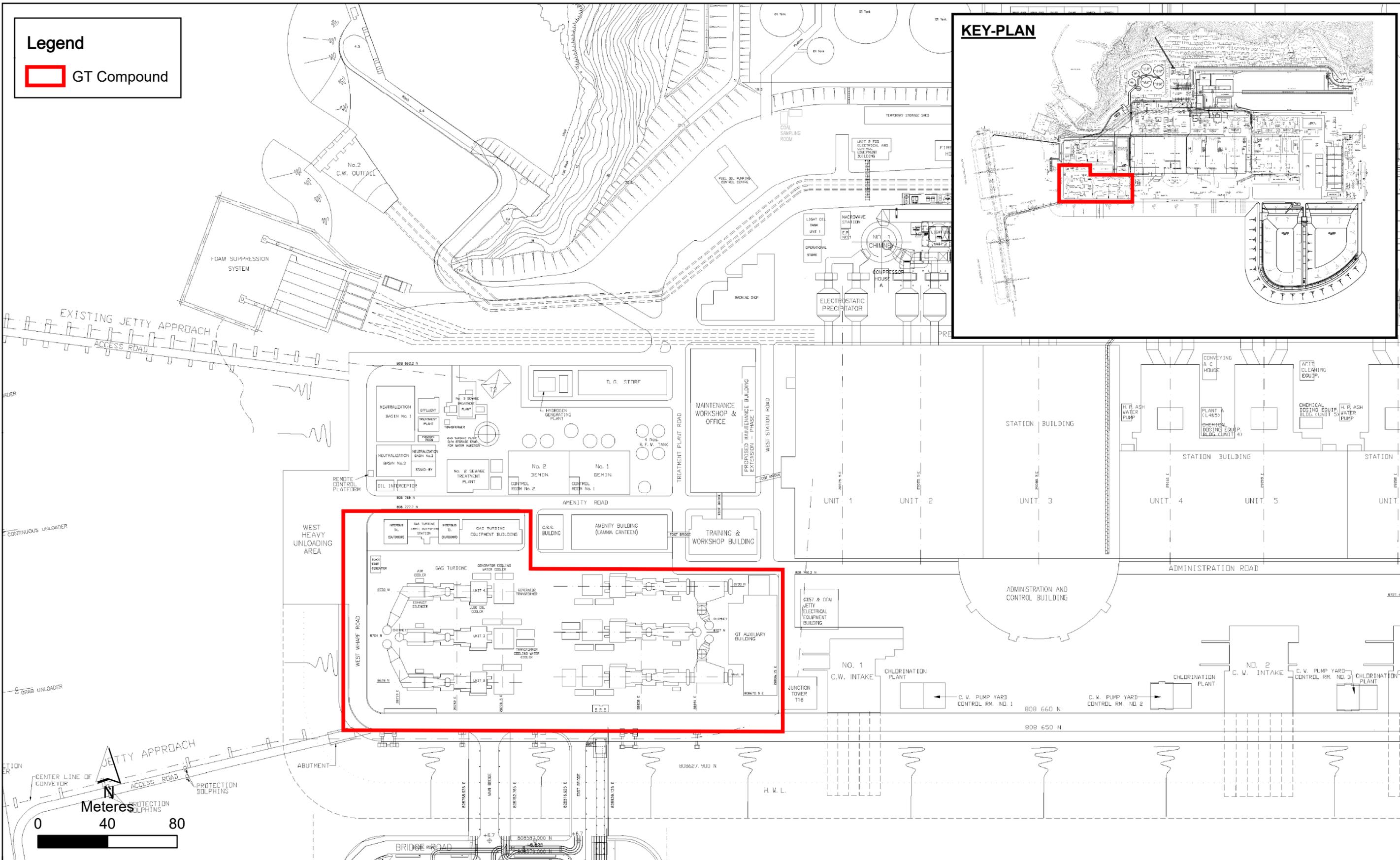


Figure 1.1

Location of Gas Turbine Compound at Lamma Power Station

Figure 1.2 Tentative Implementation Programme of the Project

	2022		2023		2024		2025		2026		2027		2028	
	Q3-Q4	Q1-Q2	Q3-Q4											
Decommissioning and Demolition of Existing Units														
GT2														
GT3														
GT4														
GT57														
GT6														
Construction of New Units														
GT8														
GT9														
GT10														
GT11														
Other Construction														
Construction of New Cable Trenches														
Construction of New 132kV Switching Station, Staircase and Lift														
Installation of BESS and BSGT														
Commissioning of New Units														
GT8														
GT9														
GT10														
GT11														

1.4 Objective of the EM&A

The broad objective of this Manual is to define the procedures of the EM&A programme for evaluating the environmental performance of the Project during design, decommissioning/ demolition, construction and operation phases. The decommissioning/ demolition, construction and operational impacts arising from the implementation of the Project are described in the EIA Report. The EIA Report has also recommended mitigation measures and good construction practices to avoid or minimise the potential environmental impacts associated with the Project and comply with the appropriate environmental criteria. These mitigation measures and their implementation requirements are presented in the Implementation Schedule of Mitigation Measures (**Appendix A**).

The main objectives of the EM&A programme are to:

- provide a database of environmental parameters against which to determine any short-term or long-term environmental impacts;
- provide an early indication should any of the environmental control measures or practices fail to achieve the acceptable standards;
- confirm that the mitigation measures recommended in the EIA Report are properly included in the design of the Project;
- clarify and identify potential sources of pollution, impact and nuisance arising from the works for the responsible parties;
- confirm compliance with regulatory requirements, contract specifications and EIA study recommendations;
- confirm compliance of environmental designs during the design phase of the Project with the specifications stated in the EIA Report and the Environmental Permit (EP);
- monitor performance of the mitigation measures and to assess their effectiveness;
- take remedial action(s) if unexpected issues or unacceptable impacts arise;
- verify the environmental impacts predicted in the EIA; and
- audit environmental performance.

This EM&A Manual is a working document which will be reviewed periodically and updated if necessary during the implementation of the Project.

1.5 Scope of the EM&A Programme

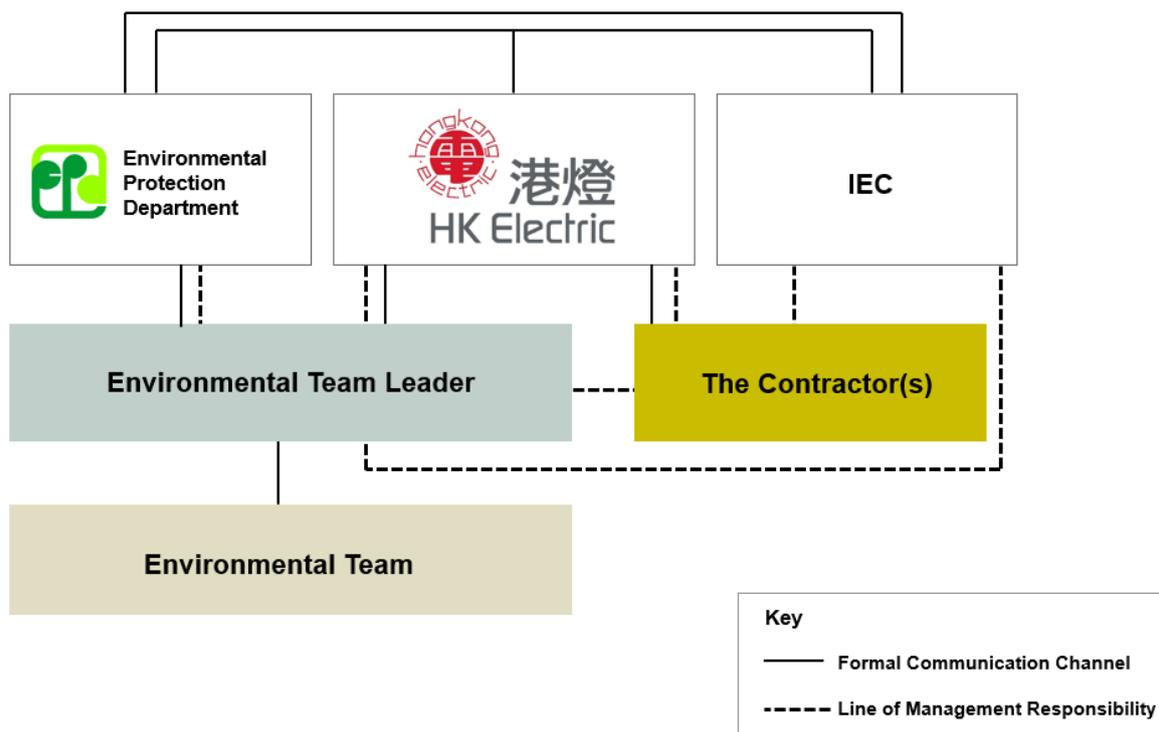
The scope of this EM&A programme is to:

- implement inspection and audit requirements for waste management;
- liaise with, and provide environmental advice (as requested or when otherwise necessary) to construction site staff on the significance and implications of the environmental monitoring data (if any);
- identify and resolve environmental issues and other functions as they may arise from the works;
- check and quantify the Contractor(s)'s overall environmental performance and remedial actions taken to mitigate adverse environmental effects as they may arise from the works;
- conduct monthly reviews of monitored impact data/information as the basis for assessing compliance with the defined criteria and to verify that necessary mitigation measures are identified and implemented, and to undertake additional *ad hoc* monitoring (if required) and/or auditing as required by special circumstances;
- evaluate and interpret environmental monitoring data (if any) to provide an early indication should any of the environmental control measures or practices fail to achieve the acceptable standards, and to verify the environmental impacts predicted in the EIA;
- manage and liaise with other individuals or parties concerning other environmental issues deemed to be relevant to the construction process;
- conduct regular site inspections and audits of a formal or informal nature to assess:
 - (i) the level of the Contractor(s)'s general environmental awareness;
 - (ii) the Contractor(s)'s implementation of the recommendations in the EIA and their contractual obligations;
 - (iii) the Contractor(s)'s performance as measured by the EM&A;
 - (iv) the need for additional mitigation measures to be implemented or the continued implementation of those recommended in the EIA Report;
 - (v) to advise the site staff of any identified potential environmental issues; and
- produce monthly EM&A reports which summarise Project monitoring (if any) and/or auditing data, with full interpretation illustrating the acceptability or otherwise of any environmental impacts and identification or assessment of the implementation status of recommended mitigation measures.

1.6 Organisation & Structure of the EM&A

The EM&A will require the involvement of HK Electric, an Environmental Team (ET), an Independent Environmental Consultant (IEC) and the Contractor(s). The roles and responsibilities of the various parties involved in the EM&A process are further expanded in the following sections and in **Figure 1.3**.

Figure 1.3 Indicative Project Organisation Chart



HK Electric will appoint an ET to conduct the site audit/inspection and, to provide specialist advice on the undertaking and implementation of environmental responsibilities. The ET will be led and managed by the ET Leader. The ET Leader shall be a person who has at least 7 years of experience in EM&A or environmental management. Suitably qualified staff will be included in the ET, and the ET should not be in any way an associated body of the Contractor(s) for the Project during its decommissioning/ demolition and construction phases. For the purpose of this Manual, the ET Leader, who will be responsible for, and in charge of, the ET, is referred to as the person delegated the role of executing the EM&A requirements.

To maintain strict control of the EM&A process, HK Electric will independently appoint an environmental consultant to act as an IEC to verify and validate/ audit the environmental performance of HK Electric's Contractor(s) during the decommissioning/ demolition and construction of the Project and effectiveness of ET. The IEC will have previous relevant experience with checking and auditing similarly sized EM&A programmes. The IEC shall be a person who has at least 7 years of experience in EM&A or environmental management. Sufficient and suitably qualified professional and technical staff will be employed by the IEC, as required under the EM&A programme for the duration of the Project.

1.6.1 Roles & Responsibilities

HK Electric will:

- employ an ET as described above;
- employ an IEC as described above;
- supervise the Contractor(s)' activities and confirm that the requirements in the EM&A Manual and the Contract Document are fully complied with;
- inform the Contractor(s) when action is required to reduce impacts;

- adhere to the procedures for carrying out complaint investigation; and
- participate in joint site inspections undertaken by the ET and IEC.

The Contractor(s) for Project decommissioning/ demolition and construction will:

- implement the EIA recommendations and requirements, where applicable;
- provide assistance to the ET in carrying out monitoring (if any) and site inspections;
- submit proposals on mitigation measures in case of environmental non-compliance or exceedance of EIA predictions;
- implement measures to reduce impact where there is environmental non-compliance or exceedance of EIA predictions;
- implement the corrective actions instructed by HK Electric/ET/IEC;
- participate in the site inspections undertaken by the ET and the IEC, as required, and undertake any corrective actions instructed by HK Electric/ETL/IEC; and
- adhere to the procedures for carrying out complaint investigation.

The ET will:

- monitor various environmental parameters as required in this EM&A Manual;
- assess the EM&A data (if any) and review the success of the EM&A programme determining the adequacy of the mitigation measures implemented and the validity of the EIA predictions as well as identify any adverse environmental impacts before they arise;
- carry out regular site inspection to investigate the Contractor(s)'s site practice, equipment and work methodologies with respect to pollution control and environmental mitigation, and effect proactive action to pre-empt issues;
- review the Contractor(s)'s working programme and methodology, and comment as necessary;
- review and prepare reports on the environmental monitoring data (if any) and site environmental conditions;
- report on the environmental monitoring results (if any) and conditions to the IEC, Contractor(s), EPD and HK Electric;
- recommend suitable mitigation measures to the Contractor(s) and/ or review the proposals of mitigation measures from the Contractor(s) in the case of environmental non-compliance or exceedance of EIA predictions; and
- adhere to the procedures for carrying out complaint investigation.

The IEC will:

- review and audit the implementation of the EM&A programme and the overall level of environmental performance being achieved;
- arrange and conduct monthly independent site audits of the works;
- validate and confirm the accuracy of monitoring results (if any), monitoring equipment, monitoring stations, monitoring procedures and locations of sensitive receivers;
- audit the EIA recommendations and requirements against the status of implementation of environmental protection measures on site;

- on an as needed basis, audit the Contractor(s)'s construction methodology and agree the appropriate, reduced impact alternative in consultation with HK Electric, the ET and the Contractor(s);
- adhere to the procedures for carrying out complaint investigation;
- review the effectiveness of environmental mitigation measures and project environmental performance including the proposed corrective measures;
- review EM&A report submitted by the ET leader and feedback audit results to ET by signing off relevant EM&A proformas; and
- report the findings of site audits and other environmental performance reviews to HK Electric, ET, EPD and the Contractor(s).

2. AIR QUALITY

2.1 Decommissioning/ Demolition and Construction Phases

The EIA study concluded that no adverse fugitive dust impact is anticipated during the decommissioning/ demolition and construction of Project, and thus dust monitoring is considered not necessary. However, it is recommended to conduct regular environmental site inspections, i.e. on weekly basis, to confirm the implementation of the dust control measures and good site practices as recommended in **Section 3.9.1** of the EIA Report throughout the decommissioning/ demolition and construction phases of the Project. These measures are also summarised in the Implementation Schedule provided in **Appendix A**.

2.2 Operation Phase

No adverse air quality impact associated with the operation of the Project is expected with proper maintenance of the new OCGTs on a regular basis. EM&A during the operation phase of the Project is considered not necessary.

3. NOISE

3.1 Decommissioning/ Demolition and Construction Phases

The EIA study concluded that no adverse noise impact is anticipated during the decommissioning/ demolition and construction of the Project, and thus noise monitoring is considered not necessary. However, it is recommended to conduct regular environmental site inspections, i.e. on weekly basis, to confirm the implementation of the good site practices as recommended in **Section 4.7.1** of the EIA Report throughout the decommissioning/ demolition and construction phases of the Project. These good site practices are also summarised in the Implementation Schedule provided in **Appendix A**.

3.2 Operation Phase

The EIA study concluded that no adverse noise impact is anticipated during the operation of the Project. EM&A during operation phase of the Project is considered not necessary.

4. WATER QUALITY

4.1 Decommissioning/ Demolition and Construction Phases

The EIA study concluded that no adverse water quality impact is anticipated during the decommissioning/ demolition and construction of the Project, and thus water quality monitoring is considered not necessary. However, it is recommended to conduct regular environmental site inspections, i.e. on a weekly basis, to confirm the implementation of the water quality mitigation measures and good site practices as recommended in **Section 5.5** of the EIA Report throughout the decommissioning/ demolition and construction phases. These measures are also summarised in the Implementation Schedule provided in **Appendix A**.

4.2 Operation Phase

The EIA study concluded that there will be no adverse water quality impact associated with the operation of the Project. EM&A during the operation phase of the Project is considered not necessary.

5. WASTE MANAGEMENT

5.1 Decommissioning/ Demolition and Construction Phases

5.1.1 Introduction

The decommissioning/ demolition and construction of the Project are expected to generate the following types of waste:

- Excavated materials;
- Construction & demolition (C&D) materials;
- Chemical waste; and
- General refuse.

Mitigation measures, where appropriate, have been recommended as part of the EIA to avoid or reduce potential adverse environmental impacts associated with handling, collection and disposal of waste arising from the decommissioning/ demolition and construction of the Project.

Waste management will be the Contractor(s)'s responsibility and wastes produced during the decommissioning/ demolition and construction phases will be managed in accordance with appropriate waste management practices and EPD's regulations and requirements.

Auditing of waste management practices during regular site inspections will confirm that these solid and liquid wastes generated during decommissioning/ demolition and construction are not disposed of into the surrounding storm drains. The Contractor(s) will be responsible for the implementation of any mitigation measures to reduce waste or redress issues arising from the waste materials.

5.1.2 Waste Management Practices

The waste management practices and recommended mitigation measures will be incorporated into a Waste Management Plan (WMP) as stated in the *Practice Notes for Authorised Persons, Registered Structural Engineers and Registered Geotechnical Engineers (PNAP) ADV-19 Construction and Demolition waste* for the Project for managing the different types of wastes by the Contractor(s) on site. The WMP will become a part of the Environmental Management Plan (EMP). The Contractor(s) is/ are required to prepare the EMP and submit it to the Project Proponent for approval and then implement the EMP accordingly.

The WMP shall describe the arrangements for avoidance, reuse, recovery and recycling, handling, collection, transport, the estimated rate of C&D materials generation and disposal, and the recommended mitigation measures on waste management as set out in **Section 6.5** of the EIA Report. The WMP shall indicate the disposal arrangements and locations of C&D materials and other wastes.

A Trip Ticket system will be included in the WMP. Surplus excavated spoil and other wastes will not be disposed at any other designated disposal locations unless otherwise approved in writing by EPD, Secretary of Public Fill Committee and/or other authorities as appropriate. The Contractor(s) shall ensure all necessary waste disposal permits or licences are obtained prior to the commencement of the decommissioning/ demolition and construction works. The Contractor(s) shall also open a billing account with EPD in accordance with the *Waste Disposal (Charges for Disposal of Construction Waste) Regulation*.

The Implementation Schedule (**Appendix A**) provides details on the appropriate mitigation measures for avoiding and preventing adverse environmental impacts associated with C&D materials, chemical wastes, general refuse and sewage from the workforce. The WMP will be regularly reviewed, and updated as appropriate, throughout the course of the decommissioning/ demolition and construction works to confirm that it remains current with the latest detailed information and works practices.

The WMP will also outline the requirements for a waste audit program to verify that the measures outlined in the plan are effectively implemented and adhered to.

5.1.3 Methodology and Criteria

The Contractor(s) must confirm that the necessary disposal permits or licences are obtained from appropriate authorities in accordance with the various Ordinances. In addition to the regular joint inspections/ audits, each construction Contractor(s) will designate a member of staff as being responsible for routine inspections and audits of on-site waste management practices, with reference to the relevant legislation and guidelines as well as the recommendations given in the Implementation Schedule contained in **Appendix A** of this Manual, and defined below:

(1) General Legislation

- *Waste Disposal Ordinance (WDO) (Cap 354);*
- *Waste Disposal (Chemical Waste) (General) Regulation (Cap 354C);*
- *Waste Disposal (Charges for Disposal of Construction Waste) Regulation;*
- *Land (Miscellaneous Provisions) Ordinance (Cap 28);*
- *Public Health and Municipal Services Ordinance (Cap 132) – Public Cleansing and Prevention of Nuisances Regulations; and*

(2) Other Relevant Guidelines

- *Waste Disposal Plan for Hong Kong (December 1989), Planning, Environment and Lands Branch Government Secretariat, Hong Kong SAR Government;*
- *Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes (1992), EPD, Hong Kong SAR Government;*
- *Hong Kong Planning Standards and Guidelines Planning (2014), Planning Department, Hong Kong SAR Government;*
- *WBTC No. 2/93 - Public Dumps, Works Branch, Hong Kong SAR Government;*
- *WBTC No. 2/93B - Public Filling Facilities, Works Branch, Hong Kong SAR Government;*
- *WBTC No. 16/96 - Wet Soil in Public Dumps, Works Branch, Hong Kong SAR Government;*
- *Waste Reduction Framework Plan, 1998 to 2007, Planning, Environment and Lands Bureau, Government Secretariat, 5 November 1998;*
- *WBTC No. 4/98 and 4/98A - Use of Public Fill in Reclamation and Earth Filling Projects, Works Bureau, Hong Kong SAR Government;*
- *Project Administration Handbook for Civil Engineering Works, Section 3.3(i) of Chapter 2 and Section 4.13 of Chapter 4 - Incorporation of Information on Construction and Demolition Material Management in Public Works Subcommittee Papers, Hong Kong SAR Government;*
- *WBTC No. 12/2000 - Fill Management, Works Bureau, Hong Kong SAR Government;*
- *WBTC No. 19/2001 - Metallic Site Hoardings and Signboards; Works Bureau, Hong Kong SAR Government;*
- *Project Administration Handbook for Civil Engineering Works, Section 21.25 of Chapter 7 and Section 9.12 of Chapter 5 - Control of Site Crushers, Hong Kong SAR Government;*
- *WBTC No. 12/2002 - Specifications Facilitating the Use of Recycled Aggregates, Works Bureau, Hong Kong SAR Government;*

- *Project Administration Handbook for Civil Engineering Works, Section 4.1.3 of Chapter 4 - Management of Construction and Demolition Material Including Rock, Hong Kong SAR Government;*
- *ETWB TC(W) No. 19/2005 - Environmental Management on Construction Sites, Environment, Transport and Works Bureau, Hong Kong SAR Government;*
- *DevB TC(W) No. 6/2010 - Trip Ticket System for Disposal of Construction & Demolition Materials, Development Bureau, Hong Kong SAR Government.*
- *DEVB TC(W) No. 08/2010 - Enhanced Specification for Site Cleanliness and Tidiness;*
- *DEVB TC(W) No. 2/2011 - Encouraging the Use of Recycled and other Green Materials in Public Works Projects; and*
- *DEVB TC(W) No. 9/2011 - Enhanced Control Measures for Management of Public Fill.*

The Contractor(s)'s waste management practices will be audited with reference to the checklist detailed in **Table 5.1** below.

Details of the required mitigation measures are included in the Implementation Schedule of **Appendix A** of this EM&A Manual.

5.2 Operation Phase

As the operation of the new units and associated equipment will generate minimal quantity of waste and the EIA study concluded that no adverse environmental impacts will arise with the implementation of standard waste management practices at LPS, waste monitoring and audit programme during the operation phase is considered not necessary.

Table 5.1 Waste Management Checklist

Activities	Timing	Checking Frequency	If non-compliance noted, Action Required
Necessary waste disposal permits or licences have been obtained.	Before the commencement of decommissioning/ demolition and construction works	Once	The ET will inform the Contractor(s), IEC and HK Electric. The Contractor(s) will apply for the necessary permits/ licences prior to disposal of the waste. The ET will verify that corrective action has been taken.
Open of billing account with EPD	Before the commencement of decommissioning/ demolition and construction works	Once	The ET will inform the Contractor(s), IEC and HK Electric. The Contractor(s) will open a billing account for the Project prior to disposal of the construction waste. The ET will verify that corrective action has been taken.
Preparation of WMP	Before the commencement of decommissioning/ demolition and construction works	Once	The ET will inform the Contractor(s), IEC and HK Electric. The Contractor(s) will prepare a WMP (as part of the EMP) and submit to HK Electric or its representative for approval. The ET will verify that corrective action has been taken.
Set up of trip-ticket system	Before the commencement of decommissioning/ demolition and construction works	Once	The ET will inform the Contractor(s), IEC and HK Electric. The Contractor(s) will set up a trip-ticket system prior to disposal of the waste. The ET will verify that corrective action has been taken.
Records of quantities of wastes generated, recycled and disposed are properly kept. For demolition material/waste, the number of loads for each day will be recorded (quantity of waste can then be estimated based on average truck load. For landfill charges, the receipts of the charge could be used for estimating the quantity).	Throughout the decommissioning/ demolition and construction works	Each Week	The ET will inform the Contractor(s), IEC and HK Electric. The Contractor(s) will estimate the missing data based on previous records and the activities carried out. The ET will review the results and forward to HK Electric for approval.
Sufficient waste disposal points are provided. Wastes are collected and removed from site in a timely manner. General refuse is collected on a regular basis.	Throughout the decommissioning/ demolition and construction works	Each Week	The ET will inform the Contractor(s), IEC and HK Electric. HK Electric will instruct the Contractor(s) to remove waste accordingly.

Activities	Timing	Checking Frequency	If non-compliance noted, Action Required
Waste storage areas are properly cleaned and do not cause windblown litter and dust nuisance. Appropriate measures to reduce windblown litter and dust nuisance of waste will be adopted, e.g. by either covering trucks or by transporting wastes in enclosed containers.	Throughout the decommissioning/ demolition and construction works	Each Week	The ET will inform the Contractor(s), IEC and HK Electric. HK Electric will instruct the Contractor(s) to clean the storage area and/or cover the waste.
Different types of waste are segregated in different containers or skip to enhance reuse and recycling of material and proper disposal of waste.	Throughout the decommissioning/ demolition and construction works	Each Week	The ET will inform the Contractor(s), IEC and HK Electric. HK Electric will instruct the Contractor(s) to provide separate skips/ containers. The Contractor(s) will verify that the workers place the waste in the appropriate containers.
Chemical wastes are stored, handled and disposed of in accordance with the <i>Code of Practice on the Packaging, Handling and Storage of Chemical Wastes</i> , published by the EPD. Chemical wastes are separated for special handling and appropriate treatment at the Chemical Waste Treatment Centre at Tsing Yi.	Throughout the decommissioning/ demolition and construction works	Each Week	The ET will inform the Contractor(s), IEC and HK Electric. HK Electric will instruct the Contractor(s) to rectify the issues immediately. Warning will be given to the Contractor(s) if corrective actions are not taken within 24 hrs.
Demolition materials are properly covered before leaving the site.	Throughout the decommissioning/ demolition and construction works	Each Week	The ET will inform the Contractor(s), IEC and HK Electric. HK Electric will instruct the Contractor(s) to comply. The Contractor(s) will confirm that the demolition materials are properly covered when transport out of the site.
Wastes are disposed at licensed sites.	Throughout the decommissioning/ demolition and construction works	Each Week	The ET will inform the Contractor(s), IEC and HK Electric. HK Electric will warn the Contractor(s) and instruct the Contractor(s) to confirm that the wastes are disposed of at the licensed sites. Should it involve chemical waste, the Waste Control Group of EPD will be notified.
Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors are provided. A recording system for the amount of wastes generated/ recycled and disposal sites is developed and implemented.	Throughout the decommissioning/ demolition and construction works	Each Week	The ET will inform the Contractor(s), IEC and HK Electric. HK Electric will instruct the Contractor(s) to comply.

6. LAND CONTAMINATION

6.1 Decommissioning/ Demolition and Construction Phases

The EIA study has recommended to conduct site investigation and sampling at five hotspot locations (i.e. 4 boreholes and 1 trial pit) to assess the potential land contamination impacts within the Project site in accordance with the Contaminated Assessment Plan (CAP). As the Project site area is still in active operation, the proposed sampling locations are not accessible during the course of the EIA study. Site investigation and soil and groundwater sampling will be undertaken in accordance with the CAP under the supervision of a Land Contamination Specialist when the proposed sampling locations are made available after the demolition of the existing units and structures.

A Land Contamination Specialist shall also be engaged to oversee the removal/ demolition process of the Project and review the need to include additional sampling locations, as per recommendations in the CAP.

During the decommissioning/ demolition and construction phases, good housekeeping practices shall be maintained by the Contractor(s) to minimise the risk of land contamination associated with the decommissioning, demolition and construction activities, including but not limited to the following:

- Minimise the chemical stock within the Project site, only store the amount of chemicals needed;
- Designated chemical/ chemical waste storage shall be established on concrete paved ground, as far as practicable. Secondary containments shall be provided for storage of chemicals/ chemical wastes;
- Provision of impermeable lining or absorbent materials to contain leaks;
- Provision of spill control materials and equipment;
- Regular visual inspections to detect any early signs of fuel leakage prior to demolition;
- Conduct regular maintenance and inspection on plants and equipment, particularly those involve the use of fuel, hydraulic oil or any sort of chemicals; and
- Divert rainfall and surface run-off around construction areas.

To ensure that these recommendations are properly implemented by the Contractor(s), weekly site inspections during decommissioning/ demolition and construction phases of Project shall be conducted. The visual inspections/audits will look at all aspects of construction activities that disturb soil. The recommended good housekeeping practices for decommissioning/ demolition and construction phases are summarised in the Implementation Schedule provided in **Appendix A**.

6.2 Operation Phase

Monitoring or audit related to land contamination during the operation phase is considered not necessary.

7. ENVIRONMENTAL SITE INSPECTION

7.1 Site Inspections

Site inspections provide a direct means to assess and confirm that the Contractor(s)'s environmental protection and pollution control measures are in compliance with the contract specifications. The site inspection will be undertaken routinely by the ET throughout the decommissioning/ demolition and construction phases of the Project to verify that appropriate environmental protection and pollution control mitigation measures are properly implemented in accordance with the EIA. In addition, the ET will be responsible for defining the scope of the inspections, detailing any deficiencies that are identified, and reporting any necessary action or additional mitigation measures that were implemented as a result of the inspection.

Regular site inspections will be carried out by the ET each week. The IEC will also undertake monthly site audit to assess the performance of the Contractor(s). The areas of inspection will not be limited to the site area and should also include the environmental conditions outside the site which are likely to be affected, directly or indirectly, by the site activities. The ET will make reference to the following information while conducting the inspections:

- the EIA and EM&A recommendations on environmental protection and pollution control mitigation measures;
- ongoing results of the EM&A programme;
- work progress and programme;
- individual works methodology proposals;
- the contract specifications on environmental protection;
- the relevant environmental protection and pollution control laws; and
- previous site inspection results.

The Contractor(s) will update the ET with relevant information on the construction works prior to carrying out the site inspections. The site inspection results will be submitted to the IEC, HK Electric and the Contractor(s) in two working days. Should actions be necessary, the ET will follow up with recommendations on improvements to the environmental protection and pollution control works and will submit these recommendations in a timely manner to the IEC, HK Electric and the Contractor(s). They will also be presented, along with the remedial actions taken, in the monthly EM&A report. The Contractor(s) will follow the procedures and time frame stipulated in the environmental site inspection for the implementation of mitigation proposal. An action reporting system will be formulated and implemented to report on any remedial measures implemented subsequent to the site inspections.

Ad hoc site inspections will also be carried out by the ET and site audits by the IEC if significant environmental issues are identified. Inspections and audits may also be required subsequent to receipt of an environmental complaint.

7.2 Compliance with Legal & Contractual Requirements

There are contractual environmental protection and pollution control requirements as well as environmental protection and pollution control laws in Hong Kong with which the decommissioning/ demolition and construction activities will comply.

In order that the works are in compliance with the contractual requirements, the works method statements (where relevant to environmental measures) submitted by the Contractor(s) to HK Electric for approval should be sent to the ET for review.

The ET will also review the progress and programme of the works to check the regulatory compliance.

The Contractor(s) will regularly copy relevant documents to the ET so that the checking and auditing work can be carried out. The relevant documents are expected to include at a minimum the updated Work Progress Reports, the updated Works Programme, the application letters for different licence/permits under the environmental protection laws and all valid licences/permits. The site diary will also be available for the ET inspection upon request.

After reviewing the document, the ET will advise HK Electric and the Contractor(s) of any non-compliance from the contractual and legislative requirements on environmental protection and pollution control for follow-up actions.

Upon receipt of the advice, the Contractor(s) will undertake immediate action to remedy the situation. The ET will follow up to confirm that appropriate action will be taken by the Contractor(s) in order to satisfy the environmental protection and pollution control requirements.

7.3 Environmental Complaints

The ET will undertake the following procedures (see **Figure 7.1**) upon receipt of a complaint:

- (1) log complaint and date of receipt into the complaint database and inform the IEC immediately;
- (2) investigate the complaint and discuss with the Contractor(s) and HK Electric to determine its validity and to assess whether the source of the issue is due to works activities;
- (3) if a complaint is considered valid due to the works, the ET will identify mitigation measures in consultation with the Contractor(s), HK Electric and IEC;
- (4) if mitigation measures are required, the ET will advise the Contractor(s) accordingly;
- (5) review the Contractor(s)'s response on the identified mitigation measures and the updated situation;
- (6) undertake additional monitoring (if required) and audit to verify the situation if necessary and confirm that any valid reason for complaint does not recur;
- (7) if the complaint is referred by EPD, an interim report will be submitted to EPD on the status of the complaint investigation and follow-up action within the time frame assigned by EPD;
- (8) report the investigation results and the subsequent actions on the source of the complaint for responding to complainant. If the source of complaint is EPD, the results should be reported within the time frame assigned by EPD; and
- (9) record the complaint, investigation, the subsequent actions and the results in the Monthly EM&A Reports.

During the complaint investigation work, the ET, Contractor(s) and HK Electric will cooperate with the IEC in providing the necessary information and assistance for completion of the investigation. If mitigation measures are identified in the investigation, the Contractor(s) will promptly carry out the mitigation measures. HK Electric will approve the proposed mitigation measures and the ET and IEC will check that the measures have been carried out by the Contractor(s).

7.4 Log-Book

The ET Leader will keep a contemporaneous log-book of each and every instance or circumstance or change of circumstances which may affect the EIA and every non-compliance from the recommendations of the EIA Report or the EP. The ET Leader will notify the IEC within one working day of the occurrence of any such instance or circumstance or change of circumstance. The ET Leader's log-book will be kept readily available for inspection by persons assisting in supervision of the implementation of the EIA Report recommendations (such as HK Electric, IEC and Contractor(s)) or by EPD or his authorised officers.

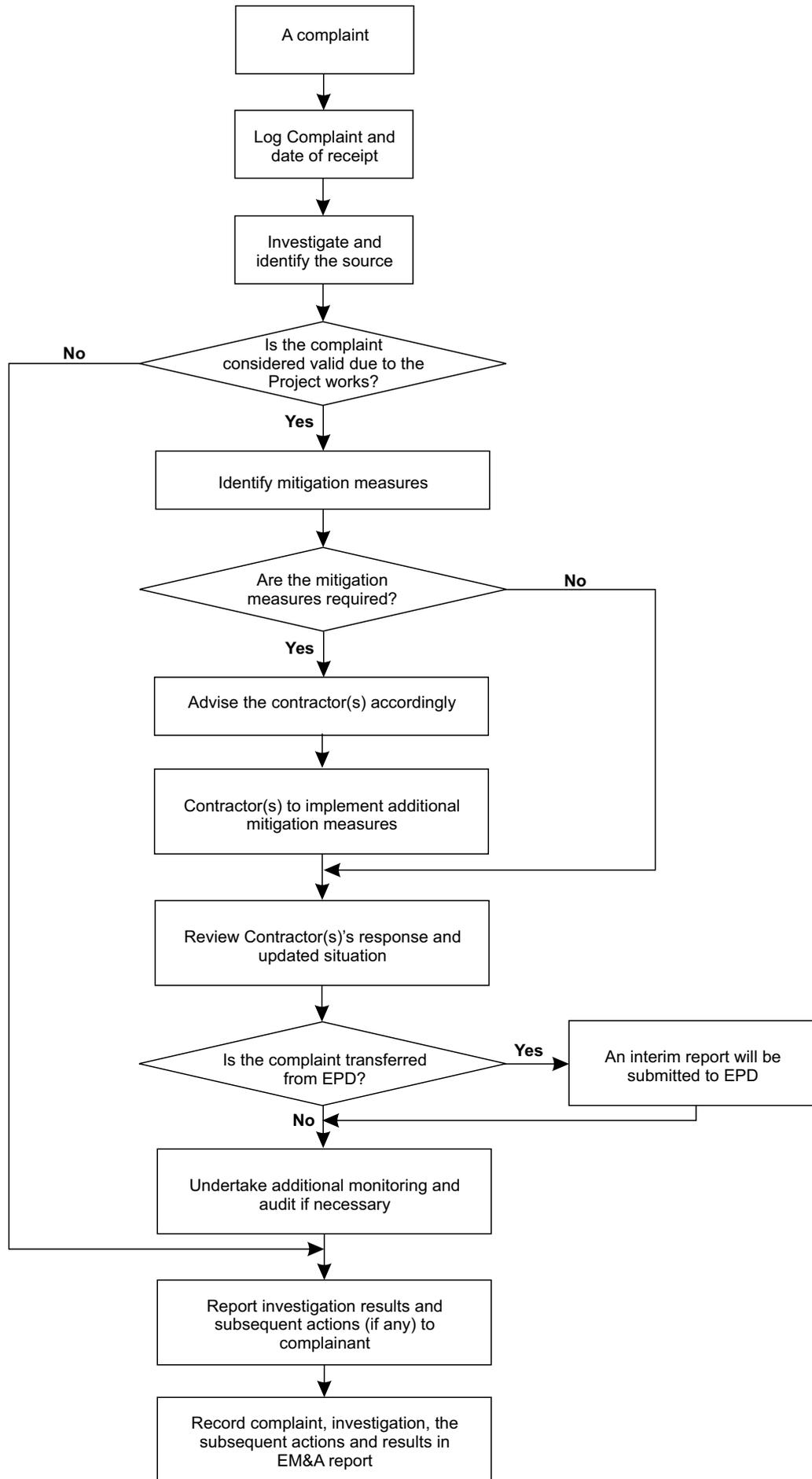


Figure 7.1

Flow Chart for Handling Environmental Complaints

8. REPORTING

8.1 General

Upon agreeing the format with HK Electric and EPD, reports can be provided in an electronic medium to be made available through a dedicated internet website that would be agreed with relevant authority.

Types of reports that the ET Leader will prepare and submit include monthly EM&A report, quarterly EM&A summary report and final EM&A review report. In accordance with Annex 21 of the EIAO-TM, a copy of the monthly, quarterly summary and final review EM&A reports will be made available to the Director of Environmental Protection.

8.2 Monthly EM&A Reports

The results and findings of the EM&A works during the decommissioning/ demolition and construction phases as required in this Manual will be recorded in the Monthly EM&A Reports prepared by the ET Leader. The EM&A report will be prepared and submitted within 2 weeks of the end of each reporting month, with the first report due the month after construction commences. Each monthly EM&A report will be submitted to the following parties: the Contractor(s), the IEC, HK Electric and the EPD, as well as to other relevant departments as required. Before submission of the first EM&A Report, the ET will liaise with the parties on the exact number of copies and format of the reports in both hard copy and electronic medium.

8.2.1 Contents of First Monthly EM&A Report

- (1) 1-2 pages executive summary, comprising:
 - complaint Log;
 - notifications of any summons and successful prosecutions;
 - reporting changes; and
 - forecast of impact predictions.
- (2) Basic project information including a synopsis of the project organisation, programme and management structure, and a drawing of the Project area showing the environmentally sensitive receivers and the locations of monitoring (if any) and control stations, programme, management structure and the work undertaken during the month.
- (3) Environmental Status, comprising:
 - works undertaken during the month with illustrations (such as location of works, implementation status of the recommended mitigation measures, quantities of waste generated, etc.); and
 - drawing(s) showing the Project site area and any environmental sensitive receivers.
- (4) A brief summary of EM&A requirements including:
 - environmental mitigation measures, as recommended in the EIA Report; and
 - environmental requirements in contract documents.
- (5) Advice on the implementation of environmental protection, mitigation and pollution control measures as recommended in the EIA Report and summarised in the updated implementation schedule.
- (6) Waste data and advice on the solid and liquid waste management.
- (7) A summary of environmental non-compliance;

- (8) A review of the reasons for and the implications of non-compliance including a review of pollution sources and working procedures.
- (9) A description of the actions taken in the event of non-compliance and deficiency reporting and any follow-up procedures related to earlier non-compliance.
- (10) A summary record of complaints received (written or verbal) for each media, including locations and nature of complaints, liaison and consultation undertaken, actions and follow-up procedures taken and summary of complaints.
- (11) A summary record of notifications of summons, successful prosecutions for breaches of environmental protection/pollution control legislation and actions to rectify such breaches.
- (12) A forecast of the works programme and impact predictions for the next one month; and
- (13) Comments, recommendations and conclusions for the reporting period.

8.2.2 Contents of Subsequent Monthly EM&A Reports

- (1) Title page.
- (2) Executive summary (1-2 pages), including:
 - complaint log;
 - notifications of any summons and successful prosecutions;
 - reporting changes; and
 - forecast of impact predictions.
- (3) Contents page.
- (4) Environmental status, comprising:
 - Drawing(s) showing the Project site area and any environmental sensitive receivers;
 - summary of environmental non-compliance; and
 - summary of complaints.
- (5) Environmental issues and actions, comprising:
 - review issues carried forward and any follow-up procedures related to earlier non-compliance (complaints and deficiencies);
 - description of the actions taken in the event of non-compliance and deficiency reporting;
 - recommendations (should be specific and target the appropriate party for action); and
 - implementation status of the mitigation measures and the corresponding effectiveness of the measures.
- (6) Appendices, including:
 - cumulative complaints statistics (if any); and
 - details of complaints, outstanding issues and deficiencies.

8.3 Final EM&A Review Report

A final EM&A review report will be prepared by the ET at the end of the construction phase of the Project. The final EM&A Review Report will contain at least the following information:

- (1) Executive Summary (1-2 pages).

- (2) Drawing(s) showing the Project site area and any environmental sensitive receivers.
- (3) Basic project information including a synopsis of the project organisation, contacts for key management staff and a synopsis of work undertaken during the course of the Project.
- (4) A brief summary of EM&A requirements including environmental mitigation measures as recommended in the EIA Report.
- (5) A summary of the implementation status of environmental protection and pollution control/mitigation measures as recommended in the EIA Report and summarised in the updated implementation schedule.
- (6) A summary of environmental non-compliance.
- (7) A review of the reasons for and the implications of non-compliance including review of pollution sources and working procedures as appropriate.
- (8) A description of the actions taken in the event of non-compliance.
- (9) A summary record of complaints received (written or verbal) for each media, liaison and consultation undertaken, actions and follow-up procedures taken.
- (10) A summary record of notifications of summonses and successful prosecutions for breaches of the current environmental protection/pollution control legislations, locations and nature of the breaches investigation, follow-up actions taken and results.
- (11) A comparison of the EM&A data with the EIA predictions with annotations and explanations for any discrepancies, including a review of the validity of EIA predictions and identification of shortcomings in the EIA recommendations.
- (12) A review of the monitoring methodology adopted and with the benefit of hindsight, comment on its effectiveness, including cost effectiveness.
- (13) A review of the success of the EM&A programme, including a review of the effectiveness and efficiency of the mitigation measures, and recommendations for any improvements in the EM&A programme.
- (14) A clear cut statement on the environmental acceptability of the project with reference to specific impact hypotheses and a conclusion to state the return to ambient and/or the predicted scenario as the EIA findings.

8.4 Data Keeping

The site documents such as site inspection forms are not required to be included in the EM&A Reports for submission. However, the documents will be kept by the ET Leader and be ready for inspection upon request. Relevant information will be clearly and systematically recorded in the documents. The documents and data (e.g. waste data) will be kept for at least one year after the completion of the EM&A works of the decommissioning/ demolition and construction phases.

8.5 Electronic Reporting of EM&A Information

To enable the public inspection of the Monthly EM&A Reports via the EIAO Internet Website and at the EIAO Register Office, electronic copies of monthly EM&A Reports will 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 with EPD and will be submitted at the same time as the hard copies. For the HTML version, a content page capable of providing hyperlink to each section and sub-section of the EM&A Reports will be included in the beginning of the document. Hyperlinks to figures, drawings and tables in the EM&A Reports will be provided in the main text where the respective references are made. Graphics in the reports will be in interlaced GIF format unless otherwise agreed with EPD. The content of the electronic copies of the Monthly EM&A Reports must be the same as the hard copies.

The internet address and the environmental monitoring data will be made available to the public via the EIAO Internet Website and the EIAO Register Office.

APPENDIX A IMPLEMENTATION SCHEDULE OF RECOMMENDED MITIGATION MEASURES

Appendix A - Implementation Schedule of Recommended Mitigation Measures

EIA Reference	EM&A Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Location/ duration of recommended measures & timing of completion of recommended measures	Implementation Agent	Implementation Stage ^(a)			Relevant Legislation & Guidelines
					D	C	O	
Air Quality								
S3.9.1	S2	Impervious sheet will be provided for skip hoist for material transport.	Land site/ during decommissioning/ demolition, and construction (particularly dry season)	Contractor(s)		✓		<i>Air Pollution Control (Construction Dust) Regulation</i>
S3.9.1	S2	The area where dusty work takes place should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after dusty activities as far as practicable.	Land site/ during decommissioning/ demolition, and construction	Contractor(s)		✓		<i>Air Pollution Control (Construction Dust) Regulation</i>
S3.9.1	S2	All dusty materials should be sprayed with water or a dust suppression chemical immediately prior to any loading, unloading or transfer operation.	Land site/ during decommissioning/ demolition, and construction	Contractor(s)		✓		<i>Air Pollution Control (Construction Dust) Regulation</i>
S3.9.1	S2	Dropping heights for excavated materials should be controlled to a practical height to minimise the fugitive dust arising from unloading.	Land site/ during decommissioning/ demolition, and construction	Contractor(s)		✓		<i>Air Pollution Control (Construction Dust) Regulation</i>
S3.9.1	S2	During transportation by truck, materials should not be loaded to a level higher than the side and tail boards, and should be dampened or covered before transport.	Land site/ during decommissioning/ demolition, and construction	Contractor(s)		✓		<i>Air Pollution Control (Construction Dust) Regulation</i>
S3.9.1	S2	Temporary stockpiles of dusty materials will be either covered entirely by impervious sheets or sprayed with water to maintain the entire surface wet all the time.	Land site/ during decommissioning/ demolition, and construction	Contractor(s)		✓		<i>Air Pollution Control (Construction Dust) Regulation</i>

EIA Reference	EM&A Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Location/ duration of recommended measures & timing of completion of recommended measures	Implementation Agent	Implementation Stage ^(a)			Relevant Legislation & Guidelines
					D	C	O	
S3.9.1	S2	Stockpiles of more than 20 bags of cement, dry pulverised fuel ash and dusty construction materials will be covered entirely by impervious sheeting sheltered on top and 3-sides.	Land site/ during decommissioning/ demolition, and construction	Contractor(s)		✓		<i>Air Pollution Control (Construction Dust) Regulation</i>
S3.9.1	S2	All exposed areas will be kept wet always to minimise dust emission.	Land site/ during decommissioning/ demolition, and construction	Contractor(s)		✓		<i>Air Pollution Control (Construction Dust) Regulation</i>
S3.9.1	S2	Ultra-low-sulphur diesel (ULSD) will be used for all construction plant on-site, as defined as diesel fuel containing not more than 0.005% sulphur by weight) as stipulated in <i>Environment, Transport and Works Bureau Technical Circular (ETWB-TC(W)) No 19/2005</i> on Environmental Management on Construction Sites.	Land site/ during decommissioning/ demolition, and construction	Contractor(s)		✓		<i>Environment, Transport and Works Bureau Technical Circular (ETWB-TC(W)) No 19/2005 on Environmental Management on Construction Sites</i>
S3.9.1	S2	The engine of the construction equipment during idling will be switched off.	Land site/ during decommissioning/ demolition, and construction	Contractor(s)		✓		<i>Air Pollution Control (Construction Dust) Regulation</i>
S3.9.1	S2	Regular maintenance of construction equipment deployed on-site will be conducted to prevent black smoke emission.	Land site/ during decommissioning/ demolition, and construction	Contractor(s)		✓		<i>Air Pollution Control (Construction Dust) Regulation</i>
S3.9.1	S2	All marine vessels fuelled in Hong Kong will operate using marine light diesel with sulphur content lower than 0.05%.	Land site/ during decommissioning/ demolition, and construction	Contractor(s)		✓		<i>Air Pollution Control (Marine Light Diesel) Regulation</i>
S3.9.1	S2	NRMMs, e.g. mobile generator and air compressor, will comply with the prescribed emission standards with a proper label approved by EPD.	Land site/ during decommissioning/ demolition, and construction	Contractor(s)		✓		<i>Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation</i>

EIA Reference	EM&A Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Location/ duration of recommended measures & timing of completion of recommended measures	Implementation Agent	Implementation Stage ^(a)			Relevant Legislation & Guidelines
					D	C	O	
S3.9.1	S2	Electric power supply for on-site machinery will be provided as far as practicable for construction activities.	Land site/ during decommissioning/ demolition, and construction	Contractor(s)		✓		-
S3.12.1	S2	To ensure proper implementation of the recommended dust mitigation measures and good construction site practices during the decommissioning/ demolition/ construction phases, environmental site audits on weekly basis is recommended throughout the construction period.	Land site/ during decommissioning/ demolition, and construction	Contractor(s)/ Environmental Team (ET) & Independent Environmental Checker (IEC)		✓		-
Noise								
S4.7.1	S3	Machines and construction plant that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.	Land site/ during decommissioning/ demolition, and construction	Contractor(s)		✓		-
S4.7.1	S3	Only well-maintained construction plant should be operated on-site and should be serviced regularly.	Land site/ during decommissioning/ demolition, and construction	Contractor(s)		✓		-
Water Quality								
S5.5.1	S4	Wastewater, chemical waste and effluent from cleaning of existing OCGTs would be collected, stored for proper disposal by licensed contractor.	Land site/ during decommissioning/ demolition	Contractor(s)		✓		<i>Waste Disposal (Chemical Waste) (General) Regulation</i>
S5.5.2	S4	Silt removal facilities such as silt traps or sedimentation facilities will be provided where necessary to remove silt particles from runoff to meet the requirements of the TM standard under the WPCO. The design of silt removal facilities will be based on the guidelines provided in <i>ProPECC PN 1/94</i> . All drainage	Land site & drainage/ during construction	Contractor(s)		✓		<i>ProPECC PN 1/94, TM Standard under the WPCO</i>

EIA Reference	EM&A Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Location/ duration of recommended measures & timing of completion of recommended measures	Implementation Agent	Implementation Stage ^(a)			Relevant Legislation & Guidelines
					D	C	O	
		facilities and erosion and sediment control structures will be inspected on a regular basis and maintained to confirm proper and efficient operation at all times and particularly during rainstorms. Deposited silt and grit will be removed regularly.						
S5.5.2	S4	Appropriate surface drainage will be designed and provided, where necessary.	Land site & drainage/ during construction	Contractor(s)		✓		-
S5.5.2	S4	The precautions to be taken at any time of year when rainstorms are likely together with the actions to be taken when a rainstorm is imminent or forecasted and actions to be taken during or after rainstorms are summarised in Appendix A2 of <i>ProPECC PN 1/94</i> .	Land site & drainage/ during construction	Contractor(s)		✓		<i>ProPECC PN 1/94</i>
S5.5.2	S4	Oil interceptors will be provided in the drainage system where necessary and regularly emptied to prevent the release of oil and grease into the stormwater drainage system after accidental spillages.	Land site & drainage/ during construction	Contractor(s)		✓		-
S5.5.2	S4	Temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge, if any, will be adequately designed for the controlled release of storm flows.	Land site & drainage/ during construction	Contractor(s)		✓		-
S5.5.2	S4	The temporary diverted drainage, if any, will be reinstated to the original condition when the construction work has finished or when the temporary diversion is no longer required.	Land site & drainage/ during construction	Contractor(s)		✓		-
S5.5.2	S4	Appropriate numbers of portable toilets shall be provided by a licensed contractor where necessary to serve the construction workers	Land site & drainage/ during construction	Contractor(s)		✓		-

EIA Reference	EM&A Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Location/ duration of recommended measures & timing of completion of recommended measures	Implementation Agent	Implementation Stage ^(a)			Relevant Legislation & Guidelines
					D	C	O	
		over the construction site to prevent direct disposal of sewage into the water environment.						
S5.8	S4	To ensure proper implementation of the recommended water quality mitigation measures and good construction site practices during the decommissioning/ demolition, and construction phases, environmental site audits on weekly basis is recommended throughout the construction period.	Land site & drainage/ during construction	Contractor(s)/ Environmental Team (ET) & Independent Environmental Checker (IEC)		✓		-
Waste Management								
S6.5.1	S5	The contractor(s) must ensure that all the necessary waste disposal licences are obtained prior to the commencement of the decommissioning/demolition and construction works.	Contract mobilisation/ during decommissioning/demolition, and construction	Contractor(s)		✓		-
S6.5.1	S5	The contractor will open a billing account with EPD in accordance with the <i>Waste Disposal (Charges for Disposal of Construction Waste) Regulation</i> for the payment of disposal charges.	Contract mobilisation/ during decommissioning/demolition, and construction	Contractor(s)		✓		<i>Cap 354N Waste Disposal (Charges for Disposal of Construction Waste) Regulation</i>
S6.5.1	S5	A trip-ticket system will be established in accordance with <i>DEVB TC(W) No. 6/2010</i> to monitor the reuse of surplus excavated materials off-site and disposal of construction waste and general refuse at transfer facilities/ landfills, and to control fly-tipping.	Contract mobilisation/ during decommissioning/demolition, and construction	Contractor(s)		✓		<i>DEVB TC(W) No. 6/2010, Trip Ticket System for Disposal of Construction & Demolition Materials</i>
S6.5.1	S5	A WMP as stated in the <i>PNAP ADV-19</i> for the amount of waste generated, recycled and disposed of (including the disposal sites) will	All area/ during decommissioning/demolition, and construction	Contractor(s)		✓		<i>PNAP ADV-19</i>

EIA Reference	EM&A Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Location/ duration of recommended measures & timing of completion of recommended measures	Implementation Agent	Implementation Stage ^(a)			Relevant Legislation & Guidelines
					D	C	O	
		be established and implemented during the construction phase as part of the Environmental Management Plan (EMP). The Contractor will be required to prepare the EMP and submits it to the Architect/ Engineer under the Contract for approval prior to implementation.						
S6.5.1	S5	C&D materials will be segregated on-site into public fill and construction waste and stored in different containers or skips to facilitate reuse of the public fill and proper disposal of the construction waste. Specific areas of the Site will be designated for such segregation and storage if immediate use is not practicable. Prefabrication will be adopted as far as practicable to reduce the construction waste arisings.	Contract mobilisation/ during decommissioning/demolition, and construction	Contractor(s)		✓		-
S6.5.1, 6.5.2	S5	The contractor(s) will register as a chemical waste producer with the EPD. Chemical waste will be handled in accordance with the <i>Code of Practice on the Packaging, Handling and Storage of Chemical Wastes</i> .	All area/ during decommissioning/demolition, construction and operation	HK Electric/ Contractor(s)		✓	✓	<i>Waste Disposal (Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Handling and Storage of Chemical Wastes</i>
S6.5.1	S5	Containers used for storage of chemical wastes will: <ul style="list-style-type: none"> ▪ Be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; 	All area/ during decommissioning/demolition, construction and operation	HK Electric/ Contractor(s)		✓	✓	<i>Waste Disposal (Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Handling and</i>

EIA Reference	EM&A Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Location/ duration of recommended measures & timing of completion of recommended measures	Implementation Agent	Implementation Stage ^(a)			Relevant Legislation & Guidelines
					D	C	O	
		<ul style="list-style-type: none"> Have a capacity of less than 450 L unless the specifications have been approved by the EPD; and Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulations. 						<i>Storage of Chemical Wastes</i>
S6.5.1	S5	<p>The storage area for chemical wastes will:</p> <ul style="list-style-type: none"> Be clearly labelled and used solely for the storage of chemical waste; Be enclosed on at least 3 sides; Have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest; Have adequate ventilation; Be covered to prevent rainfall entering (water collected within the bund must be tested and disposed of as chemical waste, if necessary); and Be arranged so that incompatible materials are appropriately separated. 	All area/ during decommissioning/demolition, construction and operation	HK Electric/ Contractor(s)		✓	✓	<i>Waste Disposal (Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Handling and Storage of Chemical Wastes</i>
S6.5.1	S5	<p>Chemical waste will be disposed of:</p> <ul style="list-style-type: none"> Via a licensed chemical waste collector; and To a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Facility which also offers a chemical waste collection service and can supply the necessary storage containers. 	All area/ during decommissioning/demolition, construction and operation	HK Electric/ Contractor(s)		✓	□	<i>Waste Disposal (Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Handling and Storage of Chemical Wastes</i>

EIA Reference	EM&A Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Location/ duration of recommended measures & timing of completion of recommended measures	Implementation Agent	Implementation Stage ^(a)			Relevant Legislation & Guidelines
					D	C	O	
S6.5.1	S5	General refuse will be stored in enclosed bins separately from construction and chemical wastes. The general refuse will be delivered separately from construction and chemical wastes for offsite disposal on a daily basis to reduce odour, pest and litter impacts.	All area/ during decommissioning/demolition and construction	HK Electric/ Contractor(s)		✓		-
S6.5.1	S5	Recycling bins will be provided at strategic locations within the Project Site to facilitate recovery of recyclable materials (including aluminium cans, waste papers, glass bottles and plastic bottles, etc.). Materials recovered will be sold for recycling.	All area/ during decommissioning/demolition, and construction	HK Electric/ Contractor(s)		✓		-
S6.5.1	S5	To avoid any odour and litter impact, appropriate number of portable toilets will be provided for workers on-site where appropriate.	All area/ during decommissioning/demolition, and construction	HK Electric/ Contractor(s)		✓		-
S6.5.1	S5	At the commencement of the decommissioning/demolition and construction works, training will be provided to workers on the concepts of site cleanliness and on appropriate waste management procedures, including waste reduction, reuse and recycling.	During decommissioning/ demolition, and construction	Contractor(s)		✓		-
S6.5.2	S5	General refuse and non-recyclables will be stored in enclosed bins and collected by existing waste management contractor at LPS for disposal at the landfills on a daily basis for avoidance of pest and odour nuisance.	All area/ during operation	HK Electric/ Contractor(s)			✓	-
S6.5.2	S5	Recycling bins for recyclable materials (including aluminium cans, waste papers,	Site office/ during operation	HK Electric/ Contractor(s)			✓	-

EIA Reference	EM&A Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Location/ duration of recommended measures & timing of completion of recommended measures	Implementation Agent	Implementation Stage ^(a)			Relevant Legislation & Guidelines
					D	C	O	
		glass bottles and plastic bottles) will be placed at the site office and transported off-site for recycling on a regular basis.						
S6.7.1	S5	It is recommended that weekly audits of the waste management practices be carried out during the decommissioning/demolition, and construction phases to determine if wastes are being managed in accordance with the recommended good site practices and WMP. The audits will investigate all aspects of waste management including waste generation, storage, handling, recycling, transportation and disposal.	All area/ during decommissioning, demolition and construction	Contractor(s)/ Environmental Team (ET) & Independent Environmental Checker (IEC)		✓		-
Land Contamination								
S7.7, S6.1 of Appendix 7A	S6	During the demolition stage, a Land Contamination Specialist shall oversee the removal / demolition activities and record any new visual signs of potential contamination such as oil leakage or oil stains. The Land Contamination Specialist shall also review the need of additional sampling to capture potential contamination observed during the demolition stage.	Land site/ during demolition	Land Contamination Specialist		✓		-
S7.7	S6	SI and sampling shall be carried out when the proposed sampling locations are available after the demolition stage.	Land site/ prior to construction	Contractor(s)		✓		-
S6.2 of Appendix 7A	S6	Soil and groundwater sampling works will be supervised by a Land Contamination Specialist.	Land site/ prior to construction	Land Contamination Specialist		✓		-
S7.9.1	S6	Prior to commencement of demolition works in the Project site, the leftover diesel or other	Land site/ prior to demolition	HK Electric/ Contractor(s)		✓		<i>Waste Disposal (Chemical Waste)</i>

EIA Reference	EM&A Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Location/ duration of recommended measures & timing of completion of recommended measures	Implementation Agent	Implementation Stage ^(a)			Relevant Legislation & Guidelines
					D	C	O	
		<p>petroleum products in the equipment to be demolished shall be removed as much as possible. The removed diesel or other petroleum products will be reused as far as practicable. The removed diesel and other petroleum products, which cannot be reused are considered as chemical waste and are controlled under the <i>Waste Disposal (Chemical Waste)(General) Regulation</i>. The demolition contractor who will generate the chemical waste or cause it to be produced should register with the EPD as a chemical waste producer. Removed diesel and petroleum products shall be labelled and stored in accordance with the requirement stipulated in the <i>Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes</i> issued by EPD. The removed petrol and petroleum products are required to be collected by licensed chemical waste collector for disposal. Trip tickets system shall be implemented during the collection and disposal of removed petrol and diesel.</p>						<i>(General) Regulation; Code of Practice on the Packaging, Handling and Storage of Chemical Wastes</i>
S7.9.2	S6	<p>During demolition and construction phases, the following good housekeeping practices shall be implemented to ensure that risk of ground contamination as a result of oil spills or leaks is kept to a practical minimum:</p> <ul style="list-style-type: none"> ▪ Regular visual inspections to detect any early signs of fuel leakage prior to demolition; 	All area/ during demolition and construction	Contractor(s)		✓		-

EIA Reference	EM&A Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Location/ duration of recommended measures & timing of completion of recommended measures	Implementation Agent	Implementation Stage ^(a)			Relevant Legislation & Guidelines
					D	C	O	
		<ul style="list-style-type: none"> ▪ Provision of impermeable lining or absorbent materials to contain leaks; ▪ Provision of secondary containment for the temporary storage of removed diesel or petroleum products, demolished structures and pipes; and ▪ Provision of spill control materials and equipment 						
S7.10	S6	To ensure proper implementation of the good housekeeping practices, weekly site inspections should be carried out during the decommissioning/demolition, and construction phases of the Project.	All area/ during decommissioning/demolition, and construction	Contractor(s))/ Environmental Team (ET) & Independent Environmental Checker (IEC)		✓		-

(a) D: Design, C: Decommissioning/demolition/construction, O: Operation