Issue No. : Issue 1
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ECOPARK OPERATION

ANNUAL ENVIRONMENTAL MONITORING & AUDIT REPORT 2018

Prepared By:

ALLIED ENVIRONMENTAL CONSULTANTS LTD.

COMMERCIAL-IN-CONFIDENCE

Allied Environmental Consultants Limited
Acousticians & Environmental Engineers

19/F., Kwan Chart Tower, 6 Tonnochy Road, Wan Chai, Hong Kong
Tel: (852) 2815 7028 Fax: (852) 2815 5399 Email: info@aechk.com

AEC 沛然環境評估工程顧問有限公司

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Certified by:	Verified by:	Approved by:
James W. H. WONG Environmental Team Leader	Sam P. S. TSOI Independent Environmental Checker	ANDY S. W. CHAN Principal Environmental Protection Officer Environmental Protection Department

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Author: Various

Checked:

Grace M. H. KWOK
BEng(Hons) FFHKIQEP MHKIEIA MIAIA MRAPA MISWA MHKIOA MAEE LEED AP BEAMPro CAP GB Faculty

Approved:

James W. H. WONG
BSc MSc PhD CEng MIMechE MHKIQEP MHKIEIA MIOA MHKIOA MIOE MCIBSE FHKAAST RPE REA MASOS MICTA CTBUH MSLL BEAM Pro GB Faculty

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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 and completed on 29th October 2018. UPML continues with another 4-year management service of EcoPark under a new contract – Contract No. *EP/SP/102/17 Provision of Management Services for EcoPark 2018* effective from 30th October 2018.

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/F).

This is the twelfth (12th) annual EM&A report prepared for the operation phase of EcoPark and covers the calendar year of 2018.

In 2018, there were eleventh tenants in EcoPark Phase 1 and Phase 2, and one operator of WEEE Refurbishment and WEEE.PRAK in EcoPark Phase 2. Nine tenants, namely Champway, Shiu Wing, China Commercial Logistics/HK Biomass, HK Telford/HP Telford, South China, Chung Yue, K.Wah, E. Tech 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 (at Lot P5). Recycling activity at Lot P5 completed on 4th June 2018 and possession of Lot P5 was returned to EPD on 29th November 2018. One active tenant renamed from "China Commercial Logistics Company" to "Hong Kong Biomass (Wood) Collect and Recycle Company Limited" with effect from 20th December 2017. The change was notified to EPD on 10th January 2018. One tenant whose name changed from "SSK Metal Ltd." to "Hong Kong Battery Recycling Centre Ltd." with effect from 19th July 2018, carried out plant construction works.

Tenancy of HK Telford ended on 29th June 2018 and the corresponding lot (i.e. Lot T1) has been taken over by a new tenant, HP Telford, on 30th June 2018 for continuation of plastic recycling without introduction of new process. No recycling activity has been carried out in Li Tong (i.e. Lot P6) since 1st November 2017. Tenancy of Li Tong ended on 28th November 2018 after completion of the lot reinstatement works and the lot was subsequently possessed by Baguio on 29th November 2018. There is no activity in the lot since then.

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, 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	7,695	3,439	2,194
Waste Ferrous Metals	158,341	157,906	684
Waste Wood	1,132	2,288	-
Waste Electronics	10,903	10,001	1,496
Waste Plastics	1,236	564	-
Construction Waste	11,330	68,547	595
Waste Glass	1,353		
Waste Rubber Tyres	278	259	-

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.
5) "-" in the column of waste disposal denotes zero quantity; while "n/a" denotes unavailable information.

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 21st March, 20th June, 18th September and 13th December 2018. Exceedance of Action Level was recorded and is summarised in the table below.

Date	Station ID	Parameter	Recorded Level	Action Level	Limit Level	Status
18th September 2018	EP2-2	Oxygen (% v/v)	18.9	< 19	< 18	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 concentration of O_2 to non-exceedance level. Although the cleaning of underground utilities had been carried out by the Operator on 31st August 2018, a layer of moist silt and withered leaves were observed inside the utility chamber, possibly due to the heavy rainfall occurred after the cleaning exercise (on 1st, 16th and 17th September 2018). With reference to similar exceedance events occurred previously, it is suspected that organic matters entered the underground chambers by heavy rain and accumulated inside the underground utilities, where microbial activity occurred and eventually increased O_2 consumption within the chamber during the decomposition of organic matter. The situation may exacerbate due to

Typhoon Mangkhut that may triggered organic matter to hide inside underground utilities and further increased microbial activity inside underground utilities. 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. Based on the above findings, the exceedance of O_2 is not anticipated to impose any adverse impact on staffs/workers/environment in EcoPark. Nonetheless, the Operator continued to implement the cleaning programme of underground utilities for wet season, and the cleaning activity was carried out on 28th September 2018.

In view of the exceedance of Oxygen (O_2) at EP2-2 during the monitoring in September 2018, the operator carried out cleaning of the underground utilities on 28th September 2018. The concentration of oxygen at EP2-2 returned to a non-exceedance level during the monitoring on 13th December 2018.

Summary of Complaints, Summons and Prosecutions

No complaint, notifications of summons or successful prosecutions related to recycling activities was received in the reporting year.

Reporting Changes

The contract for the management of EcoPark – Contract No. *EP/SP/71-13 Provision of Management Services for EcoPark 2014*, which was awarded to UPML, was completed on 29th October 2018. A new contract *EP/SP/102/17 Provision of Management Services for EcoPark 2018* was awarded to UPML effective from 30th October 2018. Starting from November 2018, the IEC of the Project also changes from Mott MacDonald Hong Kong Limited (MottMac) to Ove Arup & Partners Hong Kong Ltd. (Arup).

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 (Phase 1 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 and completed on 29th October 2018. UPML continues with another 4-year management service of EcoPark under a new contract – Contract No. *EP/SP/102/17 Provision of Management Services for EcoPark 2018* effective from 30th October 2018.

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) was appointed by the EPD as the Independent Environmental Checker (IEC) for the Project, which was changed to Ove Arup & Partners Hong Kong Ltd. (Arup) from 30th October 2018 after completion of contract. 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.PARK and eleven tenants in EcoPark comprising:

- Nine active tenants (Champway, Shiu Wing, HK Biomass, HP Telford, South China, Chung Yue, K.Wah, E.Tech and On Fat Lung) who have carried out full recycling operations;
- 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 (at Lot P5); Recycling activity of WEEE Refurbishment at Lot P5 has been completed on 4th June 2018 and possession of Lot P5 was returned to EPD on 29th November 2018 after site clearance;

- One tenant (SSK/HKBRC) who is carrying out plant construction; and
- One tenant (Li Tong) whose tenancy was expired on 28th November 2018 and the corresponding lot (i.e. Lot T6) has been taken over by a new tenant, Baguio, on 29th November 2018 without any site operation.

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 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 – Ove Arup			
IEC(1)	Mr. Sam TSOI	sam.tsoi@arup.com	2268 3208
IEC – Mott MacDonald			
IEC(1)	Ir. Eric CHING	eric.ching@mottmac.com.hk	2828 5757
ET – AEC			
ET Leader (2)	Ms. Grace KWOK	gk@aechk.com	2815 7028
ET Leader (2)	Ir. Dr. James WONG	jw@aechk.com	2815 7028

(1) Ir. Eric CHING was replaced by Mr. Sam TSOI with effective from 30 October 2018.
(2) Ms. Grace KWOK was replaced by Ir. Dr. James WONG with effective from 30 October 2018.

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

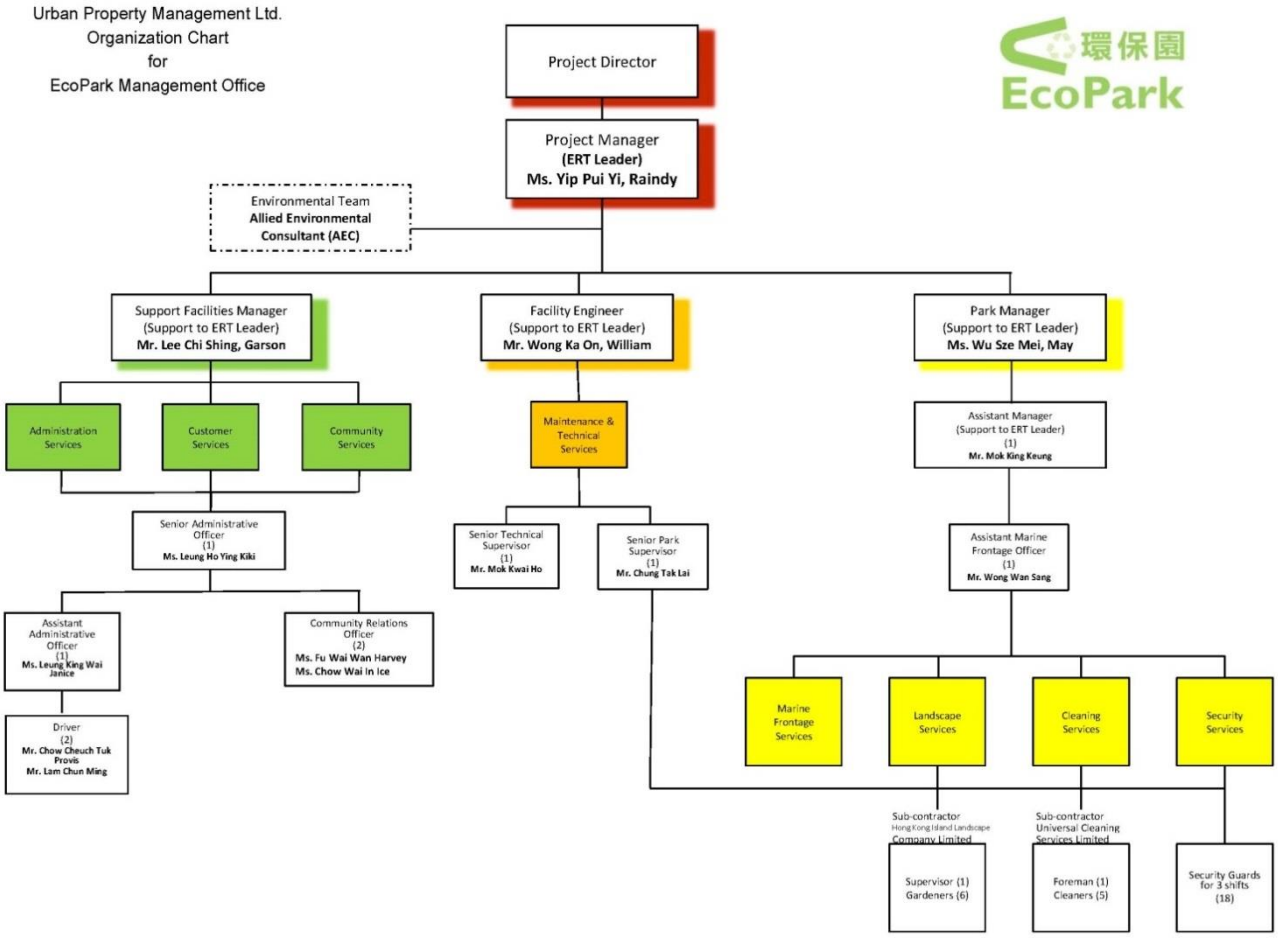
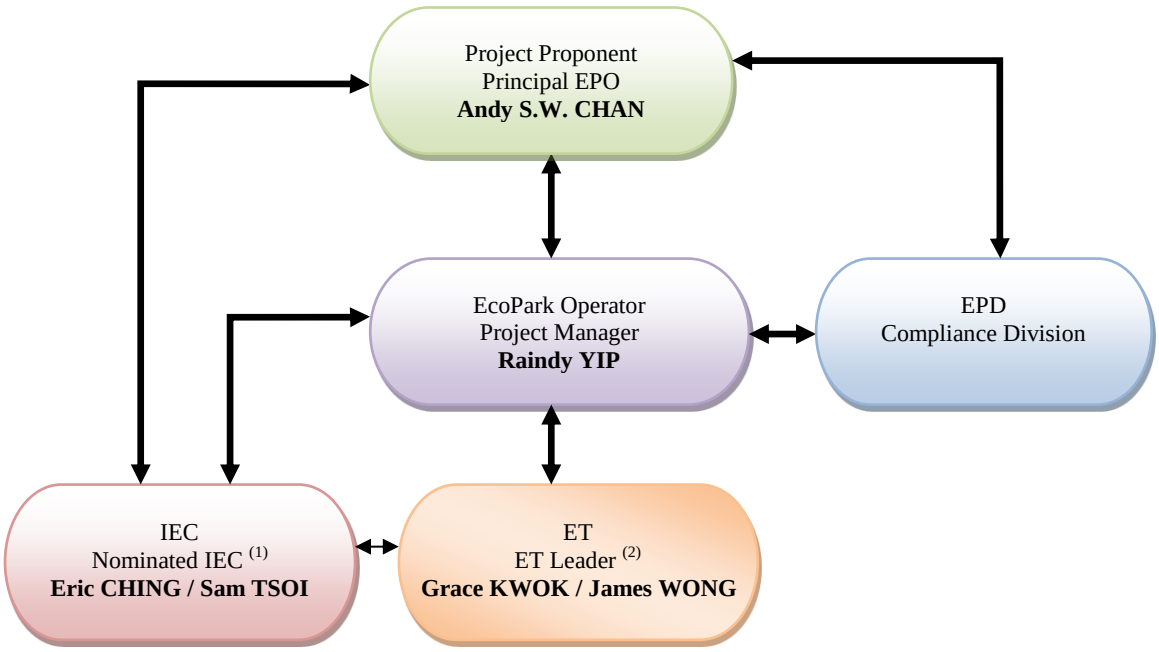


Figure 1.3 Organization Chart of EM&A Works (Operation)



(1) Ir. Eric CHING was replaced by Mr. Sam TSOI with effective from 30 October 2018.
(2) Ms. Grace KWOK was replaced by Ir. Dr. James WONG with effective from 30 October 2018.

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 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 EPD informs 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

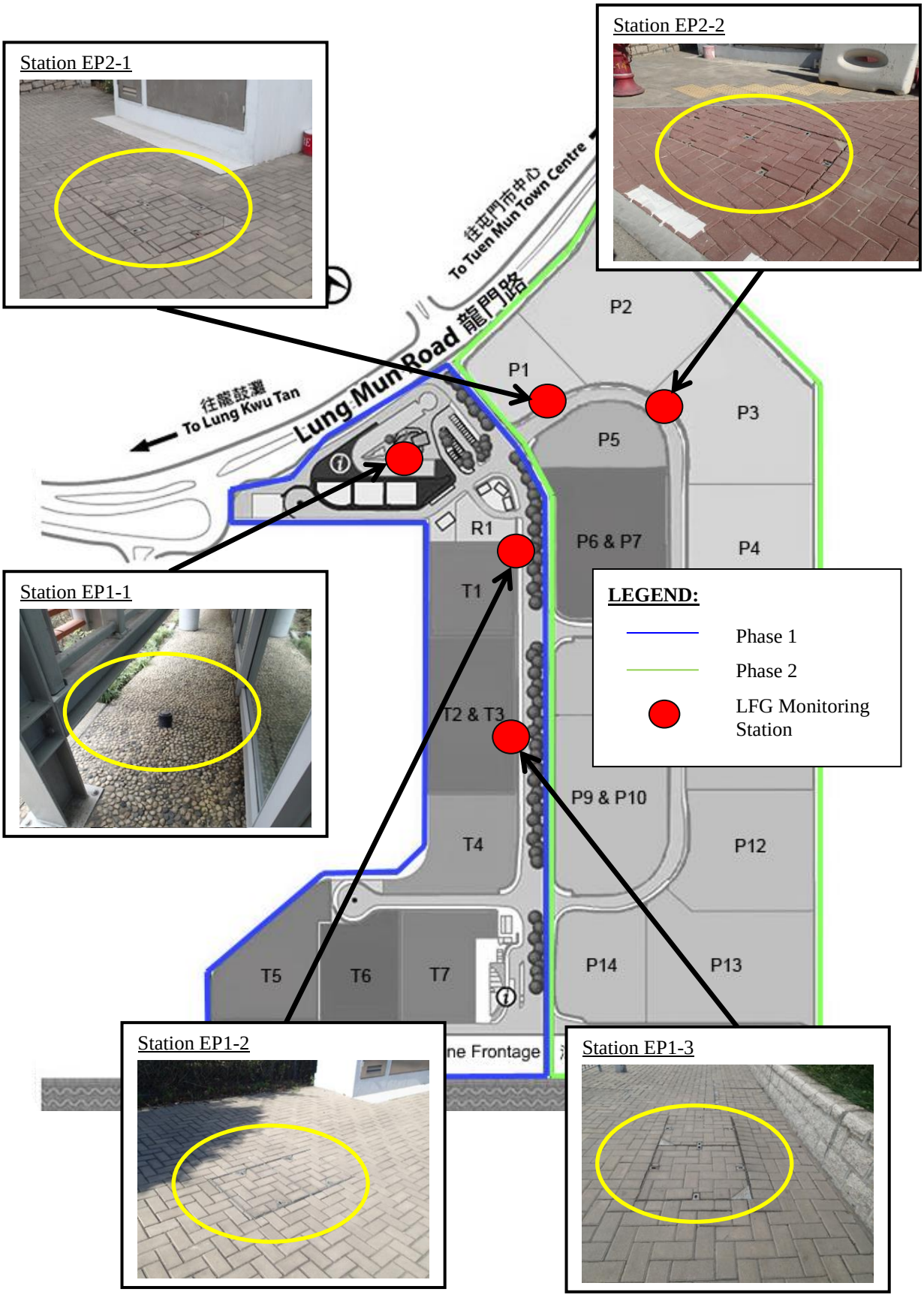
2.4 Environmental Mitigation Measures

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:

- Recycling activity of WEEE Refurbishment at Lot P5 has been completed on 4th June 2018 and possession of Lot P5 was returned to EPD on 29th November 2018.
- China Commercial Logistics was renamed to "Hong Kong Biomass (Wood) Collect and Recycle Company Limited" with effect from 20th December 2017. The change was notified to EPD on 10th January 2018;
- Operation of HK Biomass was suspended after fire incident since 5th June 2018 and resumed since 10th July 2018.
- E. Tech commenced recycling activities in March 2018 ;
- SSK was renamed to "Hong Kong Battery Recycling Centre Ltd." with effect from 19th July 2018 and carried out plant construction works;
- Tenancy of HK Telford expired on 29th June 2018. Lot T1 has been taken over by a new tenant, HP Telford, and its tenancy took effect on 30th June 2018;
- No recycling activity has been carried out in Li Tong since 1st November 2017. Tenancy of Li Tong expired on 28th November 2018. Possession of Lot T6 has been taken over by Baguio on 29th November 2018; and
- Baguio commenced tenancy without any site operation.

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 China Commercial Logistics Company Ltd/Hong Kong Biomass (Wood) Collect and Recycle Company Limited

- **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 The company name was changed from "China Commercial Logistics Company" to "Hong Kong Biomass (Wood) Collect and Recycle Company Limited" with effect from 20th December 2017, and the change was notified to EPD on 10th January 2018. Waste wood was recycled in the reporting year. In the 4th quarter, lot T7 was temporarily used for storage of the recycled product pending for delivery.

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 No recycling activity has been carried out in Li Tong since 1st November 2017. The demolition and lot reinstatement was completed in the 4th quarter. The tenancy was expired on 28th November 2018.

3.6 Hong Kong Telford Envirotech Group Limited / HP 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 Tenancy of HK Telford expired on 29th June 2018. Lot T1 has been taken over by a new tenant, HP Telford, effective from 30th June 2018 without introduction of new recycling process. Recycling of waste plastic was carried out in the reporting year.

3.7 WEEE Refurbishment 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.

3.7.1 WEEE recycling was carried out until 4th June 2018 and followed by site clearance. Lot P5 was returned to EPD on 29th November 2018.

3.8 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.

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

3.9 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.

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

3.10 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.

3.10.1 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.

3.11 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.

3.11.1 Recycling of WEEE was carried out in this reporting year.

3.12 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.

3.12.1 Waste rubber tyres were collected for processing in this reporting year.

3.13 Throughput Statistics

3.13.1 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.

3.13.2 The throughputs of WEEE Refurbishment, 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	7,695	3,439	2,194
Waste Ferrous Metals	158,341	157,906	684
Waste Wood	1,132	2,288	-
Waste Electronics	10,903	10,001	1,496
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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.
5) "-" in the column of waste disposal denotes zero quantity; while "n/a" denotes unavailable information.

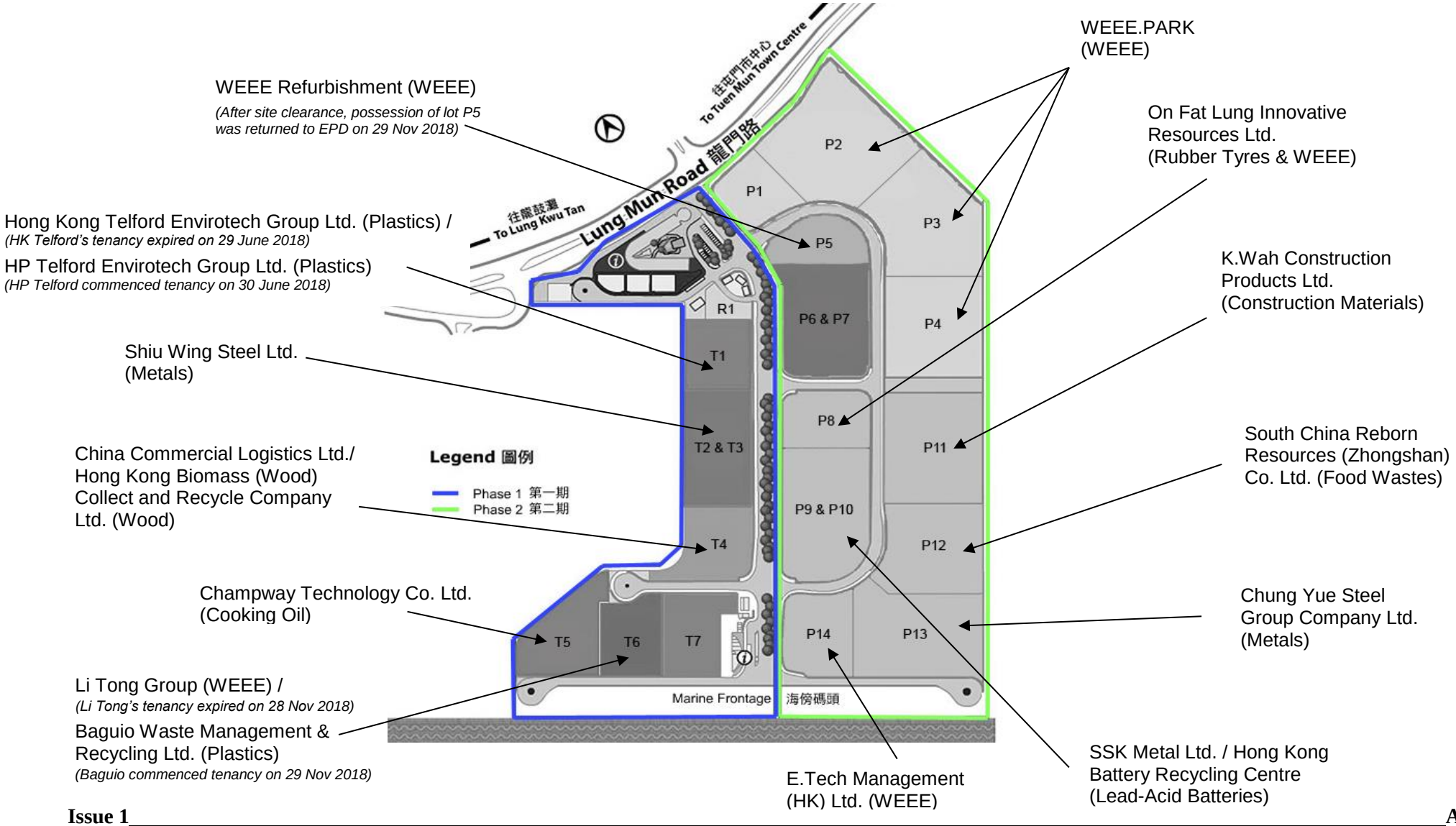
3.13.3 Detailed throughput figures of the reporting year are provided in ***Appendix 3.1***. Updated throughput figures of the previous year are provided in ***Appendix 3.2***.

3.14 Process Review

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

3.14.2 Since 2008, twenty three process reviews and three DAs had been approved. Among those, fourteen process reviews and three DAs are related to the current recycling processes in EcoPark as of December 2018. The process reviews for HP Telford and WEEE.PARK were approved in August 2018 and December 2018 respectively. 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.PARK and nine tenants (Champway, Shiu Wing, HP Telford, HK Biomass, Chung Yue, K.Wah, South China, On Fat Lung and E.Tech) were under full operation.

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 21st March, 20th June, 18th September and 13th December 2018 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	21st March 2018	09:30	2 minutes	19°C	Sunny
EP1-2		09:45	2 minutes	19°C	Sunny
EP1-3		09:40	2 minutes	19°C	Sunny
EP2-1		09:55	2 minutes	19°C	Sunny
EP2-2		10:00	2 minutes	19°C	Sunny
EP1-1	20th June 2018	10:40	2 minutes	30°C	Sunny
EP1-2		10:28	2 minutes	30°C	Sunny
EP1-3		10:24	2 minutes	30°C	Sunny
EP2-1		10:32	2 minutes	30°C	Sunny
EP2-2		10:35	2 minutes	30°C	Sunny
EP1-1	18th September 2018	10:10	2 minutes	28°C	Fine
EP1-2		09:50	2 minutes	28°C	Fine
EP1-3		09:45	2 minutes	28°C	Fine
EP2-1		09:55	2 minutes	28°C	Fine
EP2-2		10:00	2 minutes	28°C	Fine
EP1-1	13th December 2018	09:34	2 minutes	14°C	Fine
EP1-2		09:48	2 minutes	14°C	Fine
EP1-3		09:52	2 minutes	14°C	Fine
EP2-1		09:39	2 minutes	14°C	Fine
EP2-2		09:43	2 minutes	14°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 monitoring of methane, oxygen and carbon dioxide;
3. Be capable of continuous barometric pressure and gas pressure measurements;
4. Normally operate in diffusion mode unless required for spot sampling, when it should be capable of operating by means of an aspirator or pump;
5. Have low battery, fault and over range indication incorporated;
6. Store monitoring data, and shall be capable of being down-loaded directly to a PC; and
7. 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	21st March 2018	0.0	0	20.3	0.4	1021
EP1-2		0.0	0	20.2	0.1	1021
EP1-3		0.0	0	20.2	0.2	1021
EP2-1		0.0	0	19.8	0.4	1021
EP2-2		0.0	0	19.8	0.2	1021
EP1-1	20th June 2018	0.0	0	19.8	0.1	1008
EP1-2		0.0	0	19.8	< 0.1	1008
EP1-3		0.1	2	19.8	< 0.1	1008
EP2-1		0.0	0	19.9	< 0.1	1008
EP2-2		0.0	0	19.9	< 0.1	1008
EP1-1	18th September 2018	0.0	0	20.1	< 0.1	1017
EP1-2		0.0	0	20.0	< 0.1	1017
EP1-3		0.0	0	20.1	< 0.1	1017
EP2-1		0.0	0	20.0	< 0.1	1017
EP2-2		0.0	0	18.9	0.2	1017
EP1-1	13th December 2018	0.0	0	21.2	0.4	1029
EP1-2		0.0	0	21.1	0.1	1029
EP1-3		0.0	0	21.1	0.1	1029
EP2-1		0.0	0	20.9	0.3	1029
EP2-2		0.0	0	21.0	0.1	1029

5.3.3 Exceedance of Action Level was recorded at Station EP2-2 on 18th September 2018 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
18th September 2018	EP2-2	O_2 (% v/v)	18.9	Exceedance of Action Level

5.4 Follow-up Actions for Monitoring Exceedance

5.4.1 Upon the record of exceedance on 18th September 2018, investigation was carried out immediately with representatives from the Operator and IEC. Although the cleaning of underground utilities had been carried out by the Operator on 31st August 2018, a layer of moist silt and withered leaves were observed inside the utility chamber, possibly due to the heavy rainfall occurred after the cleaning exercise (on 1st, 16th and 17th September 2018). With reference to similar exceedance events occurred previously, it is suspected that organic matters entered the underground chambers by heavy rain and accumulated inside the underground utilities, where microbial activity occurred and eventually increased O_2 consumption within the chamber during the decomposition of organic matter. The situation may exacerbate due to Typhoon Mangkhut that may triggered organic matter to hide inside underground utilities and further increased microbial activity inside underground utilities.

5.4.2 In accordance with the Event Action Plan for LFG specified in ***Table 2.2***, ventilation enhancement was carried out to restore the concentration of O_2. An additional LFG measurement was carried out inside the underground chamber on 18th September 2018 after the ventilation enhancement to review the condition and no exceedance was recorded as summarised below:

Station ID	Parameter	Recorded Level	Action Level	Limit Level	Status
EP2-2	O_2 (% v/v)	19.5	< 19	< 18	No exceedance

5.4.3 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.

5.4.4 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. Nonetheless, the Operator continued to implement the cleaning programme of underground utilities for wet season, and the cleaning activity was carried out on 28th September 2018 in order to ensure the underground chamber is clean and free from unwanted organic matter.

5.4.5 The concentration of oxygen at EP2-2 returned to a non-exceedance level during the monitoring on 13th December 2018.

6 SUMMARY OF ENVIRONMENTAL AUDIT

6.1 General

6.1.1 In the reporting year, WEEE.PARK, WEEE Refurbishment (until 4th June 2018) and nine active tenants were under full operation. As such, specific site inspections were only carried out at the lot of WEEE Refurbishment (until May 2018), 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 2017

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

Table 6.1 Environmental Audit Findings in 2017

Date	Tenant	Item	Status
25th January 2017	WEEE Refurbishment Centre at Lot P5	Vegetation is observed inside and near the perimeter drainage near the entrance of the lot.	As observed during site inspection on 24th October 2018, styrofoam debris and rubbish were found near and inside the perimeter drainage in addition to the vegetation and resulted in drainage blockage. The tenant had cleared the vegetation, styrofoam debris and rubbish near the lot entrance as observed during site inspection on 20th November 2018. **(Closed)**
17th February 2017	HKBRC (General Inspection)	The tenant of HKBRC 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.	The tenant was requested to provide hoarding along the site boundary. The observation will be followed-up in the next audit in January 2019. **(Outstanding)**

Date	Tenant	Item	Status
15th March 2017	Champway	The temporary storage area for containers was not provided with permeation-proof floor. As advised by the tenant, the area was used as temporary storage and the containers would be gradually removed from the concerned area.	Enclosed storage tanks have been provided in the reporting year to gradually replace the old glycerine storage containers. The chemical spillage between the enclosed storage tanks found on 16th May 2018 had been removed as observed during site inspection on 20th June 2018. As observed during site inspection on 24th October 2018, the chemical stain from the glycerine storage tank recorded on 18th September 2018 was removed. While the container removal is in progress, the tenant was reminded to implement sufficient measures during material transfer to avoid, or contain if any, accidental spillage. The progress will be monitored in the next audit. **(Outstanding)**
30th October 2017	Champway	A thin layer of suspected oil was observed in stormwater drain next to the oil interceptor.	While the tenant had removed the suspected oil from stormwater drain at the outlet of the oil interceptor found on 22nd December 2017, some stagnant residue arising from cleaning was found attaching at the outlet pipe. 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 January 2018 and February 2018 to remove stubborn residue accumulated. The outlet of the discharge pipe was being blocked during cleaning, and the discharge generated from cleaning was subsequently tankered away. As observed during site inspection on 8th February 2018, no oil layer was found inside the stormwater drain at the outlet of the oil interceptor. **(Closed)**

Date	Tenant	Item	Status
30th November 2017	HKBRC (General Inspection)	Open stockpile of dusty materials was observed in the lot of HKBRC.	Although open stockpile of dusty materials was not observed since the site inspection on 24th August 2018, the tenant was also reminded to implement the required dust control measures and to notify the Authority for carrying out notifiable work, for satisfying with the requirements stipulated in the Air Pollution Control Ordinance, in particular Air Pollution Control (Construction Dust) Regulation. The observation will be followed-up in the next audit. **(Outstanding)**
22nd December 2017	Champway	Oil spillage was observed on the floor of the storage area but no leakage from storage container was noticed.	As observed during inspection on 17th January 2018, oil spill on the floor of the storage area had been cleared and disposed of as chemical waste. **(Closed)**
22nd December 2017	Chung Yue	Fugitive dust was observed during material transfer in the storage area.	As observed during inspection on 8th February 2018, water spraying was provided for materials in storage area prior to loading/unloading process for dust suppression. **(Closed)**
22nd December 2017	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).	As observed during site inspection on 20th June 2018, stormwater drain connecting to the perimeter U-channel had been separated into two portions by modifying the invert level of the stormwater drain such that the wastewater from works area will be recycled back to the sedimentation sum-pit for reuse in order to prevent wastewater from overflowing to the perimeter drain. In addition, the construction of the drainage channel connecting the surface drainage at works area to the sedimentation sum-pit had finished to divert the potentially-contaminated

Date	Tenant	Item	Status
			surface run-off for water recycling. Although no wastewater was found to be overflown into perimeter drain during inspection after completion of improvement works, the tenant is reminded to keep track on the performance of the rectified drainage system to ensure no discharge of industrial wastewater will occur. **(Closed)**
22nd December 2017	South China	Disused duct pipes were observed on top of the perimeter drain at the Eastern lot boundary.	As observed during site inspection on 21st March 2018, sufficient space was provided between temporary storage area and perimeter drain located at the Eastern lot boundary to prevent blockage and contamination of drainage system. **(Closed)**

6.3 January 2018

6.3.1 Environmental audits of WEEE Refurbishment, WEEE.PARK, active tenants and general EcoPark condition were carried out by the ET and the Operator on 17th January 2018. IEC random site audit was also carried out on 17th January 2018. Audit observations are summarised in ***Table 6.2***.

Table 6.2 Environmental Audit Findings in January 2018

Tenant	Item	Status
No new critical issue was identified.		

6.4 February 2018

6.4.1 Joint environmental audits of WEEE Refurbishment, WEEE.PARK, active tenants and general EcoPark condition were carried out by the ET, the Operator and the IEC on 8th February 2018. Audit observations are summarised in ***Table 6.3***.

Table 6.3 Environmental Audit Findings in February 2018

Tenant	Item	Status

Tenant	Item	Status
Shiu Wing	The tenant was reminded that no open fire is allowed in site area to prevent any potential landfill gas hazard on 8th February 2018.	As observed during site inspection on 21st March 2018, no open fire was found during site inspection and thus no potential landfill gas hazard was anticipated. **(Closed)**
WEEE Refurbishment	Home appliances were observed being stored in outdoor area without any cover on 8th February 2018.	As observed during inspection on 21st March 2018, the WEEE and home appliances that were stored in outdoor area had been removed or relocated to covered area for prevention of potential rainwater contamination. **(Closed)**
WEEE.PARK	Home appliances were observed being stored in outdoor area without any cover 8th February 2018.	As observed during inspection on 21st March 2018, WEEE and other home appliances had been relocated to indoor storage area for prevention of potential rainwater contamination. **(Closed)**

6.5 March 2018

6.5.1 Environmental audits of WEEE Refurbishment, WEEE.PARK, active tenants and general EcoPark condition were carried out by the ET and the Operator on 21st March 2018, while IEC random site audit was carried out on 21st March 2018. Audit observation is summarised in ***Table 6.4***.

Table 6.4 Environmental Audit Findings in March 2018

Tenant	Item	Status
South China	Empty chemical containers were observed being placed in outdoor area on 21st March 2018.	As observed during site inspection on 20th June 2018, empty chemical containers had been removed from the outdoor areas to prevent potential contamination of rainwater. **(Closed)**

6.6 April 2018

6.6.1 Environmental audits of WEEE Refurbishment, WEEE.PARK, active tenants and general EcoPark condition were carried out by the ET and the Operator on 19th April 2018. IEC random site audit was also carried out on 19th April 2018. Audit observations are summarised in ***Table 6.5***.

Table 6.5 Environmental Audit Findings in April 2018

Tenant	Item	Status

Tenant	Item	Status
Champway	Chemical leakages due to container damage were observed near the lot entrance and the storage area on 19th April 2018.	As observed during site inspection on 16th May 2018, broken containers and the associated chemical leakages near the lot entrance and storage area had been removed. **(Closed)**
HKBRC	During site inspection on 19th April 2018, no wastewater treatment facility was provided for collection of construction wastewater in the lot of HKBRC.	No discharge license and wastewater treatment system was observed during site inspection. The observation will be followed-up in the next audit in January 2019. **(Outstanding)**

6.7 May 2018

6.7.1 Joint environmental audits of WEEE Refurbishment, WEEE.PARK, active tenants and general EcoPark condition were carried out by the ET, the Operator and the IEC on 16th May 2018. Audit observations are summarised in ***Table 6.6***.

Table 6.6 Environmental Audit Findings in May 2018

Tenant	Item	Status
No new critical issue was identified.		

6.8 June 2018

6.8.1 Environmental audits of WEEE.PARK, active tenants and general EcoPark condition were carried out by the ET and the Operator on 20th June 2018. IEC random site audit was also carried out on 20th June 2018. Audit observations are summarised in ***Table 6.7***.

Table 6.7 Environmental Audit Findings in June 2018

Tenant	Item	Status
South China	Dirty water was observed inside and near the stormwater manhole on 20th June 2018.	According to the photo records provided by the Operator on the day after site inspection, dirty water had been pumped away from the manhole and the floor had been cleaned. The tenant was reminded to carry out loading/unloading activities in designated area to avoid potential leaking of dirty water, and to ensure all wastewater should be properly collected and stored. **(Closed)**

6.9 July 2018

6.9.1 Environmental audits of WEEE.PARK, active tenants and general EcoPark condition were carried out by the ET and the Operator on 18th July 2018. IEC random site audit was also carried out on 18th July 2018. Audit observations are summarised in ***Table 6.8***.

Table 6.8 Environmental Audit Findings in July 2018

Tenant	Item	Status
HP Telford	Oil stain was observed near the perimeter drain at the lot entrance on 18th July 2018.	As observed during site inspection on 24th August 2018, oil stain near the perimeter drain at the lot entrance had been removed. **(Closed)**
K.Wah	Oil stain was observed on the ground of stocking areas on 18th July 2018.	As observed during site inspection on 24th August 2018, the tenant had removed the oil stain on the ground of stocking areas. **(Closed)**

6.10 August 2018

6.10.1 Joint environmental audits of WEEE.PARK, active tenants and general EcoPark condition were carried out by the ET, the Operator and the IEC on 24th August 2018. Audit observations are summarised in ***Table 6.9***.

Table 6.9 Environmental Audit Findings in August 2018

Tenant	Item	Status
K.Wah	Inappropriate labels for chemical waste were shown on the surface of containers in chemical waste storage area on 24th August 2018.	As observed during site inspection on 24th October 2018, proper label of chemical waste was attached on the surface of containers in chemical waste storage area. **(Closed)**
South China	Dirty water was observed inside and near the stormwater manholes on 24th August 2018.	As observed during site inspection on 18th September 2018, the tenant had removed the dirty water inside and near the stormwater manholes. It was also observed that no loading/unloading activities were carried out in non-designated area. **(Closed)**
E.Tech	As observed on 24th August 2018, rubbish and debris had been accumulated inside the perimeter drain near a catchpit, so the stagnant dirty water had been induced.	During site inspection on 18th September 2018, it was confirmed that no accumulation of rubbish or dirty water were observed in the perimeter drainage and good drainage condition has been maintained after cleaning activity. **(Closed)**

6.11 September 2018

6.11.1 Environmental audits of WEEE.PARK, active tenants and general EcoPark condition were carried out by the ET and the Operator on 18th September 2018. IEC random site audit was also carried out on 18th September 2018. Audit observations are summarised in ***Table 6.10***.

Table 6.10 Environmental Audit Findings in September 2018

Tenant	Item	Status
No new critical issue was identified		

6.12 October 2018

6.12.1 Environmental audits of WEEE.PARK, active tenants and general EcoPark condition were carried out by the ET and the Operator on 24th October 2018. IEC random site audit was also carried out on 24th October 2018. Audit observations are summarised in ***Table 6.11***.

Table 6.11 Environmental Audit Findings in October 2018

Tenant	Item	Status
Champway	Chemical leakage was observed at 2 places nearby the access road on 24th October 2018.	During site inspection on 20th November 2018, it was noted that the tenant had cleared the leaked chemical stain and the damaged container, while leakage from another neighbouring container was observed. As observed during site inspection on 13th December 2018, the tenant had cleared the spilled chemical and the damaged container nearby the access road. **(Closed)**
HP Telford	Oil stain was observed near the perimeter drain at the lot entrance on 24th October 2018.	As observed during site inspection on 20th November 2018, the tenant had removed the oil stain near the perimeter drain. **(Closed)**

6.13 November 2018

6.13.1 Joint environmental audits of WEEE.PARK, active tenants and general EcoPark condition were carried out by the ET, the Operator and the IEC on 20th November 2018. Audit observations are summarised in ***Table 6.12***.

Table 6.12 Environmental Audit Findings in November 2018

Tenant	Item	Status
Champway	Chemical spillage from glycerine storage tank was observed on 20th November 2018.	As observed during the site inspection on 13th December 2018, the chemical stain from the glycerine storage tank had been cleared. **(Closed)**
K. Wah	Dust generation was observed during unloading of C&D	As observed during the site inspection on 13th December 2018, dampening of

Tenant	Item	Status
	materials on 20th November 2018.	materials was observed in the loading/unloading area. **(Closed)**
K. Wah	A chemical waste container was observed without cover and proper label in the chemical waste storage area on 20th November 2018.	As observed during site inspection on 13th December 2018, the chemical waste container was still not provided with cover and proper label. The condition will be followed-up in the next audit in January 2019. **(Outstanding)**

6.14 December 2018

6.14.1 Environmental audits of WEEE.PARK, active tenants and general EcoPark condition were carried out by the ET and the Operator on 13th December 2018. IEC random site audit was also carried out on 13th December 2018. Audit observations are summarised in ***Table 6.13***.

Table 6.13 Environmental Audit Findings in December 2018

Tenant	Item	Status
South China	Oil leakage was observed underneath a trailer and enters the stormwater drainage channel at the Eastern Lot Boundary on 13th December 2018.	The observation will be followed-up in the next audit in January 2019. **(Outstanding)**

7 ENVIRONMENTAL COMPLAINTS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTION

7.1 Summary of Summons and Prosecutions

7.1.1 No complaint, notifications of summons or successful prosecutions related to recycling activities was received in the reporting year.

7.2 Follow-up on Previous Environmental Complaint

Wastewater Treatment at South China received on 26th October 2016

7.2.1 Further to the actions taken in the previous reporting year, the tenant had installed flow meters at various points of the wastewater treatment system, e.g. incoming pipe for the storage tank at 3/F, the outgoing pipe of the treatment tank for recycling, the wastewater collection pipes for washing area at G/F, etc. The flow data was recorded to monitor the quantity of wastewater generated from different areas. During this reporting year, no discharge of wastewater was recorded based on the flow data record inspected. Prior to the proper functioning of the wastewater treatment plant (WTP), the wastewater was collected and transported to designated treatment facility by a licenced collector as a temporary measure.

7.2.2 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.

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.

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 exceedance of action level was recorded in the reporting year, it is believed that the exceedance was caused by the accumulation of organic matters in underground chambers and the associated decomposition of the organic matter. No methane 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, WEEE.PARK and nine tenants (Champway, Shiu Wing, HK Telford/HP Telford, Hong Kong Biomass, Chung Yue, K.Wah and South China, E.Tech and On Fat Lung) have carried out recycling activities. With reference to *Section 6*, no critical environmental impacts 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. Exceedance of action level was 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 twelfth (12^{th}) annual EM&A report prepared for the operation phase of EcoPark and covers the calendar year of 2018. 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 eleventh tenants in EcoPark Phase 1 and Phase 2, and one operator of WEEE Refurbishment and WEEE.PRAK in EcoPark Phase 2. Nine tenants, namely Champway, Shiu Wing, China Commercial Logistics/HK Biomass, HK Telford/HP Telford, South China, Chung Yue, K.Wah, E. Tech 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 (at Lot P5). Recycling activity at Lot P5 completed on 4^{th} June 2018 and possession of Lot P5 was returned to EPD on 29^{th} November 2018. One active tenant renamed from "China Commercial Logistics Company" to "Hong Kong Biomass (Wood) Collect and Recycle Company Limited" with effect from 20^{th} December 2017. The change was notified to EPD on 10^{th} January 2018. One tenant whose name changed from "SSK Metal Ltd." to "Hong Kong Battery Recycling Centre Ltd." with effect from 19^{th} July 2018, carried out plant construction works.

9.1.3 Tenancy of HK Telford ended on 29^{th} June 2018 and the corresponding lot (i.e. Lot T1) has been taken over by a new tenant, HP Telford, on 30^{th} June 2018 for continuation of plastic recycling without introduction of new process. No recycling activity has been carried out in Li Tong (i.e. Lot P6) since 1^{st} November 2017. Tenancy of Li Tong ended on 28^{th} November 2018 after completion of the lot reinstatement works and the lot was subsequently possessed by Baguio on 29^{th} November 2018. There is no activity in the lot since then.

9.1.4 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.

9.1.5 The throughputs of WEEE Refurbishment, 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	7,695	3,439	2,194
Waste Ferrous Metals	158,341	157,906	684
Waste Wood	1,132	2,288	-
Waste Electronics	10,903	10,001	1,496
Waste Plastics	1,236	564	-

Material Type	Waste Input (tonnes)	Product Output [(4)] (tonnes)	Waste Disposed [(4)] (tonnes)
Construction Waste	11,330	68,547	595
Waste Glass	1,353		
Waste Rubber Tyres	278	259	-

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.
5) "-" in the column of waste disposal denotes zero quantity; while "n/a" denotes unavailable information.

9.1.6 LFG monitoring was undertaken on 21st March, 20th June, 18th September and 13th December 2018 at five locations (three in Phase 1 and two in Phase 2). Exceedance of Action Level was recorded and is summarised in ***Table 9.2***.

Table 9.2 Summary of LFG Exceedance in the Reporting Year

Date	Station ID	Parameter	Recorded Level	Action Level	Limit Level	Status
18th September 2018	EP2-2	Oxygen (% v/v)	18.9	< 19	< 18	Exceedance of Action Level

9.1.7 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 exceedance was believed to be triggered by the invasion of organic matter into underground chamber/utility pipes and the subsequent decomposition inside the chambers /pipes. The situation may exacerbate due to Typhoon Mangkhut that may triggered organic matter to hide inside underground utilities and further increased microbial activity inside underground utilities. 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 exceedance should not impose any adverse impact on staffs/workers/environment in EcoPark.

9.1.8 In view of the exceedance of Oxygen (O_2) recorded at EP2-2 in September 2018, the operator carried out cleaning of the underground utilities on 28th September 2018. The concentration of oxygen at EP2-2 then returned to a non-exceedance level during the monitoring on 13rd December 2018.

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

9.1.10 No complaint, notifications of summons or successful prosecutions related to recycling activities was received in the reporting year.

9.1.11 The contract for the management of EcoPark – Contract No. *EP/SP/71-13 Provision of Management Services for EcoPark 2014*, which was awarded to UPML, was completed on 29th October 2018. A new contract *EP/SP/102/17 Provision of Management Services for EcoPark 2018* was awarded to UPML effective from 30th October 2018. Starting from November 2018, the IEC of the Project also changes from Mott MacDonald Hong Kong Limited (MottMac) to Ove Arup & Partners Hong Kong Ltd. (Arup).

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

9.1.13 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
(Shiu Wing)

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
(All Tenants except Shiu Wing)

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 2018	837	90	480
February 2018	710*	252*	443*
March 2018	796*	268*	487*
April 2018	801	271	483
May 2018	889*	353	30
June 2018	852*	312*	35*
July 2018	954*	470	48
August 2018	852*	525	64
September 2018	517*	377*	51*
October 2018	487	521	74
November 2018	n/a	n/a	n/a
December 2018	n/a	n/a	n/a
Total	**7,695**	**3,439**	**2,194**

Table A3.1-2 Recycling of Waste Ferrous Metal

Date	Waste Input (tonnes)	Product Output (tonnes)	Waste Disposal (tonnes)
January 2018	14,963	11,791	61
February 2018	8,873	9,734	52
March 2018	11,606*	16,407*	63*
April 2018	14,330	11,879	67
May 2018	15,448	15,305	72
June 2018	14,318	11,961	79
July 2018	15,907	18,881	40
August 2018	16,628*	16,601	54
September 2018	13,401*	14,246*	54*
October 2018	16,842	13,712	64
November 2018	16,025	17,390*	79
December 2018	n/a	n/a	n/a
Total	**158,341**	**157,906**	**684**

Table A3.1-3 Recycling of Waste Wood

Date	Waste Input (tonnes)	Product Output (tonnes)	Waste Disposal (tonnes)
January 2018	128	660	-
February 2018	43	512	-
March 2018	63*	216*	-*
April 2018	64	142	-
May 2018	87	97	-
June 2018	69*	25*	-*
July 2018	182	150	-
August 2018	145	203	-
September 2018	101*	124*	-*
October 2018	136	158	-
November 2018	114	n/a	n/a
December 2018	n/a	n/a	n/a
Total	**1,132**	**2,288**	**-**

Table A3.1-4 Recycling of Waste Electronics

Date	Waste Input (tonnes)	Product Output (tonnes)	Waste Disposal (tonnes)
January 2018	363*	319*	58*
February 2018	395*	286*	45*
March 2018	606*	586*	81*
April 2018	687*	644*	74*
May 2018	838*	1,008*	137*
June 2018	887*	961*	122*
July 2018	1,033*	879*	101*
August 2018	1,347*	1,189*	162*
September 2018	1,452*	1,053*	267*
October 2018	1,754*	1,716*	265*
November 2018	1,541*	1,361*	184*
December 2018	n/a	n/a	n/a
Total	**10,903**	**10,001**	**1,496**

Table A3.1-5 Recycling of Waste Plastic

Date	Waste Input (tonnes)	Product Output (tonnes)	Waste Disposal (tonnes)
January 2018	69	24	-
February 2018	35	13	-
March 2018	92*	10*	-*
April 2018	81	12	-
May 2018	142*	18*	-*
June 2018	62*	6*	-*
July 2018	107*	21*	-*
August 2018	81*	12*	-*
September 2018	114*	13*	-*
October 2018	263*	204*	-
November 2018	192	231	-
December 2018	n/a	n/a	n/a
Total	**1,236**	**564**	**-**

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 2018	844	157	6,470	110
February 2018	1,072*	109*	4,198*	68*
March 2018	450*	139*	7,950*	75*
April 2018	1,605	135	8,411	103
May 2018	1,544	155	7,179	128
June 2018	1,459*	108*	6,639*	42*
July 2018	773	67	6,400	19
August 2018	517*	114*	4,863*	11*
September 2018	913*	31*	3,870*	8*
October 2018	725	41	6,475	13
November 2018	1,428	297	6,092	18
December 2018	n/a	n/a	n/a	n/a
Total	**11,330**	**1,353**	**68,547**	**595**

Table A3.1-7 Recycling of Waste Rubber Tyres

Date	Waste Input (tonnes)	Product Output (tonnes)	Waste Disposal (tonnes)
January 2018	65	21	-
February 2018	52*	48*	-*
March 2018	50*	48*	-*
April 2018	46*	44*	-
May 2018	9*	10*	-*
June 2018	8*	10*	-*
July 2018	26*	48*	-*
August 2018	22*	30*	-*
September 2018	n/a	n/a	n/a
October 2018	n/a	n/a	n/a
November 2018	n/a	n/a	n/a
December 2018	n/a	n/a	n/a
Total	**278**	**259**	**-**

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) 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 in ***Table A3.1-6***.
5) "-" in the column of waste disposal denotes zero quantity; while "n/a" denotes unavailable information.
6) The throughput data marked with "*" have been revised with updated data since submission of corresponding quarterly EM&A reports.

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)
December 2017	831	293	495

Table A3.2-2 Recycling of Waste Ferrous Metal

Date	Waste Input (tonnes)	Product Output (tonnes)	Waste Disposal (tonnes)
January 2017	11,242	13,353	82

Table A3.2-3 Recycling of Waste Wood

Date	Waste Input (tonnes)	Product Output (tonnes)	Waste Disposal (tonnes)
October 2017	23	98	-
November 2017	38	109	-
December 2017	51	206	-

Table A3.2-4 Recycling of Waste Electronics

Date	Waste Input (tonnes)	Product Output (tonnes)	Waste Disposal (tonnes)
October 2017	454	62	2
November 2017	435	246	34
December 2017	430	245	56

Table A3.2-5 Recycling of Waste Plastic

Date	Waste Input (tonnes)	Product Output (tonnes)	Waste Disposal (tonnes)
March 2017	218	204	-
December 2017	63	10	-

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

Date	Waste Input (tonnes)		Product Output (tonnes)	Waste Disposal (tonnes)
	Construction Waste	Glass		
December 2017	542	165	8,569	121

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 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 in ***Table A3.2-6***.

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	
21 March 2018																	
EP1-1	Inside the landscaping area of Administration Building	Sunny	19	9:30	9:32	0.0	0	20.3	0.4	1021	>10	<19	>0.5	>20	<18	>1.5	Nil
EP1-2	PCCW below-ground chamber outside Lot T1		19	09:45	9:47	0.0	0	20.2	0.1	1021							Nil
EP1-3	HGC Broadband below-ground chamber outside Lot T3		19	09:40	9:42	0.0	0	20.2	0.2	1021							Nil
EP2-1	HGC Broadband below-ground chamber outside Lot P1		19	09:55	9:57	0.0	0	19.8	0.4	1021							Nil
EP2-2	HGC Broadband below-ground chamber outside Lot P3		19	10:00	10:02	0.0	0	19.8	0.2	1021							Nil
20 June 2018																	
EP1-1	Inside the landscaping area of Administration Building	Sunny	30	10:40	10:42	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 T1		30	10:28	10:30	0.0	0	19.8	<0.1	1008							Nil
EP1-3	HGC Broadband below-ground chamber outside Lot T3		30	10:24	10:26	0.1	2	19.8	<0.1	1008							Nil
EP2-1	HGC Broadband below-ground chamber outside Lot P1		30	10:32	10:34	0.0	0	19.9	<0.1	1008							Nil
EP2-2	HGC Broadband below-ground chamber outside Lot P3		30	10:35	10:37	0.0	0	19.9	<0.1	1008							Nil
18 September 2018																	
EP1-1	Inside the landscaping area of Administration Building	Fine	28	10:10	10:12	0.0	0	20.1	<0.1	1017	>10	<19	>0.5	>20	<18	>1.5	Nil
EP1-2	PCCW below-ground chamber outside Lot T1		28	09:50	09:52	0.0	0	20.0	<0.1	1017							Nil
EP1-3	HGC Broadband below-ground chamber outside Lot T3		28	09:45	09:47	0.0	0	20.1	<0.1	1017							Nil
EP2-1	HGC Broadband below-ground chamber outside Lot P1		28	09:55	09:57	0.0	0	20.0	<0.1	1017							Nil
EP2-2	HGC Broadband below-ground chamber outside Lot P3		28	10:00	10:02	0.0	0	18.9	0.2	1017							Nil
EP2-2	HGC Broadband below-ground chamber outside Lot P3		28	10:05	10:07	0.0	0	19.5	<0.1	1017	>10	<19	>0.5	>20	<18	>1.5	Re-measurement after the initial measurement to confirm the rectification of O_2 exceedance to non-exceedance level after ventilation enhancement
13 December 2018																	
EP1-1	Inside the landscaping area of Administration Building	Fine	14	09:34	09:36	0.0	0	21.2	0.4	1029	>10	<19	>0.5	>20	<18	>1.5	Nil
EP1-2	PCCW below-ground chamber outside Lot T1		14	09:48	09:50	0.0	0	21.1	0.1	1029							Nil
EP1-3	HGC Broadband below-ground chamber outside Lot T3		14	09:52	09:54	0.0	0	21.1	0.1	1029							Nil
EP2-1	HGC Broadband below-ground chamber outside Lot P1		14	09:39	09:41	0.0	0	20.9	0.3	1029							Nil
EP2-2	HGC Broadband below-ground chamber outside Lot P3		14	09:43	09:45	0.0	0	21.0	0.1	1029							Nil

Notes:

(1) Underlined figure indicates an exceedance of Action Level

(2) Shaded area indicates an exceedance of Limit Level

EP1-1

Date	Methane (% LEL)			Oxygen (% v/v)			Carbon Dioxide (% v/v)			Barometric Pressure (mBar)
	Measurement	Action Level	Limit Level	Measurement	Action Level	Limit Level	Measurement	Action Level	Limit Level	Measurement
21 Mar 2018	0	10	20	20.3	19	18	0.4	0.5	1.5	1021
20 Jun 2018	0	10	20	19.8	19	18	0.1	0.5	1.5	1008
18 Sep 2018	0	10	20	20.1	19	18	< 0.1	0.5	1.5	1017
13 Dec 2018	0	10	20	21.2	19	18	0.4	0.5	1.5	1029

EP1-2

Date	Methane (% LEL)			Oxygen (% v/v)			Carbon Dioxide (% v/v)			Barometric Pressure (mBar)
	Measurement	Action Level	Limit Level	Measurement	Action Level	Limit Level	Measurement	Action Level	Limit Level	Measurement
21 Mar 2018	0	10	20	20.2	19	18	0.1	0.5	1.5	1021
20 Jun 2018	0	10	20	19.8	19	18	< 0.1	0.5	1.5	1008
18 Sep 2018	0	10	20	20.0	19	18	< 0.1	0.5	1.5	1017
13 Dec 2018	0	10	20	21.1	19	18	0.1	0.5	1.5	1029

EP1-3

Date	Methane (% LEL)			Oxygen (% v/v)			Carbon Dioxide (% v/v)			Barometric Pressure (mBar)
	Measurement	Action Level	Limit Level	Measurement	Action Level	Limit Level	Measurement	Action Level	Limit Level	Measurement
21 Mar 2018	0	10	20	20.2	19	18	0.2	0.5	1.5	1021
20 Jun 2018	2	10	20	19.8	19	18	< 0.1	0.5	1.5	1008
18 Sep 2018	0	10	20	20.1	19	18	< 0.1	0.5	1.5	1017
13 Dec 2018	0	10	20	21.1	19	18	0.1	0.5	1.5	1029

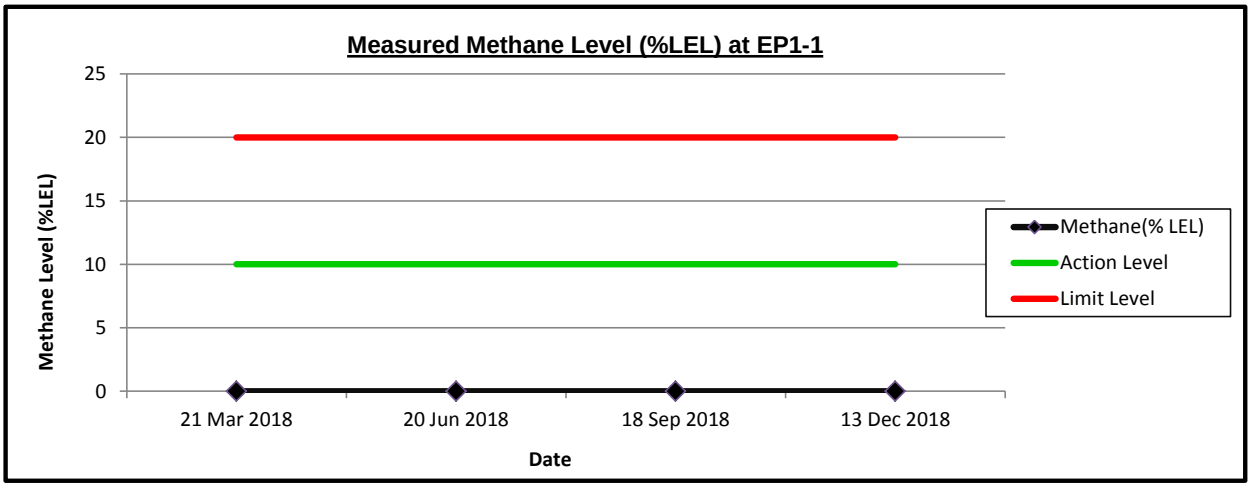
EP2-1

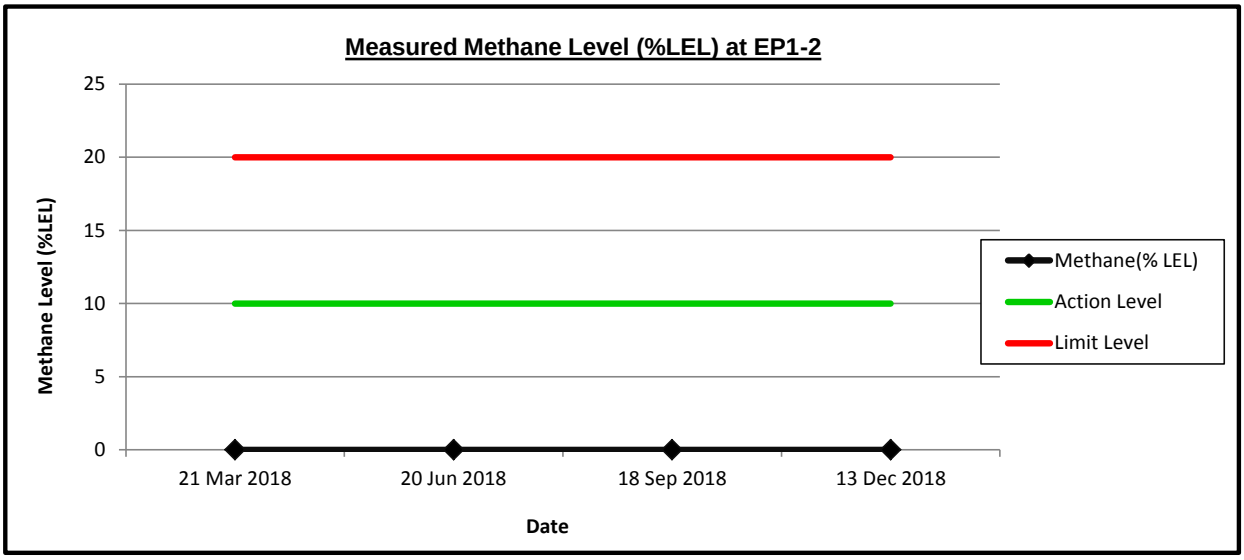
Date	Methane (% LEL)			Oxygen (% v/v)			Carbon Dioxide (% v/v)			Barometric Pressure (mBar)
	Measurement	Action Level	Limit Level	Measurement	Action Level	Limit Level	Measurement	Action Level	Limit Level	Measurement
21 Mar 2018	0	10	20	19.8	19	18	0.4	0.5	1.5	1021
20 Jun 2018	0	10	20	19.9	19	18	< 0.1	0.5	1.5	1008
18 Sep 2018	0	10	20	20.0	19	18	< 0.1	0.5	1.5	1017
13 Dec 2018	0	10	20	20.9	19	18	0.3	0.5	1.5	1029

EP2-2

Date	Methane (% LEL)			Oxygen (% v/v)			Carbon Dioxide (% v/v)			Barometric Pressure (mBar)
	Measurement	Action Level	Limit Level	Measurement	Action Level	Limit Level	Measurement	Action Level	Limit Level	Measurement
21 Mar 2018	0	10	20	19.8	19	18	0.2	0.5	1.5	1021
20 Jun 2018	0	10	20	19.9	19	18	< 0.1	0.5	1.5	1008
18 Sep 2018	0	10	20	18.9	19	18	0.2	0.5	1.5	1017
18 Sep 2018*	0	10	20	19.5	19	18	< 0.1	0.5	1.5	1017
13 Dec 2018	0	10	20	21.0	19	18	0.1	0.5	1.5	1029

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


Measured Methane Level (%LEL) at EP1-1
Methane Level (%LEL)
25
20
15
10
5
0
21 Mar 2018
20 Jun 2018
18 Sep 2018
13 Dec 2018
Date
Methane(% LEL)
Action Level
Limit Level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Methane Level (%LEL)
25
20
15
10
5
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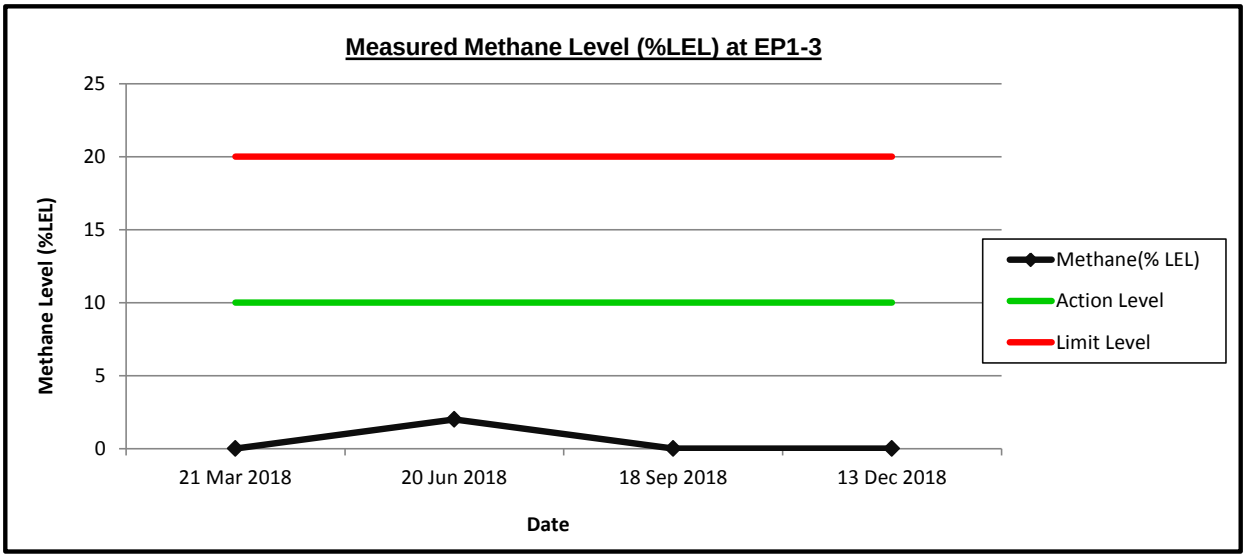
21 Mar 2018
20 Jun 2018
18 Sep 2018
13 Dec 2018
Date
Methane(% LEL)
Action Level
Limit Level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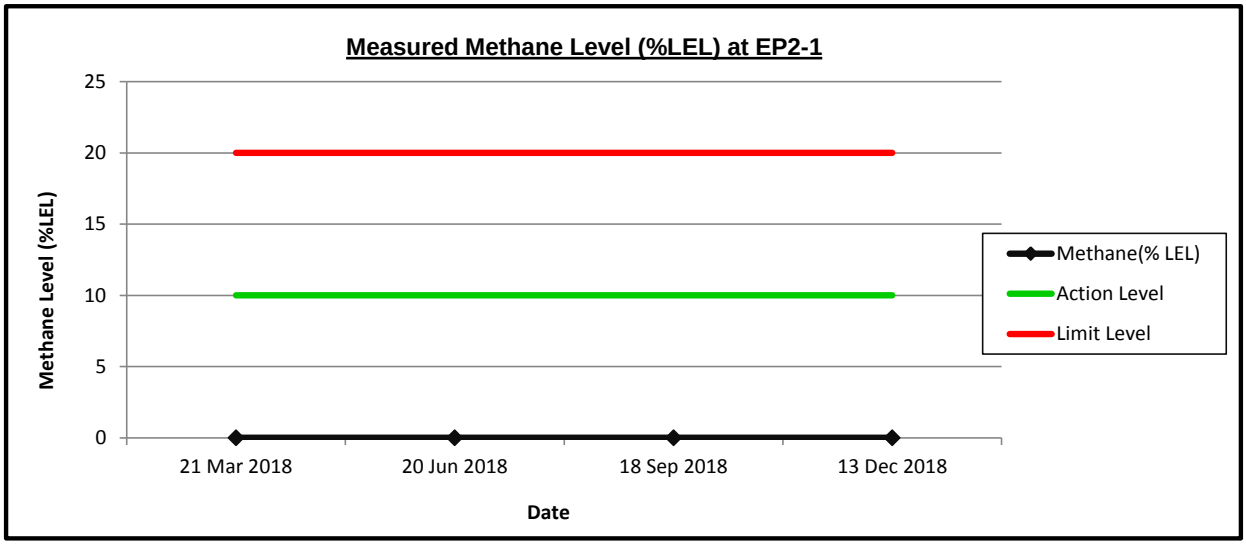
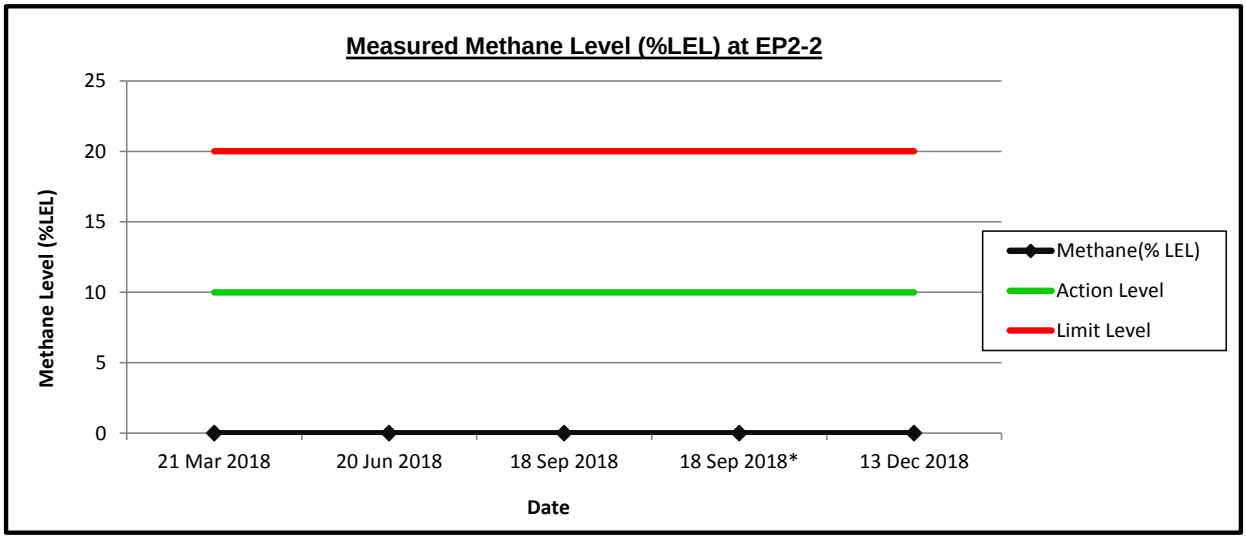
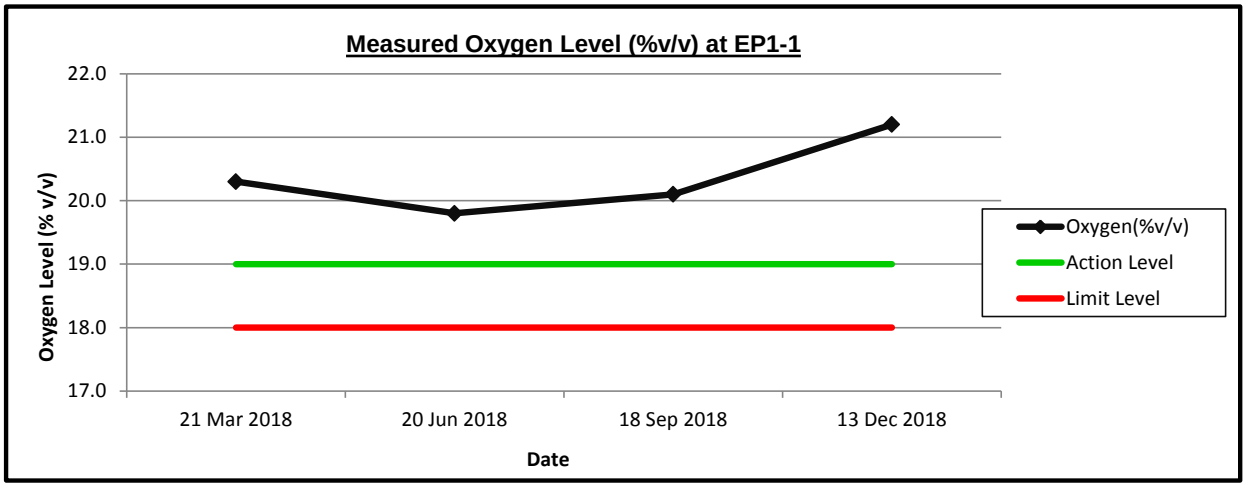
13 Dec 2018
Date
Methane(% LEL)
Action Level
Limit Level





* Re-measurement was carried out after the initial measurement to confirm the rectification of exceedance after ventilation enhancement.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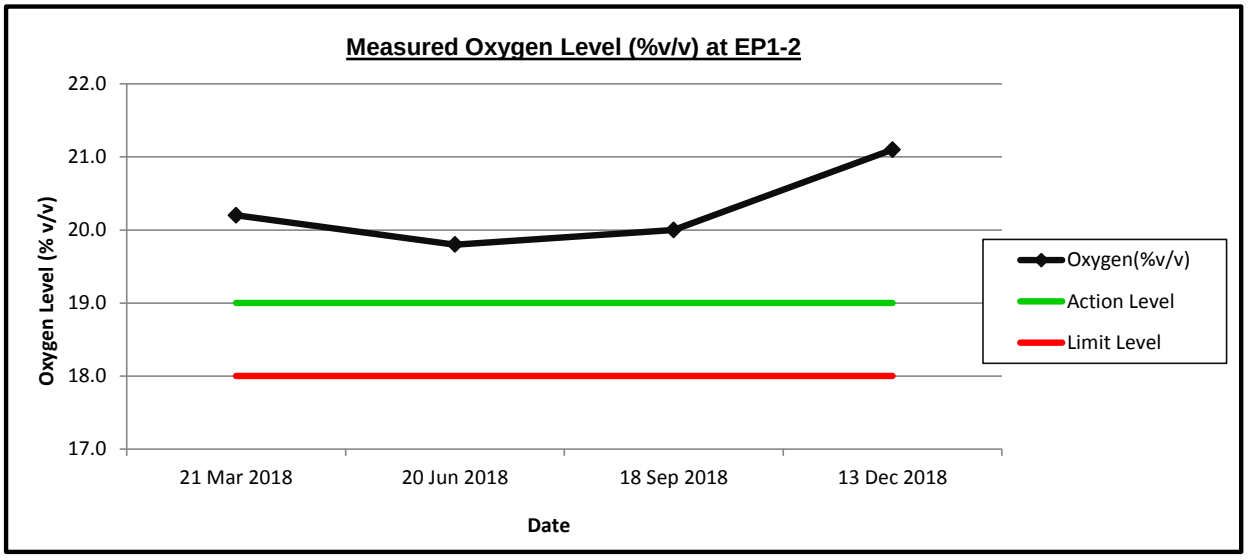
20.0
19.0
18.0
17.0
Oxygen Level (% v/v)
21 Mar 2018
20 Jun 2018
18 Sep 2018
13 Dec 2018
Date
Oxygen(%v/v)
Action Level
Limit Level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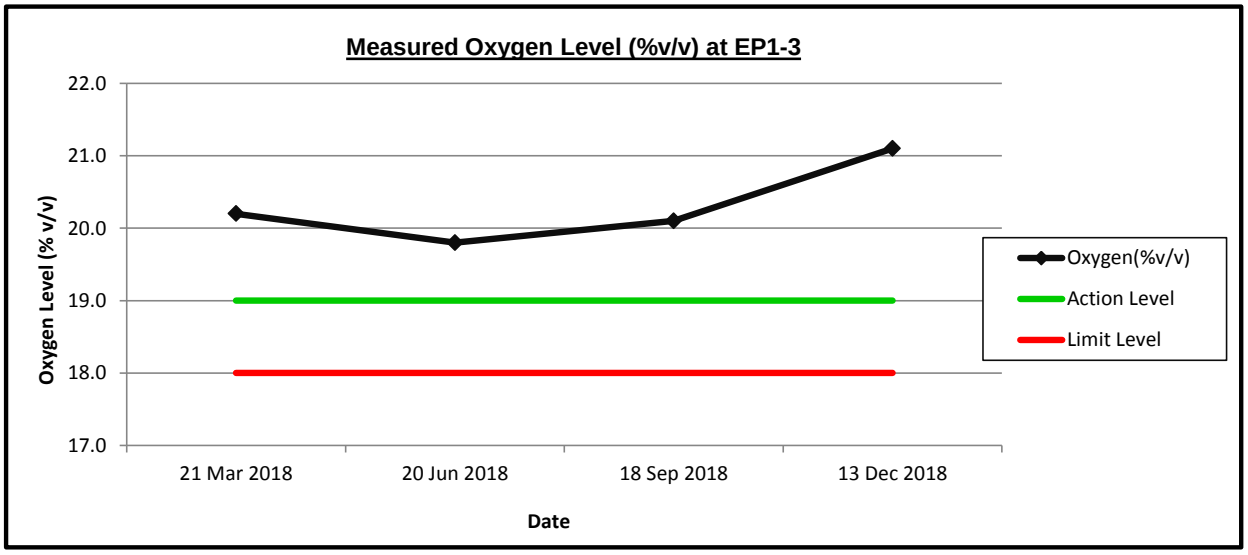
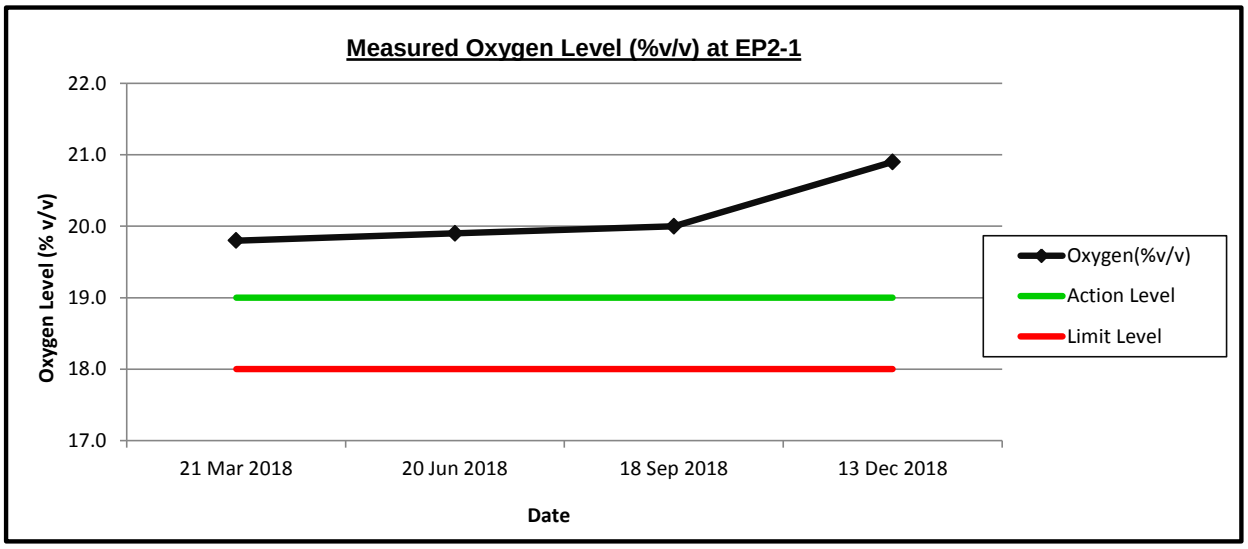
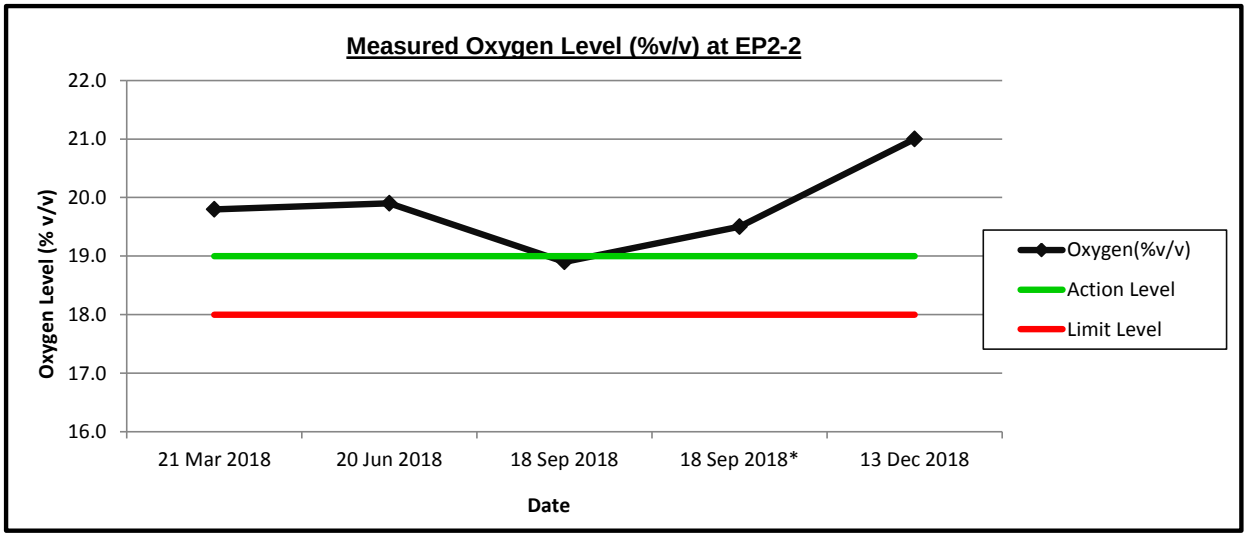
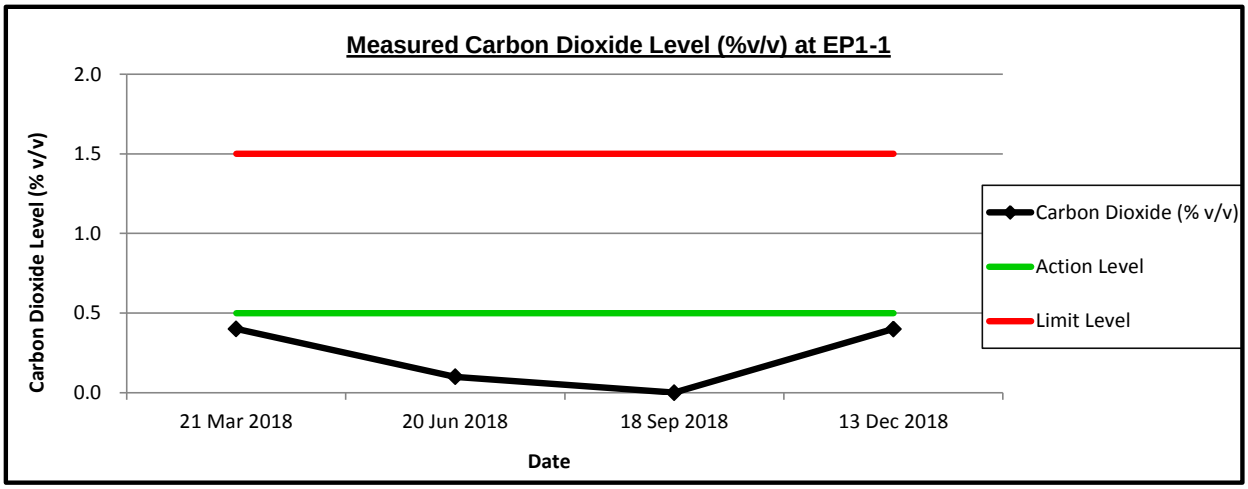
20 Jun 2018
18 Sep 2018
13 Dec 2018
Date
Oxygen(%v/v)
Action Level
Limit Level

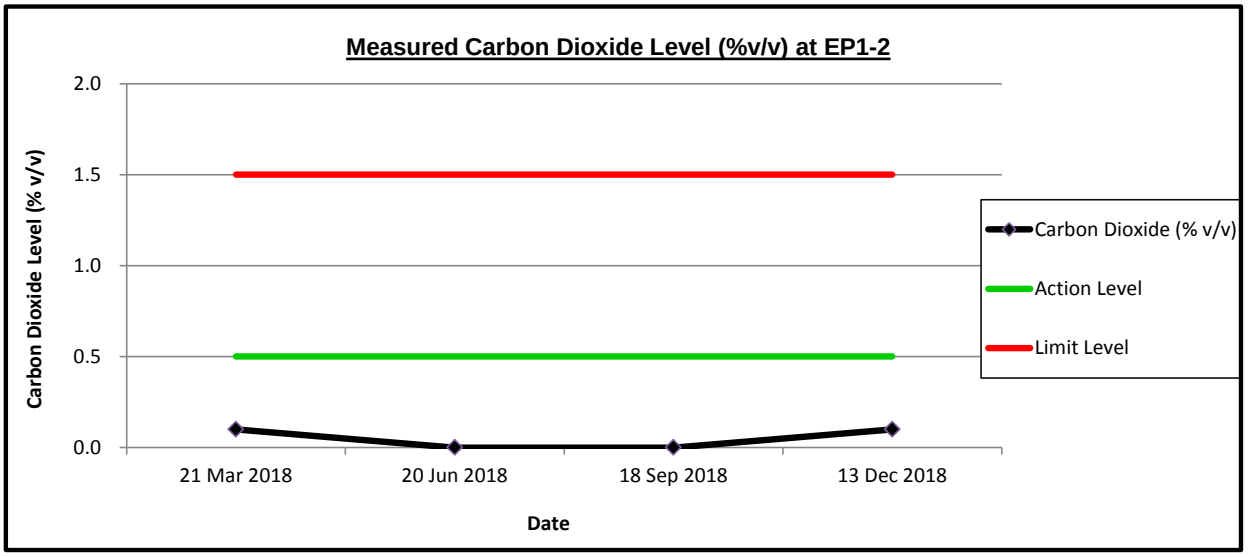

Measured Oxygen Level (%v/v) at EP1-3
22.0
21.0
20.0
19.0
18.0
17.0
Oxygen Level (% v/v)
21 Mar 2018
20 Jun 2018
18 Sep 2018
13 Dec 2018
Date
Oxygen(%v/v)
Action Level
Limit Level

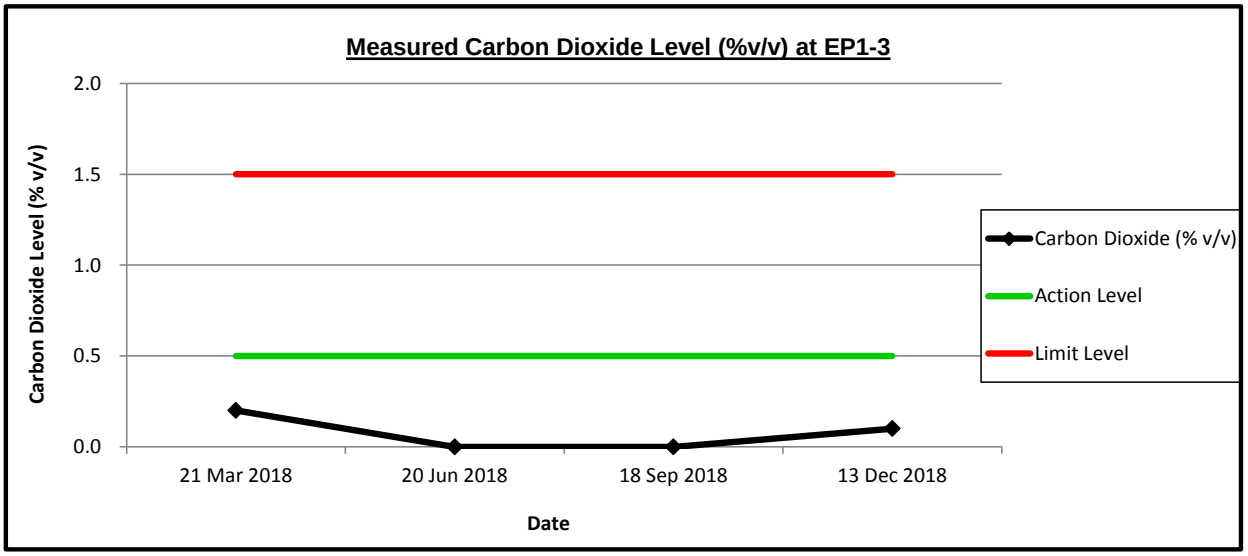


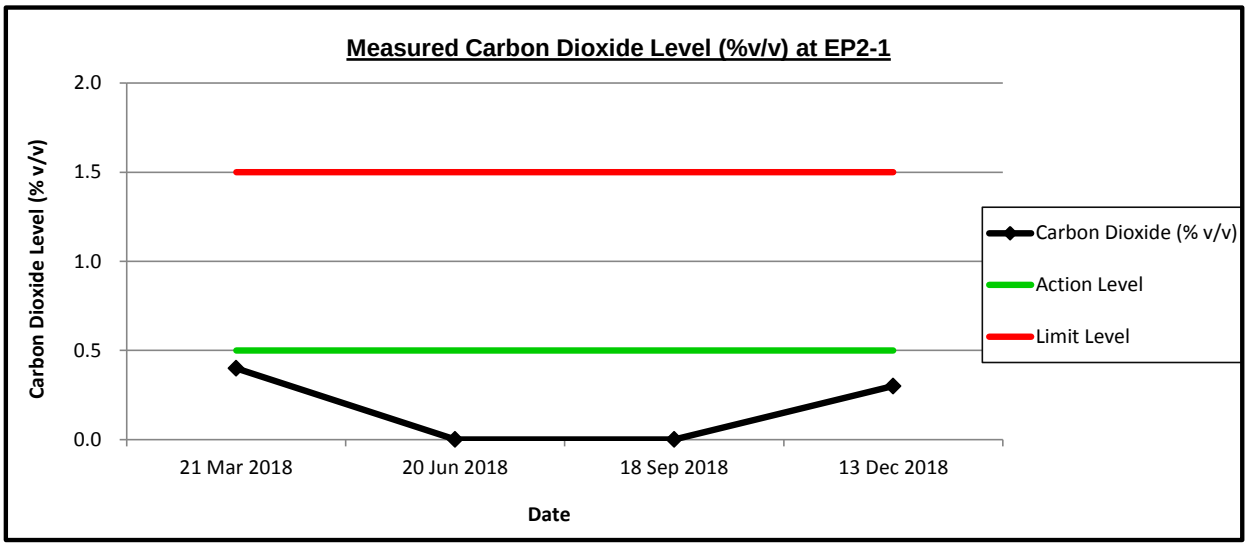


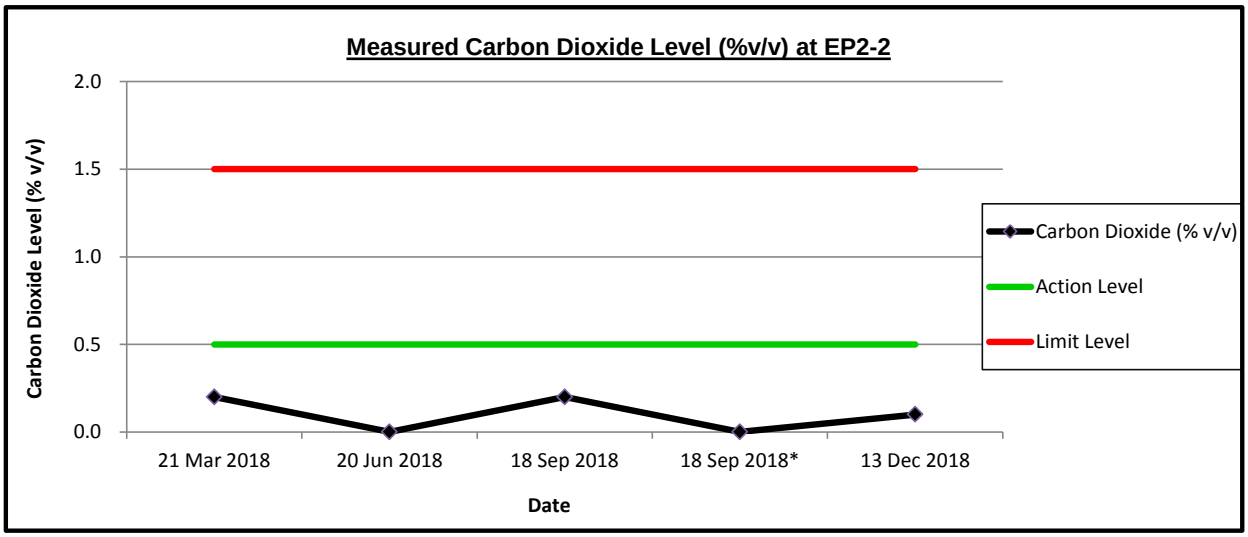
* Re-measurement was carried out after the initial measurement to confirm the rectification of exceedance after ventilation enhancement.


Measured Carbon Dioxide Level (%v/v) at EP1-1
Carbon Dioxide Level (% v/v)
2.0
1.5
1.0
0.5
0.0
21 Mar 2018
20 Jun 2018
18 Sep 2018
13 Dec 2018
Date
Carbon Dioxide (% v/v)
Action Level
Limit Level

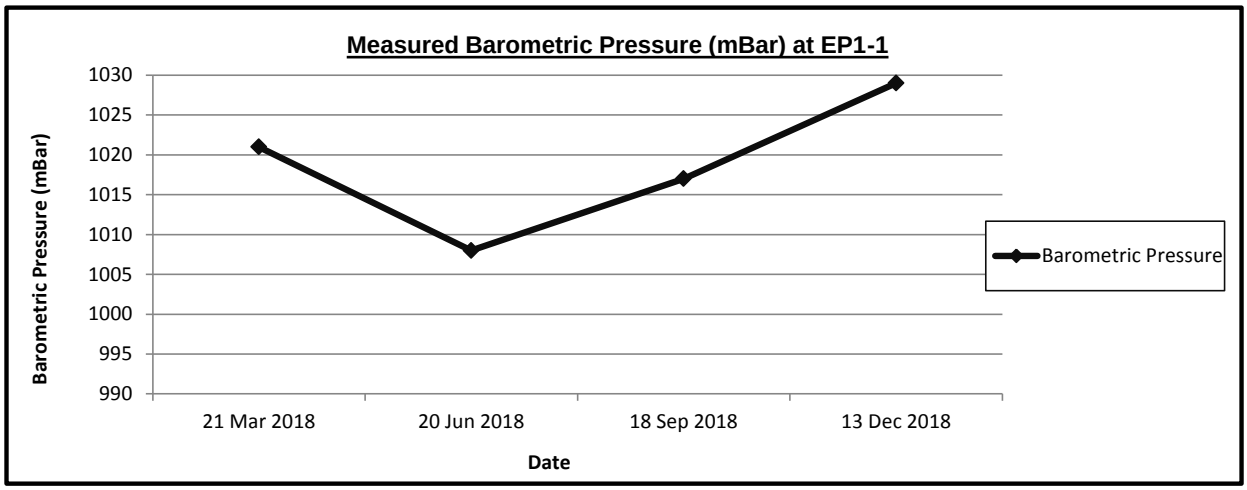

Measured Carbon Dioxide Level (%v/v) at EP1-2
Carbon Dioxide Level (% v/v)
2.0
1.5
1.0
0.5
0.0
21 Mar 2018
20 Jun 2018
18 Sep 2018
13 Dec 2018
Date
Carbon Dioxide (% v/v)
Action Level
Limit Level

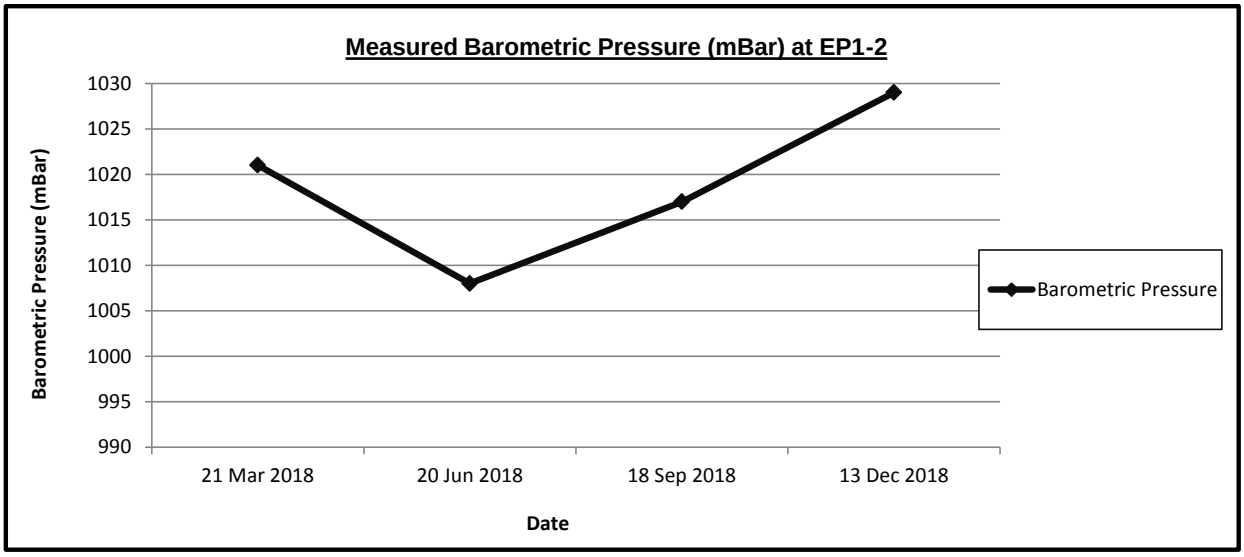

Measured Carbon Dioxide Level (%v/v) at EP1-3
Carbon Dioxide Level (% v/v)
2.0
1.5
1.0
0.5
0.0
21 Mar 2018
20 Jun 2018
18 Sep 2018
13 Dec 2018
Date
Carbon Dioxide (% v/v)
Action Level
Limit Level

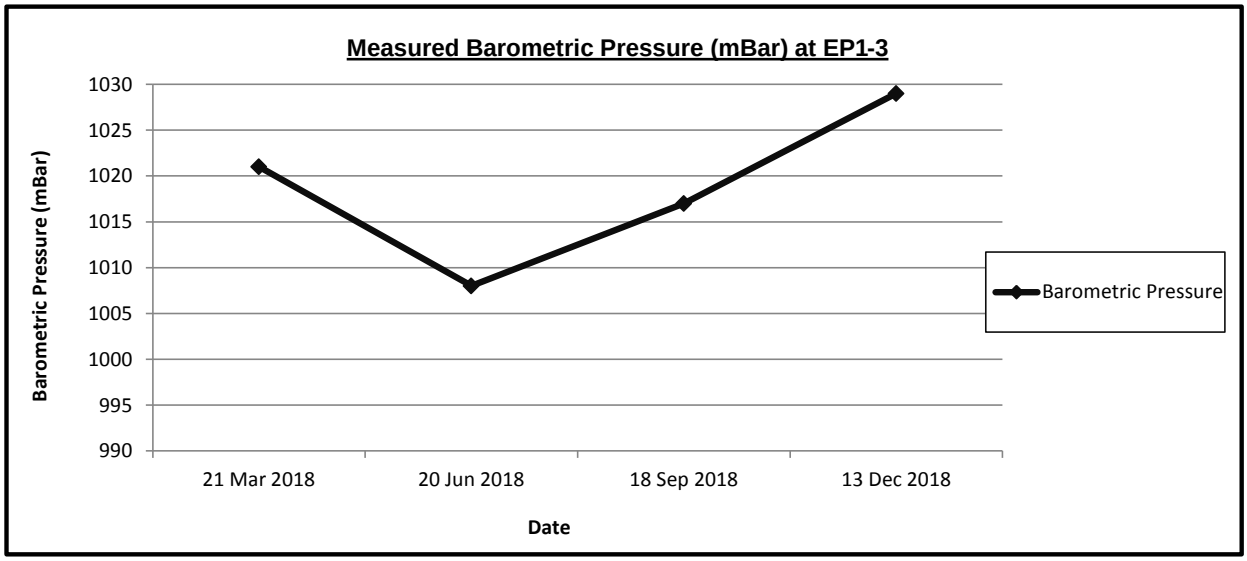


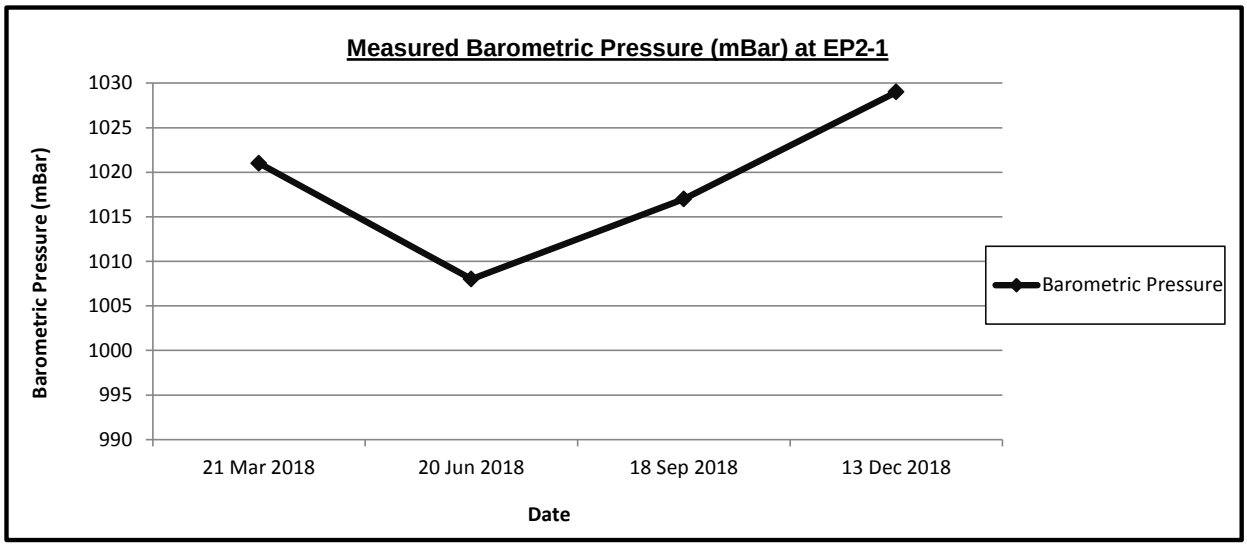


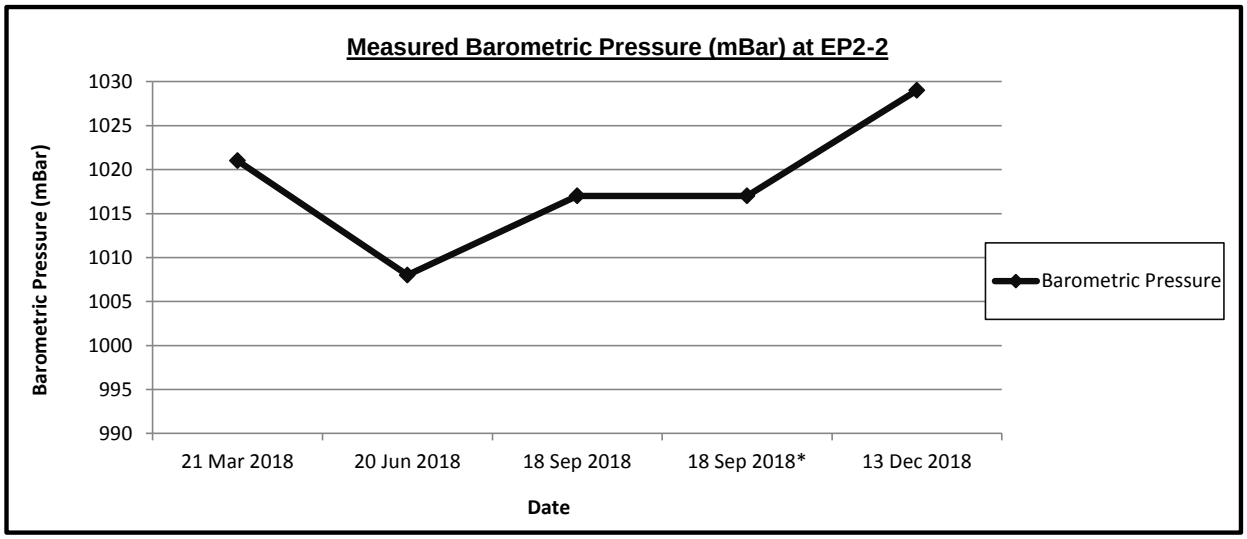
* Re-measurement was carried out after the initial measurement to confirm the rectification of exceedance after ventilation enhancement.


Measured Barometric Pressure (mBar) at EP1-1
Barometric Pressure (mBar)
1030
1025
1020
1015
1010
1005
1000
995
990
21 Mar 2018
20 Jun 2018
18 Sep 2018
13 Dec 2018
Date
Barometric Pressure


Measured Barometric Pressure (mBar) at EP1-2
Barometric Pressure (mBar)
1030
1025
1020
1015
1010
1005
1000
995
990
21 Mar 2018
20 Jun 2018
18 Sep 2018
13 Dec 2018
Date
Barometric Pressure


Measured Barometric Pressure (mBar) at EP1-3
Barometric Pressure (mBar)
1030
1025
1020
1015
1010
1005
1000
995
990
21 Mar 2018
20 Jun 2018
18 Sep 2018
13 Dec 2018
Date
Barometric Pressure





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