Issue No. : Issue 1
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ECOPARK OPERATION

ANNUAL ENVIRONMENTAL MONITORING & AUDIT REPORT 2017

Prepared By:

ALLIED ENVIRONMENTAL CONSULTANTS LTD.

COMMERCIAL-IN-CONFIDENCE

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Table of Contents

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

EXECUTIVE SUMMARY

General

EcoPark is a key element in the Government's waste management policy that aims at promoting the local recycling industry by providing long-term land at affordable rents, thereby encouraging investment in advanced technology and value-added recycling processes. EcoPark is being developed in two phases in Tuen Mun Area 38 as shown in ***Figure 1.1***. The contract for the management of EcoPark – Contract No. *EP/SP/71/13 Provision of Management Services for EcoPark 2014* was awarded to Urban Property Management Limited (UPML) by Environmental Protection Department (EPD) effective from 30th October 2014.

UPML, the "Operator" of EcoPark, appointed Allied Environmental Consultants Ltd. (AEC) as the Environmental Team (ET) to carry out the Environmental Monitoring and Audit (EM&A) works for the operation of EcoPark as required by the EM&A Manual and in accordance with the conditions of the Environmental Permit (EP) (EP-226/2005/E).

This is the eleventh (11th) annual EM&A report prepared for the operation phase of EcoPark and covers the calendar year of 2017.

In 2017, there were thirteen tenants in EcoPark Phase 1 and Phase 2, and one operator of WEEE Refurbishment Centre and WEEE.PRAK in EcoPark Phase 2. Nine tenants, namely Champway, Shiu Wing, Hung Wai/China Commercial Logistics, Li Tong, Telford, South China, Chung Yue, K.Wah and On Fat Lung, have commenced full recycling activities within their lots. Waste Management Policy Group (WMG) of EPD has taken possession of Lot Nos. P2, P3, P4 and P5 and handed over to Alba Integrated Waste Solutions (Hong Kong) Ltd. (Alba IWS) to carry out operation of WEEE.PARK (at Lots Nos. P2, P3, P4) and WEEE Refurbishment Centre (at Lot P5). Tenancy of Hung Wai was expired on 13th May 2017 and the corresponding lot was taken up by China Commercial Logistics on 14th May 2017 for continuation of wood recycling without introduction of new process. One tenant (E.Tech) carried out machinery testing or installation. One tenant (SSK) carried out plant design and construction works. Two tenants' tenancies (Yan Oi Tong and Cheong Hing) were expired on 3rd January 2017 and terminated on 22nd August 2017 respectively.

Throughout the reporting year, monthly site inspections and monthly random site inspections were conducted by the ET and the IEC respectively, while quarterly joint site inspection was carried out by the Operator, the IEC and the ET. Observations and recommendations were made during site inspections.

Throughput of Materials / Waste Generated

The throughputs of WEEE Refurbishment Centre, WEEE.PARK and the nine active tenants in the reporting year are summarised below. Please note that product output plus waste disposal does not necessarily equal the waste input, due to material losses during processing and material retained within the lots.

Material Type	Waste Input (tonnes)	Product Output [4] (tonnes)	Waste Disposed [4] (tonnes)
Waste Organic Food	11,208	6,038	5,366
Waste Ferrous Metals	153,617	150,663	871
Waste Wood	546	510	-
Waste Electronics	1,520	1,046	86
Waste Plastics	1,245	1,004	-
Construction Waste	8,012	85,519	672
Waste Glass	1,571		
Waste Rubber Tyres	n/a	n/a	n/a

Notes:

1) The throughput data presented above is the best available data and has been rounded off to the nearest whole tonne for presentation. Unavailable data will be reported in the next EM&A report.
2) The total product output may not be the same as the waste input due to processing of materials that were received before the reporting year and were stored within the lots.
3) Waste disposal refers to the disposal of general refuse (i.e. packaging) and/or chemical waste.
4) Since the recycling of waste glass and construction waste is combined to produce concrete block at K.Wah, the product output and waste disposal from both processes are combined.

Exceedances of Any Measured Action / Limit Levels

The northern part of EcoPark is located within the 250m Landfill Gas (LFG) Consultation Zone of Siu Lang Shui Landfill. LFG monitoring was carried out quarterly at five locations (three in Phase 1 and two in Phase 2) in the reporting year. The LFG monitoring in Phase 2 (EP2-1 and EP2-2) was commenced in January 2011.

In the reporting year, LFG monitoring was undertaken on 15th March, 19th June, 18th September and 22nd December 2017. Exceedances of Action and Limit Level were recorded and are summarised in the table below.

Date	Station ID	Parameter	Recorded Level	Action Level	Limit Level	Status
19th June 2017	EP2-2	Oxygen (% v/v)	16.1	< 19%	< 18%	Exceedance of Limit Level
18th September 2017	EP2-2	Oxygen (% v/v)	18.6	< 19%	< 18%	Exceedance of Action Level
		Carbon Dioxide (% v/v)	0.9	> 0.5%	> 1.5%	Exceedance of Action Level
22nd December 2017	EP1-1	Carbon Dioxide (% v/v)	0.7	> 0.5%	> 1.5%	Exceedance of Action Level

Ventilation enhancement was carried out in accordance with the Event Action Plan for LFG specified in Table 6.1 of the EM&A Manual to restore the concentrations of O_2 to non-exceedance level. No apparent source of oxygen (O_2) depletion and carbon dioxide (CO_2) generation was identified inside the underground chamber during investigation. The exceedances were believed to be triggered by the invasion of organic matter into underground chamber/utility pipes/vent pipe and the subsequent decomposition inside the chambers and pipes. There was no indication of the migration of LFG from Siu Lang Shui Landfill. As confirmed by the Operator, no underground work was being carried out within EcoPark on the measurement dates. Based on the above findings, the exceedances should not impose any adverse impact on staffs/workers/environment in EcoPark.

In view of the exceedances of Oxygen (O_2) and Carbon Dioxide (CO_2) recorded at EP2-2 in June and September 2017, the operator had carried out cleaning of the underground chambers and utility pipes on 26th June 2017, 31st August 2017 and 29th September 2017. The concentrations of carbon dioxide and oxygen at EP2-2 then returned to a non-exceedance level during the monitoring on 22nd December 2017. Regarding the exceedances of Carbon Dioxide (CO_2) recorded at EP1-1 in December 2017, the Operator was also suggested to regularly inspect the vent pipe in order to ensure the vent pipe is clean and free from unwanted organic matter.

Summary of Complaints, Summons and Prosecutions

For the complaint on the wastewater treatment and odour nuisance at South China's Lot referred to the ET, IEC and the Project Proponent on 3rd November 2016, flow meters had been gradually installed by the tenant at various points of the wastewater collection and treatment system since April 2017 to monitor the quantity of wastewater generated from different areas. Prior to the proper functioning of the wastewater treatment plant (WTP) on 3/F of the premise, the wastewater was collected and transported to designated treatment facility by a licenced collector as a temporary measure. The tenant proposed to upgrade the WTP by introducing additional treatment processes. The proposal is being updated by the tenant and would be submitted for further review. The case will be followed up in the next quarterly and annual report to ensure the wastewater treatment system will function properly for handling of the wastewater.

One complaint was received from 1823 hotline on 20th February 2017 regarding a suspected strong malodour from EcoPark in the morning of the same day. Due to restricted access in EcoPark, the complainant did not provide the source of the malodour and could not identify the nature of the malodour. The complaint was referred to the ET and the Operator by the Project Proponent, and to the IEC by the ET on the same day. A site investigation was conducted by representatives from the ET and the Operator to search for the suspected malodour and identify the source of malodour generation on 21st February 2017. Although the suspected malodour was unlikely to be generated from EcoPark and no action was needed to be taken, implementation of good practices for odour control was suggested to be continued.

No environmental summon or successful prosecution was recorded in the reporting year.

Reporting Changes

There is no reporting change in the reporting year.

Future Key Issues

No key issues are anticipated in the next reporting year.

Conclusions of Annual Review

In terms of interpretation of EM&A data, the outcome of quarterly monitoring is considered as sufficient and effective according to *Section 8.7.11* of the EIA Report and *Section 6.4.4* of the EM&A Manual.

In terms of the environmental acceptability of EcoPark, no critical environmental deficiencies were identified at various tenants' lots in EcoPark in the reporting year. Therefore, the operation of EcoPark in environmental terms is considered as acceptable in general.

In terms of the practicality and effectiveness of the EIA process and the EM&A programme, the mitigation measures proposed in the EIA Study are effective and efficient. The use of the Process Review mechanism to assess incoming processes, processes not assessed in the EIA, or processes with greater throughputs than EIA assumption, is considered to work well and is fully in accordance with the EP conditions, the recommendations of EIA and the requirements of the EM&A programme.

1 PROJECT BACKGROUND

1.1 Project Overview

1.1.1 In the document "A Policy Framework for the Management of Municipal Solid Waste (2005 –2014)", the government set out a comprehensive policy to support the recycling industry. This included allocating suitable land, encouraging research and development, introducing environmental legislation and providing effective support measures. In May 2013, the Environment Bureau launched "Hong Kong Blueprint for Sustainable Use of Resources 2013 – 2022", which promised continuing support for the recycling industry.

1.1.2 EcoPark was developed to support the local recycling industry by providing long-term land at affordable rents, thereby encouraging investment in advanced technology and value-added recycling processes.

1.1.3 EcoPark, as shown in ***Figure 1.1***, has been developed in Tuen Mun Area 38 in two phases (Phase1 and Phase 2) under Contract *EP/SP/52/06 Development of EcoPark in Tuen Mun Area 38*, which was awarded to Kaden Construction Ltd by the Environmental Protection Department (EPD) in June 2006. Phase 1 construction was completed in July 2009 and Phase 2 construction was completed in November 2010.

1.1.4 The contract for the management of EcoPark – Contract No. *EP/SP/71/13 Provision of Management Services for EcoPark 2014* was awarded to Urban Property Management Limited (UPML) by Environmental Protection Department (EPD) effective from 30th October 2014.

1.1.5 UPML, the "Operator" of EcoPark, has appointed Allied Environmental Consultants Ltd. (AEC) as the Environmental Team (ET) to carry out the Environmental Monitoring and Audit (EM&A) works for the operation of EcoPark as required by the EM&A Manual and in accordance with the conditions of the Environmental Permit. Mott MacDonald Hong Kong Limited (MottMac) has been appointed by the EPD as the Independent Environmental Checker (IEC) for the Project. The ET and the IEC carry out the EM&A works for EcoPark as required by the EM&A Manual and in accordance with the conditions of the Environmental Permit (EP).

1.2 Operation Programme

1.2.1 By the end of the reporting year, there were one operator of WEEE Refurbishment Centre and WEEE.PARK and thirteen tenants in EcoPark comprising:

- Waste Management Policy Group (WMG) of EPD has taken possession of Lot Nos. P2, P3, P4 and P5 and handed over to Alba Integrated Waste Solutions (Hong Kong) Ltd. (Alba IWS) to carry out operation of WEEE.PARK (at Lots Nos. P2, P3, P4) and WEEE Refurbishment Centre (at Lot P5);
- Nine active tenants (Champway, Shiu Wing, Hung Wai/China Commercial Logistics, Li Tong, Telford, Chung Yue, K.Wah, South China and On Fat Lung) who have carried out full recycling operations;

- Tenancy of Hung Wai was expired on 13th May 2017 and the corresponding lot was taken up by China Commercial Logistics on 14th May 2017 for continuation of wood recycling without introduction of new process.
- One tenant (E.Tech) carried out machinery testing or installation;
- One tenant (SSK) who is carrying out plant construction;
- Two tenants (Yan Oi Tong and Cheong Hing) whose tenancies were expired on 3rd January 2017 and terminated on 22nd August 2017 respectively.

1.3 Project Organization and Contact Personnel

1.3.1 Key personnel and contact particulars are summarised in ***Table 1.1***.

Table 1.1 EM&A Personnel Contact Details

Position	Name	Email Address	Phone No.
Project Proponent – EPD			
Principal EPO	Mr. Andy S.W. CHAN	andychan@epd.gov.hk	2872 1720
Operator – UPML			
Project Manager	Ms. Raindy YIP	raindy.py.yip@urban.com.hk	2212 5900
Park Manager	Ms. May WU	may.sm.wu@urban.com.hk	2212 5920
IEC – Mott MacDonald			
IEC	Ir. Eric CHING	eric.ching@mottmac.com	2828 5757
ET – AEC			
ET Leader	Ms. Grace KWOK	gk@aechk.com	2815 7028

1.3.2 The organisational structure and lines of communication for the operation of EcoPark with respect to environmental management is given in ***Figure 1.2*** and ***Figure 1.3*** respectively.

Figure 1.1 Location of EcoPark in Tuen Mun Area 38

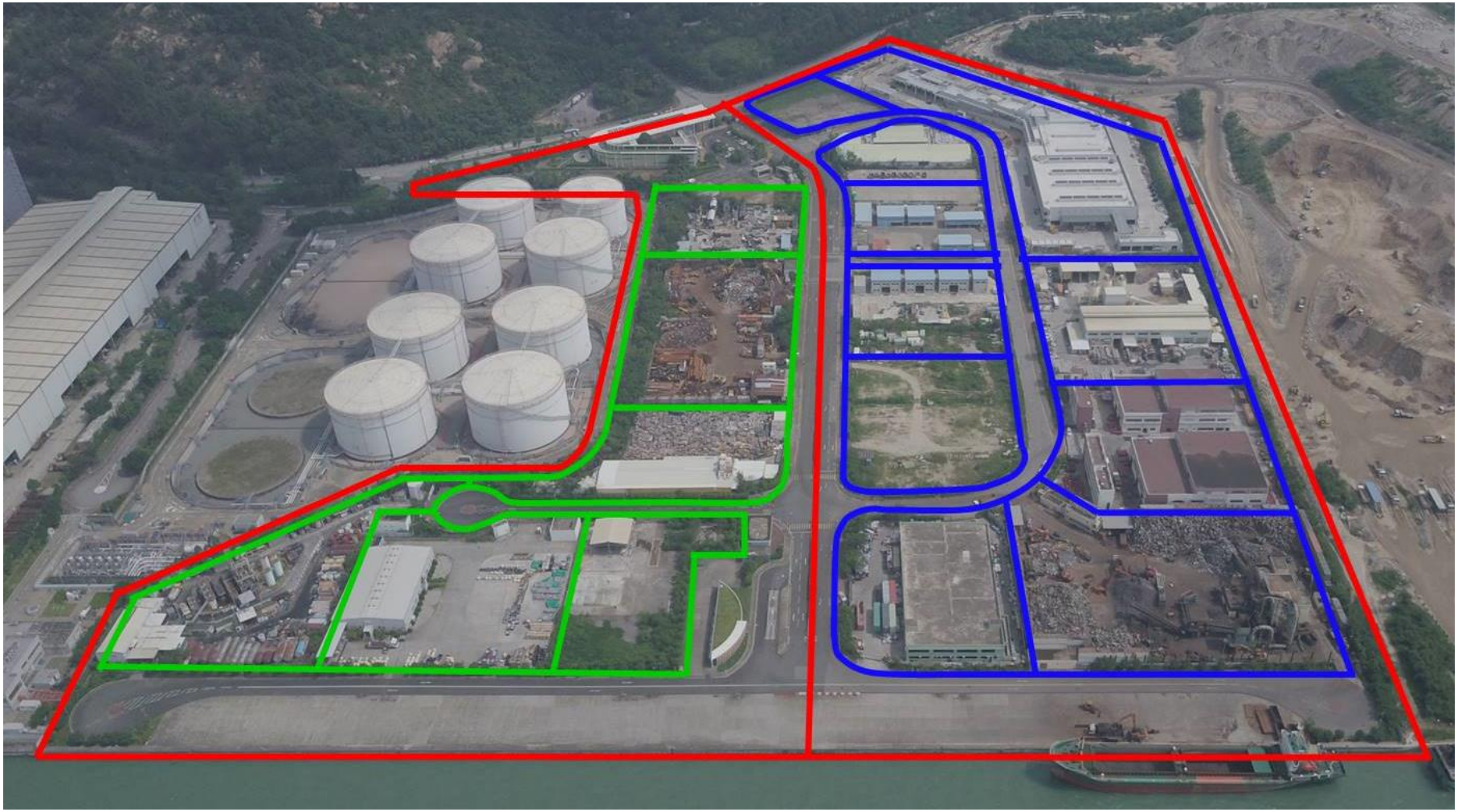


Figure 1.2 Organization Chart of UPML

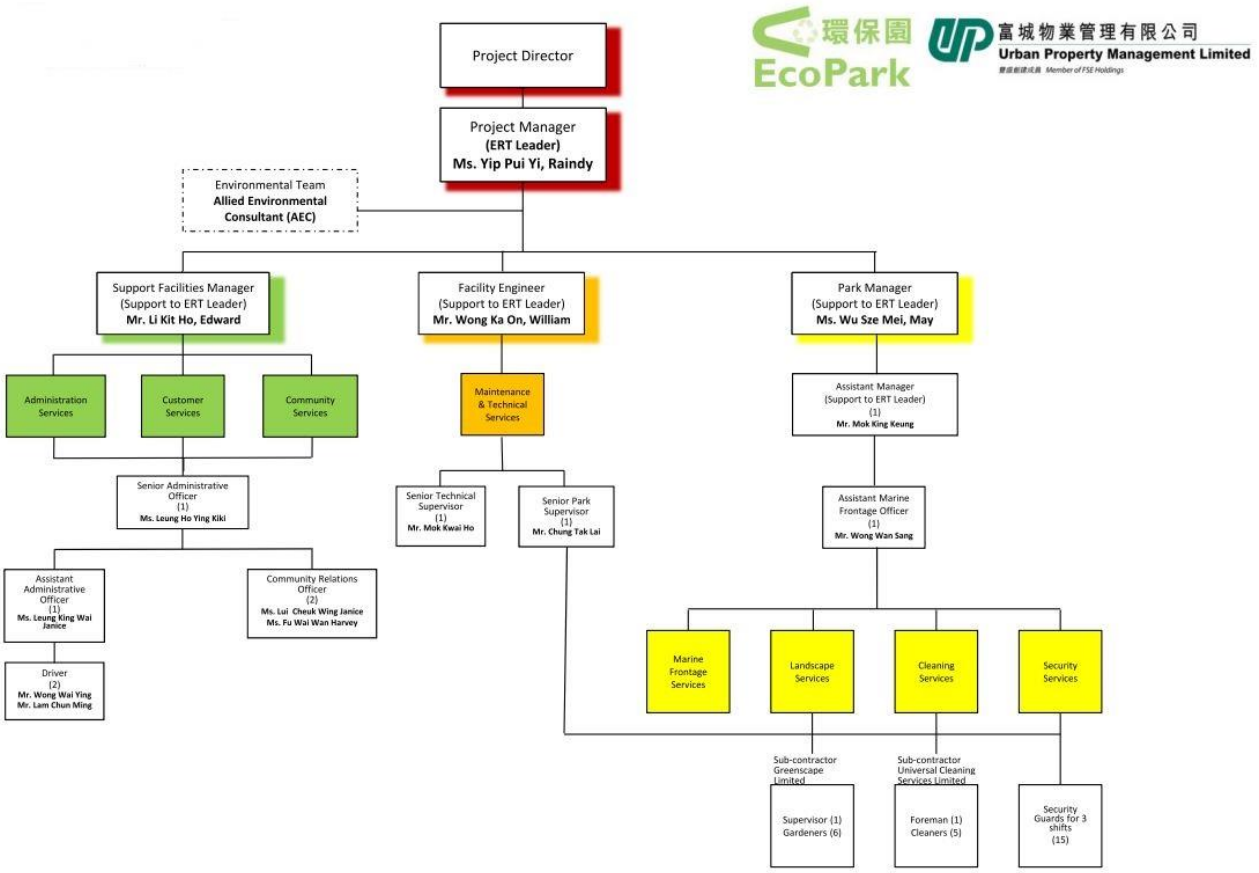
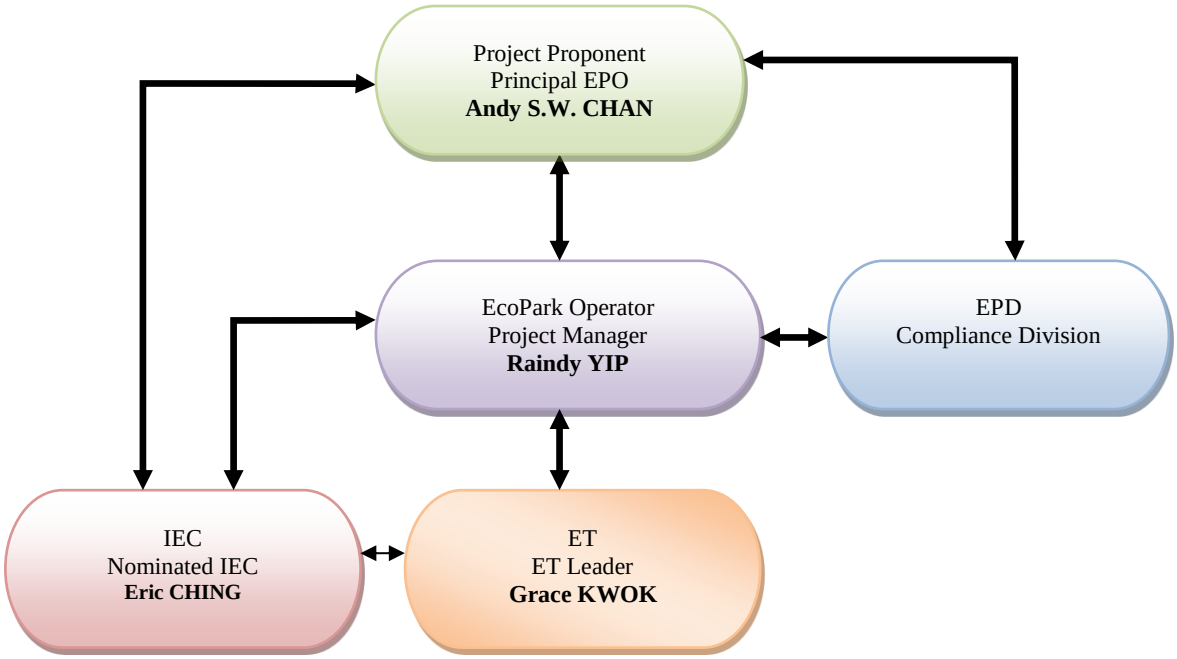


Figure 1.3 Organization Chart of EM&A Works (Operation)



2 SUMMARY OF EM&A REQUIREMENT

2.1 Monitoring Parameters

2.1.1 Landfill Gas (LFG) is required to be monitored quarterly at service voids and utility boxes within EcoPark because the northern part of EcoPark lies within the 250m LFG Consultation Zone for Siu Lang Shui Landfill, which is located to the north of EcoPark.

2.1.2 Operational LFG monitoring has been carried out in Phase 1 after completion of construction in July 2009, commencing in the August to October 2009 quarter. In Phase 2, monitoring has been carried out after completion of construction in November 2010, commencing in the November 2010 to January 2011 quarter.

2.1.3 The location for LFG monitoring was not specified in the EM&A Manual since the final design of EcoPark was not available when the EM&A Manual was approved. Therefore, during a joint site inspection on 27th July 2009, three monitoring locations were identified and agreed as suitable monitoring locations by the former ET (SMEC Asia Ltd.), IEC (Atkins China Ltd.) and the Operator (Serco Guardian Joint Venture). Subsequently, two more monitoring locations in Phase 2 were proposed by the former ET Leader and agreed by the IEC and Operator via email in January 2011. These five monitoring locations are listed in ***Table 2.1*** and shown in ***Figure 2.1***.

Table 2.1 Operation Phase LFG Monitoring Locations in EcoPark

Monitoring Station ID	Type	Locations
EP1-1	LFG vent pipe	Inside the landscaping area of Administration Building
EP1-2	Service void	PCCW below-ground chamber outside Lot T1
EP1-3	Service void	HGC Broadband below-ground chamber outside Lot T2 & T3
EP2-1	Service void	HGC Broadband below-ground chamber outside Lot P1
EP2-2	Service void	HGC Broadband below-ground chamber outside Lot P3

2.1.4 Routine LFG monitoring has been carried out on a quarterly basis. Should EPD alert the Operator that high LFG levels have been detected during monthly monitoring under the Siu Lang Shui Landfill restoration contract, the Operator may be required to increase LFG monitoring to monthly until such time as EPD inform the Operator that quarterly monitoring can be resumed. To-date, no detection of high LFG levels under Siu Lang Shui Landfill restoration contract was received from EPD.

2.2 Environmental Quality Performance Limits and EAP

2.2.1 The Action/Limit Levels and Event Action Plan (EAP) for LFG are shown in ***Table 2.2*** below. These refer to LFG detected in excavations, utilities and any enclosed on-site areas. No other A/L Levels or EAPs are specified in the EM&A Manual for the operation phase EM&A.

Table 2.2 Action Levels, Limit Levels and Event and Action Plan for LFG

Parameter	Level	Action
Oxygen (O_2)	Action Level <19% O_2	• Ventilate trench/void to restore O_2 to >19%
	Limit Level <18% O_2	• Stop works • Evacuate personnel/prohibit entry • Increase ventilation to restore O_2 to >19%
Methane (CH_4)	Action Level >10% LEL	• Post "No Smoking" signs • Prohibit hot works • Increase ventilation to restore CH_4 to <10% LEL
	Limit Level >20% LEL	• Stop works • Evacuate personnel/prohibit entry • Increase ventilation to restore CH_4 to <10% LEL
Carbon Dioxide (CO_2)	Action Level >0.5% CO_2	• Ventilate to restore CO_2 to <0.5%
	Limit Level >1.5% CO_2	• Stop works • Evacuate personnel/prohibit entry • Increase ventilation to restore CO_2 to <0.5%

2.3 Environmental Audit of Non-Monitored Parameters

2.3.1 Site inspections provide a direct means to trigger and enforce the environmental protection and pollution control measures specified in the Environmental Impact Assessment (EIA) Report. To examine operational practice, site inspections are to be undertaken by the ET once per month. The monthly inspection shall join with the random site inspection by the IEC where possible. A joint inspection by ET and IEC will be carried out at least once per quarter. Ad hoc site inspections are also carried out if significant environmental problems are identified. In addition, inspections may be required subsequent to receipt of environmental complaint, or as part of the investigation work, as specified in the EAP.

2.3.2 The following parameters are required to be audited as part of the operation phase EM&A program:

- Air Quality
- Water Quality
- Waste Management
- Land Contamination

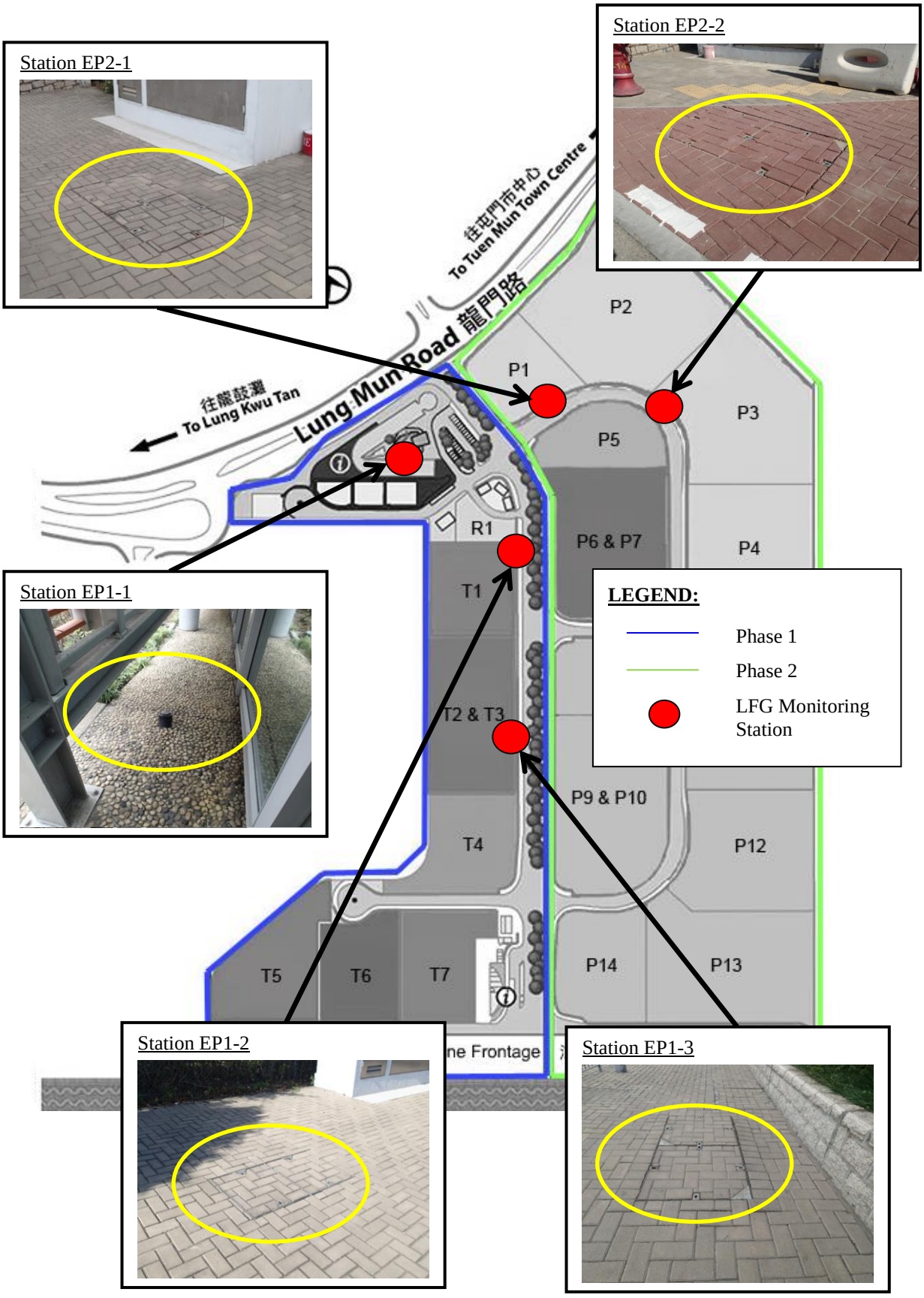
2.4 Environmental Mitigation Measures

2.4.1 Environmental mitigation measures applicable to the operation phase EM&A as stated in the Implementation Schedule are summarised in ***Appendix 1.***

2.5 Environmental Requirements in Tenancy Agreements

2.5.1 Environmental requirements specified in tenancy agreements are provided in ***Appendix 2.***

Figure 2.1 LFG Monitoring Locations within EcoPark



3 OPERATION STATUS

3.1 General

3.1.1 The location of lots within EcoPark, the tenancy numbers and tenant names are shown in ***Figure 3.1.*** A summary of waste throughputs is provided in *Section 3.14.* Brief descriptions of the active tenants are provided from *Section 3.2* to *3.13*.

3.1.2 In the reporting year:

- E.Tech carried out machinery testing or installation;
- Tenancy of Yan Oi Tong expired on 3rd January 2017;
- Tenancy of Hung Wai expired on 13th May 2017;
- The lot of Hung Wai (i.e. Lot T4) was taken up by China Commercial Logistics on 14th May 2017 and commenced operation on 1st August 2017;
- Tenancy of Cheong Hing terminated on 22nd August 2017;
- WEEE.PARK and On Fat Lung commenced operation; and
- SSK carried out plant design and construction.

3.2 Champway Technology Limited

- **Lot No.:** T5 (Phase 1)
- **Lot Size:** Approx. 6,000m^2
- **Activity:** Recycling of Organic Waste (Waste Cooking Oil)
- **Recycling Process:** Turn waste cooking oil into biodiesel by extraction, neutralisation, separation and distillation

3.2.1 Recycling of waste cooking oil was carried out in the reporting year. Also, the tenant adopted "tankered away" approach for handling of industrial effluent arising from biodiesel production instead of discharging into foul sewer.

3.3 Shiu Wing Steel Limited

- **Lot No.:** T2, T3 (Phase 1)
- **Lot Size:** Approx. 9,500m^2
- **Activity:** Recycling of Waste Metals
- **Recycling Process:** Turn waste metals into light ferrous scrap and heavy ferrous scrap by sorting, baling and shearing

3.3.1 Recycling of waste metal was carried out in the reporting year.

3.4 Hong Kong Hung Wai Wooden Board Company/ China Commercial Logistics Company Ltd.

- **Lot No.:** T4 (Phase 1)
- **Lot Size:** Approx. 5,000m^2
- **Activity:** Recycling of Waste Wood
- **Recycling Process:** Recycle waste wood to wood fuel pellets. Ferrous metals will be separated by magnets.

3.4.1 Tenancy of Lot P5 to Hung Wai has expired on 13th May 2017. The lot was taken up by China Commercial Logistics on 14th May 2017 and commenced operation on 1st August 2017 for carrying out recycling of waste wood, which was confirmed to be a continuation of the recycling processes carried out by Hung Wai and no new process is introduced. Recycling of waste wood was carried out in the reporting year except during the period between May and July 2017, while China Commercial Logistics conducted machinery testing and trail run. China Commercial Logistics Company Ltd. has changed her name as Hong Kong Biomass (Wood) Collect and Recycle Company Ltd. with effect on 20th December 2017.

3.5 Li Tong Group

- **Lot No. :** T6 (Phase 1)
- **Lot Size:** Approx. 6,500m^2
- **Activity:** Recycling of WEEE
- **Recycling Process:** Manually dismantling of WEEE into metals (ferrous materials, aluminium, etc.) and non-metals (fibres, plastics, etc.). Manually dismantling of Cathode Ray Tube (CRT) glass and Liquid Crystal Display (LCD) panels would be carried out upon request.

3.5.1 Recycling of WEEE was carried out in the reporting year.

3.6 Hong Kong Telford Envirotech Group Limited

- **Lot No. :** T1 (Phase 1)
- **Lot Size:** Approx. 5,000m^2
- **Activity:** Recycling of Waste Plastics
- **Recycling Process:** Sorting, shredding and baling of waste plastics

3.6.1 Recycling of waste plastic was carried out in the reporting year.

3.7 Yan Oi Tong EcoPark Plastic Resources Recycling Centre

- **Lot No. :** P6 & P7 (Phase 2)
- **Lot Size:** Approx.9,000 m^2

- **Activity:** Recycling of waste plastics
- **Recycling Process:** Convert mixed waste plastics into pellets/flake/baled materials by pre-washing/sterilization, sorting, flaking, washing, drying, extrusion and chipping.

3.7.1 There was no recycling activity in the reporting year as the tenancy expired on 3rd January 2017.

3.8 WEEE Refurbishment Centre at Lot P5

- **Lot No.:** P5 (Phase 2)
- **Lot Size:** Approx. 5,000 m^2
- **Activity:** Recycling of WEEE
- **Recycling Process:** WEEE will be sorted on site first. WEEE suitable for reuse will be repaired and refurbished, whilst those irreparable / not suitable for repair will be collected by local contractors designated by WMG.

3.8.1 WEEE was recycled in the reporting year.

3.9 Chung Yue Steel Group Company Limited

- **Lot No.:** P13 (Phase 2)
- **Lot Size:** Approx. 100,000 m^2
- **Activity:** Recycling of Waste Metals
- **Recycling Process:** Turn waste metals into non-ferrous scrap, light ferrous scrap and heavy ferrous scrap by sorting, baling and shearing.

3.9.1 Waste metal recycling was carried out in the reporting year.

3.10 K.Wah Construction Products Ltd.

- **Lot No.:** P11 (Phase 2)
- **Lot Size:** Approx. 10,000 m^2
- **Activity:** Recycling of Waste Construction Materials/Waste Glass
- **Recycling Process:** Waste construction materials and waste glass will be crushed and delivered to the concrete mixing plant for blending and poured into block machine for casting. The blocks will then be cured, washed and packaged.

3.10.1 Recycling of waste glass and construction materials were carried out in the reporting year.

3.11 South China Reborn Resources (Zhongshan) Company Ltd.

- **Lot No.:** P12 (Phase 2)

- **Lot Size:** Approx. 9,000 m^2
- **Activity:** Recycling of Organic Waste (Food Waste)
- **Recycling Process:** Food waste will be segregated. The recyclable portion will undergo deodorisation, dewatering, shredding, fermentation and drying to produce high protein animal feed for livestock farming and aquaculture.

3.11.1 Recycling of food waste was carried out in this reporting year. Also, the tenant adopted "tankered away" approach for handling of industrial effluent arising from the recycling of food waste instead of discharging into foul sewer.

3.12 WEEE.PARK

- **Lot No.:** P2, P3, P4 (Phase 2)
- **Lot Size:** Approx. 30,000 m^2
- **Activity:** Recycling of WEEE
- **Recycling Process:** Four major types of WEEE (i.e. refrigerator and freezers, air conditioners, e-scrap, TV and computer screens) will be recycled. The recycling processes include separation of insulation/backlighting/plastic/various metals, recovery of screen/monitor stand/refrigerant/oil/hazardous materials, and shredding of casing.

3.12.1 The operation commenced on 21st October 2017 and WEEE was recycled in this reporting year.

3.13 On Fat Lung Innovative Resources Ltd.

- **Lot No.:** P8 (Phase 2)
- **Lot Size:** Approx. 4,400 m^2
- **Activity:** Recycling of Waste Rubber Tyres and WEEE
- **Recycling Process:** Waste rubber tyres will be shredded into rubber powder and processed to form rubber bricks. WEEE will be dismantled/shredded and recovered for reusable components.

3.13.1 The tenant commenced operation on 18th December 2017 and waste rubber tyres were collected for processing in this reporting year.

3.14 Throughput Statistics

3.14.1 For the active recyclers, most of the incoming waste materials and outgoing products were delivered by land transportation, except for the metals from Chung Yue were delivered by both marine and land transportation.

3.14.2 The throughputs of WEEE Refurbishment Centre, WEEE.PARK and the nine active tenants in the reporting year are summarised in ***Table 3.1***. Please note that product output

plus waste disposal does not necessarily equal the waste input, due to material losses during processing and material retained within the lot.

Table 3.1 Throughput Statistics for the Reporting Year

Material Type	Waste Input (tonnes)	Product Output [4] (tonnes)	Waste Disposed [4] (tonnes)
Waste Organic Food	11,208	6,038	5,366
Waste Ferrous Metals	153,617	150,663	871
Waste Wood	546	510	-
Waste Electronics	1,520	1,046	86
Waste Plastics	1,245	1,004	-
Construction Waste	8,012	85,519	672
Waste Glass	1,571		
Waste Rubber Tyres	n/a	n/a	n/a

Notes:

1) The throughput data presented above is the best available data and has been rounded off to the nearest whole tonne for presentation. Unavailable data will be reported in the next EM&A report.
2) The total product output may not be the same as the waste input due to processing of materials that were received before the reporting year and were stored within the lots.
3) Waste disposal refers to the disposal of general refuse (i.e. packaging) and/or chemical waste.
4) Since the recycling of waste glass and construction waste is combined to produce concrete block at K.Wah, the product output and waste disposal from both processes are combined.

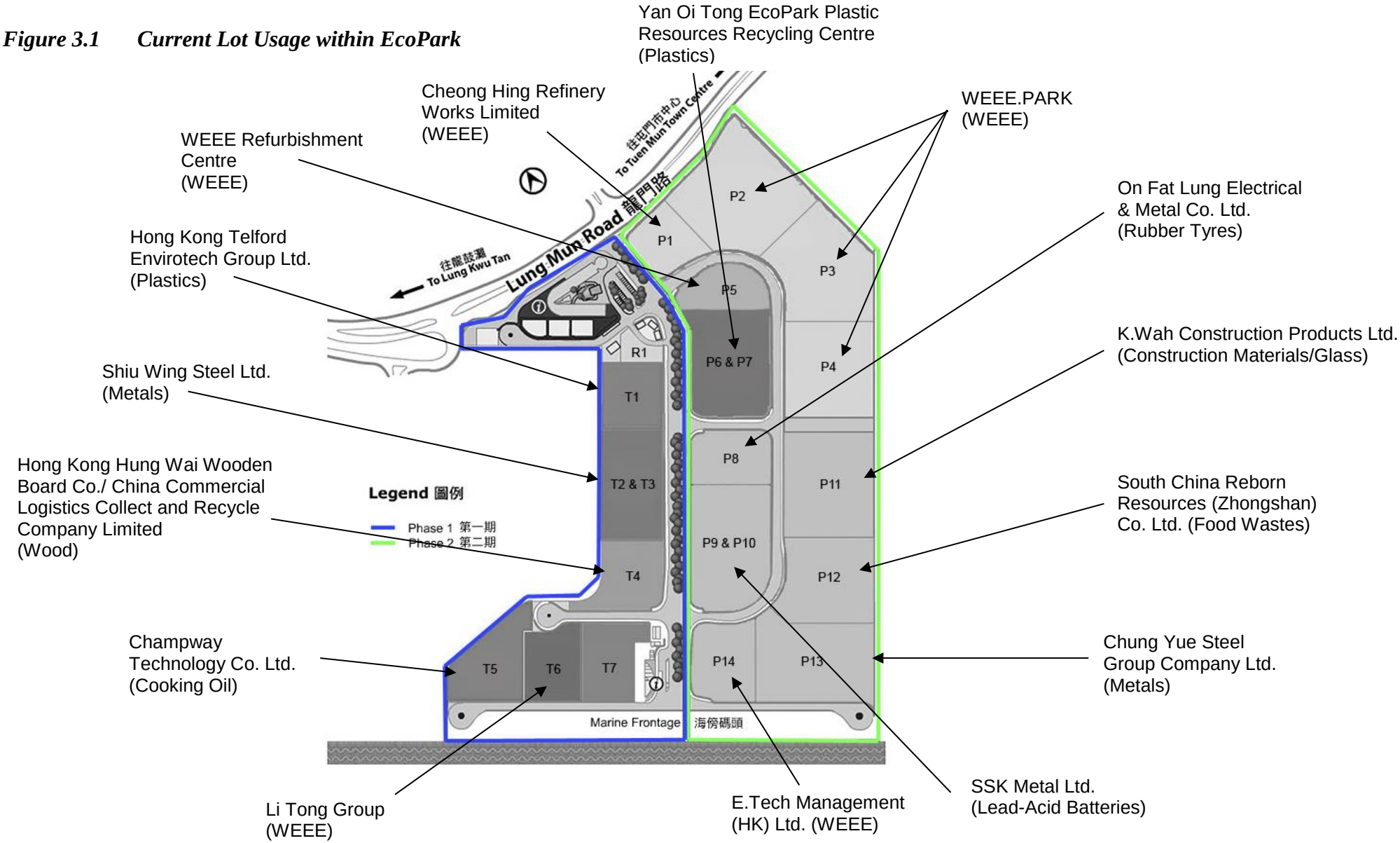
3.14.3 Detailed throughput figures of the reporting year are provided in ***Appendix 3.1***. Updated throughput figures of the previous year are provided in ***Appendix 3.2***.

3.15 Process Review

3.15.1 Process Review, and maybe Design Audit (DA) where required, had been conducted for each recycling processes to be operated within EcoPark to confirm its compliance with the findings and recommendations of the EIA report and the conditions of the EP.

3.15.2 Since 2008, twenty one process reviews and three DAs had been approved. Among those, sixteen process reviews and three DAs are related to the current recycling processes in EcoPark as of December 2017. The process reviews for South China and China Commercial Logistics are approved in May and July 2017 respectively. And the process review and DA for WEEE.PARK was approved in October 2017. Full set of the completed PRCs and DAs are submitted separately to relevant authorities in EPD.

Figure 3.1 Current Lot Usage within EcoPark



4 IMPLEMENTATION STATUS OF ENVIRONMENTAL PROTECTION MEASURES

4.1.1 Environmental mitigation measures applicable to the operation phase EM&A as stated in the implementation schedule are summarised in ***Appendix 1***. Environmental requirements specified in tenancy agreements are summarised in ***Appendix 2***.

4.1.2 By the end of the reporting year, WEEE Refurbishment Centre, WEEE.PARK and ten tenants (Champway, Shiu Wing, Li Tong, Telford, Hung Wai/China Commercial Logistics, Chung Yue, K.Wah, South China, On Fat Lung and E.Tech) were under full operation or machinery testing.

4.1.3 Appropriate environmental protection measures are in place at all lots.

5 MONITORING RESULTS

5.1 Monitoring Date, Time, Frequency and Duration

5.1.1 As described in *Section 2.1*, operational LFG monitoring is conducted quarterly at five monitoring locations, three in Phase 1 and two in Phase 2. LFG monitoring was carried out on 15th March, 19th June, 18th September and 22nd December 2017 in this reporting year. Monitoring details are shown ***Table 5.1*** below.

Table 5.1 Sampling Schedule for LFG Monitoring

Station ID	Sampling Date	Time	Duration	Ambient Air Temp.	Weather
EP1-1	15th March 2017	10:05 – 10:08	3 minutes	17°C	Overcast
EP1-2		09:45 – 09:48	3 minutes	17°C	Overcast
EP1-3		09:40 – 09:43	3 minutes	17°C	Overcast
EP2-1		09:55 – 09:58	3 minutes	17°C	Overcast
EP2-2		10:00 – 10:03	3 minutes	17°C	Overcast
EP1-1	19th June 2017	10:15 – 10:18	3 minutes	27°C	Overcast
EP1-2		09:55 – 09:58	3 minutes	27°C	Overcast
EP1-3		09:50 – 09:53	3 minutes	27°C	Overcast
EP2-1		10:00 – 10:03	3 minutes	27°C	Overcast
EP2-2		10:05 – 10:08	3 minutes	27°C	Overcast
EP1-1	18th September 2017	10:30 – 10:32	2 minutes	30°C	Sunny
EP1-2		10:10 – 10:12	2 minutes	30°C	Sunny
EP1-3		10:05 – 10:07	2 minutes	30°C	Sunny
EP2-1		10:15 – 10:17	2 minutes	30°C	Sunny
EP2-2		10:18 – 10:20	2 minutes	30°C	Sunny
EP1-1	22nd December 2017	10:05 – 10:07	2 minutes	22°C	Fine
EP1-2		10:00 – 10:02	2 minutes	22°C	Fine
EP1-3		09:50 – 09:52	2 minutes	22°C	Fine
EP2-1		09:45 – 09:47	2 minutes	22°C	Fine
EP2-2		09:40 – 09:42	2 minutes	22°C	Fine

5.2 Monitoring Methodology, Parameters and Equipment

5.2.1 The LFG monitoring requirement and methodology are stipulated in *Section 6* of the EM&A Manual. The LFG monitoring parameters and their measurement ranges are detailed in ***Table 5.2*** below.

Table 5.2 Parameters and Measurement Ranges for LFG Monitoring

Parameters	**Measurement Ranges**
Methane (CH_4)	0 – 100% LEL & 0-100% v/v
Oxygen (O_2)	0 – 25% v/v
Carbon Dioxide (CO_2)	0 – 100% v/v
Barometric Pressure	mBar (absolute)

5.2.2 LFG monitoring shall be carried out using intrinsically-safe, portable multi-gas monitoring instruments. The gas monitoring equipment shall:

1. Where possible, comply with BS 6020 and be approved by BASEEFA as intrinsically safe, suitable for use in a Zone 2 are to BS 5345;
2. Be capable of continuous barometric pressure and gas pressure measurements;
3. Normally operate in diffusion mode unless required for spot sampling, when it should be capable of operating by means of an aspirator or pump;
4. Have low battery, fault and over range indication incorporated;
5. Store monitoring data, and shall be capable of being down-loaded directly to a PC; and
6. Measure in the following ranges:
   - Methane 0 – 100% LEL & 0 - 100% v/v
   - Oxygen 0 – 25% v/v
   - Carbon dioxide 0 – 100% v/v
   - Barometric pressure mBar (absolute)

5.2.3 The monitoring equipment shall alarm (both audibly and visually) in the event that the concentrations of the following are exceeded:

1. Methane: rise to 10% LEL;
2. Oxygen: fall to 18% by volume; and
3. Carbon monoxide: maximum short term (1-hour) exposure of 300ppm with long term average (8-hours) not to exceed 50ppm.

5.3 Results and Graphical Plots of Monitoring Parameters

5.3.1 One InfraRed Gas Analyser Model GA5000 (serial number G501982) was used for LFG measurements. The gas analyser is calibrated every 6 months. The calibration records of the monitoring equipment were provided in the quarterly EM&A reports.

5.3.2 LFG monitoring results are summarised in ***Table 5.3*** and compared with the Action and Limit Levels tabulated in ***Table 2.2***. Graphical plots of the monitoring results are also provided in ***Appendix 4***.

Table 5.3 LFG Monitoring Results

Station ID	Sampling Date	Monitoring Results				
		CH_4 (% v/v)	CH_4 (% LEL)	O_2 (% v/v)	CO_2 (% v/v)	Barometric Pressure (mBar)
EP1-1	15th March 2017	0.0	0	20.2	0.5	1022
EP1-2		0.0	0	20.6	0.0	1022
EP1-3		0.0	0	20.7	0.0	1022
EP2-1		0.0	0	20.5	0.0	1022
EP2-2		0.0	0	20.3	0.2	1022
EP1-1	19th June 2017	0.0	0	19.8	0.1	1005
EP1-2		0.0	0	20.1	0.2	1005
EP1-3		0.0	0	19.4	0.3	1005
EP2-1		0.0	0	19.9	0.2	1005
EP2-2		0.0	0	16.1	0.5	1005
EP1-1	18th September 2017	0.0	0	19.4	0.1	1013
EP1-2		0.0	0	20.0	0.3	1013
EP1-3		0.0	0	19.6	0.5	1013
EP2-1		0.0	0	20.0	0.1	1013
EP2-2		0.0	0	18.6	0.9	1013
EP1-1	22nd December 2017	0.0	0	19.8	0.7	1024
EP1-2		0.0	0	20.1	0.1	1024
EP1-3		0.0	0	20.4	0.2	1024
EP2-1		0.0	0	20.5	0.2	1024
EP2-2		0.0	0	20.5	0.2	1024

5.3.3 Exceedances of Action and Limit Levels were recorded at Station EP2-2 on 19th June and 18th September, and at EP1-1 on 22nd December 2017 in the reporting year. The status of exceedance are summarised in ***Table 5.4***.

Table 5.4 Summary of LFG Monitoring Exceedance

Date	Station ID	Parameter	Recorded Level	Status
19th June 2017	EP2-2	O_2 (% v/v)	16.1	Exceedance of Limit Level
18th September 2017	EP2-2	O_2 (% v/v)	18.6	Exceedance of Action Level
		CO_2 (% v/v)	0.9	Exceedance of Action Level
22nd December 2017	EP1-1	CO_2 (% v/v)	0.7	Exceedance of Action Level

5.4 Follow-up Actions for Monitoring Exceedances

Exceedance in June 2017

5.4.1 Upon the record of exceedance on 19th June 2017, the cover of the underground chamber at Station EP2-2 was opened for investigation. Ventilation enhancement was also carried out to restore the concentrations of O_2 to non-exceedance level in accordance with the Event Action Plan for LFG specified in ***Table 2.2***. Measurement was conducted immediately after the ventilation enhancement to confirm the restoration of O_2 level to non-exceedance level (i.e. 19.8% v/v).

5.4.2 During the investigation, stagnant water was observed accumulating inside the utility chamber, possibly due to the heavy rain over the weekend and in the morning of 19th June 2017. Yet, no apparent source of O_2 depletion was identified. With reference to similar exceedance event occurred in June 2016 with the same meteorological condition, it is believed that organic matters entered and accumulated in the underground chamber by continuous rain, and increased O_2 depletion within the chamber during organic matter decomposition.

5.4.3 The utility chamber at Station EP2-2 was closed and rest for around 15 minutes after ventilation enhancement. An additional LFG measurement was carried out inside the underground chamber to review the condition and no exceedance was recorded for any parameter as summarised below:

Station ID	Parameter	Recorded Level	Action Level	Limit Level	Status
EP2-2	O_2 (% v/v)	19.1	< 19%	< 18%	No exceedance
	CO_2 (% v/v)	0.1	> 0.5%	> 1.5%	No exceedance
	CH_4 (% LEL)	0.0	> 10%	> 20%	No exceedance

5.4.4 No exceedance of any parameter was recorded at other monitoring stations and no CH_4 was recorded at any monitoring station. There is no indication of the migration of LFG from Siu Lang Shui Landfill.

5.4.5 As advised by the Operator, no underground work was being carried out within EcoPark. Based on the above findings, the exceedance of O_2 should not impose any adverse impact on staffs/workers/environment in EcoPark.

5.4.6 With reference to the mitigation measure for wet season proposed in June 2016 after the record of the exceedance event, the Operator had conducted the cleaning activity for the underground chambers and utility pipes on 26th June 2017.

Exceedance in September 2017

5.4.7 Upon the record of exceedances on 18th September 2017, the cover of the underground chamber was opened for investigation. Yet, no apparent source of O_2 depletion and CO_2 generation was identified. Ventilation enhancement was also carried out to restore the concentrations of CO_2 and O_2 to non-exceedance levels in accordance with the Event Action Plan for LFG specified in ***Table 2.2***. Measurement was conducted immediately after the ventilation enhancement to confirm the restoration of O_2 and CO_2 level to non-exceedance level (i.e. 19.6% v/v and 0.3% v/v respectively).

5.4.8 Although the cleaning of underground utilities had been conducted on 31st August 2017, a few cockroaches and a layer of moist sand/silt were observed inside the utility chamber during the investigation, possibly due to the heavy rain occurred after the cleaning exercise over early September 2017. With reference to similar exceedance event occurred in June 2017 with the same meteorological condition, it is believed that organic matters entered the underground chambers by heavy rain and accumulated inside the underground utilities, which eventually increased O_2 depletion and CO_2 generation within the chamber during organic matter decomposition.

5.4.9 No exceedance of any parameter was recorded at other monitoring stations and no CH_4 was recorded at any monitoring station. There is no indication of the migration of LFG from Siu Lang Shui Landfill.

5.4.10 As advised by the Operator, no underground work was being carried out within EcoPark. Based on the above findings, the exceedances of CO_2 and O_2 should not impose any adverse impact on staffs/workers/environment in EcoPark.

5.4.11 With reference to the mitigation measure proposed for wet season in June 2016 after the record of the exceedance event, the Operator had carried out additional cleaning for the underground chambers and utility pipes on 29th September 2017 in addition to the regular cleaning activity carried out on 31st August 2017.

Exceedance in December 2017

5.4.12 Upon the record of exceedance on 22nd December 2017, investigation was carried out immediately with representatives from the Operator and IEC. Yet, no apparent source of CO_2 generation was identified. While no apparent source of CO_2 generation was observed, small amount of sediments were accumulated inside the vent pipe and sign of organic matter was noticed (e.g. spider silk). It is suspected that organic matters (e.g. spider, etc.) were inside the vent pipe at EP1-1 and microbial activity occurred, which increased CO_2 generation within the pipe during the decomposition of organic matter.

5.4.13 Ventilation enhancements were also carried out to restore the concentrations of CO_2 to non-exceedance levels in accordance with the Event Action Plan for LFG specified in ***Table 2.2***. Measurement was conducted after the ventilation enhancement to confirm the restoration of CO_2 level to non-exceedance level (i.e. 0.1% v/v).

5.4.14 No exceedance of any parameter was recorded at other monitoring stations and no CH_4 was recorded at any monitoring station. There is no indication of the migration of LFG from Siu Lang Shui Landfill.

5.4.15 As advised by the Operator, no underground work was being carried out within EcoPark. Based on the above findings, the exceedance of CO_2 should not impose any adverse impact on staffs/workers/environment in EcoPark.

5.4.16 The Operator was suggested to regularly inspect the vent pipe at EP1-1 in order to ensure the vent pipe is clean and free from unwanted organic matter.

5.4.17 The LFG levels will be checked during the next quarterly LFG monitoring in March 2018.

6 SUMMARY OF ENVIRONMENTAL AUDIT

6.1 General

6.1.1 In the reporting year, WEEE Refurbishment Centre, WEEE.PARK and nine active tenants were under full operation, including Hung Wai at Lot T4 that was taken up by China Commercial Logistics upon expiration of tenancy, and one tenant was under machinery testing or installation. As such, specific site inspections were only carried out at the lots of WEEE Refurbishment Centre, WEEE.PARK and the nine tenants. For the lots of those tenants not currently in operation, general site inspections were conducted.

6.1.2 Environmental audits were conducted on a monthly basis based on the approved site inspection checklist. The completed audit checklists were provided in the quarterly EM&A Reports.

6.1.3 In the "status" column of the following tables, an observation will be indicated as "Closed" if it was resolved during the reporting period and no further follow-up is needed. If the observation is not resolved in the reporting period and would be followed-up in the next reporting period, it will be indicated as "Outstanding".

6.2 Outstanding Observations recorded in 2016

6.2.1 Outstanding audit observations are summarised in ***Table 6.1***.

Table 6.1 Environmental Audit Findings in 2016

Date	Tenant	Item	Status
28th November 2016	K.Wah	Fallen leaves and branches are observed in the stormwater drain near the southwest corner of the lot that clogged the drainage channel on 28th Nov 2016.	The tenant carried out the clearance activity in the afternoon on 22nd Dec 2016. As observed during inspection on 25th Jan 2017, the blockage of the stormwater drain near the southwest corner of the lot was cleared. **(Closed)**
28th November 2016	South China	Storage tank is observed near the perimeter drainage channel along the eastern boundary of the lot that may cause potential contamination on 28th Nov 2016.	As observed during inspection on 20th Apr 2017, the tenant had removed the storage containers (except clean water containers) from the perimeter drainage channel and the dirty water mark on surface near the drainage channel. **(Closed)**

6.3 January 2017

6.3.1 Environmental audits of WEEE Refurbishment Centre, active tenants and general EcoPark condition were carried out by the ET and the Operator on 25th January 2017. IEC random site audit was also carried out on 25th January 2017. Audit observations are summarised in ***Table 6.2***.

Table 6.2 Environmental Audit Findings in January 2017

Tenant	Item	Status
WEEE Refurbishment Centre at Lot P5	Vegetation is observed inside and near the perimeter drainage near the entrance of the lot on 25th Jan 2017.	While it was noticed that the vegetation removal was in progress as observed during inspection on 15th Mar 2017 and 22nd Dec2017, the tenant was reminded to clear the remaining vegetation to avoid potential blockage of the channel. The removal progress will be monitored in the next audit in Jan 2018. **(Outstanding)**
K.Wah	Fallen leaves and wastes are observed in the perimeter drainage channel on 25th Jan 2017.	As observed during inspection on 15th Mar 2017, fallen leaves were removed in the perimeter drainage channel. **(Closed)**
South China	Dirty water was observed in the stormwater manholes located along the vehicular access between the two building structures on 25th Jan 2017, but no sign of discharge was identified (i.e. adjacent ground was clean).	As observed during inspection on 24th May 2017, dirty water and muddy material had been removed from the stormwater manholes. No dirty water is observed in the manholes. **(Closed)**
On Fat Lung (General Inspection)	Poor housekeeping is observed within the lot of On Fat Lung on 25th Jan 2017.	As observed during inspection on 17th Feb 2017, the tenant had tidied up the material to maintain proper housekeeping. **(Closed)**

6.4 February 2017

6.4.1 Environmental audits of WEEE Refurbishment Centre, active tenants and general EcoPark condition were carried out by the ET, the Operator and the IEC on 17th February 2017. Audit observations are summarised in ***Table 6.3***.

Table 6.3 Environmental Audit Findings in February 2017

Tenant	Item	Status
Champway	Oil stain was observed on the ground but no sign of leakage from containers was found on 17th Feb 2017.	In addition to partial removal of oil stain observed on 15th Mar 2017, the tenant had cleared the oil stain and no sign of leakage from containers was observed during inspection on 24th May 2017. **(Closed)**
Champway	Oil stain was observed on the ground but no sign of leakage from containers was found on 17th Feb 2017.	As advised by the tenant on 15th Mar 2017, the area was used as temporary storage and the containers would be gradually removed from the concerned area within the next two months tentatively. The item was recorded as new observation for 15th Mar 2017.

Tenant	Item	Status
Champway	Oil-water mixture was observed inside the surface drainage channel near the storage area on 17th Feb 2017. The remaining mixture is likely caused by the poor condition of the surface drain.	As observed during inspection on 15th Mar 2017, the tenant had cleared the oil-water mixture from the surface drainage channel. As updated by the tenant in Jul 2017, the improvement work is still under tendering process. As observed during site inspection on 30th Oct 2017, the tenant had conducted the improvement work of drain condition to prevent water trapping. **(Closed)**
SSK (General Inspection)	On 17th Feb 2017, the tenant of SSK was requested to provide hoarding of not less than 2.4m where site boundary adjoins road or service lane according to Clause 13(c) of the Schedule of Air Pollution Control (Construction Dust) Regulation.	While the construction work is temporarily suspended as advised by the operator on 20th Apr 2017 and no earth moving activity was observed during inspection on 22nd Dec 2017, the tenant was reminded to provide hoarding along the site boundary before resuming full operation of the construction work. **(Outstanding)**

6.5 March 2017

6.5.1 Environmental audits of WEEE Refurbishment Centre, active tenants and general EcoPark condition were carried out by the ET and the Operator on 15th March 2017, while IEC random site audit was carried out on 15th March 2017. Audit observations are summarised in ***Table 6.4***.

Table 6.4 Environmental Audit Findings in March 2017

Tenant	Item	Status
Champway	The concerned area mentioned with oil stain inspected on 17th Feb 2017 was not provided with permeation-proof floor and partition. As advised by the tenant on 15th Mar 2017, the area was used as temporary storage and the containers would be gradually removed from the concerned area within the next two months tentatively.	As updated by the tenant, most of the containers would be gradually removed. As observed during inspection on 28th Aug 2017, the tenant had covered the floor with sand layer at locations where containers were removed to prevent land contamination from potential accidental spillage during container removal process. Four new enclosed storage tanks were also delivered to replace the old glycerine storage containers as observed during inspection on 22nd Dec 2017. The tenant was reminded to implement sufficient measures during material transfer to avoid, or contain if any, accidental spillage. The containers pending removal should be well maintained to avoid potential leakage until completion of the removal process, which will be monitored in the next audit. **(Outstanding)**

Tenant	Item	Status
Li Tong	Small portion of WEEE fragments were observed on unpaved ground near the perimeter drain on 15th Mar 2017.	As observed during inspection on 20th Apr 2017, the WEEE fragments were removed from the unpaved ground near the perimeter drain. **(Closed)**
Chung Yue	Dusty trail was observed at the lot entrance during inspection on 15th Mar 2017.	As observed during inspection on 20th Apr 2017, the dusty trail at lot entrance had been cleared. **(Closed)**

6.6 April 2017

6.6.1 Environmental audits of WEEE Refurbishment Centre, active tenants and general EcoPark condition were carried out by the ET and the Operator on 20th April 2017. IEC random site audit was also carried out on 20th April 2017. Audit observations are summarised in ***Table 6.5***.

Table 6.5 Environmental Audit Findings in April 2017

Tenant	Item	Status
South China	A pit of dirty water was observed inside the perimeter drainage channel along the Eastern lot boundary on 20th Apr 2017.	As observed during inspection on 24th May 2017, the tenant had cleaned up the dirty water inside the perimeter drainage channel along the Eastern lot boundary. **(Closed)**

6.7 May 2017

6.7.1 Environmental audits of WEEE Refurbishment Centre, active tenants and general EcoPark condition were carried out by the ET, the Operator and the IEC on 24th May 2017. Audit observations are summarised in ***Table 6.6***.

Table 6.6 Environmental Audit Findings in May 2017

Tenant	Item	Status
Champway	Chemical mixture was observed on the floor near the storage area on 24th May 2017.	As observed during inspection on 19th Jun 2017, the tenant had removed chemical spillage on the floor near storage area. **(Closed)**

6.8 June 2017

6.8.1 Environmental audits of WEEE Refurbishment Centre, active tenants and general EcoPark condition were carried out by the ET and the Operator on 19th June 2017. IEC random site audit was also carried out on 19th June 2017. Audit observations are summarised in ***Table 6.7***.

Table 6.7 Environmental Audit Findings in June 2017

Tenant	Item	Status
K.Wah	Dormant stockpile was observed on the floor without cover on 19th Jun 2017.	The tenant had not yet relocated the dormant stockpile to the covered area during inspection on 18th Sep 2017. As advised by the tenant, the outdoor stockpile would be either used up or moved to a cover area at the end of each working day. According to the photo provided by the Operator on 21st Sep 2017, no stockpile is placed at outdoor area at the end of working day. **(Closed)**
South China	Suspected oil stain was observed on the surface of the stormwater inside perimeter drain, and refuse was also found inside the terminal stormwater manhole on 19th Jun 2017.	As observed during inspection on 31st Jul 2017, suspected oil stain inside perimeter drain had been removed and no other objectionable matter had been observed inside drains or sewers. **(Closed)**

6.9 July 2017

6.9.1 Environmental audits of WEEE Refurbishment Centre, active tenants and general EcoPark condition were carried out by the ET and the Operator on 31st July 2017. IEC random site audit was also carried out on 31st July 2017. Audit observations are summarised in ***Table 6.8***.

Table 6.8 Environmental Audit Findings in July 2017

Tenant	Item	Status
Champway	Leakage of waste oil was observed underneath a rubbish cart where a drip container was provided on 31st Jul 2017.	As observed during inspection on 28th Aug 2017, the damaged rubbish cart and the leaked oil had been removed. As confirmed by the tenant, the cart will be used for temporary storage of solid waste only. **(Closed)**
K.Wah	It was observed that sand and silt accumulated in the surface channel in front of the entrance of the office building on 31st Jul 2017.	As observed during inspection on 28th Aug2017, the tenant had removed the sand and silt accumulated in the surface channel in front of the entrance of the office building. No overflowing was observed during the inspection (i.e. rainy day). **(Closed)**
E.Tech	Some of the storage bags containing printed circuit boards (PCBs) were not provided with cover at outdoor storage area on 31st Jul 2017.	As observed during inspection on 28th Aug 2017, storage bags containing PCBs were provided with impermeable cover at temporary outdoor storage area, to prevent potential rainwater contamination. **(Closed)**

6.10 August 2017

6.10.1 Environmental audits of WEEE Refurbishment Centre, active tenants and general EcoPark condition were carried out by the ET, the Operator and the IEC on 28th August 2017. Audit observations are summarised in ***Table 6.9***.

Table 6.9 Environmental Audit Findings in August 2017

Tenant	Item	Status
No critical issues were identified.		

6.11 September 2017

6.11.1 Environmental audits of WEEE Refurbishment Centre, active tenants and general EcoPark condition were carried out by the ET and the Operator on 18th September 2017. IEC random site audit was also carried out on 18th September 2017. Audit observations are summarised in ***Table 6.10***.

Table 6.10 Environmental Audit Findings in September 2017

Tenant	Item	Status
South China	Dirty water was observed inside stormwater manholes on 18th Sep 2017.	As observed during inspection on 30th Oct 2017, dirty water inside stormwater manholes had been removed and loading/unloading activities was carried out in designated area. **(Closed)**

6.12 October 2017

6.12.1 Environmental audits of WEEE Refurbishment Centre, WEEE.PARK, active tenants and general EcoPark condition were carried out by the ET and the Operator on 30th October 2017. IEC random site audit was also carried out on 30th October 2017. Audit observations are summarised in ***Table 6.11***.

Table 6.11 Environmental Audit Findings in October 2017

Tenant	Item	Status
Chung Yue	Fugitive dust was observed while transporting scrap iron in the storage area on 30th Oct 2017.	As inspected during site audit on 30th Nov 2017, water spraying was observed to suppress dust generation. **(Closed)**

Tenant	Item	Status
Champway	A thin layer of suspected oil was observed in stormwater drain next to the oil interceptor on 30th Oct 2017.	While the tenant had removed the oil containers away from stormwater manholes, the thin layer of suspected oil was still observed in stormwater drain at the outlet of the oil interceptor during inspection on 22nd Dec 2017. As advised by the tenant, cleaning of the oil interceptor and the outlet pipe connecting the interceptor and stormwater drain had been carried out in mid-Nov and mid-Dec 2017 respectively, but, further cleaning of the outlet pipe is needed and will be carried out to thoroughly clear the residue accumulated inside the pipe. The tenant was suggested to temporarily block the outlet of the oil interceptor and tankered away the discharge from oil interceptor until the cleaning of outlet pipe is completed. **(Outstanding)**

6.13 November 2017

6.13.1 Environmental audits of WEEE Refurbishment Centre, WEEE.PARK, active tenants and general EcoPark condition were carried out by the ET, the Operator and the IEC on 30th November 2017. Audit observations are summarised in ***Table 6.12***.

Table 6.12 Environmental Audit Findings in November 2017

Tenant	Item	Status
SSK (General Inspection)	Open stockpile of dusty materials was observed in the lot of SSK on 30th Nov 2017.	The observation will be followed-up in the next audit in Jan 2018. **(Outstanding)**

6.14 December 2017

6.14.1 Environmental audits of WEEE Refurbishment Centre, WEEE.PARK, active tenants and general EcoPark condition were carried out by the ET and the Operator on 22nd December 2017. IEC random site audit was also carried out on 22nd December 2017. Audit observations are summarised in ***Table 6.13***.

Table 6.13 Environmental Audit Findings in December 2017

Tenant	Item	Status
Champway	Oil spillage was observed on the floor of the storage area on 22nd Dec 2017 but no leakage from storage container was noticed.	The observation will be followed-up in the next audit in Jan 2018. **(Outstanding)**
Chung Yue	Fugitive dust was observed during material transfer in the storage area on 22nd Dec 2017.	The observation will be followed-up in the next audit in Jan 2018. **(Outstanding)**

Tenant	Item	Status
K.Wah	As advised by the tenant, the wastewater from dust suppression collected by sedimentation pit would be discharged to public stormwater drain, instead of recycled for reuse in the dust suppression system as stated on the approved Process Review Checklist (PRC).	The observation will be followed-up in the next audit in Jan 2018. **(Outstanding)**
South China	Disused duct pipes were observed on top of the perimeter drain at the Eastern lot boundary.	The observation will be followed-up in the next audit in Jan 2018. **(Outstanding)**

7 ENVIRONMENTAL COMPLAINTS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTION

7.1 Summary of Summons and Prosecutions

7.1.1 No notification of summons or successful prosecution related to recycling activities was received in the reporting year.

7.2 Complaint Received on 26th October 2016

7.2.1 In order to monitor the wastewater flow and ensure detection of abnormal flow, flow meters had been gradually installed by the tenant throughout the reporting year at various points of the wastewater treatment system, such as incoming pipe for the storage tank at 3/F, outgoing pipe of the treatment tank for recycling, outgoing pipe of the treatment tank for discharge, wastewater collection pipes for washing area at G/F, etc.

7.2.2 As confirmed by the tenant, the cleaning of the WTP on 3/F had completed with installation of new filter sand and activated carbon. The tenant had carried out effluent sampling in mid-June 2017 to determine the effluent quality from the existing WTP and identify the potential gap with the that meeting compliance. Upgrade of the WTP is proposed by the tenant to introduce additional treatment process. The proposal is being updated by the tenant and would be submitted for further review. Prior to the proper functioning of the wastewater treatment plant (WTP) on 3/F of the premise, the wastewater was collected and transported to designated treatment facility by a licenced collector as a temporary measure.

7.2.3 The case will be followed up in the next reporting year to ensure the wastewater treatment system will function properly for handling of the wastewater. The tenant was reminded that the no wastewater shall be discharged until the testing of treatment system is completed with the discharge quality in full compliance with the discharge licence.

7.3 Complaint Received on 20th February 2017

7.3.1 A public complaint was received from 1823 hotline on 20th February 2017 and referred to the ET and the Operator by the Project Proponent on the same day. The ET has notified the IEC of the incident on the same day.

7.3.2 The complaint was with regard to suspected strong malodour from EcoPark in the morning of 20th February 2017. Due to restricted access in EcoPark, the complainant did not provide the source of the malodour and could not identify the nature of the malodour. A site investigation was conducted by representatives from the ET and the Operator to search for the suspected malodour and identify the source of malodour generation on 21st February 2017 from 09:30.

7.3.3 The perimeter of EcoPark had been walked through during the investigation, except the northwestern boundary of Shiu Wing and Telford which were not accessible due to safety issue and site closure respectively. As alternative, the lot condition of Shiu Wing was assessed from the northern corner of Hung Wai's lot, while the lot condition of Telford

was assessed through the fence at the northern corner of the lot. No malodour was detected and no source of malodour generation was observed within EcoPark or along the perimeter of EcoPark, except the detection of a slight odour with rotten and/or sour smell in the lots of Champway and South China.

7.3.4 As advised by Champway, collection of waste cooking oil was carried out in the morning of 20th and 21st February 2017 without any processing. Tanker-away was being carried out during the investigation. A slight odour with sour smell was noticed within the lot near the pump truck but no malodour was detected along the pumping pipe. The malodour was also not detected at a distance of 5-10m away from the pump truck. No malodour was noticed when the pump truck left.

7.3.5 A slight odour with rotten smell was noticed in the covered processing area of Champway during investigation while no recycling operation was observed and no source of generation could be identified, which was thus considered as the residual odour from the collection/processing of waste cooking oil.

7.3.6 Due to the prevailing east wind during investigation, the malodour was dissipating progressively towards the fence at the southwestern boundary of the lot, where the marine frontage located. Yet, the malodour was barely perceptible at the road between the marine frontage and the lot boundary, and became completely unnoticeable at around 7m away from the lot boundary at the marine frontage. No malodour was detected at other downwind areas, possibly due to the blockage by the structure of Champway's office. Although the malodour was barely noticeable in very close distance to Champway's lot at downwind side, it dissipated further away to undetectable level within the area of EcoPark while the dispersal route towards the public was blocked.

7.3.7 The boundary of EcoPark along Champway's lot was also checked, in particular the northern boundary that was adjacent to the public (i.e. permanent aviation fuel facility). No malodour was noticed and no source of malodour generation was observed.

7.3.8 In the lot of South China, a slight odour with sour smell was noticed inside the building at the works area during investigation. Since no operation was observed during the investigation, the malodour was likely to be the residual odour from food waste collection/processing. It was observed that the air curtains were in operation with the roller shutter partially lowered to enhance the negative pressure condition in the works area. No malodour was detected at the building entrance outside the building structure and other areas in the lot of South China. Hence, the malodour from South China was confined within the premise and was not considered to generate odour nuisance to neighbouring tenants or the public.

7.3.9 Based on the investigation, it was found that the slight malodour generated from the normal operation of EcoPark was confined within EcoPark and was not noticeable along the boundary of EcoPark. Therefore, the suspected strong malodour claimed by the complainant was considered unrelated to EcoPark and the complaint was not substantiated.

7.3.10 Since the suspected malodour was unlikely to be generated from EcoPark, no action was needed to be taken. However, the good practices for odour control at Champway and South China had been suggested to be continued.

8 ANNUAL REVIEW

8.1 Interpretation of EM&A Data

8.1.1 Landfill gas (LFG) is the only parameter that is required to be monitored in the operation phase EM&A programme. Quarterly LFG monitoring has been carried out by the ET since 2009 following the completion of Phase 1 construction of EcoPark. Although exceedances of action and limit levels were recorded in the reporting year, it is believed that the exceedance was caused by the accumulation of organic matters in underground chambers/pipes/vents and the associated decomposition of the organic matter. No CH_4 was recorded at any monitoring location and there was no indication of the migration of LFG from SLSL. Therefore, the EM&A data is consistent with the assessment result in the EIA Report that the potential risk associated with LFG hazard remains low.

8.2 Environmental Acceptability of EcoPark

8.2.1 In the reporting year, WEEE Refurbishment Centre, WEEE.PARK and nine tenants (Champway, Shiu Wing, Li Tong, Telford, Hung Wai/ China Commercial Logistics, Chung Yue, K.Wah and South China and On Fat Lung) have carried out recycling activities and one tenant (E.Tech) has carried out machinery testing or installation within the lot. With reference to *Section 6*, no critical environmental deficiencies were continuously identified at tenants' lots in EcoPark in the reporting year. The operation of EcoPark in environmental terms is therefore considered as acceptable in general.

8.3 Monitoring Methodology

8.3.1 Quarterly LFG monitoring has been carried out since October 2009. Exceedances of action and limit levels were recorded in the reporting year. The monitoring methodology is considered as effective to detect the change of potential LFG hazard and trigger associated actions. Given that no detection of methane was recorded in EcoPark and the LFG levels in EcoPark had returned to non-exceedance levels, quarterly monitoring of LFG is considered as sufficient. The frequency of LFG monitoring may increase upon detection of high LFG levels under the Siu Lang Shui Landfill restoration contract in accordance with *Section 8.7.11* of the EIA Report and *Section 6.4.4* of the EM&A Manual.

8.4 Practicality and Effectiveness of EIA Process and EM&A Programme

8.4.1 The use of Process Review mechanism to assess incoming processes, processes not assessed in the EIA, or processes with greater throughputs than assumed in the EIA, is considered to work well and is in accordance with the recommendations of the EIA, the requirements of the EM&A programme and the EP conditions.

8.4.2 The EM&A programme has been fully utilised throughout the reporting year and is practical and effective to monitor the operation status of tenants. The mitigation measures proposed in the EIA Study are effective and efficient.

9 CONCLUSIONS

9.1.1 This is the eleventh (11th) annual EM&A report prepared for the operation phase of EcoPark and covers the calendar year of 2017. The tenants' recycling activities are audited on a monthly basis and the results are summarised in this report.

9.1.2 In the reporting year, there were thirteen tenants in EcoPark Phase 1 and Phase 2, and one operator of WEEE Refurbishment Centre and WEEE.PARK in EcoPark Phase 2. Nine tenants, namely Champway, Shiu Wing, Hung Wai/China Commercial Logistics, Li Tong, Telford, Chung Yue, K.Wah, South China and On Fat Lung, have commenced full recycling activities within their lots. Waste Management Policy Group (WMG) of EPD has taken possession of Lot Nos. P2, P3, P4 and P5 and handed over to Alba Integrated Waste Solutions (Hong Kong) Ltd. (Alba IWS) to carry out operation of WEEE.PARK (at Lots Nos. P2, P3, P4) and WEEE Refurbishment Centre (at Lot P5). Tenancy of Hung Wai was expired on 13th May 2017 and the corresponding lot was taken up by China Commercial Logistics on 14th May 2017 for continuation of wood recycling without introduction of new process. One tenant (E.Tech) carried out machinery testing. One tenant (SSK) carried out plant design and construction works. Two tenants' tenancies (Yan Oi Tong and Cheong Hing) were expired on 3rd January 2017 and terminated on 22nd August 2017 respectively.

9.1.3 Throughout the reporting year, the ET has conducted monthly site inspections while the IEC has carried out full site inspection on quarterly basis and random site audits on monthly basis, and some general observations have been made. The approved checklist has been used in the monthly site inspections for various tenants.

9.1.4 The throughputs of WEEE Refurbishment Centre, WEEE.PARK and the nine active tenants in the reporting year are summarised in ***Table 9.1***. Please note that product output plus waste disposal do not necessarily equal the waste input, due to material losses during processing and material retained within the lots.

Table 9.1 Throughput Statistics for the Reporting Year

Material Type	Waste Input (tonnes)	Product Output (4) (tonnes)	Waste Disposed (4) (tonnes)
Waste Organic Food	11,208	6,038	5,366
Waste Ferrous Metals	153,617	150,663	871
Waste Wood	546	510	-
Waste Electronics	1,520	1,046	86
Waste Plastics	1,245	1,004	-
Construction Waste	8,012	85,519	672
Waste Glass	1,571		
Waste Rubber Tyres	n/a	n/a	n/a

Notes:

1) The throughput data presented above is the best available data and has been rounded off to the nearest whole tonne for presentation. Unavailable data will be reported in the next EM&A report.
2) The total product output may not be the same as the waste input due to processing of materials that were received before the reporting year and were stored within the lots.
3) Waste disposal refers to the disposal of general refuse (i.e. packaging) and/or chemical waste.
4) Since the recycling of waste glass and construction waste is combined to produce concrete block at K.Wah, the product output and waste disposal from both processes are combined.

9.1.5 LFG monitoring was undertaken on 15th March, 19th June, 18th September and 22nd December 2017 at five locations (three in Phase 1 and two in Phase 2). Exceedances of Action and Limit Levels were recorded and are summarised in ***Table 9.2***.

Table 9.2 Summary of LFG Exceedances in the Reporting Year

Date	Station ID	Parameter	Recorded Level	Action Level	Limit Level	Status
19th June 2017	EP2-2	Oxygen (% v/v)	16.1	< 19%	< 18%	Exceedance of Limit Level
18th September 2017	EP2-2	Oxygen (% v/v)	18.6	< 19%	< 18%	Exceedance of Action Level
	EP2-2	Carbon Dioxide (% v/v)	0.9	> 0.5%	> 1.5%	Exceedance of Action Level
22nd December 2017	EP1-1	Carbon Dioxide (% v/v)	0.7	> 0.5%	> 1.5%	Exceedance of Action Level

9.1.6 Ventilation enhancement was carried out in accordance with the Event Action Plan for LFG specified in Table 6.1 of the EM&A Manual to restore the concentrations of O_2 to non-exceedance level. No apparent source of oxygen (O_2) depletion and carbon dioxide (CO_2) generation was identified inside the underground chamber during investigation. The exceedances were believed to be triggered by the invasion of organic matter into underground chamber/utility pipes/vent pipe and the subsequent decomposition inside the chambers and pipes. There was no indication of the migration of LFG from Siu Lang Shui Landfill. As confirmed by the Operator, no underground work was being carried out within EcoPark on the measurement dates. Based on the above findings, the exceedances should not impose any adverse impact on staffs/workers/environment in EcoPark.

9.1.7 In view of the exceedances of Oxygen (O_2) and Carbon Dioxide (CO_2) recorded at EP2-2 in June and September 2017, the operator had carried out cleaning of the underground chambers and utility pipes on 26th June 2017, 31st August 2017 and 29th September 2017. The concentrations of carbon dioxide and oxygen at EP2-2 then returned to a non-exceedance level during the monitoring on 22nd December 2017. Regarding the exceedances of Carbon Dioxide (CO_2) recorded at EP1-1 in December 2017, the Operator was also suggested to regularly inspect the vent pipe in order to ensure the vent pipe is clean and free from unwanted organic matter.

9.1.8 The quarterly monitoring of LFG is considered as sufficient and effective in accordance with *Section 6.4.4* of the EM&A Manual.

9.1.9 One complaint was received from 1823 hotline on 20th February 2017 regarding a suspected strong malodour from EcoPark in the morning of the same day. Due to restricted access in EcoPark, the complainant did not provide the source of the malodour and could not identify the nature of the malodour. The complaint was referred to the ET and the Operator by the Project Proponent, and to the IEC by the ET on the same day. A site investigation was conducted by representatives from the ET and the Operator to search for the suspected malodour and identify the source of malodour generation on 21st February 2017. Although the suspected malodour was unlikely to be generated from

EcoPark and no action was needed to be taken, implementation of good practices for odour control was suggested to be continued.

9.1.10 For the complaint on the wastewater treatment and odour nuisance at South China's Lot referred to the ET, IEC and the Project Proponent on 3rd November 2016, flow meters had been gradually installed by the tenant at various points of the wastewater collection and treatment system since April 2017 to monitor the quantity of wastewater generated from different areas. Prior to the proper functioning of the wastewater treatment plant (WTP) on 3/F of the premise, the wastewater was collected and transported to designated treatment facility by a licenced collector as a temporary measure. The tenant proposed to upgrade the WTP by introducing additional treatment processes. The proposal is being updated by the tenant and would be submitted for further review. The case will be followed up in the next quarterly and annual report to ensure the wastewater treatment system will function properly for handling of the wastewater.

9.1.11 No environmental summon or successful prosecution was recorded in the reporting year.

9.1.12 There is no reporting change in the reporting year.

9.1.13 No critical environmental deficiencies were identified at tenants' lots in EcoPark in the reporting year. The operation of EcoPark in environmental terms is considered as acceptable in general.

9.1.14 The EM&A programme has been fully utilised throughout the reporting year and is practical and effective to monitor the operation status of tenants. The mitigation measures proposed in the EIA Study are effective and efficient.

Appendix 1

Environmental Mitigation Measures
(from the Implementation Schedule)

EIA Ref.	EM&A Ref.	Environmental Protection Measures Identified in the Implementation Schedule that are Applicable to the Operation Phase of EcoPark	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Relevant Legislation and Guidelines
General					
5.5.23 to 5.5.25, 10.2.24 & 10.2.37	4.2.5 to 4.2.8	The Operator shall develop and implement an Emergency Response Plan (ERP) that lists the procedures to be followed in case of fire, fuel or chemical spillage or other emergency within the EcoPark.	Throughout the duration of the operation.	Operator	
12.2	7.2	No process shall be allowed to operate within EcoPark without approval from WFBU. Approval will be based on the ten-step Process Review, which may include a Design Audit if deemed to be necessary.	Throughout the duration of the operation.	ET IEC Project Proponent	
	8.1.2	All reports (including Process Review Checklists and any Design Audits) shall be prepared and certified by the ET, verified by the IEC and approved by the Project Proponent.	Throughout the duration of construction works until construction is substantially completed. Throughout the duration of the operation.	ET IEC Project Proponent	
12.3	7.3	The Operator shall prepare and implement an Environmental Management Plan (EMP) to define mechanisms for achieving the environmental requirements specified in the EIA, EP and in statutory regulations.	Throughout the duration of the operation.	Operator	
Air Quality					
13.2		The Operator shall ensure that EcoPark "base case" assumptions for air quality shown in Table 13.1 of the Final EIA Report are met by tenants, as a whole.	Throughout the duration of the operation.	Operator	Table 13.1 of the Final EIA Report
Water Quality					
5.4.11 & 5.6.7		To minimise the chance of accidental spillage during loading and unloading, and thereby reduce marine water quality impacts, well established cargo handling guidelines should be followed.	Adjacent to EcoPark marine frontage when loading or unloading goods.	Operator Operators of bulk carriers	*Sections 5* & *6* of IMO Code of Practice for the Safe Loading/ Unloading of Bulk Carriers

EIA Ref.	EM&A Ref.	Environmental Protection Measures Identified in the Implementation Schedule that are Applicable to the Operation Phase of EcoPark	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Relevant Legislation and Guidelines
5.5.19		Contaminated water collected in the surface drainage systems shall be treated at the WTF or other appropriate treatment facility.	Within EcoPark throughout the life of the facility.	Operator	
5.5.23 to 5.5.25	4.2.5 to 4.2.7	An Emergency Response Plan (ERP) will be formulated to address various accident scenarios. The ERP will be certified by the Environmental Team (ET) and verified by the Independent Environmental Checker (IEC) under the operation EM&A programme.	Within EcoPark throughout the life of the facility.	Operator	
5.6.4		For uncovered areas where recovery process identified as causing potentially high level of contamination are located, stop-logs will be installed in the perimeter drainage system to isolate contamination.	Within EcoPark throughout the life of the facility.	Operator	
	4.2.2	The ET should develop an audit checklist, with the agreement of the IEC, to ensure that each mitigation measure is implemented when appropriate and operated correctly when implemented.	Within EcoPark throughout the life of the facility.	ET with IEC	
Waste Management					
6.8.7	5.2.4	The Operator should register with EPD as a chemical waste producer.	Within EcoPark throughout the life of the facility.	Operator	Waste Disposal (Chemical Waste) (General) Regulation
6.8.16		The dust collected by any air pollution control equipment installed by tenants must be tested to ensure compliance for landfill disposal.	Within EcoPark throughout the life of the facility.	Operator	Practice Note for disposal of dusty waste at landfills & Admission Ticket System
6.8.18 & 6.8.22	5.2.4	Sludge will be disposed of at WENT landfill, or at any future dedicated sludge treatment facility. Sludge will be collected by a Licensed collector at regular intervals, as determined by the operation of the WTF.	Within EcoPark throughout the life of the facility.	Operator	

EIA Ref.	EM&A Ref.	Environmental Protection Measures Identified in the Implementation Schedule that are Applicable to the Operation Phase of EcoPark	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Relevant Legislation and Guidelines
6.8.21	5.2.4	Chemical wastes shall be stored in appropriate containers in a covered area. "No Smoking" signs will be clearly displayed to prevent accidental ignition of flammable materials. Drip trays capable of storing 110% of the volume of the largest container will be used to mitigate possible leakage.	Within EcoPark throughout the life of the facility.	Operator	Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes
	5.2.3 & 5.2.5	The ET should develop an audit checklist, with the agreement of the IEC, to ensure that each mitigation measure is implemented when appropriate and operated correctly when implemented.	Within EcoPark throughout the life of the facility.	ET with IEC	
6.8.7	5.2.4	The Operator should register with EPD as a chemical waste producer.	Within EcoPark throughout the life of the facility.	Operator	Waste Disposal (Chemical Waste) (General) Regulation
Prevention of Contaminated Land					
7.3.1	5.3.2	Any spillages of contaminating material shall be cleaned up immediately through the use of an absorbent. Any such used material should then be considered chemical waste and disposed of appropriately.	Within EcoPark throughout the life of the facility.	Operator	
7.3.3		Any areas within the lot to be used for recycling processes shall be concrete paved before recycling activities commence.	Within EcoPark throughout the life of the facility.	Operator	
7.3.5	5.3.2	During operation, the greatest risk of land contamination will come from storage of chemical wastes, therefore the measures should be followed : • All chemical storage areas shall be provided with locks and be sited on sealed areas. The storage areas shall be surrounded by bunds with a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled oil and chemicals from contaminating the ground. • Chemical wastes will be collected, stored and disposed of in	Within EcoPark throughout the life of the facility.	Operator	

EIA Ref.	EM&A Ref.	Environmental Protection Measures Identified in the Implementation Schedule that are Applicable to the Operation Phase of EcoPark	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Relevant Legislation and Guidelines
		accordance with the Regulation. Disposal of other construction waste will be undertaken by licensed contractors in accordance with applicable statutory requirements in the WDO. • Chemical wastes shall be handled according to the relevant code of practice. Spent chemicals shall be stored and collected by an approved operator for disposal at a licensed facility in accordance with the relevant regulation.			
Landfill Gas					
8.7.10 & 8.7.11	6.1.2	• Alert workers and visitors of possible LFG hazards • Prohibit smoking and open fires on site • Conduct regular (quarterly) LFG monitoring at mobile offices, equipment stores, etc.	Within EcoPark throughout the life of the facility.	Operator	
	6.4.3	Following construction, routine monthly monitoring may be required at service voids and utility boxes. The monitoring requirement and specific locations of monitoring points shall be established based on the findings of the monitoring carried out during construction (i.e. if no LFG is detected during construction then no routine monitoring is required). The need for continued monitoring shall, however, be reviewed through discussion with EPD.	Within EcoPark throughout the life of the facility.	Operator	
Hazard to Life					
10.4.3		Building height limit within EcoPark shall be applied to structures within which people may work at elevated levels.	Within EcoPark throughout the life of the facility.	Operator	EIA Report Table 10.2
Landscape and Visual					
9.4.4		It recommended that this commonality be promoted throughout EcoPark by the Operator and adopted by tenants, if practicable.	Within EcoPark throughout the life of the facility.	Operator	

Appendix 2

Environmental Requirements in Tenancy Agreements

Appendix 2.1

Environmental Requirements in Tenancy Agreements
(Phase 1)

GENERAL ENVIRONMENTAL RESPONSIBILITIES

9.1 The Tenant shall at its own cost(s) comply with and shall ensure that the Premises is used, designed, constructed, operated and maintained in accordance with:-

(a) All relevant Ordinances, by-laws, regulations, statutory technical memorandums, codes of practice, rules, non-statutory guidance notes, schemes and abatement notices for the time being in force in Hong Kong including those relating to the environment and governing the control of any form of pollution (see specific Ordinances mentioned hereinbelow) and licensing requirements under relevant Ordinances and regulations.

(b) All information, mitigation measures, prohibitions, restrictions, recommendations and requirements under the Environmental Impact Assessment Report for Development of an EcoPark in Tuen Mun Area 38 with Appendices, i.e. the EIA Report (Register No.: AEIAR-086/2005) dated April 2005, the Final EM&A Manual dated April 2005, the application documents including all attachments (Application No. AEP-226/2005) and other relevant documents in the Register (or in any other places, any internet websites or by any other means as specified by the Director), including the prohibitions and mitigation measures for processes in Table 14.1 and the material throughputs, processes and remarks in Table B.1 of the EIA Report (in so far as applicable).

(c) All information, conditions, submissions, mitigation measures, orders, notices, requirements, prohibitions, restrictions and time limits under the Environmental Permit No. EP-226/2005 as amended by the Variation of Environmental Permit – Application No.VEP-221/2006 (including updated information about the Permit, any amended permit and any further permit) and all mitigation measures recommended and to be recommended in submissions that shall be deposited with or approved by the Director as a result of permit conditions contained in the Environmental Permit No. EP-226/2005 as amended by the Variation of Environmental Permit – Application No.VEP-221/2006 (including updated information about the Permit, any amended permit and any further permit). The Tenant shall refer to, inter alia, Conditions 4.1 to 4.14 (and Annexes A and B) and Conditions 3.7 and 3.8 (and Figures 2 and 3) of the Environmental Permit No. EP-226/2005 as amended by the Variation of Environmental Permit – Application No.VEP-221/2006 regarding measures to mitigate air quality impact, measures to mitigate hazard to life impact, measures to prevent land contamination, measures to mitigate landfill gas hazard, maintenance of landscape and visual measures (see also hereinbelow regarding Condition 5 of the Environmental Permit and specified Ordinances).

(d) All information, conditions, submissions, mitigation measures, orders, notices and requirements under on going surveillance and monitoring activities during all stages of the Project and during the tenancy under the Tenancy Agreement (e.g. any additional mitigation measures recommended and to be recommended under the Process Review and Design Audit (carried out and to be carried out in accordance with the EM&A Manual) for various environmental impacts including, but not limited to,

noise pollution, air quality, hazard to life, landfill gas hazard, landscape and visual measures, waste management and land contamination).

(e) All recommendations referred to in the documents of the EIAO Register which are not expressly referred to in Environmental Permit No. EP-226/2005 as amended by the Variation of Environmental Permit – Application No.VEP-221/2006 and any amended Environmental Permit (unless expressly excluded or impliedly amended in the Environmental Permit No. EP-226/2005 as amended by the Variation of Environmental Permit – Application No.VEP-221/2006 and any amended Environmental Permit).

9.2 Further to Condition Nos. 6 and 8 hereinabove, the Tenant shall at its own cost provide relevant environmental monitoring data, information, documents and assistance to the Director and/or the Environmental Protection Department and shall permit authorised representatives of the Environmental Protection Department to access, inspect, take samples and monitor the Premises and operations for the Process Review and the Design Audit carried out and/or to be carried out pursuant to Conditions 4.1 and 5 of the Environmental Permit No. EP-226/2005 as amended by the Variation of Environmental Permit – Application No.VEP-221/2006 (and any updated Permit, amended permit and further permit).

9.3 If the Tenant's operations (i.e. activities and facilities for recovery and/or recycling and/or reprocessing) are not covered by the EIA Report and/or deviate from the development parameters mentioned in inter alia the EIA Report, the Environmental Permit No. EP-226/2005 as amended by the Variation of Environmental Permit – Application No.VEP-221/2006 (including the parameters at Annex A) and/or any environmental licence (e.g. the Water Treatment Facility ("WTF") Discharge Licence), and if additional mitigation measures are not available or are not effective in the opinion of the Director, to ensure compliance with the EIA Report, the Environmental Permit No. EP-226/2005 as amended by the Variation of Environmental Permit – Application No.VEP-221/2006 (including any updated Permit, amended permit and further permit) and the relevant environmental licence(s), the Tenant shall comply with any modified parameters and/or the Tenant shall immediately modify its operations in such a way that the findings and requirements of the EIA Report, the Environmental Permit No. EP-226/2005 as amended by the Variation of Environmental Permit – Application No.VEP-221/2006 (including any updated Permit, amended permit and further permit) and the environmental licence(s) are complied with and shall immediately cease to continue the offending part of the operations or activity in question.

9.4 The Tenant shall at its own cost(s) apply for, obtain, renew, maintain and comply with all the relevant licences related to compliance with all relevant Ordinances, by-laws, regulations, statutory technical memorandums, codes of practice, rules, non-statutory guidance notes, schemes, abatement notices and the environmental permits for the time being in force in Hong Kong (including those relating to the environment and governing the control of any form of pollution). The Tenant shall obtain, renew and comply with all the said licences within the relevant time limits (in any event, within one (1) calendar month of the date of signing and/or execution of the Tenancy Agreement), shall comply with all abatement notices, orders, directions and requests of the relevant authorities and public officers and shall be responsible for paying all relevant fees, costs, fines and penalties.

9.5 The Tenant shall not do anything or omit to do anything which would cause, contribute to or involve a breach or potential breach by the Director relating to any of the matters mentioned in Conditions 9.1 to 9.4 hereinabove (and other Conditions hereinbelow).

9.6 The Tenant shall fully indemnify the Government and/or the Director for any fees, costs, damages, expenses, fines, penalties, losses and claims arising (a) out of any breach of any of the matters mentioned in inter alia Conditions 9.1 to 9.4 hereinabove (and other Conditions hereinbelow) or (b) from the use of the Premises or (c) out of any works carried out at any time during the term to or at the Premises or (d) out of anything now or during the term attached to or projecting from the Premises or (e) from any neglect or default by the Tenant or by its respective servants or agents or by any express licensee of the Tenant.

SPECIFIC ENVIRONMENTAL RESPONSIBILITIES

Air Pollution

10. Save with an appropriate exemption under the Air Pollution Control Ordinance (Cap. 311 of the Laws of Hong Kong) any regulations made thereunder and any amending legislation, the Tenant shall not install or permit or suffer to be installed upon the Premises or any part thereof or any building(s) or structure(s) or part of any building(s) or structure(s) erected or to be erected thereon any furnace, oven, chimney or flue or any other combustion equipment or use or permit or suffer to be used any fuel or any method or process of manufacture or treatment that might in any circumstance result in, cause or contribute to the discharge or emission of any pollutant or any noxious, harmful or corrosive matter, whether it be in the form of gas, smoke, liquid, solid or otherwise (including but not limited to air pollutant as defined in Section 2 of the Air Pollution Control Ordinance (Cap. 311 of the Laws of Hong Kong)), which exists or which is imminent, without the prior written approval of the Director.

11. No alteration to the installation and method of manufacture shall be made without the prior written consent of the Director. In any event, the Tenant shall at its own cost(s) comply with, inter alia, Conditions 4.2 to 4.7 and Annex A of the Environmental Permit No. EP-226/2005 as amended by the Variation of Environmental Permit – Application No.VEP-221/2006 regarding design, installation and operation of chimney, location of fresh air intakes and use of ultra-low sulphur or other cleaner fuel(s) as agreed by the Director (and the conditions of any updated Permit, amended permit and further permit regarding measures to mitigate air quality impact), good practices and relevant provisions of the EIA Report and Final EM&A Manual.

Noise Pollution

12. The Tenant shall take all necessary measures as may be required by and to the satisfaction of the Director to ensure that the operation of all plant and equipment, installed or used on the Premises or in any building(s) or structure(s) or any part of any building(s) or structure(s) erected or to be erected thereon, will not result, not cause and/or will not contribute any noise (which exists or which is imminent) which disturbs or annoys the residents or occupiers of any adjoining or neighbouring lot or lots or premises, or causes and/or contributes to

disturbance to the general public under the Noise Control Ordinance (Cap. 400 of the Laws of Hong Kong) any regulations made thereunder and any amending legislation.

13. The decision of the Director as to whether any such plant and equipment are causing disturbance or annoyance as aforesaid shall be final and binding on the Tenant.

Waste Management

14. The Tenant shall not permit, allow or suffer any fuel or chemical and any sewage, waste water or effluent containing sand, cement, silt or any suspended or dissolved material to flow, escape or run from the Premises onto any adjoining land or allow any waste matter which does not form part of the recovery and/or recycling and/or reprocessing operation or is not part of the final product of such operation to be deposited, kept, held or stored anywhere within the Premises and other areas of EcoPark. The Tenant shall at its own cost(s) have all such matters and all waste arising from recycling activities, chemical waste arising from maintenance of plant and equipment, sewage sludge (from WTF) and general daily waste from the operation removed from the Premises or any building(s) or structure(s) or any part of any building(s) or structure(s) erected or to be erected thereon in a proper manner to the satisfaction of the Director.

15. In any event, the Tenant shall at its own cost(s) comply with, inter alia, Conditions 4.11 and 4.12 of the Environmental Permit No. EP-226/2005 as amended by the Variation of Environmental Permit – Application No.VEP-221/2006 regarding paving all areas of the Premises with concrete/using concrete hardstanding and siting all fuel tanks and chemical storage areas on the specified sealed areas, respectively (and comply with the conditions of any updated Permit, amended permit and further permit regarding measures to prevent land contamination). The Tenant shall at its own cost(s) comply with relevant provisions of the Waste Disposal Ordinance (Cap.354 of the Laws of Hong Kong) good practices and relevant provisions of the EIA Report and Final EM&A Manual.

Water Pollution

16. In the event that the Tenant produces, generates, permits, causes, allows or suffers any discharge which is subject to control under the Water Pollution Control Ordinance (Cap. 358 of the Laws of Hong Kong) any regulations made thereunder and any amending legislation, and is not covered by a WTF Discharge Licence issued under the Water Pollution Control Ordinance (Cap. 358 of the Laws of Hong Kong) the Tenant shall apply to the Director for a licence and comply with the terms and conditions stipulated in the licence and the WTF Discharge Licence at the Tenant's own cost(s). Otherwise, the Tenant is not allowed to discharge directly or indirectly or to produce, generate, permit, cause, allow or suffer any discharge into any public sewer, storm-water drain, channel, stream-course, sea or any area inside or outside the Premises any trade effluent or foul or contaminated water or cooling or hot water. Subject to the said licence from the Director and WTF Discharge Licence, the Tenant shall at its own cost(s) separate, collect, discharge and send all process or industrial wastewater to the WTF for treatment to the standard required for discharge into a sewer leading to the sewage treatment works at Pillar Point or other treatment works specified in the licence.

17. Subject to obtaining advance written approval of the Director, the Tenant shall at its own cost(s) provide, install, operate and maintain its own waste water pre-treatment plants within the Premises if such process or industrial wastewater could not meet the influent limits / exceeds the maximum influent criteria of the WTF (in accordance with paragraph 7.2.9 of the Final E&MA Manual). The Tenant shall at its own cost(s) separate, collect, discharge and send all domestic wastewater (i.e. other than process or industrial wastewater) to the Pillar Point Sewage Treatment Works directly for treatment or other treatment works specified in the licence.

18. In any event, the Tenant shall prevent any spilled materials from entering the surface water drainage system and prevent contamination of the sea at its own cost(s) by, inter alia, providing, installing, operating and maintaining stop-logs or interceptors in the surface water drainage system and at the marine frontage area, respectively, or as required by the licence. The Tenant shall at its own cost comply with relevant provisions of the Dumping at Sea Ordinance (Cap 466 of the Laws of Hong Kong) good practices and relevant provisions of the EIA Report and Final EM&A Manual.

Hazard to Life Impact

19. To mitigate hazard to life impact, the Tenant shall comply with, inter alia, Conditions 4.8 to 4.10 of the Environmental Permit No. EP-226/2005 as amended by the Variation of Environmental Permit – Application No.VEP-221/2006 (and comply with the conditions of any updated Permit, amended permit and further permit regarding measures to mitigate hazard to life impact) and shall not:-

(a) Bring, keep, store or transport chlorine within the Premises and other areas of EcoPark;

(b) Bring, keep, store, locate or transport dangerous goods, substances and fuels supporting combustion including oxygen, acetylene, hydrogen peroxide, rubber tyres and diesel within 10 metres from the boundary of the site of EcoPark; and

(c) Exceed the building height restrictions for buildings on the Premises which are on/near the western boundary of the site of EcoPark as mentioned in Annex B to the Environmental Permit No. EP-226/2005 as amended by the Variation of Environmental Permit – Application No.VEP-221/2006 (including any updated Permit, amended permit and further permit).

Landfill Gas Hazard

20. To mitigate landfill gas hazard, the Tenant shall at its own cost(s) comply with, inter alia, Condition 4.13 of the Environmental Permit No. EP-226/2005 as amended by the Variation of Environmental Permit – Application No.VEP-221/2006 regarding raising clear of the ground all buildings and enclosed structures as specified in inter alia Condition 3.7 (and comply with the conditions of any updated Permit, amended permit and further permit regarding measures to mitigate hazard to life impact).

Landscape and Visual Impacts

21. To mitigate landscape and visual impacts, the Tenant shall at its own cost(s) comply with, inter alia, Condition 4.14 of the Environmental Permit No. EP-226/2005 as amended by the Variation of Environmental Permit – Application No.VEP-221/2006 regarding maintaining landscape, planting, treatment and mitigation measures as specified in inter alia Condition 3.8 and Figure 3 (and comply with the conditions of any updated Permit, amended permit and further permit regarding measures to mitigate landscape and visual impacts).

Appendix 2.2

Environmental Requirements in Tenancy Agreements
(Phase 2)

Compliance of Environmental Legislation

5. The Tenant shall comply with and observe all Ordinances, by-laws, regulations and rules for the time being in force in Hong Kong governing the control of any form of pollution, including air, noise, water and waste pollution, and for the protection of the environment.

Air Pollution

6. Save with an appropriate exemption under the Air Pollution Control Ordinance (Cap. 311) any regulations made thereunder and any amending legislation, the Tenant shall not install or permit or suffer to be installed upon the Premises or any part thereof or any building(s) or structure(s) or part of any building(s) or structure(s) erected or to be erected thereon any furnace, oven, chimney or flue or any other combustion equipment or use or permit or suffer to be used any fuel or any method or process of manufacture or treatment that might in any circumstance result in, cause or contribute to the discharge or emission of any pollutant or any noxious, harmful or corrosive matter, whether it be in the form of gas, smoke, liquid, solid or otherwise (including but not limited to air pollutant as defined in Section 2 of the Air Pollution Control Ordinance

(Cap. 311), which exists or which is imminent, without the prior written approval of the Director.

Water Pollution

7. (a) In the event that the Tenant produces, generates, permits, causes, allows or suffers any discharge which is subject to control under the Water Pollution Control Ordinance (Cap. 358) any regulations made thereunder and any amending legislation, the Tenant shall apply to the Director for a licence and comply with the terms and conditions stipulated in the licence at the Tenant's own cost(s). Otherwise, the Tenant is not allowed to discharge directly or indirectly or to produce, generate, permit, cause, allow or suffer any discharge into any public sewer, storm-water drain, channel, stream-course, sea or any area inside or outside the Premises any trade effluent or foul or contaminated water or cooling or hot water. Subject to the said licence from the Director, the Tenant shall at its own cost(s) separate, collect, and discharge all process or industrial wastewater which comply with the standard required for discharge into a sewer leading to the sewage treatment works at Pillar Point or other treatment works specified in the licence.

(b) Subject to obtaining advance written approval of the Director, the Tenant shall at its own cost(s) provide, install, operate and maintain its own waste water pre-treatment plants within the Premises if such process or industrial wastewater could not meet the standard required for discharge into a sewer leading to the sewage treatment works at Pillar Point or other treatment works specified in the licence. The Tenant shall at its own cost(s) separate, collect, discharge and send all domestic wastewater (i.e. other than process or industrial wastewater) to the Pillar Point Sewage Treatment Works directly for treatment or other treatment works specified in the licence.

(c) In any event, the Tenant shall prevent any spilled materials from entering the surface water drainage system and prevent contamination of the sea at its own cost(s) by, inter alia, providing, installing, operating and maintaining stop-logs or interceptors in the surface water drainage system and at the marine frontage area, respectively, or as required by the licence. The Tenant shall at its own cost comply with relevant provisions of the Dumping at Sea Ordinance (Cap. 466) good practices and relevant provisions of the EIA Report and Final EM&A Manual.

Waste Management

8. (a) The Tenant shall at its own cost(s) comply with relevant provisions of the Waste Disposal Ordinance (Cap. 354).

(b) The Tenant shall not permit, allow or suffer any fuel or chemical and any sewage, waste water or effluent containing sand, cement, silt or any suspended or dissolved material to flow, escape or run from the Premises onto any adjoining land or allow any waste matter which does not form part of the recovery and/or recycling and/or reprocessing operation or is not part of the final product of such operation to be deposited, kept, held or stored anywhere within the Premises and other areas of EcoPark. The Tenant shall at its own cost(s) have all such matters and all materials arising from recycling activities, chemical materials arising from maintenance of plant and equipment, sewage sludge (from wastewater treatment facilities, if any) and general daily waste from the operation removed from the Premises or any building(s) or structure(s) or any part of any building(s) or structure(s) erected or to be erected thereon in a proper manner to the satisfaction of the Landlord and/or the Director.

Noise Pollution

9. (a) The Tenant shall take all necessary measures as may be required by and to the satisfaction of the Landlord and/or the Director to ensure that the operation of all plant and equipment, installed or used on the Premises or in any building(s) or structure(s) or any part of any building(s) or structure(s) erected or to be erected thereon, will not result, not cause and/or will not contribute any noise (which exists or which is imminent) which disturbs or annoys the residents or occupiers of any adjoining or neighbouring lot or lots or premises, or causes and/or contributes to disturbance to the general public under the Noise Control Ordinance (Cap. 400) any regulations made thereunder and any amending legislation.

(b) The decision of the Landlord or the Director as to whether any such plant and equipment are causing disturbance or annoyance as aforesaid shall be final and binding on the Tenant.

Landfill Gas Hazard

10. To mitigate landfill gas hazard, the Tenant shall at its own cost(s) comply with, inter alia, Condition 4.13 of the Environmental Permit No. EP-226/2005/A regarding raising clear of the ground all buildings and enclosed structures as specified in inter alia

Condition 3.7 (and comply with the conditions of any updated Permit, amended permit and further permit regarding measures to mitigate hazard to life impact).

EcoPark Being Within the 250m Consultation Zone of Siu Lang Shui Landfill

11. (a) The Tenant acknowledges that the EcoPark is within the 250m Consultation Zone of the Siu Lang Shui Landfill and that the Premises may be affected by problems associated with migrating landfill gas and undertakes to provide suitable precautionary or protection measures at his own expense to control these potential hazards.

(b) The Tenant shall ensure all personnel entering the Premises and all visitors to the Premises are aware of the potential hazards of the landfill gas by posting suitable warning notices of the potential hazards at his own expense.

(c) All buildings and enclosed structures, including temporary offices, temporary stores and the administration building, within the 250m Consultation Zone of the Siu Lang Shui Landfill shall be provided with the following measure(s):

(i) buildings shall be raised clear of the ground with a clear separation distance (as measured from the highest point on the ground surface to the underside of the lowest floor joist) of at least 500mm; or

(ii) a low-gas permeability membrane shall be applied to the surface of any wall or floor slab that rests on or is below ground. A gravel-fill vent system shall be provided such that passive venting is achieved around the perimeter of the structure. In addition, other building materials, such as dense well-compacted concrete or steel shuttering which provide a measure of resistance to gas permeation, shall be used to achieve gas protection.

(d) The Tenant shall ensure that the electrical equipment used on the Premises shall be intrinsically safe. Welding, flame-cutting or other hot works shall be confined to the open areas of the Premises and shall be at least 15m away from any ground-level confined space.

(e) No drilling, trenching and excavation shall be allowed on the Premises. During any construction work, the Tenant shall observe the guidelines recommended in Chapter 8 of the "Landfill Gas Hazard Assessment Guidance Note" published by the Department of Environmental Protection. In particular, no smoking, naked

flames and all other sources of ignition shall be allowed within 15m of any ground-level confined space.

Hazard to Life Impact

12. To mitigate hazard to life impact, the Tenant shall comply with, inter alia, Conditions 4.8 to 4.10 of the Environmental Permit No. EP-226/2005/A (and comply with the conditions of any updated Permit, amended permit and further permit regarding measures to mitigate hazard to life impact) and shall not:-

    (a) bring, keep, store or transport chlorine within the Premises and other areas of EcoPark;

    (b) bring, keep, store, locate or transport dangerous goods, substances and fuels supporting combustion including oxygen, acetylene, hydrogen peroxide, rubber tyres and diesel within 10 metres from the boundary of the site of EcoPark; and

    (c) exceed the building height restrictions for buildings on the Premises which are on/near the western boundary of the site of EcoPark as mentioned in Annex B to the Environmental Permit No. EP-226/2005/A (including any updated Permit, amended permit and further permit).

Landscape and Visual Impacts

13. To mitigate landscape and visual impacts, the Tenant shall at its own cost(s) comply with, inter alia, Condition 4.14 of the Environmental Permit No. EP-226/2005/A regarding maintaining landscape, planting, treatment and mitigation measures as specified in inter alia Condition 3.8 and Figure 3 (and comply with the conditions of any updated Permit, amended permit and further permit regarding measures to mitigate landscape and visual impacts).

Environmental Permits Relating to EcoPark

14. The Tenant hereby declares, confirms and acknowledges that it is fully aware that, pursuant to the Environmental Impact Assessment Ordinance (Cap.499), the Director has the right to grant, amend or revoke environmental permit(s) or to grant further or amended environmental permit(s) relating to the lots comprising the EcoPark and any other lots but that such right may be challenged by third parties on justifiable grounds. The Tenant hereby undertakes to waive all its rights and remedies for any loss, damages, cost and expenses whatsoever which it may sustain and/or incur directly or

indirectly as a result of the grant, amendment or revocation of the environmental permit(s) or the consequential grant of further or amended environmental permit(s), including but not limited to any right to terminate this Lease and/or to make any claim against the Landlord and/or the Director for any compensation whatsoever.

Appendix 3

Material and Waste Throughputs

Appendix 3.1

Material and Waste Throughputs of the Reporting Year

Table A3.1-1 Recycling of Waste Organic Food

Date	Waste Input (tonnes)	Product Output (tonnes)	Waste Disposal (tonnes)
January 2017	1,141	643*	547
February 2017	1,119	653*	522
March 2017	1,201*	631*	596*
April 2017	919*	503*	518*
May 2017	1,042*	618*	513*
June 2017	933*	562*	425*
July 2017	914	492	418
August 2017	924	483	415
September 2017	929	444	436
October 2017	914	392	482
November 2017	890*	335	483*
December 2017	284(4)	281(4)	12(4)
Total	**11,208**	**6,038**	**5,366**

Table A3.1-2 Recycling of Waste Ferrous Metal

Date	Waste Input (tonnes)	Product Output (tonnes)	Waste Disposal (tonnes)
January 2017	11,242	13,353	82
February 2017	8,749	6,810	69
March 2017	10,928	13,688	76
April 2017	13,981	9,681	67
May 2017	8,943	11,271	81
June 2017	14,101	14,757	69
July 2017	12,971	11,684	67
August 2017	15,372	15,777	71
September 2017	15,815	13,105	69
October 2017	11,178	12,299	71
November 2017	16,717	12,715	79
December 2017	13,621*	15,524	70
Total	**153,617**	**150,663**	**871**

Table A3.1-3 Recycling of Waste Wood

Date	Waste Input (tonnes)	Product Output (tonnes)	Waste Disposal (tonnes)
January 2017	86	48	-
February 2017	105	-	-
March 2017	92	-	-
April 2017	80	-	-
May 2017	32	-	-
June 2017	-	-	-
July 2017	-	-	-
August 2017	63	102	-
September 2017	65	206	-
October 2017	23	154	-
November 2017	n/a	n/a	n/a
December 2017	n/a	n/a	n/a
Total	**546**	**510**	**-**

Table A3.1-4 Recycling of Waste Electronics

Date	Waste Input (tonnes)	Product Output (tonnes)	Waste Disposal (tonnes)
January 2017	185	24	14
February 2017	157*	71*	-
March 2017	151*	225*	1
April 2017	110	41	3
May 2017	161	146	19
June 2017	203	78	37
July 2017	177	146	2
August 2017	87	121	2
September 2017	93	80	4
October 2017	141	54	2
November 2017	56	61	2
December 2017	n/a	n/a	n/a
Total	**1,520**	**1,046**	**86**

Table A3.1-5 Recycling of Waste Plastic

Date	Waste Input (tonnes)	Product Output (tonnes)	Waste Disposal (tonnes)
January 2017	105	87	-
February 2017	99	98	-
March 2017	218	205	-
April 2017	75	69	-
May 2017	121	13	-
June 2017	332	123	-
July 2017	65	287	-
August 2017	46	31	-
September 2017	103	47	-
October 2017	40	20	-
November 2017	41	24	-
December 2017	n/a	n/a	n/a
Total	**1,245**	**1,004**	**-**

Table A3.1-6 Recycling of Waste Glass and Construction Waste

Date	Waste Input (tonnes)		Product Output (tonnes)	Waste Disposal (tonnes)
	Construction Waste	Glass		
January 2017	259	133	7,988	47
February 2017	485	181	7,681	43
March 2017	596	125	9,558	41
April 2017	289	100	7,366	31
May 2017	236	152	7,844	62
June 2017	895	152	8,200	56
July 2017	369	148	6,843	102
August 2017	923	117	7,503	32
September 2017	2,042	107	8,441	93
October 2017	1,605	179	6,613	70
November 2017	313	177	7,482	95
December 2017	n/a	n/a	n/a	n/a
Total	**8,012**	**1,571**	**85,519**	**672**

Table A3.1-7 Recycling of Waste Rubber Tyres

Date	Waste Input (tonnes)	Product Output (tonnes)	Waste Disposal (tonnes)
January 2017	-	-	-
February 2017	-	-	-
March 2017	-	-	-
April 2017	-	-	-
May 2017	-	-	-
June 2017	-	-	-
July 2017	-	-	-
August 2017	-	-	-
September 2017	-	-	-
October 2017	-	-	-
November 2017	-	-	-
December 2017	n/a	n/a	n/a
Total			

Notes:

1) The throughput data presented in ***Tables A3.1-1*** to ***A3.1-7*** has been rounded off to the nearest whole tonne for presentation. Unavailable data will be reported in the next EM&A report.
2) The total product output may not be the same as the waste input due to processing of materials that were received before the reporting year and were stored within the lots.
3) Waste disposal refers to the disposal of general refuse (i.e. packaging) and/or chemical waste.
4) The presented throughput data is the best available data.
5) The throughput data marked with "*" have been revised with updated data since submission of corresponding quarterly EM&A reports.
6) Since the recycling of waste glass and construction waste is combined to produce concrete block, the product output and waste disposal from both processes are combined in ***Table A3.1-6***.

Appendix 3.2

Updates of Material and Waste Throughputs of the Previous Reporting Year

Table A3.2-1 Recycling of Waste Organic Food

Date	Waste Input (tonnes)	Product Output (tonnes)	Waste Disposal (tonnes)
May 2015	1,263	324	696
June 2015	1,215	326	687
July 2015	1,240	333	727
August 2015	1,216	334	714
September 2015	858	382	291
October 2015	974	467	442
November 2015	904	398	410
December 2015	880	394	281
January 2016	883	328	305
February 2016	1,076	396	456
March 2016	1,218	421	498
April 2016	1,298	590	593
May 2016	1,348	594	685
June 2016	1,273	414	671
July 2016	1,223	591	609
August 2016	1,169	568	599
September 2016	1,254	610	659
October 2016	1,282	627	695
November 2016	1,217	620	627
December 2016	1,216	619	631

Table A3.2-2 Recycling of Waste Ferrous Metal

Date	Waste Input (tonnes)	Product Output (tonnes)	Waste Disposal (tonnes)
July 2016	10,799	10,242	48
August 2016	8,488	6,284	48
September 2016	8,058	9,156	74
October 2016	10,261	12,359	52
November 2016	12,280	8,844	61
December 2016	13,004	13,011	59

Table A3.2-3 Recycling of Waste Wood

Date	Waste Input (tonnes)	Product Output (tonnes)	Waste Disposal (tonnes)
December 2016	25	-	-

Table A3.2-4 Recycling of Waste Electronics

Date	Waste Input (tonnes)	Product Output (tonnes)	Waste Disposal (tonnes)
August 2016	133	142	1
September 2016	156	118	25
October 2016	145	88	5
November 2016	179	144	7
December 2016	122	118	10

Table A3.2-5 Recycling of Waste Plastic

Date	Waste Input (tonnes)	Product Output (tonnes)	Waste Disposal (tonnes)
July 2016	444	350	1
August 2016	461	355	-
September 2016	521	382	2
October 2016	420	278	45
November 2016	311	252	-
December 2016	247	110	-

Table A3.2-6 Recycling of Waste Glass and Construction Waste

Date	Waste Input (tonnes)		Product Output (tonnes)	Waste Disposal (tonnes)
	Construction Waste	Glass		
November 2016	3,544	187	10,499	30
December 2016	1,275	150	8,302	31

Notes:

1) The throughput data in ***Tables A3.2-1*** to ***A3.2-6*** supersede the same batch of the throughput data in previous Annual Environmental Monitoring & Audit Report. The presented data has been rounded off to the nearest whole tonne for presentation. Unavailable data will be reported in the next EM&A report.
2) The total product output may not be the same as the waste input due to processing of materials that were received before the reporting year and were stored within the lots.
3) Waste disposal refers to the disposal of general refuse (i.e. packaging) and/or chemical waste.
4) Since the recycling of waste glass and construction waste is combined to produce concrete block, the product output and waste disposal from both processes are combined in ***Table A3.2-6***.
5) The presented throughput is the best available data.

Appendix 4

Graphical Plots of LFG Monitoring

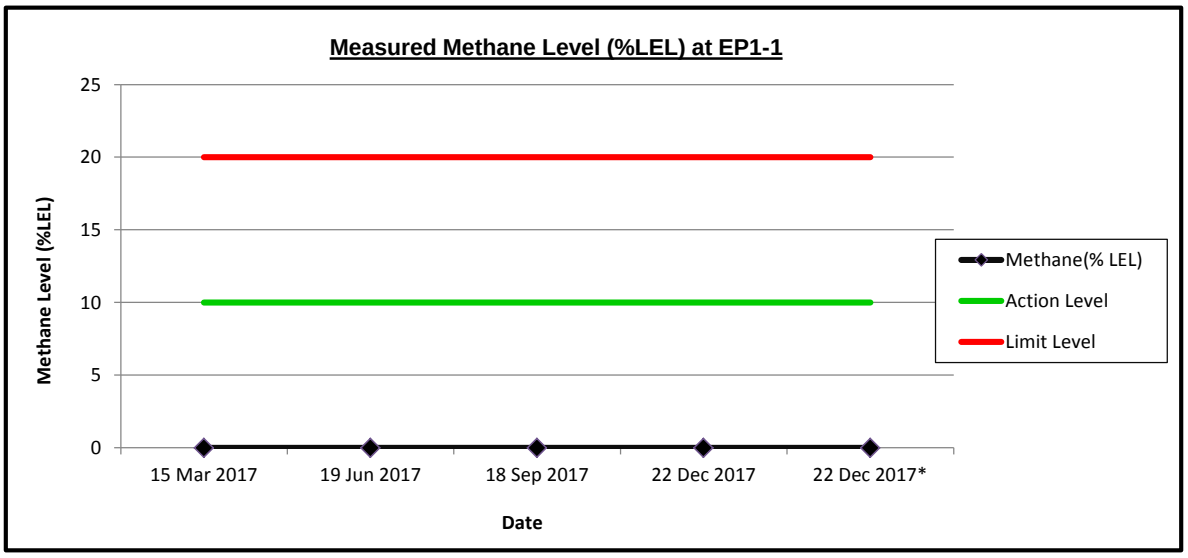
Landfill Gas Monitoring Results

Monitoring Station ID	Monitoring Locations	Weather Conditions	Temperature (°C)	Start Time	End Time	Measurement Results					Action Level			Limit Level			Remarks
						Methane		Oxygen	Carbon Dioxide	Barometric Pressure	Methane	Oxygen	Carbon Dioxide	Methane	Oxygen	Carbon Dioxide	
						% v/v	% LEL	% v/v	% v/v	mBar (absolute)	% LEL	% v/v	% v/v	% LEL	% v/v	% v/v	
15 March 2017																	
EP1-1	Inside the landscaping area of Administration Building	Overcast	17	10:05	10:08	0.0	0	20.2	0.5	1022	>10	<19	>0.5	>20	<18	>1.5	Nil
EP1-2	PCCW below-ground chamber outside Lot T2		17	9:45	9:48	0.0	0	20.6	0.0	1022							Nil
EP1-3	HGC Broadband below-ground chamber outside Lot T3		17	9:40	9:43	0.0	0	20.7	0.0	1022							Nil
EP2-1	HGC Broadband below-ground chamber outside Lot P1		17	9:55	9:58	0.0	0	20.5	0.0	1022							Nil
EP2-2	HGC Broadband below-ground chamber outside Lot P3		17	10:00	10:03	0.0	0	20.3	0.2	1022							Nil
19 June 2017																	
EP1-1	Inside the landscaping area of Administration Building	Overcast	27	10:15	10:18	0.0	0	19.8	0.1	1008	>10	<19	>0.5	>20	<18	>1.5	Nil
EP1-2	PCCW below-ground chamber outside Lot T2		27	9:55	9:58	0.0	0	20.1	0.2	1008							Nil
EP1-3	HGC Broadband below-ground chamber outside Lot T3		27	9:50	9:53	0.0	0	19.4	0.3	1008							Nil
EP2-1	HGC Broadband below-ground chamber outside Lot P1		27	10:00	10:03	0.0	0	19.9	0.2	1008							Nil
EP2-2	HGC Broadband below-ground chamber outside Lot P3		27	10:05	10:08	0.0	0	16.1	0.5	1008							Nil
EP2-2	HGC Broadband below-ground chamber outside Lot P3		27	10:20	10:23	0.0	0	19.1	0.1	1008							Re-measurement after the initial measurement to confirm the rectification of O2 exceedance to non-exceedance level after ventilation enhancement.
18 September 2017																	
EP1-1	Inside the landscaping area of Administration Building	Sunny	30	10:30	10:32	0.0	0	19.4	0.1	1013	>10	<19	>0.5	>20	<18	>1.5	Nil
EP1-2	PCCW below-ground chamber outside Lot T2		30	10:10	10:12	0.0	0	20.0	0.3	1013							Nil
EP1-3	HGC Broadband below-ground chamber outside Lot T3		30	10:05	10:07	0.0	0	19.6	0.5	1013							Nil
EP2-1	HGC Broadband below-ground chamber outside Lot P1		30	10:15	10:17	0.0	0	20.0	0.1	1013							Nil
EP2-2	HGC Broadband below-ground chamber outside Lot P3		30	10:18	10:20	0.0	0	18.6	0.9	1013							Nil
EP2-2	HGC Broadband below-ground chamber outside Lot P3		30	10:20	10:22	0.0	0	19.6	0.3	1013							Re-measurement after the initial measurement to confirm the rectification of O2 and CO2 exceedance to non-exceedance level after ventilation enhancement.
22 December 2017																	
EP1-1	Inside the landscaping area of Administration Building	Fine	22	10:05	10:07	0.0	0	19.8	0.7	1024	>10	<19	>0.5	>20	<18	>1.5	Nil
EP1-1	Inside the landscaping area of Administration Building		22	10:10	10:12	0.0	0	20.2	0.1	1024							Re-measurement after the initial measurement to confirm the rectification of CO_2 exceedance to non-exceedance level after ventilation enhancement.
EP1-2	PCCW below-ground chamber outside Lot T2		22	10:00	10:02	0.0	0	20.1	0.1	1024							Nil
EP1-3	HGC Broadband below-ground chamber outside Lot T3		22	9:50	9:52	0.0	0	20.4	0.2	1024							Nil
EP2-1	HGC Broadband below-ground chamber outside Lot P1		22	9:45	9:47	0.0	0	20.5	0.2	1024							Nil
EP2-2	HGC Broadband below-ground chamber outside Lot P3		22	9:40	9:42	0.0	0	20.5	0.2	1024							Nil

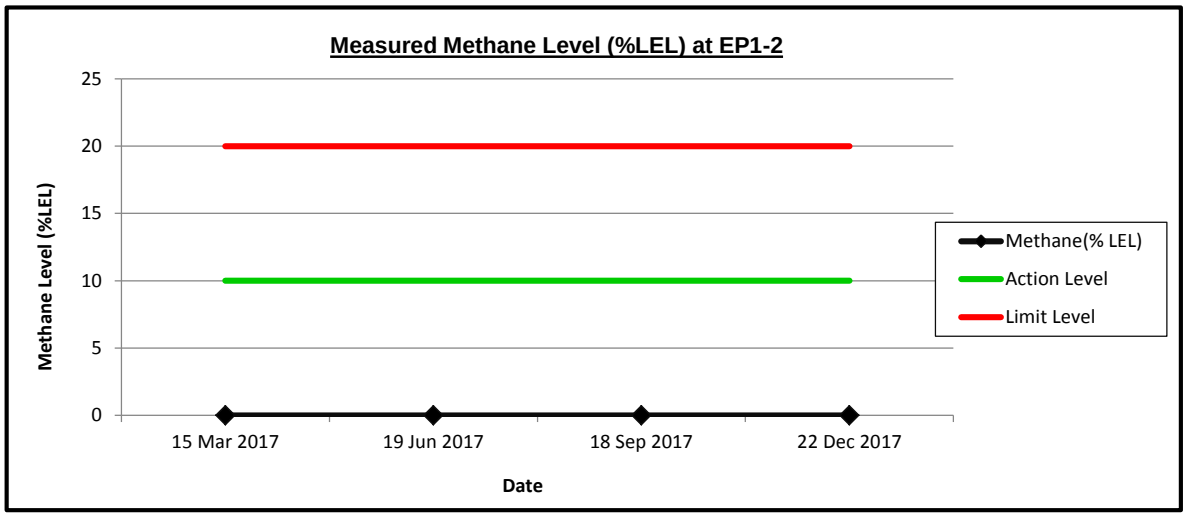
Notes:

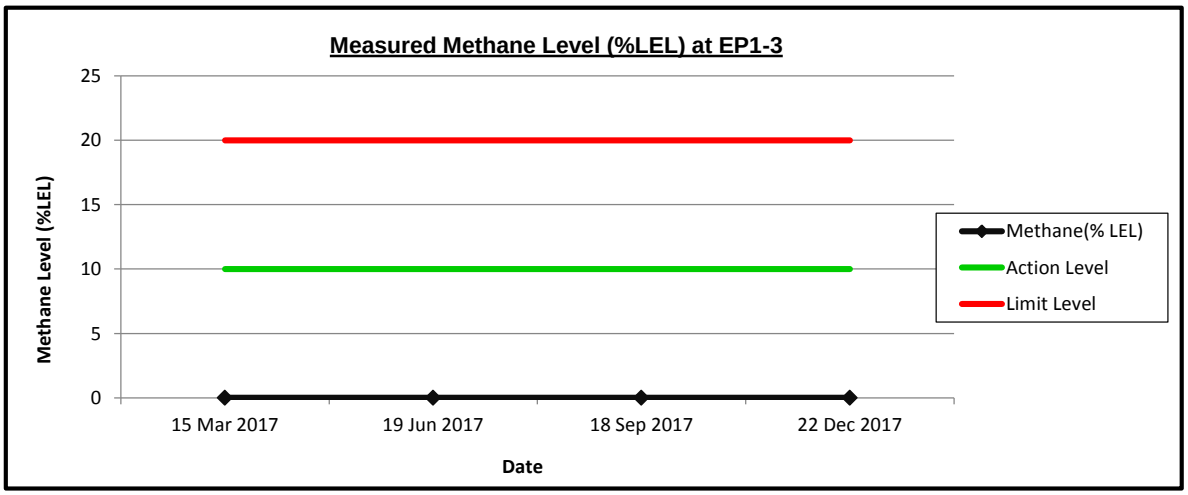
(1) Underlined figure indicates an exceedance of Action Level

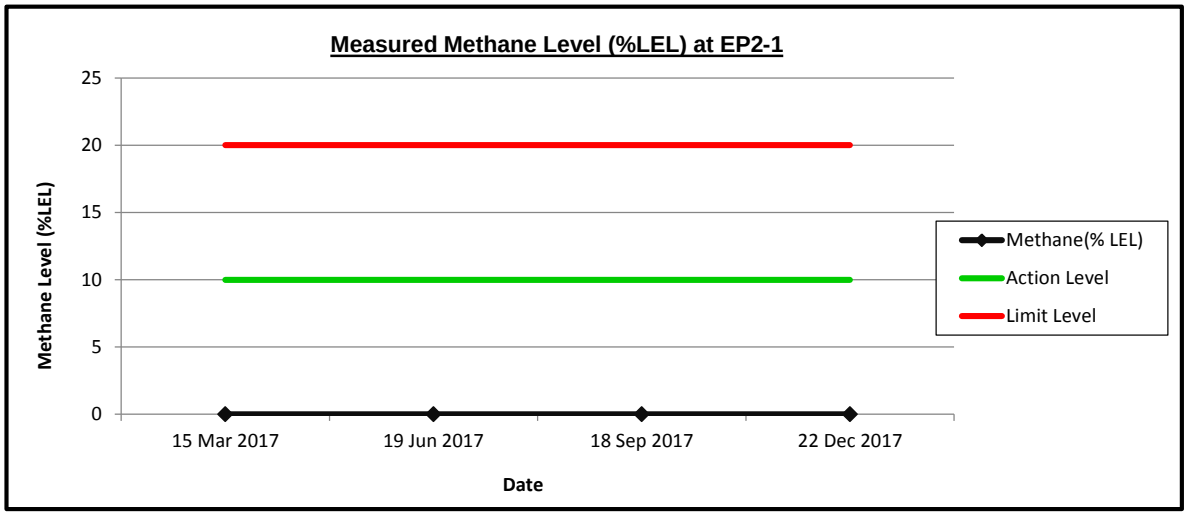
(2) Shaded area indicates an exceedance of Limit Level

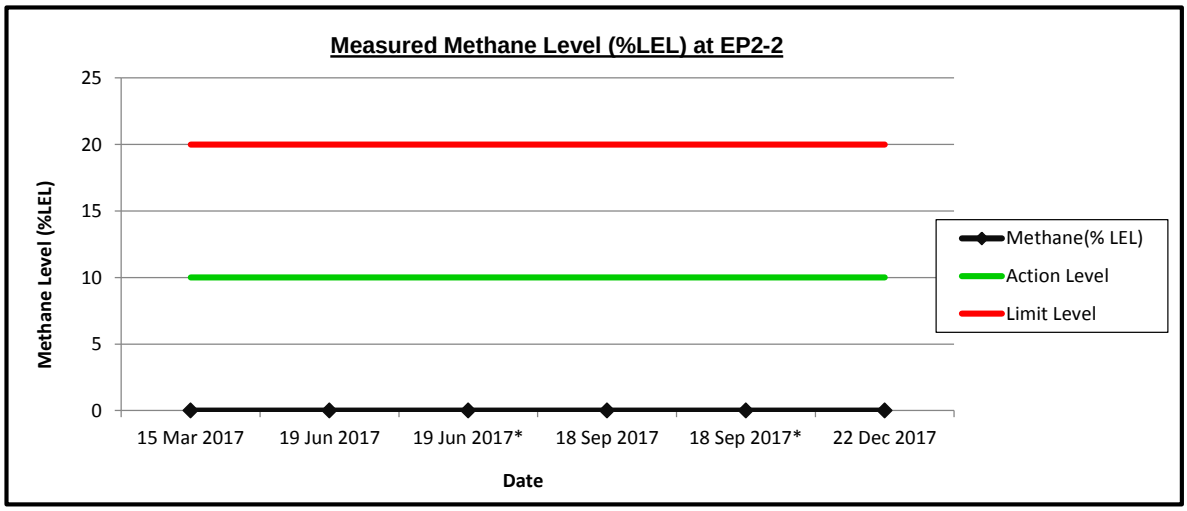


* Re-measurement was carried out after the initial measurement to confirm the rectification of exceedance after ventilation enhancement.

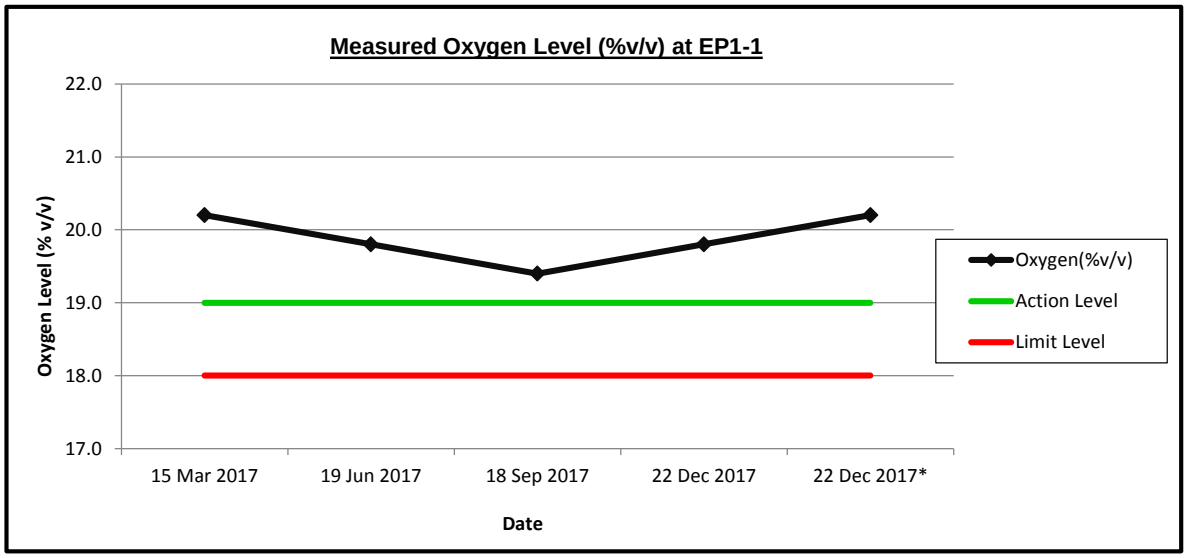




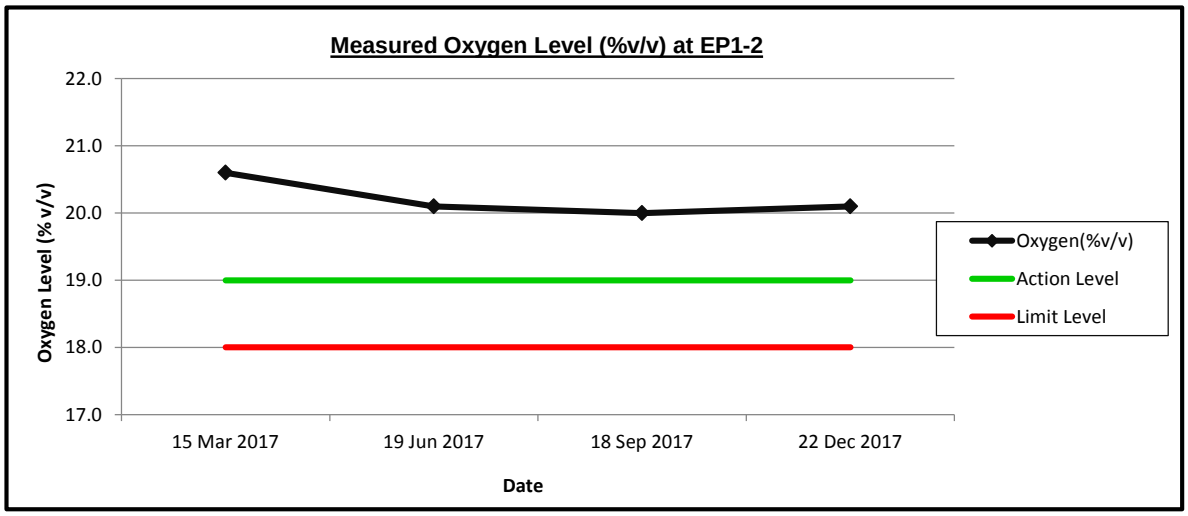


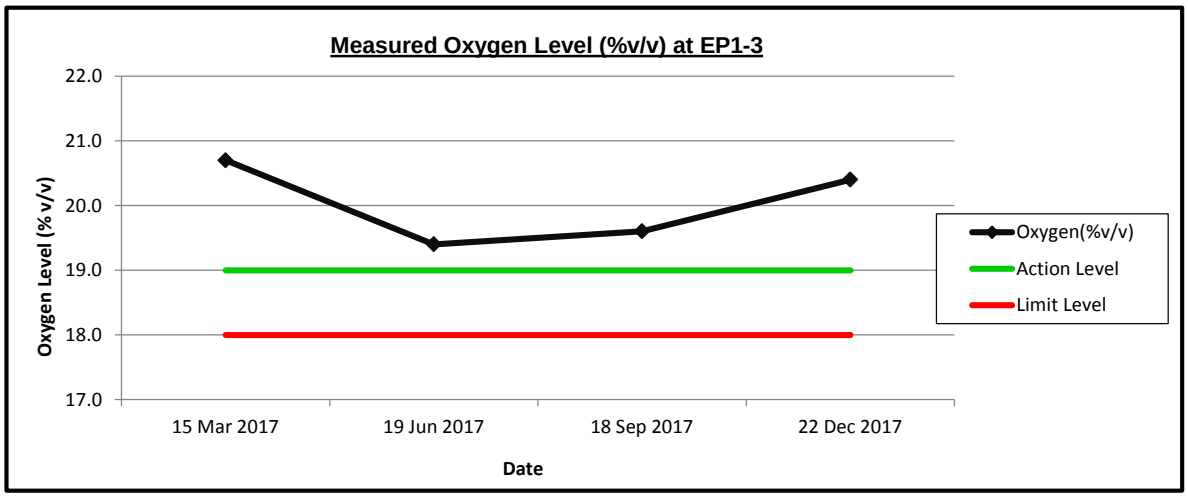


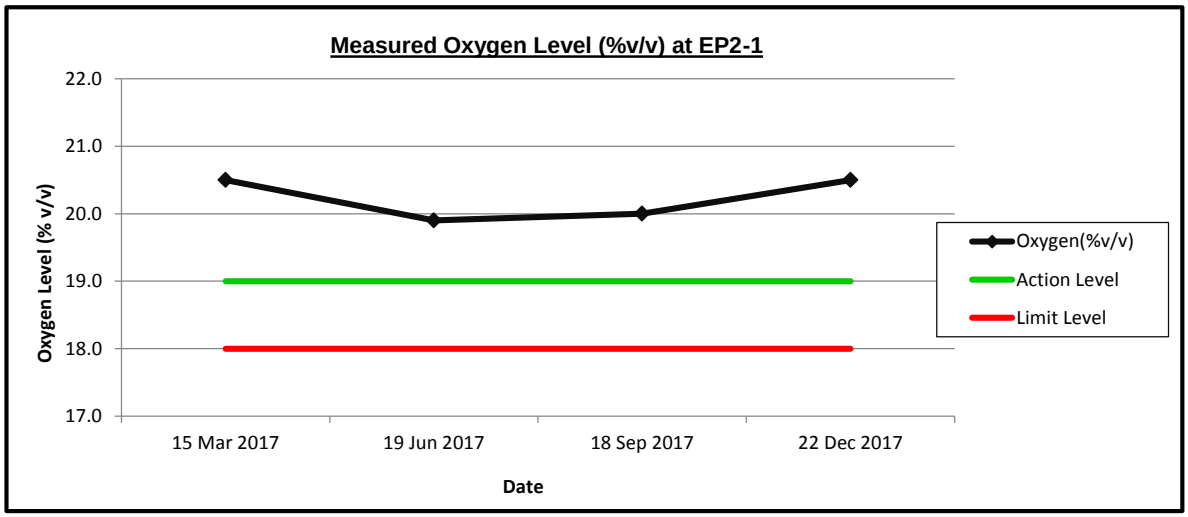
* Re-measurement was carried out after the initial measurement to confirm the rectification of exceedance after ventilation enhancement.

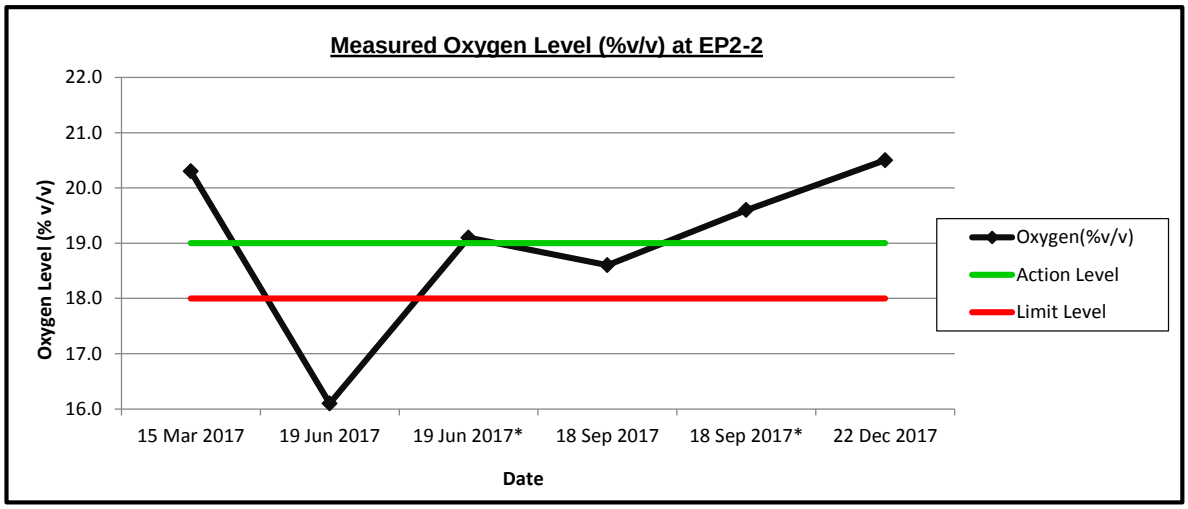


* Re-measurement was carried out after the initial measurement to confirm the rectification of exceedance after ventilation enhancement.









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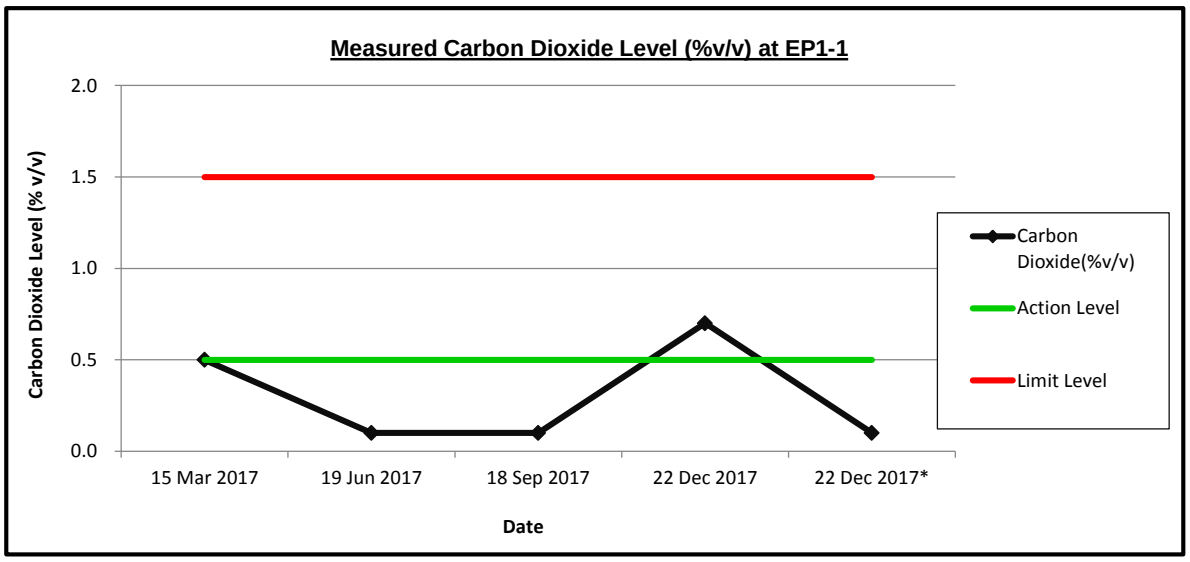
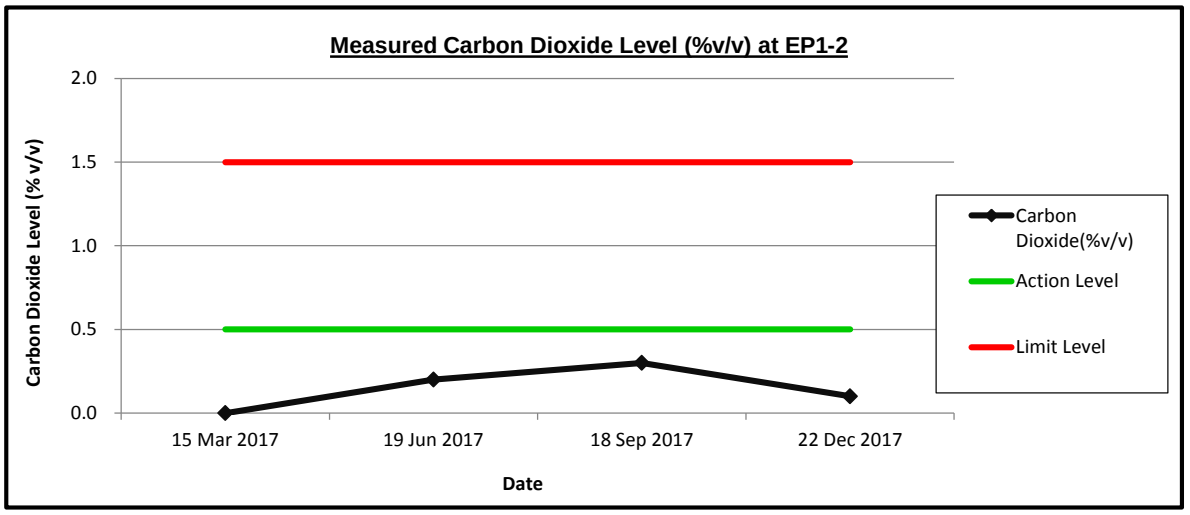
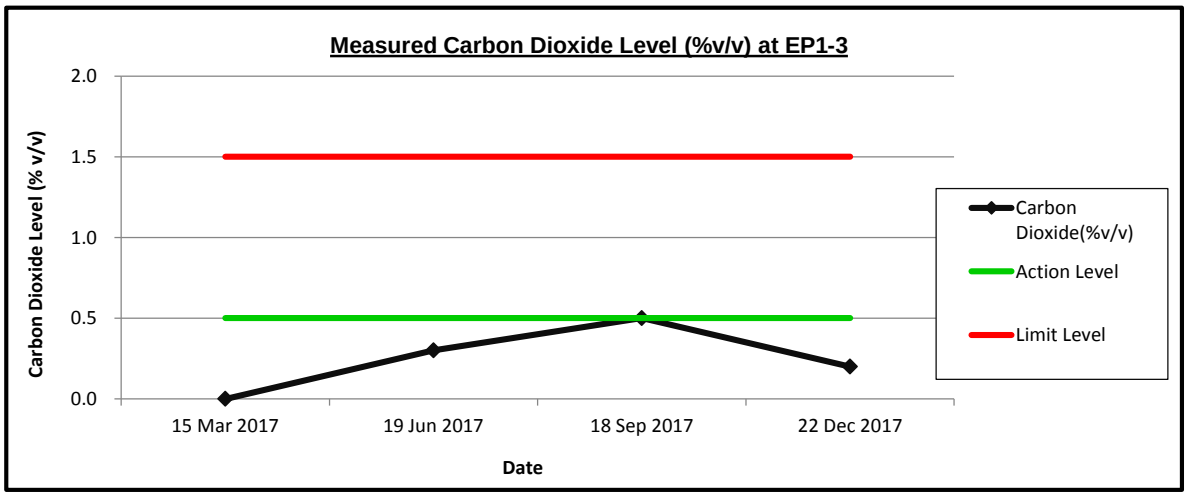
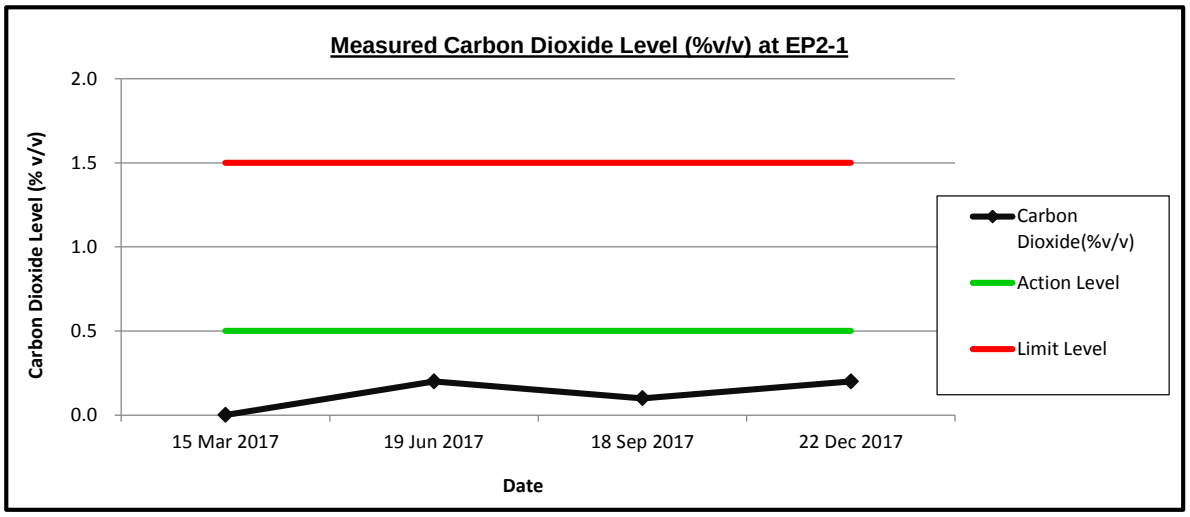
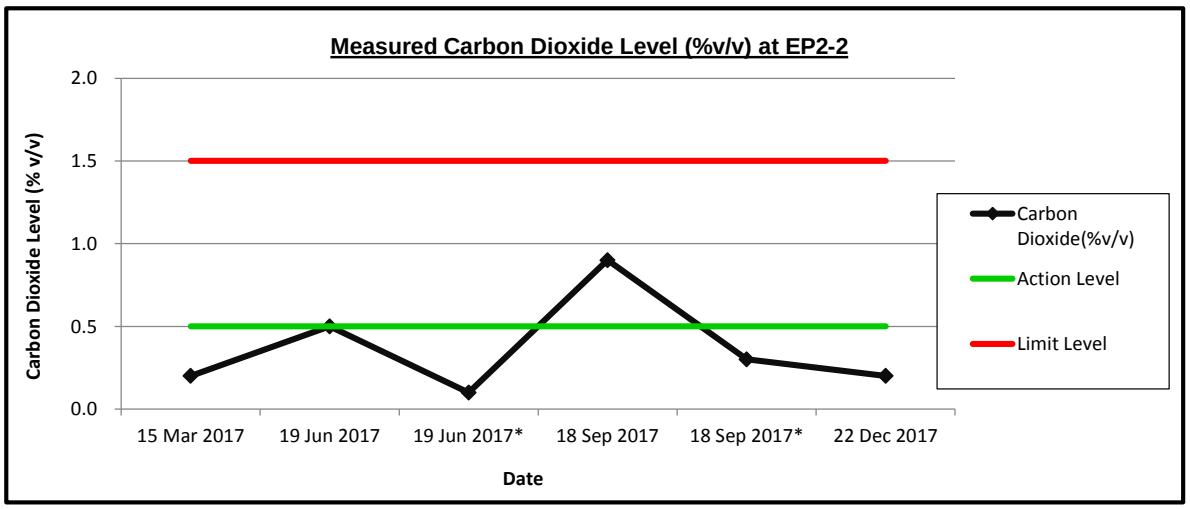


* Re-measurement was carried out after the initial measurement to confirm the rectification of exceedance after ventilation enhancement.

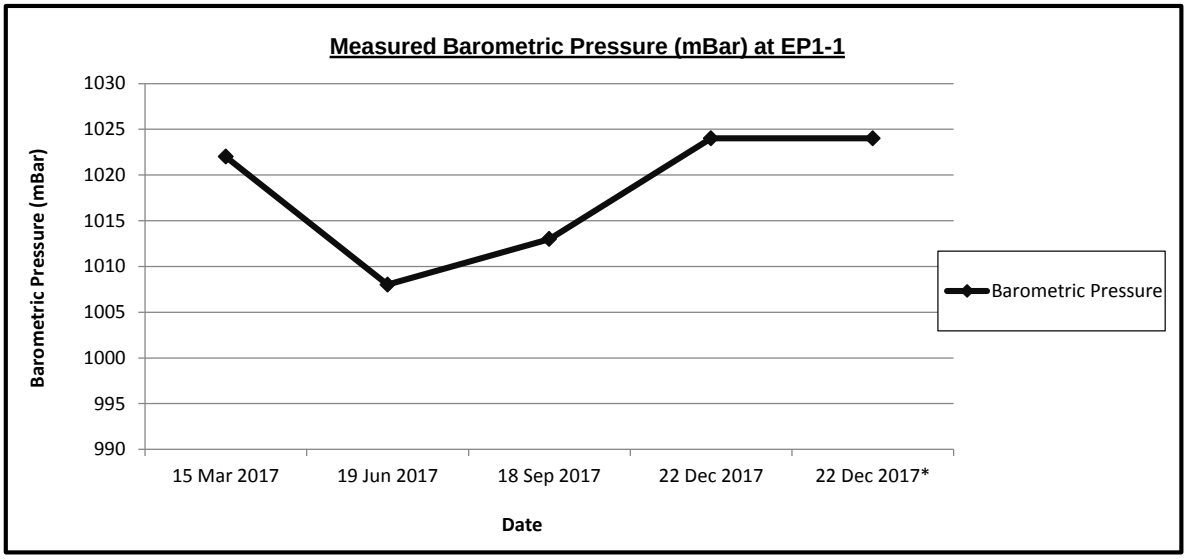




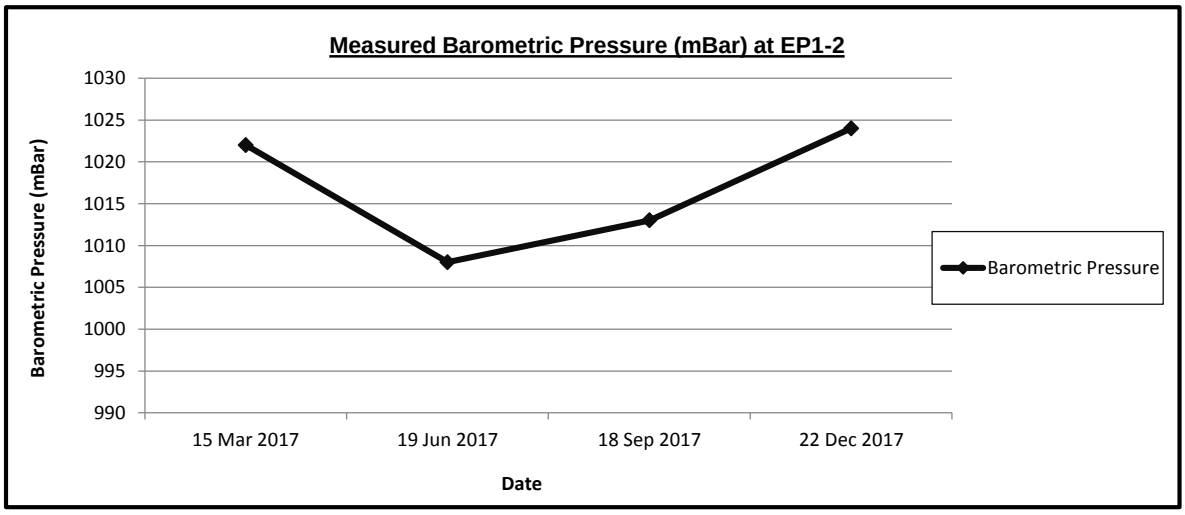


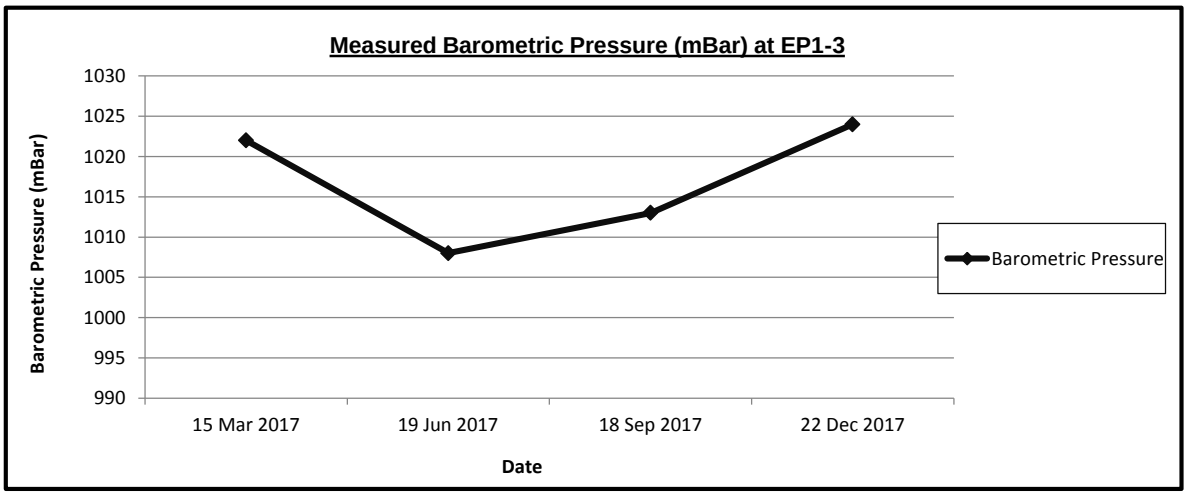


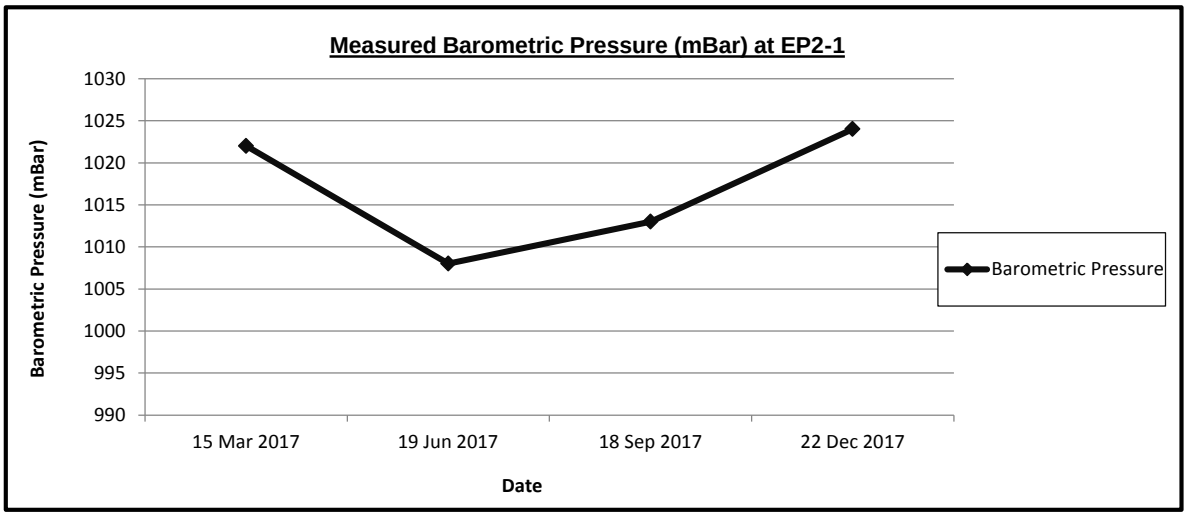
* Re-measurement was carried out after the initial measurement to confirm the rectification of exceedance after ventilation enhancement.

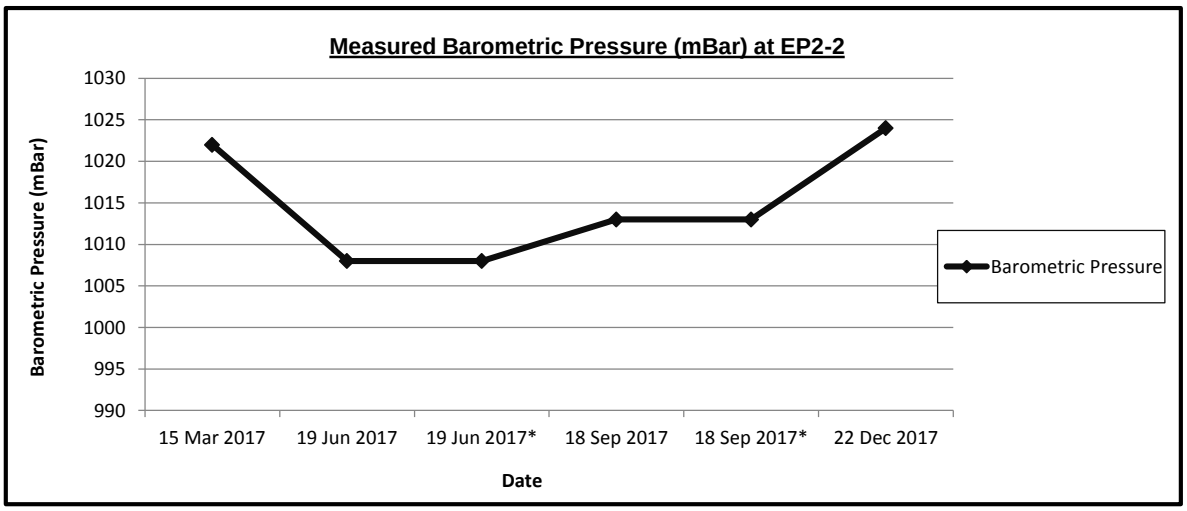


* Re-measurement was carried out after the initial measurement to confirm the rectification of exceedance after ventilation enhancement.









* Re-measurement was carried out after the initial measurement to confirm the rectification of O_2 exceedance after ventilation enhancement.