



EM&A Report

EcoPark Operation

Annual EM&A Compliance Report 2013





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Certified By **Antony WONG**
ET Leader

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IEC


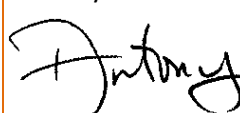

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Acting Principal EPO

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EXECUTIVE SUMMARY

General

EcoPark is a key element in the Government's waste management policy that aims to promote the local recycling industry and jump-start a circular economy to provide a sustainable solution to our waste problems. The seven-year contract for the operation of EcoPark *EP/SP/53/06 Provision of Management Services for EcoPark in Tuen Mun Area 38* was awarded to Serco Guardian Joint Venture (SGJV) by EPD in November 2006.

SGJV ("the Operator") appointed SMEC Asia Ltd (SMEC) as the Environmental Team (ET) for the Environmental Monitoring and Audit (EM&A) works. Atkins China Ltd is the Independent Environmental Checker (IEC) for the EM&A works. The ET and the IEC carry out the 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.

This is the seventh annual EM&A report prepared for the operation phase of EcoPark and covers the calendar year 2013.

As of end-December 2013, there were 14 tenants in EcoPark (Phase 1 and Phase 2). Seven tenants (Champway, Shiu Wing, Hung Wai, Li Tong, Yan Oi Tong, Telford and St. James' Settlement) have commenced full recycling activities within their lots. Seven tenants (Cosmos, K.Wah, E.Tech, On Fat Lung, Chung Yue, SSK and South China) were carrying out their plant design, the planning of construction works and installation of machinery, i.e., lots are currently under development.

Throughout the year, monthly site inspections were conducted by the ET whilst quarterly joint site inspections were 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 during 2013 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 lot.

Material Type	Waste Input (tonnes)	Product Output (tonnes)	Waste Disposed (tonnes)
Waste Oil	8,110	3,782	5,588
Waste Wood	1,387	2,400	-
WEEE	1,246	866	78
Waste Metals	22,008	22,008	-
Waste Plastics	5,534	5,154	168
Total	38,285	34,210	5,834

Note: The throughput data has been rounded off to the nearest whole tonne for presentation. The total product output plus the total waste disposed in 2013 exceeds the waste input in 2013. This is due to processing of materials that were received before 2013 and were stockpiled within the lots. The amount of waste metals (21,141 tonnes) collected by Chung Yue for trial operation is not included in this table, which shows operational throughput.

Exceedances of Any Measured Action / Limit Levels

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

In 2013, LFG monitoring was undertaken on 22 March, 21 June, 17 September and 18 December at five locations (three in Phase 1 and two in Phase 2).

One exceedance of Action Level for oxygen (18%) was recorded at EP2-2 on 21 June 2013. Carbon dioxide concentration was slightly elevated at 0.3% but methane concentration was 0%. The slightly lower level of oxygen and slightly higher level of carbon dioxide at EP2-2 may indicate natural decay of organic material in the service void, however, since no methane was detected it can be concluded that the exceedance at EP2-2 was not related to migration of LFG from Shiu Lang Shui Landfill.

Summary of Complaints, Summons and Prosecutions

- **Complaints:** One odour complaint received on 23 January 2013
- **Summons:** Zero
- **Successful Prosecutions:** Zero

Reporting Changes

Throughput data in this reporting year are now presented in terms of each type of waste, instead of identifying the actual throughput of each tenant – this has been done in order to address concerns raised by tenants with regard to commercial confidentiality of their business operations. This change still fulfils the reporting requirements as stipulated in Section 8.3.4 of the EM&A Manual.

Future Key Issues

More tenants in Phase 2 may commence their recycling activities in 2014. Operation phase LFG monitoring for Phase 1 and Phase 2 will continue to be carried out by the ET, although no exceedances are anticipated.

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 tenant lots in EcoPark in 2013. The operation of EcoPark in environmental terms is therefore considered to be of an acceptable level.

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 greater throughputs than were assumed in the EIA, is considered to work well and is fully in accordance with the recommendations of the EIA, requirements of the EM&A programme and EP conditions.

1 PROJECT DESCRIPTION

1.1 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 and jump-start a circular economy to provide a sustainable solution to our waste problems. By encouraging and promoting the reuse, recovery and recycling of our waste resources and returning them to the consumption loop, EcoPark will help to realise the full potential of the local recycling industry and alleviate the heavy reliance on the export of recyclable materials recovered from Hong Kong.
- 1.1.3 EcoPark has been developed in Tuen Mun Area 38 (see [Figure 1-1](#)) in two phases (Phase 1 and Phase 2) under construction contract *EP/SP/52/06 Development of EcoPark in Tuen Mun Area 38*, which was awarded to Kaden Construction 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. The seven-year contract for the operation of EcoPark *EP/SP/53/06 Provision of Management Services for EcoPark in Tuen Mun Area 38* was awarded to Serco Guardian Joint Venture (SGJV) by EPD in November 2006.
- 1.1.4 SGJV ("the Operator") appointed SMEC Asia Ltd (SMEC) as the Environmental Team (ET) for the Environmental Monitoring and Audit (EM&A) works. Atkins China Ltd (Atkins) has been appointed as the Independent Environmental Checker (IEC) for the EM&A works. 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 end-December 2013, there were a total of 14 tenants in EcoPark comprising:
- Seven active tenants (Champway, Shiu Wing, Li Tong, Telford, Yan Oi Tong, St. James' Settlement and Hung Wai) who have continued full recycling operations.
 - One tenant (Cosmos) that has substantially completed the civil and structural works, with machinery installation in progress.
 - One new tenant, Chung Yue, completed the plant construction and machinery installation, and has commenced trial operation since August 2013.
 - Five new tenants (K.Wah, E.Tech, On Fat Lung, SSK and South China) carried out plant design and planning, or were under plant construction.

1.3 EM&A Organisation

1.3.1 The EM&A which is verified by the IEC is carried out by the ET. The key personnel contact details are summarised in **Table 1-1**. The organisation of SGJV is shown in **Figure 1-2** and the current EM&A organisation is illustrated in **Figure 1-3**.

Table 1-1 EM&A Personnel Contact Details

Position	Name	Email Address	Telephone No.
Project Proponent – EPD			
Principal EPO*	Lawrence WONG	-	2872 1700
	C K CHEN	ckchen@epd.gov.hk	
Operator – SGJV			
Project Manager	Noel AU	nkfau@ecopark-mgnt.com	2496 7633
Park Manager	Mabel YUNG	mabelyung@ecopark-mgnt.com	2212 5910
IEC – Atkins			
IEC	Sharifah OR	sharifah.or@atkinsglobal.com	2972 1802
IEC Site Inspector	Keith CHAU	keith.chau@atkinsglobal.com	2972 1721
ET – SMEC			
ET Leader	Antony WONG	antony.wong@smec.com	3995 8120
ET Site Inspector	Winnie MA	winnie.ma@smec.com	3995 8138

Note: * The Principal EPO changed from Dr Lawrence WONG to Mr C K CHEN in August 2013

Figure 1-1 Location of EcoPark in Tuen Mun Area 38



Source: EPD Records (May 2013)

Figure 1-2 Organisation Chart of SGJV

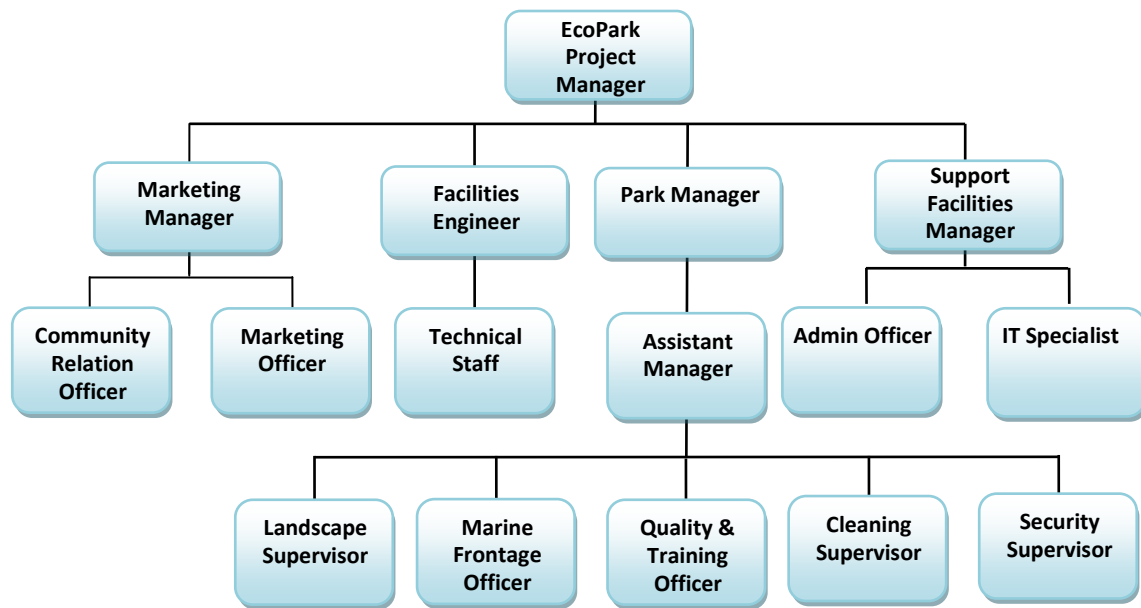
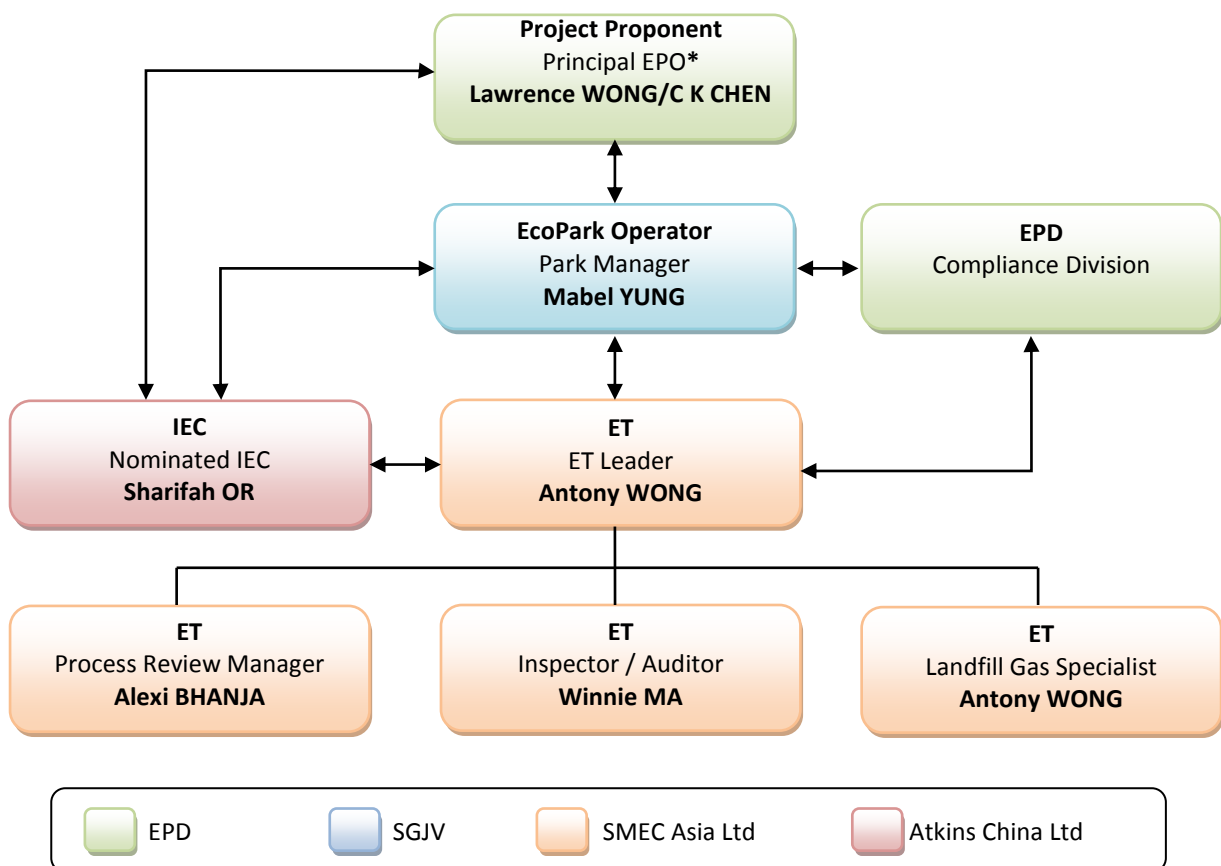


Figure 1-3 Organisation Chart of EM&A Works (Operation)



Note: *The Principal EPO changed from Dr Lawrence WONG to Mr C K CHEN in August 2013

2 SUMMARY OF EM&A REQUIREMENTS

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 the joint site inspection on 27 July 2009, three monitoring locations were identified and agreed as suitable monitoring locations by the ET Leader, IEC and SGJV. Subsequently, two more monitoring locations in Phase 2 were proposed by the ET Leader and agreed by the IEC and the 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 EP08-01
EP1-3	Service void	HGC Broadband below-ground chamber outside Lot EP08-03
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 **Figure 2-2** is a replacement figure for the EM&A Manual, in accordance with footnote to Figure 6.1 in the approved EM&A Manual, and shall be deemed to be included in the EM&A Manual.
- 2.1.5 Routine LFG monitoring has been carried out on a quarterly basis. Should EPD alert the Operator that high LFG levels have been detected during monthly monitoring under the Siu Lang Shui Landfill restoration contract, the Operator may be required to increase LFG monitoring to monthly until such time as EPD inform the Operator that quarterly monitoring can be resumed. To-date, EPD has not alerted the Operator.

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	<ul style="list-style-type: none"> Ventilate trench/void to restore O₂ to > 19%
	Limit Level <18% O ₂	<ul style="list-style-type: none"> Stop works Evacuate personnel / prohibit entry Increase ventilation to restore O₂ to > 19%
Methane (CH ₄)	Action Level >10% LEL	<ul style="list-style-type: none"> Post "No Smoking" signs Prohibit hot works Increase ventilation to restore CH₄ to <10% LEL
	Limit Level >20% LEL	<ul style="list-style-type: none"> Stop works Evacuate personnel / prohibit entry Increase ventilation to restore CH₄ to <10% LEL
Carbon Dioxide (CO ₂)	Action Level >0.5% CO ₂	<ul style="list-style-type: none"> Ventilate to restore CO₂ to < 0.5%
	Limit Level >1.5% CO ₂	<ul style="list-style-type: none"> Stop works Evacuate personnel / prohibit entry Increase ventilation to restore CO₂ 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 regularly by the ET once per month, and joint site inspections are to be carried out by the ET and IEC 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 an 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 programme:

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

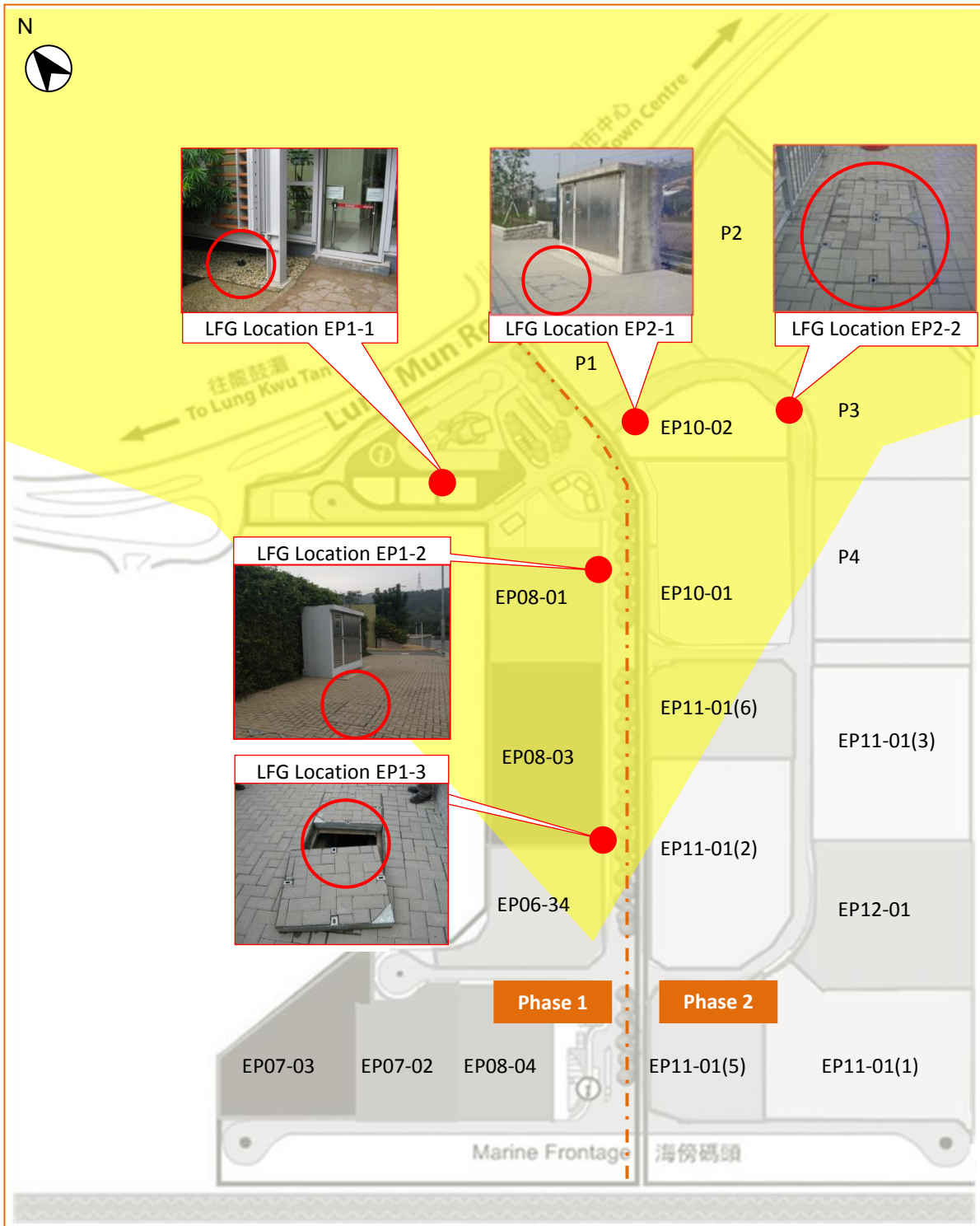
2.4 Environmental Mitigation Measures

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

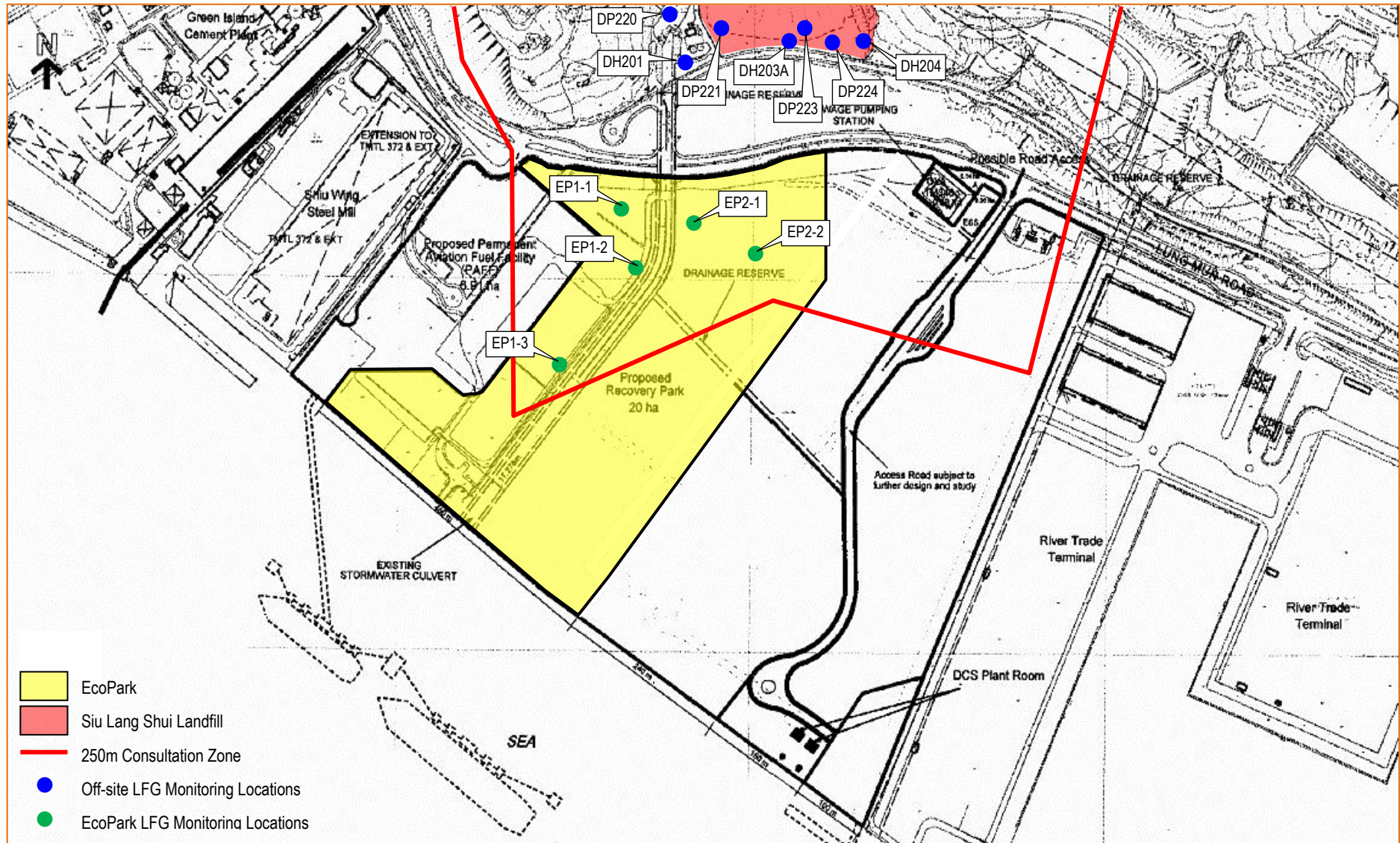
2.5.1 Environmental requirements specified in tenancy agreements are summarised in **Appendix 2**.

Figure 2-1 LFG Monitoring Locations within EcoPark



Area Within the Shiu Lang Shui Landfill Gas Consultation Zone

Figure 2-2 Replacement Figure for EM&A Manual Figure 6.1



3 OPERATION STATUS

3.1 General

3.1.1 The locations of lots within EcoPark, the tenancy numbers and tenant names are shown in *Figure 3-1*.

3.1.2 Six Phase 2 lots were awarded to new tenants in August 2011 and August 2012 and preparation works are currently being carried out. Construction works were being carried out in K.Wah and Chung Yue. Therefore, none of the new tenants are yet carrying out full recycling activities on-site and so there is no operation status to be discussed in this section. The new tenants are indicated in *Figure 3-1*.

3.1.3 A summary of waste throughputs for all active tenants is provided in *Section 3.9*.

3.2 Champway Technology Ltd

- **Tenancy No.:** EP07-03 (Phase 1)
- **Lot Size:** Approx. 6,000m²
- **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 activities commenced in July 2010. Recycling of waste cooking oil was carried out during 2013.

3.3 Shiu Wing Steel Ltd

- **Tenancy No.:** EP08-03 (Phase 1)
- **Lot Size:** Approx. 9,500m²
- **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 In 2013, a large amount of waste metal/steel scrap was processed.

3.4 Hong Kong Hung Wai Wooden Board Co

- **Tenancy No.:** EP06-034 (Phase 1)
- **Lot Size:** Approx. 5,000m²
- **Activity:** Recycling of Waste Wood
- **Recycling Process:** Recycle waste wood to wood fuel pellets. Ferrous metals will be separated by magnets

3.4.1 Installation of machinery for wood fuel pellet production was carried out during April 2013 and May 2013. The recycling process converting waste wood into wood fuel pellet commenced on 2 July 2013.

3.5 Li Tong Group

- **Tenancy No.** : EP07-02 (Phase 1)
- **Lot Size:** Approx. 6,500m²
- **Activity:** Recycling of WEEE
- **Recycling Process:** Manually dismantling of WEEE, particularly CRT glass and LCD panels into metals (ferrous materials, aluminium, etc.) and non-metals (fibres, plastics, etc.).

3.5.1 In 2013, a large amount of WEEE was processed.

3.6 Hong Kong Telford Envirotech Group Ltd

- **Tenancy No.** : EP08-01 (Phase 1)
- **Lot Size:** Approx. 5,000m²
- **Activity:** Recycling of Waste Plastics
- **Recycling Process:** Sorting, shredding and extrusion of waste plastics

3.6.1 In 2013, plastic was stockpiled in the lot and some of this was recycled.

3.7 Yan Oi Tong EcoPark Plastic Resources Recycling Centre

- **Tenancy No.** : EP10-01 (Phase 2)
- **Lot Size:** Approx. 5,000 m² (changed to 9,000 m² since 1 March 2013)
- **Activity:** Recycling of waste plastics
- **Recycling Process:** Convert mixed waste plastics into pellets / flakes / baled materials by pre-washing, sorting, flaking, secondary washing, drying, extrusion and chip-forming.

3.7.1 In 2013, a large amount of waste plastics were sorted.

3.8 St. James' Settlement WEEE GO GREEN

- **Tenancy No.:** EP10-02 (Phase 2)
- **Lot Size:** Approx. 5,000 m²
- **Activity:** Recycling of WEEE
- **Recycling Process:** WEEE will be sorted on site first. The WEEEs suitable for reuse will be repaired and refurbished, whilst those irreparable / not suitable for repair will be manually dismantled to recover the reusable parts and recyclable materials.

3.8.1 In 2013, a large amount of WEEE was processed.

3.9 Throughput Statistics

- 3.9.1 Six Phase 2 lots were awarded to new tenants in August 2011 and August 2012, but none of the new tenants have yet commenced full recycling activities and so there are no throughput statistics from Phase 2 tenants to discuss in this section.
- 3.9.2 For the active recyclers in Phase 1, most of the incoming waste materials and outgoing products were delivered by land transportation, although the wood chips generated by Hung Wai were delivered by marine transportation. After suspending operations in October 2011, Hung Wai re-commenced their recycling activities in July 2013, processing waste wood into wood fuel pellets.
- 3.9.3 The throughputs in 2013 are summarised in **Table 3-1**, 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 lot.

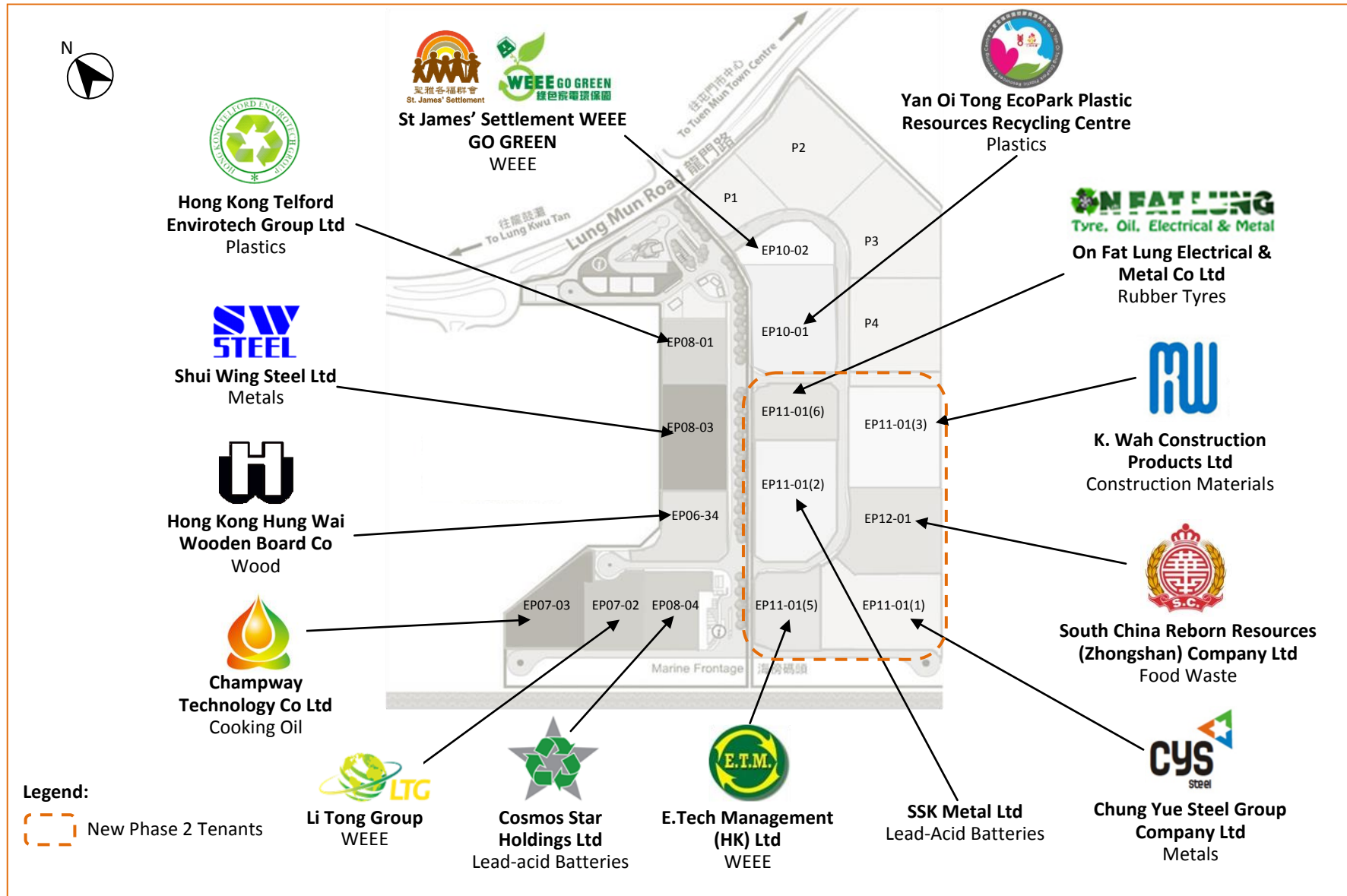
Table 3-1 Throughput Statistics for 2013

Material Type	Waste Input (tonnes)	Product Output (tonnes)	Waste Disposed (tonnes)
Waste Oil	8,110	3,782	5,588
Waste Wood	1,387	2,400	-
WEEE	1,246	866	78
Waste Metals	22,008	22,008	-
Waste Plastics	5,534	5,154	168
Total	38,285	34,210	5,834

Note: The throughput data has been rounded off to the nearest whole tonne for presentation. The total product output plus the total waste disposed in 2013 exceeds the waste input in 2013. This is due to processing of materials that were received before 2013 and were stockpiled within the lots. The amount of waste metals (21,141 tonnes) collected by Chung Yue for trial operation is not included in the table, which shows operational throughput.

- 3.9.4 Detailed throughput figures are provided in **Appendix 3**.

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 As of end-December 2013, six tenants (Champway, Shiu Wing, Li Tong, Yan Oi Tong, Telford and St. James' Settlement) were carrying out full recycling activities within their lots. Chung Yue commenced the trial operations in December 2013.
- 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 Operational LFG monitoring is conducted quarterly at five monitoring locations, three in Phase 1 and two in Phase 2^[Ref.#1]. Measurements were undertaken during the joint ET+IEC site inspections on 22 March, 21 June, 17 September and 18 December 2013. Monitoring details are shown in **Table 5-1**.

Table 5-1 Sampling Schedule of LFG Monitoring

Station ID	Sampling Date	Time	Duration	Ambient Air Temp.	Weather
EP1-1	22 March 2013	10:26 - 10:29	3 minutes	24°C	Hazy
EP1-2		10:10 - 10:13			
EP1-3		10:06 - 10:09			
EP2-1		10:14 - 10:17			
EP2-2		10:18 - 10:21			
EP1-1	21 June 2013	10:41 - 10:44	3 minutes	31°C	Fine
EP1-2		10:25 - 10:28			
EP1-3		10:20 - 10:23			
EP2-1		10:30 - 10:33			
EP2-2		10:35 - 10:38			
EP1-1	17 September 2013	10:25 - 10:28	3 minutes	31°C	Fine
EP1-2		10:03 - 10:06			
EP1-3		9:57 - 10:00			
EP2-1		10:10 - 10:13			
EP2-2		10:15 - 10:18			
EP1-1	18 December 2013	11:01 – 11:04	3 minutes	11.5°C	Fine
EP1-2		10:43 – 10:46			
EP1-3		10:36 – 10:39			
EP1-1		10:50 – 10:53			
EP1-2		10:54 – 10:57			

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**.

1. Two monitoring locations in Phase 2 were proposed by ET and agreed by IEC and SGJV via email in January 2011.

Table 5-2 Parameters and Measurement Ranges of 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 as intrinsically safe, suitable for use in a Zone 2 area 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.
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.
3. Carbon monoxide – maximum short term (1-hour) exposure of 300ppm with long term average (8-hours) not to exceed 50ppm.

5.3 Types of Equipment Used and Calibration Details

5.3.1 One Infra Red Gas Analyser Model GA94A (serial number GA3385) was used for LFG measurements. The gas analyser is calibrated every 18 months. **Appendix 4** presents the calibration records of the monitoring equipment.

5.4 Results and Graphical Plots of Monitoring Parameters

5.4.1 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 5**.

Table 5-3 LFG Monitoring Results

Station ID	Date	Monitoring Results				
		CH ₄ (% v/v)	CH ₄ (% LEL)	O ₂ (% v/v)	CO ₂ (% v/v)	Barometric Pressure (mBar)
EP1-1	22 Mar 2013	0.0	0	21	0.0	1015
EP1-2		0.0	0	21	0.0	1015
EP1-3		0.0	0	21	0.0	1015
EP2-1		0.0	0	21	0.0	1015
EP2-2		0.0	0	21	0.0	1015
EP1-1	21 Jun 2013	0.0	0	20	0.0	1006
EP1-2		0.0	0	20	0.0	1006
EP1-3		0.0	0	20	0.0	1006
EP2-1		0.0	0	20	0.2	1006
EP2-2		0.0	0	18	0.3	1006
EP1-1	17 Sep 2013	0.0	0	20	0.0	1000
EP1-2		0.0	0	20	0.2	1003
EP1-3		0.0	0	21	0.0	1003
EP2-1		0.0	0	20	0.0	1003
EP2-2		0.0	0	20	0.0	1003
EP1-1	18 Dec 2013	0.0	0	21	0.2	1022
EP1-2		0.0	0	21	0.0	1024
EP1-3		0.0	0	21	0.0	1024
EP2-1		0.0	0	21	0.0	1024
EP2-2		0.0	0	21	0.0	1022

Note: **Bold** indicates an exceedance of Action Level. **Bold** indicates an exceedance of Limit Level.

5.4.2 One exceedance of Action Level for oxygen (18%) was recorded at EP2-2 on 21 June 2013. Carbon dioxide concentration was slightly elevated at 0.3% but methane concentration was 0%. The slightly lower level of oxygen and slightly higher level of carbon dioxide at EP2-2 may indicate natural decay of organic material in the service void, however, since no methane was detected it can be concluded that the exceedance at EP2-2 was not related to migration of LFG from Shiu Lang Shui Landfill.

6 SUMMARY OF TENANT AUDITS

6.1 General

- 6.1.1 Cosmos and the new Phase 2 tenants were carrying out site preparation work and building work, and did not carry out any full-scale recycling activities during 2013. As such, site audits of recycling activities for the new tenants were not carried out in reporting period.
- 6.1.2 Tenant audits were conducted monthly based on the approved site inspection checklist. Please refer to the Quarterly EM&A Compliance Reports for the completed audit checklists of EcoPark.
- 6.1.3 In the “Status” column in the following tables, “**(Outstanding)**” indicates that a problem was not resolved in the reporting month and would be followed-up in the next month. “**(Closed)**” indicated that a problem was resolved during the reporting month and that no further follow-up is needed.

6.2 January 2013

- 6.2.1 Environmental audits of active tenants were carried out by the ET on 23 January 2013. Audit observations for the audited tenants are summarised in **Table 6-1**, below.

Table 6-1 Environmental Audit Findings for January 2013

Item	Status
Champway	
Grease was observed in surface channel.	The tenant was advised to remove the grease in the surface channel. This was followed up in the audit in February 2013 (Outstanding) .
Shiu Wing, Hung Wai, Li Tong, Telford, Yan Oi Tong, St. James' Settlement	
No critical environmental deficiencies were observed.	

6.3 February 2013

- 6.3.1 Environmental audits of active tenants were carried out by the ET on 21 February 2013. Audit observations for the audited tenants are summarised in **Table 6-2**, below.

Table 6-2 Environmental Audit Findings for February 2013

Item	Status
Champway (follow-up)	
	<u>Follow up</u> : the grease inside the surface channel was removed (Closed) .
Champway, Shiu Wing, Hung Wai, Li Tong, Telford, Yan Oi Tong, St. James' Settlement	
No critical environmental deficiencies were observed.	

6.4 March 2013

6.4.1 Environmental audits of active tenants were carried out by the ET and the IEC in a joint inspection on 22 March 2013. Audit observations for the audited tenants are summarised in **Table 6-3**, below.

Table 6-3 Environmental Audit Findings for March 2013

Item	Status
Champway	
Waste oil pumping was being carried out during the site audit but the air scrubber was not being operated.	Tenant was advised not to pump waste oil without operating the air scrubber. This was followed up in the audit in April 2013 (Outstanding) .
Some activated carbon was observed inside the nearby surface channel.	Tenant was advised to remove the activated carbon from the nearby surface channel. This was followed up in the audit in April 2013 (Outstanding) .
Yan Oi Tong	
Stagnant water was observed on tarpaulin sheets.	Tenant was advised to remove the stagnant water on the tarpaulin sheets. This was followed up in the audit in April 2014 (Outstanding) .
Shiu Wing, Hung Wai, Li Tong, Telford, St. James' Settlement	
No critical environmental deficiencies were observed.	

6.5 April 2013

6.5.1 Environmental audits of active tenants were carried out by the ET on 23 April 2013. Audit observations for the audited tenants are summarised in **Table 6-4**, below.

Table 6-4 Environmental Audit Findings for April 2013

Item	Status
Champway	
Oil was observed at the interface between aboveground and underground pipes adjacent to the glycerine storage tank.	Tenant was advised to clean up the oil at the interface between aboveground and underground pipes adjacent to a glycerine storage tank. This was followed up in the audit in May 2013 (Outstanding) .
The Tenant was reminded to check whether there was any oil leakage of the pipes mentioned above and, if so, to repair the leak as soon as possible.	This was followed up in the audit in May 2013 (Ongoing) .
	<u>Follow up</u> : air scrubber was in use (Closed) .
	<u>Follow up</u> : the surface channel was generally clean (Closed) .
Yan Oi Tong (follow-up)	
	<u>Follow up</u> : No stagnant water was observed (Closed) .
Shiu Wing, Hung Wai, Li Tong, Telford, Yan Oi Tong St. James' Settlement	
No critical environmental deficiencies were observed.	

6.6 May 2013

- 6.6.1 Environmental audits of active tenants were carried out by the ET on 27 May 2013. Audit observations for the audited tenants are summarised in **Table 6-5**, below.

Table 6-5 Environmental Audit Findings for May 2013

Item	Status
Champway (follow-up)	
	<u>Follow up</u> : the oil at the interface between aboveground and underground pipes adjacent to a glycerine storage tank was cleaned up (Closed) .
	<u>Follow up</u> : the tenant advised that they regularly check leakage of the pipes. No leakage of pipes was observed (Closed) .
Champway, Shiu Wing, Hung Wai, Li Tong, Telford, Yan Oi Tong, St. James' Settlement	
No critical environmental deficiencies were observed.	

6.7 June 2013

- 6.7.1 Environmental audits of active tenants were carried out by the ET and the IEC in a joint inspection on 21 June 2013. Audit observations are summarised in **Table 6-6**, below.

Table 6-6 Environmental Audit Findings for June 2013

Item	Status
Hung Wai	
Dust was observed near the waste wood storage area during the audit.	The tenant was requested to implement dust suppression measures. The effectiveness of the dust suppression measures was checked in the audit in July 2013 (Outstanding) .
Significant noise nuisance was observed due to equipment operation during audit.	The tenant was suggested to provide acoustic measures to mitigate noise nuisance. This was followed up in the audit in July 2013 (Outstanding) .
Wood debris and waste were observed inside the surface channel during audit.	The tenant was advised to clear the debris. This was followed up in the audit in July 2013 (Outstanding) .
Champway, Shiu Wing, Li Tong, Telford, Yan Oi Tong, St. James' Settlement	
No critical environmental deficiencies were observed.	

6.8 July 2013

6.8.1 Environmental audits of active tenants were carried out by the ET on 24 July 2013. Audit observations for the audited tenants are summarised in **Table 6-7**, below.

Table 6-7 Environmental Audit Findings for July 2013

Item	Status
<i>Hung Wai (follow-up)</i>	
	<u>Follow up:</u> as advised by SGJV, the Tenant had provided additional blower with higher power to collect fine wood pallets in order to mitigate dust issues due to the recycling process. The efficiency of the mitigation measures was further reviewed in the audit in August 2013 (Outstanding) .
	<u>Follow up:</u> As advised by SGJV, the Tenant had provided acoustic measures to mitigate noise nuisance and no annoying noise were observed during audit. (Closed) .
	<u>Follow up:</u> No wood debris and waste were observed inside the surface channel. (Closed) .
<i>Champway , Shiu Wing, Hung Wai, Li Tong, Telford, Yan Oi Tong, St. James' Settlement</i>	
No critical environmental deficiencies were observed.	

6.9 August 2013

6.9.1 Environmental audits of active tenants were carried out by the ET on 19 August 2013. Audit observations for the audited tenants are summarised in **Table 6-8**, below.

Table 6-8 Environmental Audit Findings for August 2013

Item	Status
<i>Hung Wai (follow-up)</i>	
	<u>Follow up:</u> the plant was not operated during site audit and so the effectiveness of the dust suppression measures could not be followed up. This was further follow up in the audit in September 2013 (Outstanding) .
<i>Champway , Shiu Wing, Hung Wai, Li Tong, Telford, Yan Oi Tong, St. James' Settlement</i>	
No critical environmental deficiencies were observed.	

6.10 September 2013

6.10.1 Environmental audits of active tenants were carried out by the ET and the IEC in a joint inspection on 17 September 2013. Audit observations for the audited tenants are summarised in **Table 6-9**, below.

Table 6-9 Environmental Audit Findings for September 2013

Item	Status
<i>Hung Wai</i>	
	<u>Follow up:</u> the plant was still not in operation. The dust suppression measure will be followed up once the operation is resumed (Closed) .
<i>Champway, Shiu Wing, Hung Wai, Li Tong, Telford, Yan Oi Tong, St. James' Settlement</i>	
No critical environmental deficiencies were observed.	

6.11 October 2013

6.11.1 Environmental audits of active tenants were carried out by the ET on 23 October 2013. Audit observations for the audited tenants are summarised in **Table 6-10**, below.

Table 6-10 Environmental Audit Findings for October 2013

Item	Status
<i>Champway, Hung Wai, Shiu Wing, Li Tong, Telford, Yan Oi Tong, St. James' Settlement</i>	
No critical environmental deficiencies were observed.	

6.12 November 2013

6.12.1 Environmental audits of active tenants were carried out by the ET on 21 November 2013. Audit observations for the audited tenants are summarised in **Table 6-11**, below.

Table 6-11 Environmental Audit Findings for November 2013

Item	Status
<i>Champway</i>	
Grease was observed on ground surface.	Tenant was advised to remove the grease. This was followed up in the audit in December 2013 (Outstanding) .
<i>Shiu Wing, Hung Wai, Li Tong, Telford, Yan Oi Tong, St. James' Settlement</i>	
No critical environmental deficiencies were observed.	

6.13 December 2013

6.13.1 Environmental audits of active tenants were carried out by the ET and the IEC in a joint inspection on 18 December 2013. Audit observations for the audited tenants are summarised in *Table 6-12*, below.

Table 6-12 Environmental Audit Findings for December 2013

Item	Status
<i>Champway</i>	
Leaves in U-channel near site entrance.	Tenant was advised to remove the leaves. This was followed in the audit in January 2014 (Outstanding) .*
	<u>Follow up</u> : no grease was observed on the ground surface (Closed) .
<i>Shiu Wing, Hung Wai, Li Tong, Telford, Yan Oi Tong, St. James' Settlement</i>	
No critical environmental deficiencies were observed.	

Note: * In the audit for January 2014 no leaves were observed in U-channel and so this issue was **(Closed)** in January 2014.

7 SUMMARY OF GENERAL ECOPARK AUDITS

7.1 January 2013

7.1.1 The general EcoPark audit was carried out by the ET on 23 January 2013. Audit observations are summarised in **Table 7-1**, below.

Table 7-1 General EcoPark Audit Findings for January 2013

Item	Status
Chung Yue: Site formation work was observed and muddy tyre tracks were observed on public road at site entrance during the audit.	Muddy tyre tracks were cleared after the site audit as advised by SGJV (Closed).

7.2 February 2013

7.2.1 The general EcoPark audit was carried out by the ET on 21 February 2013. No critical environmental deficiencies were observed except that muddy tyre tracks were still found at the site entrance of Chung Yue as summarised in **Table 7-2**.

Table 7-2 General EcoPark Audit Findings for February 2013

Item	Status
Chung Yue: Muddy tyre tracks at the site entrance were again observed.	Muddy tyre tracks were cleared after the site audit as advised by SGJV (Closed). This issue was further checked in the audit in March 2013.

7.3 March 2013

7.3.1 The general EcoPark audit was carried out by the ET and the IEC in a joint inspection on 22 March 2013. Audit observations are summarised in **Table 7-3**, below.

Table 7-3 General EcoPark Audit Findings for March 2013

Item	Status
Cosmos: Packaging materials and a suspected broken tent were observed next to the surface channel.	Tenant was advised to clear the materials next to the surface channel. This was followed up in the audit in April 2013 (Outstanding).
Chung Yue: Muddy tyre tracks at the site entrance were again observed.	Tyre trails were cleared after the site audit as advised by SGJV (Closed). This issue was further checked in the audit in April 2013.

7.4 April 2013

7.4.1 The general EcoPark audit was carried out by the ET on 23 April 2013. No critical environmental deficiencies were observed except that muddy tyre tracks were still found at the site entrance of Chung Yue, as summarised in **Table 7-4**.

Table 7-4 General EcoPark Audit Findings for April 2013

Item	Status
	<u>Follow up for Cosmos</u> : no materials inside the surface channel were observed (Closed).
Chung Yue : Muddy tyre tracks at the site entrance were still observed.	Muddy tyre tracks were cleared after the site audit as advised by SGJV (Closed). SGJV also advised that the tenant has assigned a person to thoroughly clean the vehicle wheels before leaving the site. This was further checked in the audit in May 2013.

7.5 May 2013

7.5.1 The general EcoPark audit was carried out by the ET on 27 May 2013. No critical environmental deficiencies were observed. For the performance of wheel washing provided by Chung Yue at its site entrance, a person was provided to thoroughly clean vehicles before leaving the lot.

7.6 June 2013

7.6.1 The general EcoPark audit was carried out by the ET and the IEC in a joint inspection on 21 June 2013. Audit observations are summarised in **Table 7-5**, below.

Table 7-5 General EcoPark Audit Findings for June 2013

Item	Status
K.Wah : Stagnant water was observed next to the office building.	Tenant was advised to remove the stagnant water. This was followed up in the audit in July 2013 (Outstanding).
K.Wah : C&D waste was observed inside the surface channels.	Tenant was advised to remove the C&D waste inside the surface channel. This was followed up in the audit in July 2013 (Outstanding).
Chung Yue : A dry haul road was observed being use and generating dust.	Tenant was advised to water the haul road. This was followed up in the audit in July 2013 (Outstanding).

7.7 July 2013

7.7.1 The general EcoPark audit was carried out by the ET on 24 July 2013. Audit observations are summarised in **Table 7-6**, below.

Table 7-6 General EcoPark Audit Findings for July 2013

Item	Status
	<u>Follow up for K.Wah</u> : the site was not accessed due to heavy raining. The issue of stagnant water was followed up in the audit in August 2013 (Outstanding).
	<u>Follow up for K.Wah</u> : the site was not accessed due to heavy raining. The issue of C&D waste inside surface channels was followed up in the audit in August 2013 (Outstanding).
	<u>Follow up for Chung Yue</u> : the site was not accessed due to heavy raining. The issue of dry haul road was followed up in the audit in August 2013 (Outstanding).

7.8 August 2013

7.8.1 The general EcoPark audit was carried out by the ET on 19 August 2013. Audit observations are summarised in **Table 7-7**, below.

Table 7-7 General EcoPark Audit Findings for August 2013

Item	Status
	<u>Follow up for K.Wah</u> : stagnant water was still observed next to the office building. The issue of stagnant water was followed up in the audit in September 2013 (Outstanding).
	<u>Follow up for K.Wah</u> : No C&D waste inside surface channels was observed (Closed).
	<u>Follow up for Chung Yue</u> : the haul road was concrete-paved (Closed).

7.9 September 2013

7.9.1 The general EcoPark audit was carried out by the ET and the IEC in a joint inspection on 17 September 2013. Audit observations are summarised in **Table 7-8**, below.

Table 7-8 General EcoPark Audit Findings for September 2013

Item	Status
	<u>Follow up for K.Wah</u> : no stagnant water was (Closed).

7.10 October 2013

7.10.1 The general EcoPark audit was carried out by the ET on 23 October 2013. Audit observations are summarised in **Table 7-9**, below.

Table 7-9 General EcoPark Audit Findings for October 2013

Item	Status
K.Wah: Muddy tyre tracks were observed near site entrance.	Tenant was advised to clean the mud off the road. This was followed up in the audit in November 2013 (Outstanding) .
South China Reborn Resources (Zhongshan) Company Ltd: Muddy tyre tracks were observed near site entrance.	Tenant was advised to clean the mud off the road. This was followed up in the audit in November 2013 (Outstanding) .

7.11 November 2013

7.11.1 The general EcoPark audit was carried out by the ET on 21 November 2013. Audit observations are summarised in **Table 7-10**, below.

Table 7-10 General EcoPark Audit Findings for November 2013

Item	Status
	<u>Follow up for K.Wah:</u> tyre tracks were still observed near the site entrance. SGJV requested the tenant to increase the cleaning of tyre tracks. This was followed up in the audit in December 2013 (Outstanding) .
	<u>Follow up for South China:</u> tyre tracks were still observed near the site entrance. SGJV requested the tenant to increase the cleaning of tyre tracks. This was followed up in the audit in December 2013 (Outstanding) .

7.12 December 2013

7.12.1 The general EcoPark audit was carried out by the ET and the IEC in a joint inspection on 18 December 2013. Audit observations are summarised in **Table 7-11**, below.

Table 7-11 General EcoPark Audit Findings for December 2013

Item	Status
	<u>Follow up for K.Wah:</u> no tyre tracks were observed near the site entrance (Closed) .
	<u>Follow up for South China:</u> no tyre tracks were observed near the site entrance. (Closed) .

8 COMPLAINTS, NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTIONS

- 8.1.1 As of end-December 2013, there were 14 tenants in EcoPark (Phase 1 and Phase 2). Seven tenants (Champway, Shiu Wing, Hung Wai, Li Tong, Yan Oi Tong, Telford and St. James' Settlement) have commenced full recycling activities within their lots. Seven tenants (Cosmos, K.Wah, E.Tech, On Fat Lung, Chung Yue, SSK and South China) were carrying out their plant design, the planning of construction works and installation of machinery, i.e., lots are currently under development.
- 8.1.2 One complaint, No. 004, from the adjacent Permanent Aviation Fuel Facility (PAFF) regarding odour emanating from Champway's lot was received by EPD on 23 January 2013. SGJV and ET were notified by EPD on 24 January 2013.
- 8.1.3 A site investigation was carried out by the ET and SGJV on 25 January 2013. Normally, odour emanating from the oil/water mixture pumping process is collected/extracted and treated by activated carbon filters. However, odour was also thought to be escaping through gaps of the oil/water storage tanks cover.
- 8.1.4 To abate odour, the activated carbon filters were replaced on 17 and 21 January 2013. Champway also replaced the damaged tank covers on 21 February 2013. To further minimise the odour, Champway agreed to regularly replace the activated carbon filters and to enhance supervision of the implementation of odour abatement measures.
- 8.1.5 SGJV followed-up with Champway several times in February 2013 regarding the implementation status for odour abatement and carried out site investigations on 21 February 2013, after the damaged tank covers had been replaced. The complaint was closed on 2 March 2013 as no further odour was detected.

9 ANNUAL REVIEW

9.1 Interpretation of EM&A Data

9.1.1 As mentioned in **Section 2.1**, the only parameter to be monitored as part of the operation phase EM&A programme is LFG. Quarterly LFG monitoring has been carried out by the ET since October 2009 following the completion of Phase 1 construction of EcoPark, as stipulated in Clauses 6.4.3 and 6.4.4 of the Final EM&A Manual. 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.

9.2 Environmental Acceptability of EcoPark

9.2.1 As of end-December 2013, seven tenants (Champway, Shiu Wing, Hung Wai, Li Tong, Yan Oi Tong, Telford and St. James' Settlement) have commenced recycling activities within their lots. Referring to **Section 1.2** and **Section 6**, no critical environmental deficiencies were identified at various tenant lots in EcoPark in 2013. The operation of EcoPark in environmental terms is therefore considered to be of an acceptable level.

9.3 Monitoring Methodology

9.3.1 As mentioned in **Section 9.1**, quarterly LFG monitoring has been carried out by the ET since October 2009. One Action Level exceedances of oxygen level was recorded in 2013 but was not considered to be the result of LFG migration. The quarterly monitoring of LFG adopted is therefore 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.

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

9.4.1 The EM&A programme has been fully utilised throughout 2013, which was practical and effective to monitor the operation status of tenants. The mitigation measures proposed in the EIA Study are effective and efficient.

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

9.4.3 It should be noted that a Variation to the EP was granted in relation to EPD's forthcoming WEEE Treatment Facility that is to be constructed and operated within EcoPark under Contract No: EP/SP/69/12.

9.4.4 The current EP for EcoPark is now EP-226/2005/C, issued on 5 August 2013. The amendments to the EP do not have any implication to current or proposed recycling activities to be carried out by EcoPark tenants.

9.4.5 No improvements to the EM&A programme are recommended.

10 CONCLUSIONS

- 10.1.1 This is the seventh annual EM&A report prepared for the operation phase of EcoPark and covers the calendar year 2013. The tenants' recycling activities are audited on a monthly basis and an annual summary is provided in this report. In the reporting period, there were fourteen tenants in EcoPark Phase 1 and Phase 2.
- 10.1.2 As of end-December 2013, there were 14 tenants in EcoPark (Phase 1 and Phase 2). Seven tenants (Champway, Shiu Wing, Hung Wai, Li Tong, Yan Oi Tong, Telford and St. James' Settlement) have commenced full recycling activities within their lots. Seven tenants (Cosmos, K.Wah, E.Tech, On Fat Lung, Chung Yue, SSK and South China) were carrying out their plant design, the planning of construction works and installation of machinery, i.e., lots are currently under development.
- 10.1.3 Throughout the year, monthly site inspections were conducted by the ET whilst quarterly joint site inspections were carried out by the Operator, the IEC and the ET. Observations and recommendations were made during site inspections.
- 10.1.4 No critical environmental deficiencies were identified within tenant lots in 2013. The operation of EcoPark in environmental terms is therefore considered to be of an acceptable level.
- 10.1.5 The throughputs during 2013 are summarized in **Table 10-1**, 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 lot.

Table 10-1 Throughput Statistics for 2013

Material Type	Waste Input (tonnes)	Product Output (tonnes)	Waste Disposed (tonnes)
Waste Oil	8,110	3,782	5,588
Waste Wood	1,387	2,400	-
WEEE	1,246	866	78
Waste Metals	22,008	22,008	-
Waste Plastics	5,534	5,154	168
Total	38,285	34,210	5,834

Note: The throughput data has been rounded off to the nearest whole tonne for presentation. The total product output plus the total waste disposed in 2013 exceeds the waste input in 2013. This is due to processing of materials that were received before 2013 and were stockpiled within the lots. The amount of waste metals (21,141 tonnes) collected by Chung Yue for trial operation is not included in the table, which shows operational throughput.

- 10.1.6 In 2013, LFG monitoring was undertaken on 22 March, 21 June, 17 September and 18 December at five locations (three in Phase 1 and two in Phase 2).
- 10.1.7 One exceedance of Action Level for oxygen (18%) was recorded at EP2-2 on 21 June 2013. Carbon dioxide concentration was slightly elevated at 0.3% but methane concentration was 0%. The slightly lower level of oxygen and slightly higher level of carbon dioxide at EP2-2 may indicate natural decay of organic material in the service void, however, since no methane was detected it can be concluded that the exceedance at EP2-2 was not related to migration of LFG from Shiu Lang Shui Landfill.

- 10.1.8 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.
- 10.1.9 Environmental deficiencies and general observations noted during the monthly site inspections were detailed in **Section 6**. Remedial actions were recommended to tenants where appropriate.
- 10.1.10 One complaint regarding odour emanating from Champway's lot was received by EPD on 23 January 2013. Odour abatement measures had been implemented after site investigation on 21 February 2013. No further odour complaint has been received since March 2013.
- 10.1.11 The EM&A programme has been fully utilised throughout 2013, which was practical and effective to monitor the operation status of tenants. The mitigation measures proposed in the EIA Study are effective and efficient.
- 10.1.12 The use of the Process Review mechanism to assess incoming processes, processes not assessed in the EIA, or greater throughputs than were assumed in the EIA, is considered to work well and is fully in accordance with the recommendations of the EIA, the requirements of the EM&A programme and with EP conditions.
- 10.1.13 No improvements to the EM&A programme are recommended.

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 the 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
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	

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
5.5.23 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	
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	

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
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 :	Within EcoPark throughout the life of the facility.	Operator	
		<ul style="list-style-type: none"> 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. 			
		<ul style="list-style-type: none"> Management of chemical waste is implemented through the control of waste storage, labelling of waste, transportation and treatment of chemical waste at an appropriate facility. 			
		<ul style="list-style-type: none"> Chemical wastes will be collected, stored and disposed of in accordance with the Regulation. Disposal of other construction waste will be undertaken by Licensed contractors in accordance with applicable statutory requirements in the WDO. 			Waste Disposal (Chemical Waste) (General) Regulation
		<ul style="list-style-type: none"> 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. 			Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes & Chemical Waste (General) Regulation
	5.3.3	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	

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
Landfill Gas					
8.7.10 & 8.7.11	6.1.2	<ul style="list-style-type: none"> 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 Agreement

APPENDIX 2-1

Environmental Requirements in Tenancy Agreements

Phase 1

GENERAL ENVIRONMENTAL RESPONSIBILITIES

- 9.1 The Tenant shall at its own cost(s) comply with and shall ensure that the Premises is used, designed, constructed, operated and maintained in accordance with:-
- (a) All relevant Ordinances, by-laws, regulations, statutory technical memorandums, codes of practice, rules, non-statutory guidance notes, schemes and abatement notices for the time being in force in Hong Kong including those relating to the environment and governing the control of any form of pollution (see specific Ordinances mentioned hereinbelow) and licensing requirements under relevant Ordinances and regulations.
 - (b) All information, mitigation measures, prohibitions, restrictions, recommendations and requirements under the Environmental Impact Assessment Report for Development of an EcoPark in Tuen Mun Area 38 with Appendices, i.e. the EIA Report (Register No.: AEIAR-086/2005) dated April 2005, the Final EM&A Manual dated April 2005, the application documents including all attachments (Application No. AEP-226/2005) and other relevant documents in the Register (or in any other places, any internet websites or by any other means as specified by the Director), including the prohibitions and mitigation measures for processes in Table 14.1 and the material throughputs, processes and remarks in Table B.1 of the EIA Report (in so far as applicable).
 - (c) All information, conditions, submissions, mitigation measures, orders, notices, requirements, prohibitions, restrictions and time limits under the Environmental Permit No. EP-226/2005 as amended by the Variation of Environmental Permit (EP-226/2005/A) (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 (EP-226/2005/A) 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 ongoing 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 (EP-226/2005/A) 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 (EP-226/2005/A) 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 (EP-226/2005/A) (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 (EP-226/2005/A) (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 (EP-226/2005/A) (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 (EP-226/2005/A) (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 herein below).
- 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 herein below) 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 (EP-226/2005/A) 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 (EP-226/2005/A) 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 (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 as amended by the Variation of Environmental Permit (EP-226/2005/A) (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 (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).

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 (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).

APPENDIX 2-2

Environmental Requirements in Tenancy Agreements

Phase 2

Compliance of Environmental Legislation

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

Air Pollution

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

Water Pollution

- 7.(a) In the event that the Tenant produces, generates, permits, causes, allows or suffers any discharge which is subject to control under the Water Pollution Control Ordinance (Cap. 358) any regulations made thereunder and any amending legislation, the Tenant shall apply to the Director for a licence and comply with the terms and conditions stipulated in the licence at the Tenant's own cost(s). Otherwise, the Tenant is not allowed to discharge directly or indirectly or to produce, generate, permit, cause, allow or suffer any discharge into any public sewer, storm-water drain, channel, stream-course, sea or any area inside or outside the Premises any trade effluent or foul or contaminated water or cooling or hot water. Subject to the said licence from the Director, the Tenant shall at its own cost(s) separate, collect, and discharge all process or industrial wastewater which comply with the standard required for discharge into a sewer leading to the sewage treatment works at Pillar Point or other treatment works specified in the licence.
- (b) Subject to obtaining advance written approval of the Director, the Tenant shall at its own cost(s) provide, install, operate and maintain its own waste water pre-treatment plants within the Premises if such process or industrial wastewater could not meet the standard required for discharge into a sewer leading to the sewage treatment works at Pillar Point or other treatment works specified in the licence. The Tenant shall at its own cost(s) separate, collect, discharge and send all domestic wastewater (i.e. other than process or industrial wastewater) to the Pillar Point Sewage Treatment Works directly for treatment or other treatment works specified in the licence.
- (c) In any event, the Tenant shall prevent any spilled materials from entering the surface water drainage system and prevent contamination of the sea at its own cost(s) by, inter alia, providing, installing, operating and maintaining stop-logs or interceptors in the surface water drainage system and at the marine frontage area, respectively, or as required by the licence. The Tenant shall at its own cost comply with relevant provisions of the Dumping at Sea Ordinance (Cap. 466) good practices and relevant provisions of the EIA Report and Final EM&A Manual.

Waste Management

- 8.(a) The Tenant shall at its own cost(s) comply with relevant provisions of the Waste Disposal Ordinance (Cap. 354).
- (b) The Tenant shall not permit, allow or suffer any fuel or chemical and any sewage, waste water or effluent containing sand, cement, silt or any suspended or dissolved material to flow, escape or run from the Premises onto any adjoining land or allow any waste matter which does not form part of the recovery and/or recycling and/or reprocessing operation or is not part of the final product of such operation to be deposited, kept, held or stored anywhere within the Premises and other areas of

EcoPark. The Tenant shall at its own cost(s) have all such matters and all materials arising from recycling activities, chemical materials arising from maintenance of plant and equipment, sewage sludge (from wastewater treatment facilities, if any) and general daily waste from the operation removed from the Premises or any building(s) or structure(s) or any part of any building(s) or structure(s) erected or to be erected thereon in a proper manner to the satisfaction of the Landlord and/or the Director.

Noise Pollution

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

Landfill Gas Hazard

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

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

- 11.(a) The Tenant acknowledges that the EcoPark is within the 250m Consultation Zone of the Siu Lang Shui Landfill and that the Premises may be affected by problems associated with migrating landfill gas and undertakes to provide suitable precautionary or protection measures at his own expense to control these potential hazards.
- (b) The Tenant shall ensure all personnel entering the Premises and all visitors to the Premises are aware of the potential hazards of the landfill gas by posting suitable warning notices of the potential hazards at his own expense.
- (c) All buildings and enclosed structures, including temporary offices, temporary stores and the administration building, within the 250m Consultation Zone of the Siu Lang Shui Landfill shall be provided with the following measure(s):
- (i) buildings shall be raised clear of the ground with a clear separation distance (as measured from the highest point on the ground surface to the underside of the lowest floor joist) of at least 500mm; or
 - (ii) a low-gas permeability membrane shall be applied to the surface of any wall or floor slab that rests on or is below ground. A gravel-fill vent system shall be provided such that passive venting is achieved around the perimeter of the structure. In addition, other building materials, such as dense well-compacted concrete or steel shuttering which provide a measure of resistance to gas permeation, shall be used to achieve gas protection.
- (d) The Tenant shall ensure that the electrical equipment used on the Premises shall be intrinsically safe. Welding, flame-cutting or other hot works shall be confined to the open areas of the Premises and shall be at least 15m away from any ground-level confined space.

- (e) No drilling, trenching and excavation shall be allowed on the Premises. During any construction work, the Tenant shall observe the guidelines recommended in Chapter 8 of the “Landfill Gas Hazard Assessment Guidance Note” published by the Department of Environmental Protection. In particular, no smoking, naked flames and all other sources of ignition shall be allowed within 15m of any ground-level confined space.

Hazard to Life Impact

12. To mitigate hazard to life impact, the Tenant shall comply with, inter alia, Conditions 4.8 to 4.10 of the Environmental Permit No. EP-226/2005/A (and comply with the conditions of any updated Permit, amended permit and further permit regarding measures to mitigate hazard to life impact) and shall not:-
- (a) bring, keep, store or transport chlorine within the Premises and other areas of EcoPark;
 - (b) bring, keep, store, locate or transport dangerous goods, substances and fuels supporting combustion including oxygen, acetylene, hydrogen peroxide, rubber tyres and diesel within 10 metres from the boundary of the site of EcoPark; and
 - (c) exceed the building height restrictions for buildings on the Premises which are on/near the western boundary of the site of EcoPark as mentioned in Annex B to the Environmental Permit No. EP-226/2005/A (including any updated Permit, amended permit and further permit).

Landscape and Visual Impacts

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

ENVIRONMENTAL RESPONSIBILITIES

- 14.(a) 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 including air, noise, water and waste pollution, and for the protection of the environment). The Tenant 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.
- (b) 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 Landlord and/or the Director relating to any of the matters mentioned in Clause 14(a) hereinabove.

ENVIRONMENTAL IMPACT ASSESSMENT

15. (a) 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:-
- (i) All information, conditions, mitigation measures, prohibitions, restrictions, recommendations and requirements under the Environmental Impact Assessment Report for Development of an EcoPark in Tuen Mun Area 38 (“the Project”) with Appendices, i.e. the EIA Report and EM&A Manual (EIAO Register No.: AEIAR-086/2005), the Environmental Permit

- (ii) No. EP-266/2005/A (and future variations), and other relevant documents in the EIAO Register (or in any other places, any internet websites or by any other means as specified by the Director).
- (ii) All information, conditions, submissions, mitigation measures, orders, notices and requirements under ongoing surveillance and monitoring activities during all stages of the Project and during the lease hereunder (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).
- (iii) For the purposes of this Clause 15(a), "EIAO Register" shall mean the register kept by the Director pursuant to Section 15 of the Environmental Impact Assessment Ordinance (Cap.499).
- (b) Further to Clauses 2(k) and 10 above, 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/A (and future variations).
- (c) 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/A (and future variations), 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/A (and future variations), 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/A (and future variations) are complied with and shall immediately cease to continue the offending part of the operations or activity in question.

APPENDIX 3

Material and Waste Throughputs

Table A3-1 Recycling of Waste Oil

Date	Waste Input (tonnes)	Product Output (tonnes)	Waste Disposal (tonnes)
2008 (October to December)	130	-	-
2009	2,003	1,863*	140
2010	2,494	4,254*	337
2011	9,492	6,308*	5,564
2012	9,693	5,057*	3,881
January 2013	684	208	476*
February 2013	526*	178*	353
March 2013	722	238	495*
April 2013	748*	221	523*
May 2013	767*	252	527*
June 2013	641*	219	446*
July 2013	493*	356*	311*
August 2013	613*	399*	410*
September 2013	706*	413*	496*
October 2013	694	422	479
November 2013	734	428	517
December 2013	783	447	556

Note: Throughput data marked with "*" have been revised with more up-to-date data since original publication.

Table A3-2 Recycling of Waste Metal

Date	Waste Input (tonnes)	Product Output (tonnes)	Waste Disposal (tonnes)
2010 (April to December)	4,562	4,562	-
2011	18,069	18,069	-
2012	32,737	32,737	-
January 2013	2,324	2,324	-
February 2013	1,863	1,863	-
March 2013	2,231	2,231	-
April 2013	1,120	1,120	-
May 2013	1,562	1,562	-
June 2013	1,706	1,706	-
July 2013	1,387	1,387	-
August 2013	322*	322	-
September 2013	147*	147*	-
October 2013	2,260*	2,260	-
November 2013	3,200*	3,200	-
December 2013	3,884*	3,884	-

Note: Throughput data marked with “*” have been revised with more up-to-date data since original publication. The amount of waste metals (21,141 tonnes) collected by Chung Yue for trial operation is not included in the table, which shows operational throughput.

Table A3-3 Recycling of Waste Wood

Date	Waste Input (tonnes)	Product Output (tonnes)	Waste Disposal (tonnes)
2008 (June to December)	43*	-	-
2009	0.2*	-	-
2010	4,998*	1,072	-
2011	1,930*	5,788	-
2012	1,308*	-	-
January 2013	130*	-	-
February 2013	122*	-	-
March 2013	108*	-	-
April 2013	111*	-	-
May 2013	109*	-	-
June 2013	15*	-	-
July 2013	152*	500*	-
August 2013	177*	500*	-
September 2013	94*	500*	-
October 2013	156	500	-
November 2013	105	200	-
December 2013	109	200	-

Note: Throughput data marked with "*" have been revised with more up-to-date data since original publication.

Table A3-4 Recycling of WEEE

Date	Waste Input (tonnes)	Product Output (tonnes)	Waste Disposal (tonnes)
2010 (April to December)	138*	45	2
2011	832	374	27
2012	1,163	778	32
January 2013	113	162	2
February 2013	145	23	2
March 2013	99	76	1
April 2013	61	140	0
May 2013	75	63	3
June 2013	101	25	0
July 2013	78	62	2
August 2013	60*	38*	22*
September 2013	102	47	38
October 2013	132	97	1
November 2013	160	42*	7
December 2013	119	91	-

Note: Throughput data marked with “*” have been revised with more up-to-date data since original publication.

Table A3-5 Recycling of Waste Plastic

Date	Waste Input (tonnes)	Product Output (tonnes)	Waste Disposal (tonnes)
2009 (July to December)	20	-	-
2010	738	417	111
2011	1,733	1,241	149
2012	4,207	2,862	153
January 2013	570	445	10
February 2013	490	430	7
March 2013	565*	615	19
April 2013	641	560	14
May 2013	393*	303	24
June 2013	454	420	14
July 2013	570	499	16
August 2013	344*	316*	17
September 2013	352*	318*	14
October 2013	399*	527*	11
November 2013	394*	335*	15
December 2013	362	385	7

Note: Throughput data marked with "*" have been revised with more up-to-date data since original publication.

APPENDIX 4

Calibration Certificate of Infrared Gas Analyser

FUGRO TECHNICAL SERVICES LIMITED

Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

Materialab

REPORT ON CALIBRATION OF INFRA RED GAS ANALYSER

Client : Fugro Technical Services Limited – Materialab Division

Sample description : One sample of Infra Red Gas Analyser (GA94A)

Sample identification : E / 084 / 1

Serial number : GA3385

Test required : Calibration

Date of calibration : 21/12/2012

Next calibration date : 21/06/2013

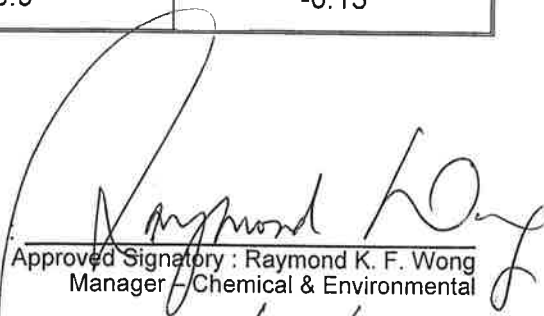
Method used : In-house method (Comparison with Standard Gas)

Results :

Parameters	Standard Gas Concentration, % volume	Infra Red Gas Analyser Reading, % volume	Deviation, % volume
Methane (CH ₄)	1.02	0.9	-0.12
Carbon dioxide (CO ₂)	15.0	15.0	0.0
Oxygen (O ₂)	1.03	0.9	-0.13

Calibrated by : C. F. Leung

Certified by :


Approved Signatory : Raymond K. F. Wong
Manager / Chemical & Environmental

Date

** End of Report **

21/12/2012

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED

Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MaterialLab

REPORT ON CALIBRATION OF INFRA RED GAS ANALYSER

Client : Fugro Technical Services Limited – MaterialLab Division

Sample description : One sample of Infra Red Gas Analyser (GA94A)

Sample identification : E / 084 / 1

Serial number : GA3385

Test required : Calibration

Date of calibration : 13/06/2013

Next calibration date : 13/12/2013

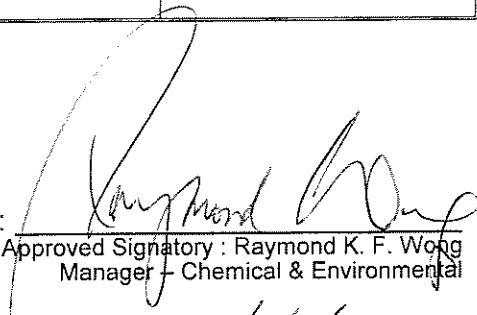
Method used : In-house method (Comparison with Standard Gas)

Results :

Parameters	Standard Gas Concentration, % volume	Infra Red Gas Analyser Reading, % volume	Deviation, % volume
Methane (CH ₄)	1.02	0.9	-0.12
Carbon dioxide (CO ₂)	15.0	15.0	0.0
Oxygen (O ₂)	1.03	1.1	0.07

Calibrated by : C. F. Leung

Certified by :


Approved Signatory : Raymond K. F. Wong
Manager - Chemical & Environmental

Date

** End of Report **

13/06/2013

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED

Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
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Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

Materialab**REPORT ON CALIBRATION OF INFRA RED GAS ANALYSER**

Client : Fugro Technical Services Limited – Materialab Division

Sample description : One sample of Infra Red Gas Analyser (GA94A)

Sample identification : E / 084 / 1

Serial number : GA3385

Test required : Calibration

Date of calibration : 07/12/2013

Next calibration date : 07/06/2014

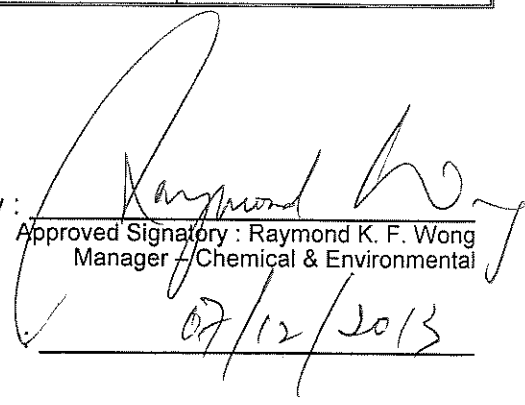
Method used : In-house method (Comparison with Standard Gas)

Results :

Parameters	Standard Gas Concentration, % volume	Infra Red Gas Analyser Reading, % volume	Deviation, % volume
Methane (CH ₄)	1.02	1.0	-0.02
Carbon dioxide (CO ₂)	15.0	15.0	0.0
Oxygen (O ₂)	1.03	0.9	-0.13

Calibrated by : C. F. Leung

Certified by :


Approved Signatory : Raymond K. F. Wong
Manager / Chemical & Environmental

Date

** End of Report **

Note : This report refers only to the sample(s) tested.

APPENDIX 5

Graphical Plots of LFG Monitoring

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
22 Mar 13	0	10	20	21	19	18	0.0	0.5	1.5	1015
21 Jun 13	0	10	20	20	19	18	0.0	0.5	1.5	1006
17 Sep 13	0	10	20	20	19	18	0.0	0.5	1.5	1000
18 Dec 13	0	10	20	21	19	18	0.2	0.5	1.5	1022

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
22 Mar 13	0	10	20	21	19	18	0.0	0.5	1.5	1015
21 Jun 13	0	10	20	20	19	18	0.0	0.5	1.5	1006
17 Sep 13	0	10	20	20	19	18	0.2	0.5	1.5	1003
18 Dec 13	0	10	20	21	19	18	0.0	0.5	1.5	1024

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
22 Mar 13	0	10	20	21	19	18	0.0	0.5	1.5	1015
21 Jun 13	0	10	20	20	19	18	0.0	0.5	1.5	1006
17 Sep 13	0	10	20	21	19	18	0.0	0.5	1.5	1003
18 Dec 13	0	10	20	21	19	18	0.0	0.5	1.5	1024

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
22 Mar 13	0	10	20	21	19	18	0.0	0.5	1.5	1015
21 Jun 13	0	10	20	20	19	18	0.2	0.5	1.5	1006
17 Sep 13	0	10	20	20	19	18	0.0	0.5	1.5	1003
18 Dec 13	0	10	20	21	19	18	0.0	0.5	1.5	1024

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
22 Mar 13	0	10	20	21	19	18	0.0	0.5	1.5	1015
21 Jun 13	0	10	20	18	19	18	0.3	0.5	1.5	1006
17 Sep 13	0	10	20	20	19	18	0.0	0.5	1.5	1003
18 Dec 13	0	10	20	21	19	18	0.0	0.5	1.5	1022

Contract No. EP/SP/53/06
 Provision of Management Services for EcoPark in Tuen Mun Area 38
 EM&A Services

Landfill Gas Monitoring Results - Mar-2013

Monitoring Station ID	Monitoring Locations	Date	Weather Conditions	Temperature (degree)	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	
EP1-1	Inside the landscaping area of Administration Building	22 Mar 13	Hazy	24	10:26	10:29	0.0	0	21	0.0	1015	> 10	< 19	> 0.5	> 20	< 18	> 1.5	Nil
EP1-2	PCCW below-ground chamber outside Lot EP08-01			24	10:10	10:13	0.0	0	21	0.0	1015							Nil
EP1-3	HGC Broadband below-ground chamber outside Lot EP08-03			24	10:06	10:09	0.0	0	21	0.0	1015							Nil
EP2-1	HGC Broadband below-ground chamber outside Lot P1			24	10:14	10:17	0.0	0	21	0.0	1015							Nil
EP2-2	HGC Broadband below-ground chamber outside Lot P3			24	10:18	10:21	0.0	0	21	0.0	1015							Nil

Landfill Gas Monitoring Results - Jun-2013

Monitoring Station ID	Monitoring Locations	Date	Weather Conditions	Temperature (degree)	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	
EP1-1	Inside the landscaping area of Administration Building	21 Jun 13	Fine	31	10:41	10:44	0.0	0	20	0.0	1006	> 10	< 19	> 0.5	> 20	< 18	> 1.5	Nil
EP1-2	PCCW below-ground chamber outside Lot EP08-01			31	10:25	10:28	0.0	0	20	0.0	1006							Nil
EP1-3	HGC Broadband below-ground chamber outside Lot EP08-03			31	10:20	10:23	0.0	0	20	0.0	1006							Nil
EP2-1	HGC Broadband below-ground chamber outside Lot P1			31	10:30	10:33	0.0	0	20	0.2	1006							Nil
EP2-2	HGC Broadband below-ground chamber outside Lot P3			31	10:35	10:38	0.0	0	18	0.3	1006							Nil

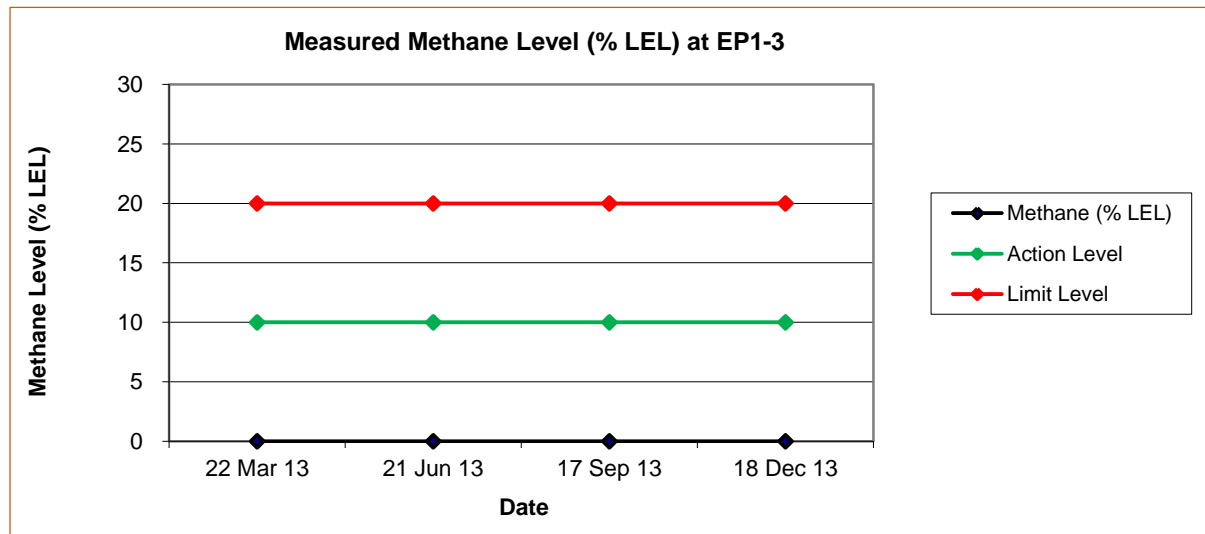
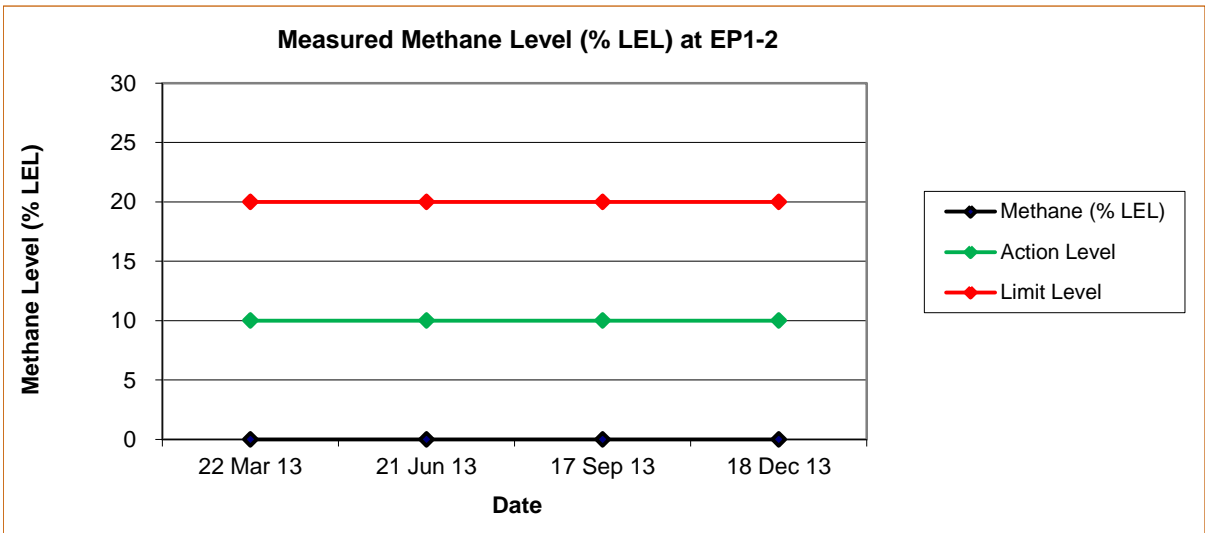
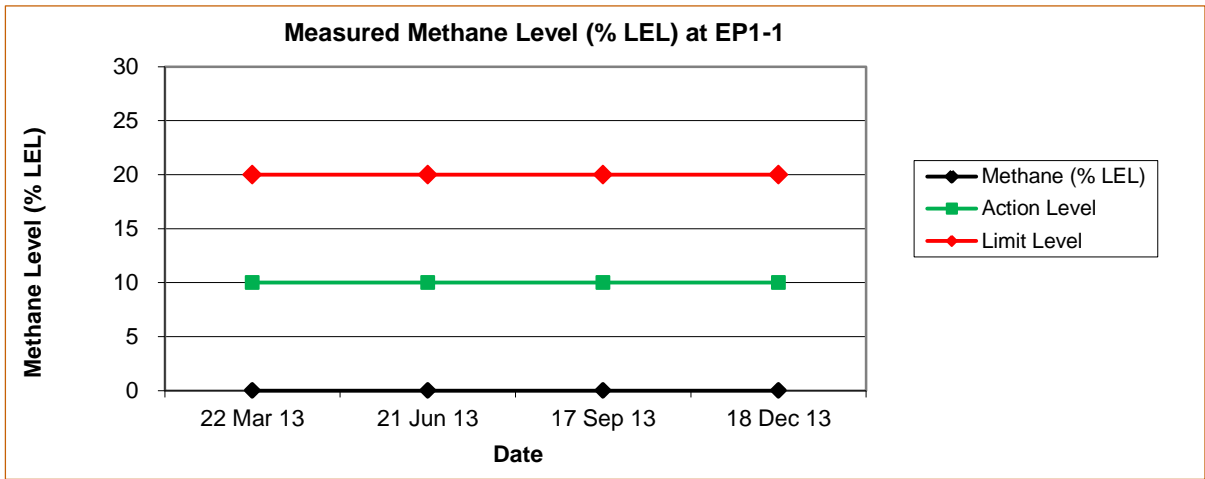
Landfill Gas Monitoring Results - Sep-2013

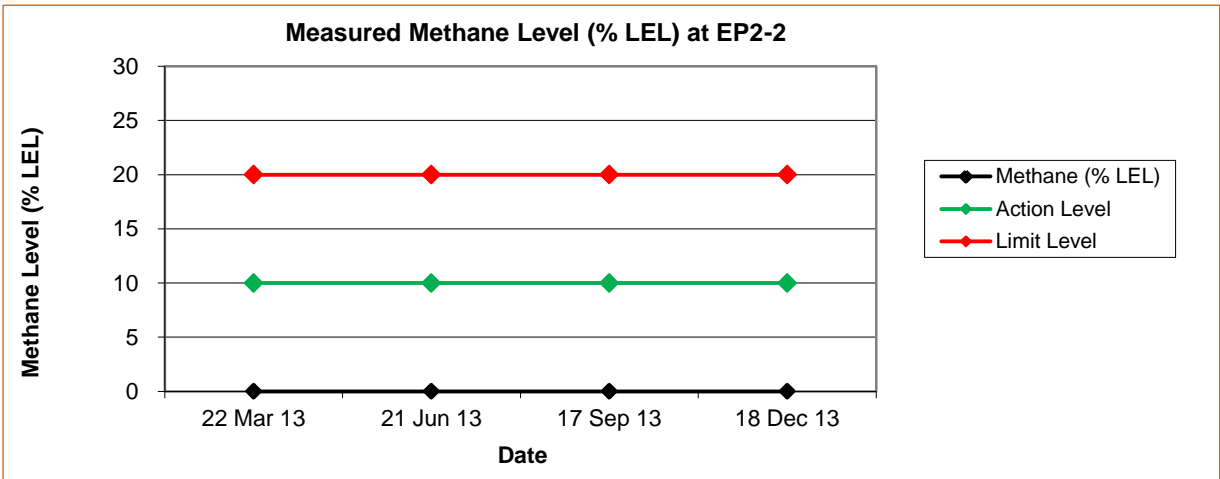
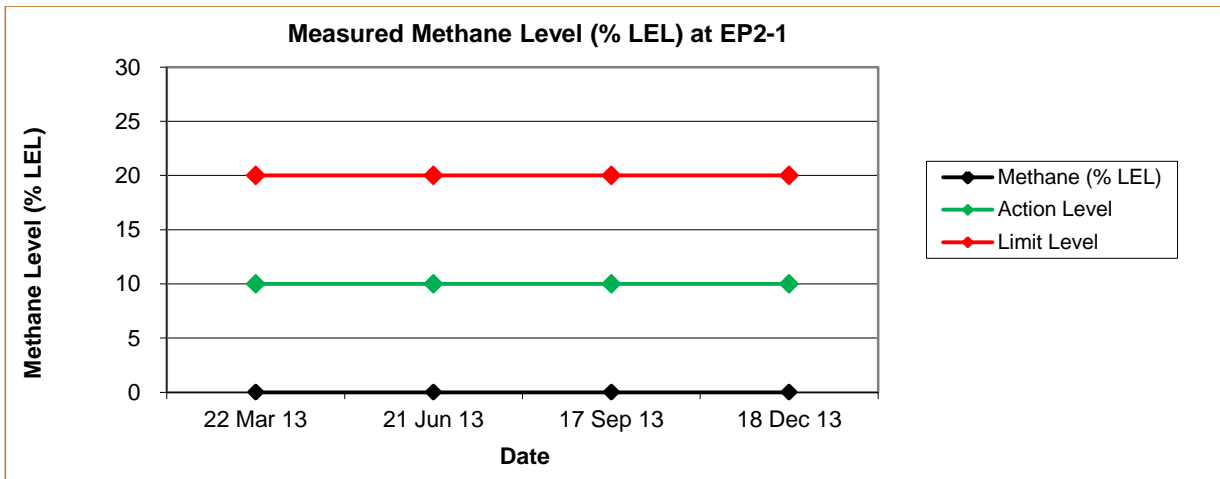
Monitoring Station ID	Monitoring Locations	Date	Weather Conditions	Temperature (degree)	Start Time	End Time	Measurement Results					Action Level			Limit Level			Remarks
							Methane		Oxygen	Carbon Dioxide	Barometric Pressure	Methane	Oxygen	Carbon Dioxide	Methane	Oxygen	Carbon Dioxide	
							% v/v	% LEL	% v/v	% v/v	mBar (absolute)	% LEL	% v/v	% v/v	% LEL	% v/v	% v/v	
EP1-1	Inside the landscaping area of Administration Building	17 Sep 13	Fine	30	10:25	10:28	0.0	0	20	0.0	1000	> 10	< 19	> 0.5	> 20	< 18	> 1.5	Nil
EP1-2	PCCW below-ground chamber outside Lot EP08-01			30	10:03	10:06	0.0	0	20	0.2	1003							Nil
EP1-3	HGC Broadband below-ground chamber outside Lot EP08-03			30	9:57	10:00	0.0	0	21	0.0	1003							Nil
EP2-1	HGC Broadband below-ground chamber outside Lot P1			30	10:10	10:13	0.0	0	20	0.0	1003							Nil
EP2-2	HGC Broadband below-ground chamber outside Lot P3			30	10:15	10:18	0.0	0	20	0.0	1003							Nil

Landfill Gas Monitoring Results - Dec-2013

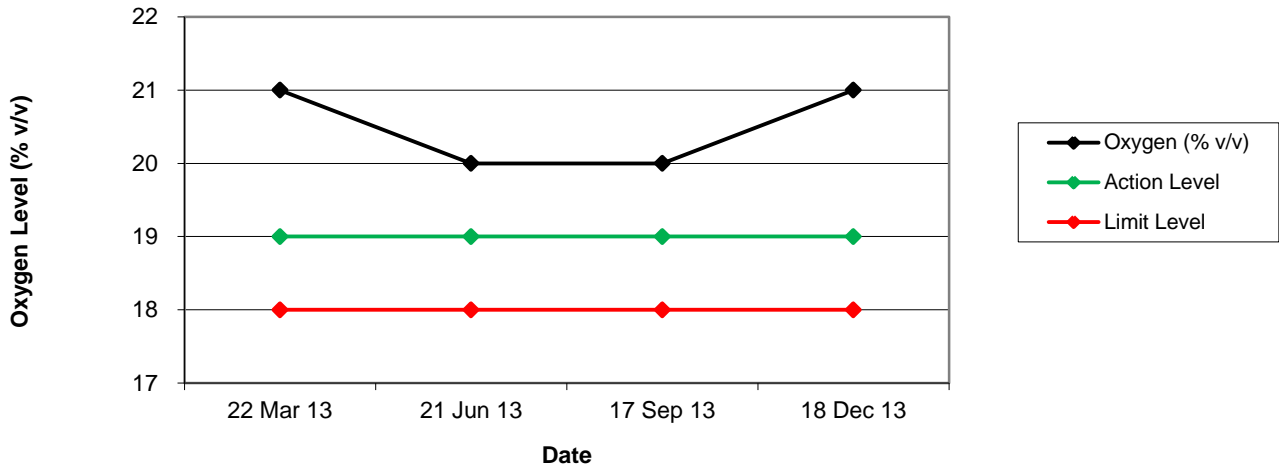
Monitoring Station ID	Monitoring Locations	Date	Weather Conditions	Temperature (degree)	Start Time	End Time	Measurement Results					Action Level			Limit Level			Remarks
							Methane		Oxygen	Carbon Dioxide	Barometric Pressure	Methane	Oxygen	Carbon Dioxide	Methane	Oxygen	Carbon Dioxide	
							% v/v	% LEL	% v/v	% v/v	mBar (absolute)	% LEL	% v/v	% v/v	% LEL	% v/v	% v/v	
EP1-1	Inside the landscaping area of Administration Building	18 Dec 13	Fine	11.5	11:01	11:04	0.0	0	21	0.2	1022	> 10	< 19	> 0.5	> 20	< 18	> 1.5	Nil
EP1-2	PCCW below-ground chamber outside Lot EP08-01			11.5	10:43	10:46	0.0	0	21	0.0	1024							Nil
EP1-3	HGC Broadband below-ground chamber outside Lot EP08-03			11.5	10:36	10:39	0.0	0	21	0.0	1024							Nil
EP2-1	HGC Broadband below-ground chamber outside Lot P1			11.5	10:50	10:53	0.0	0	21	0.0	1024							Nil
EP2-2	HGC Broadband below-ground chamber outside Lot P3			11.5	10:54	10:57	0.0	0	21	0.0	1022							Nil

Note:
 (1) Underlined figure indicates an exceedance of Action Level
 (2) Shaded area indicates an exceedance of Limit Level

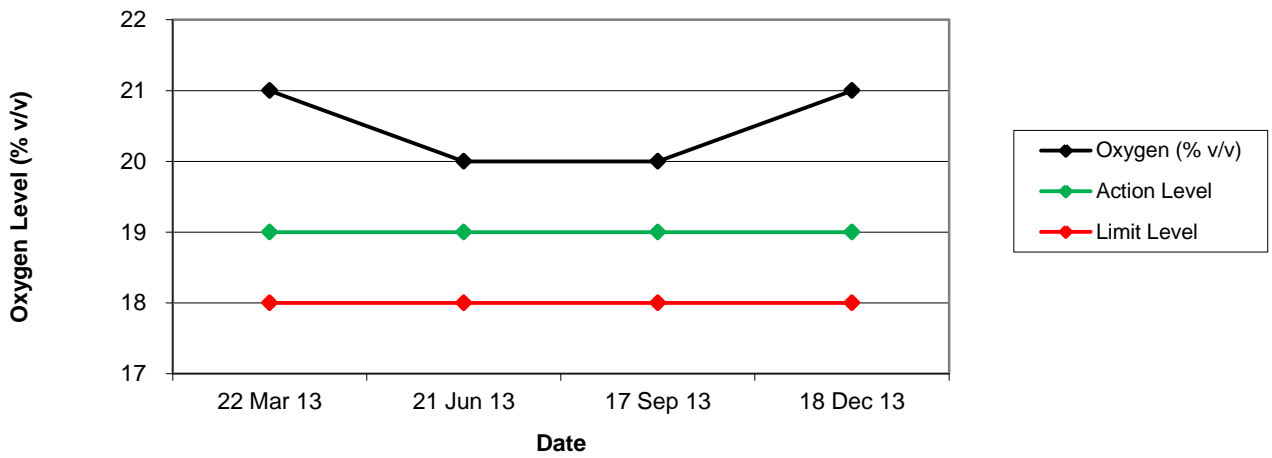




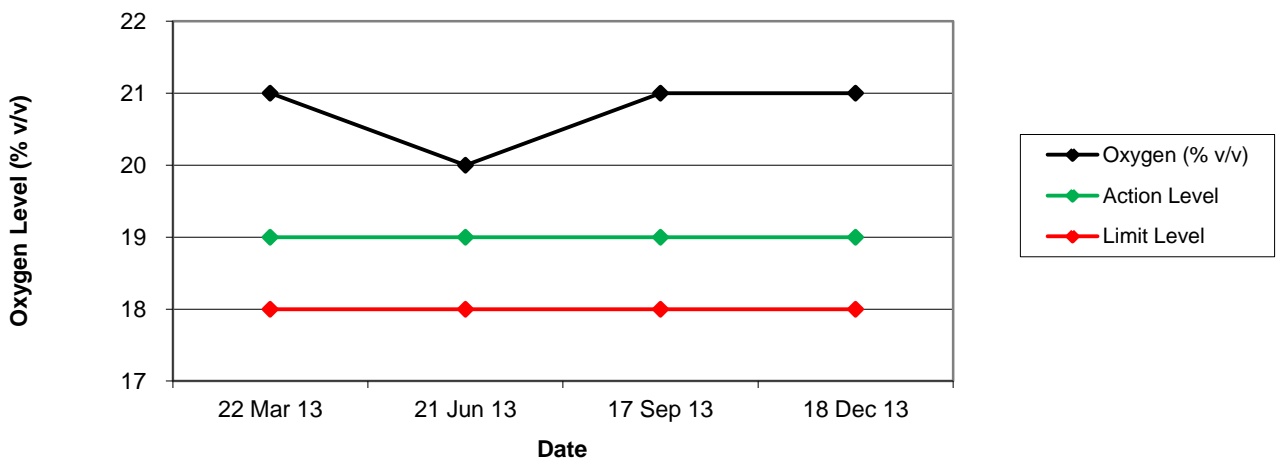
Measured Oxygen Level (% v/v) at EP1-1

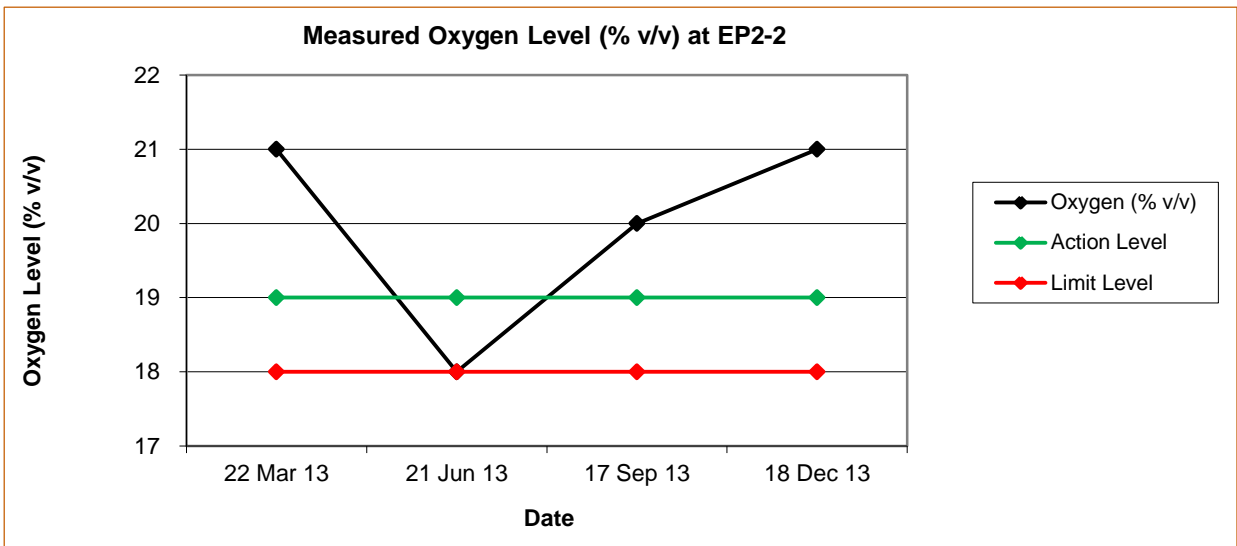
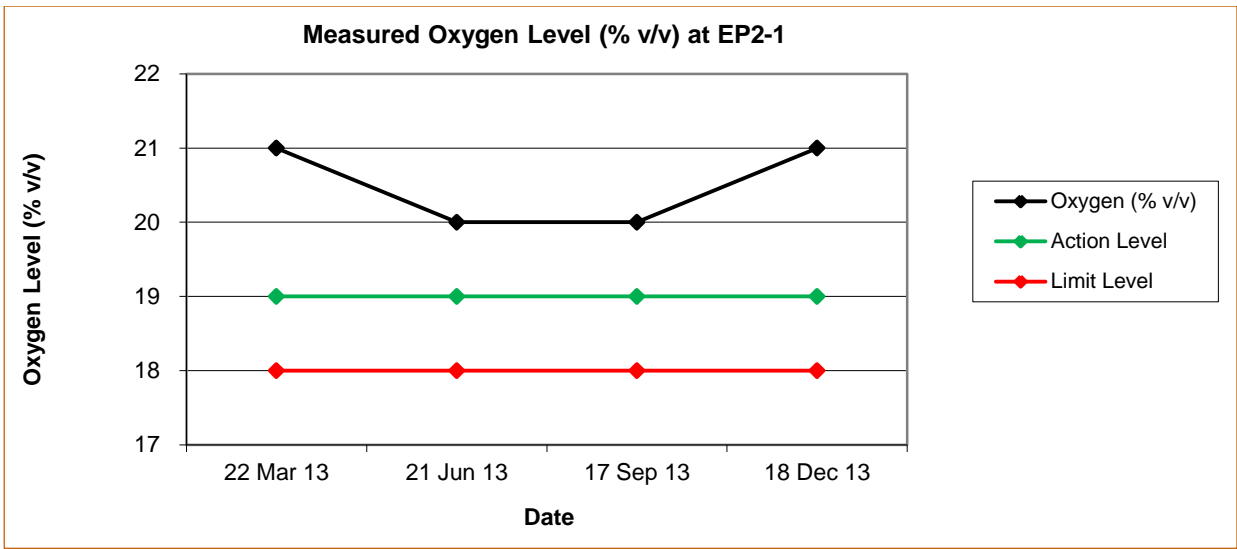


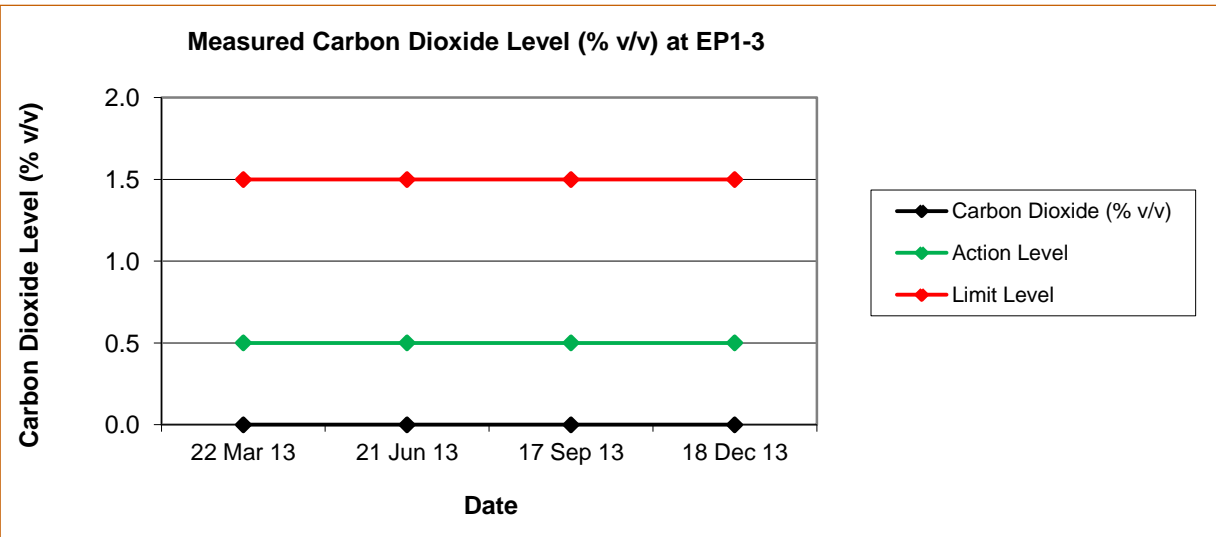
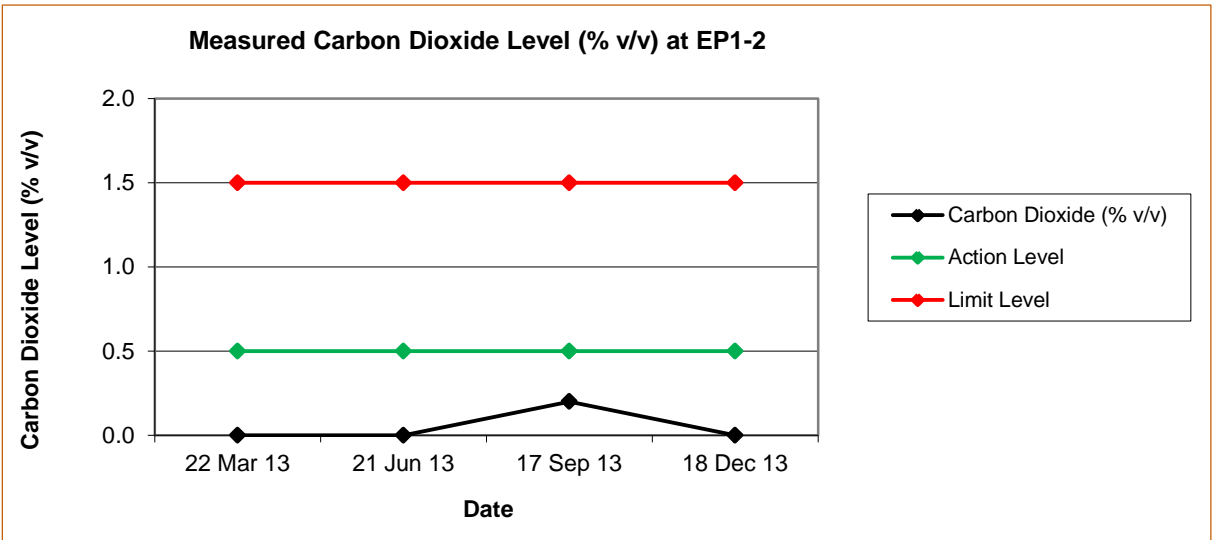
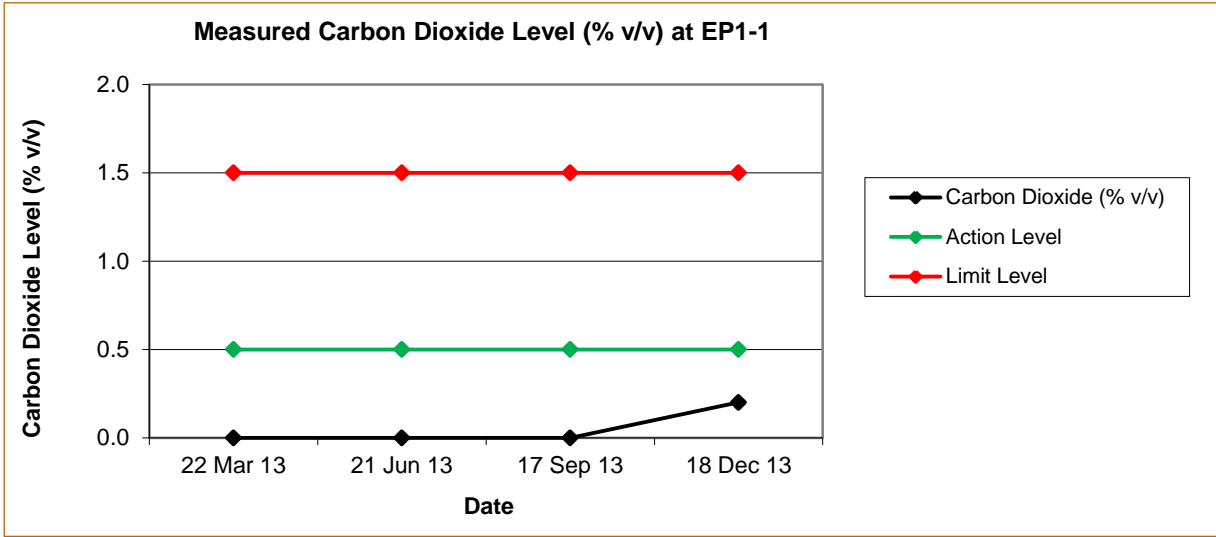
Measured Oxygen Level (% v/v) at EP1-2



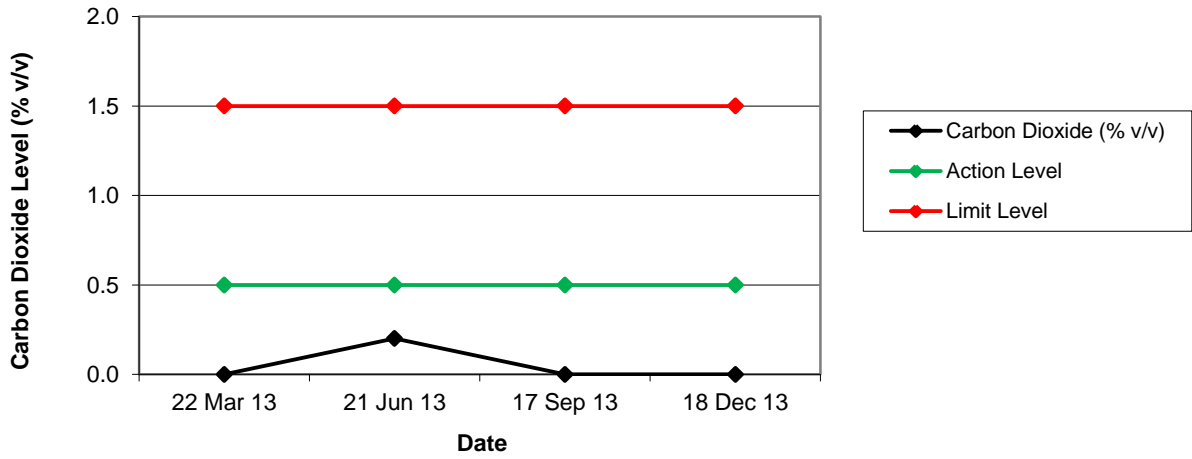
Measured Oxygen Level (% v/v) at EP1-3



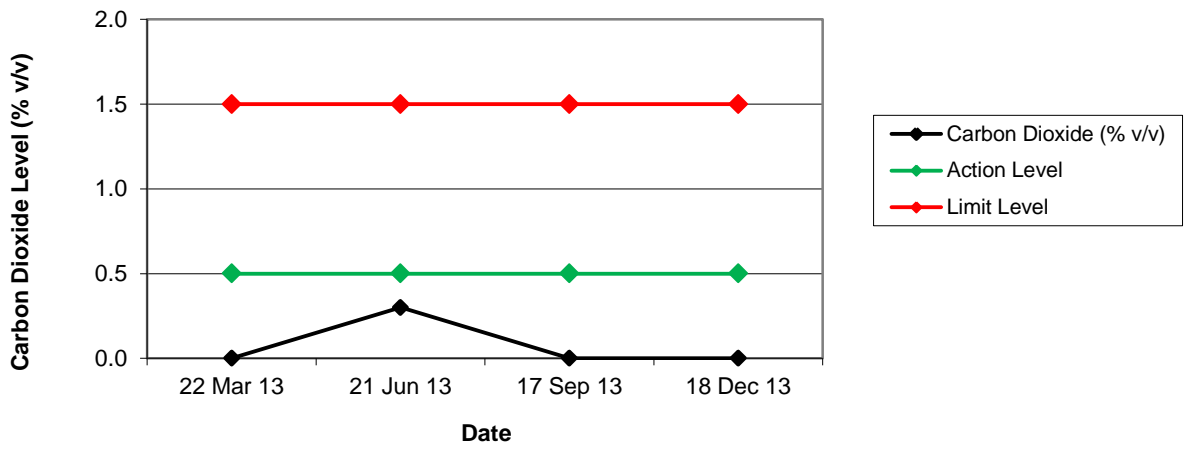




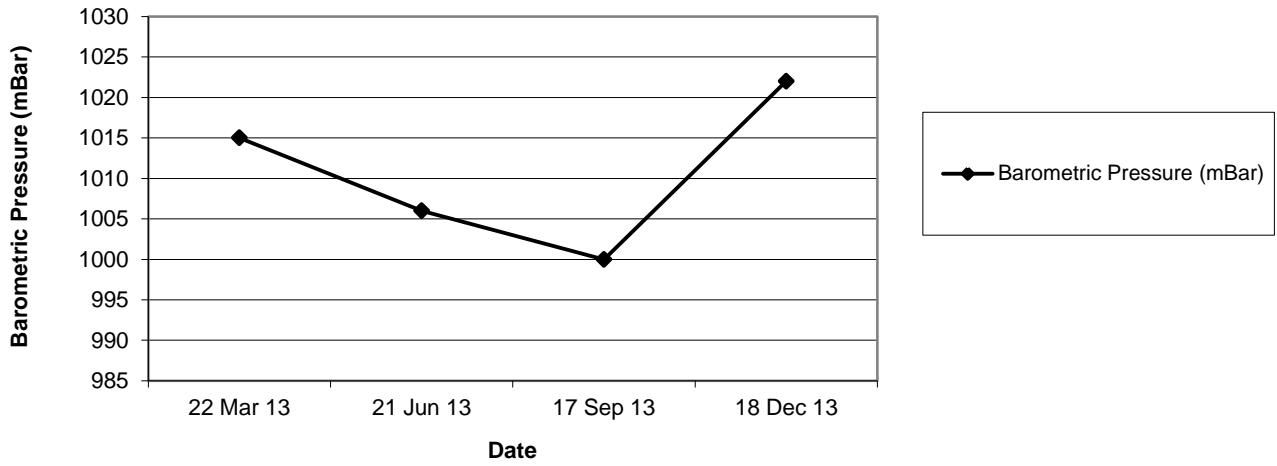
Measured Carbon Dioxide Level (% v/v) at EP2-1



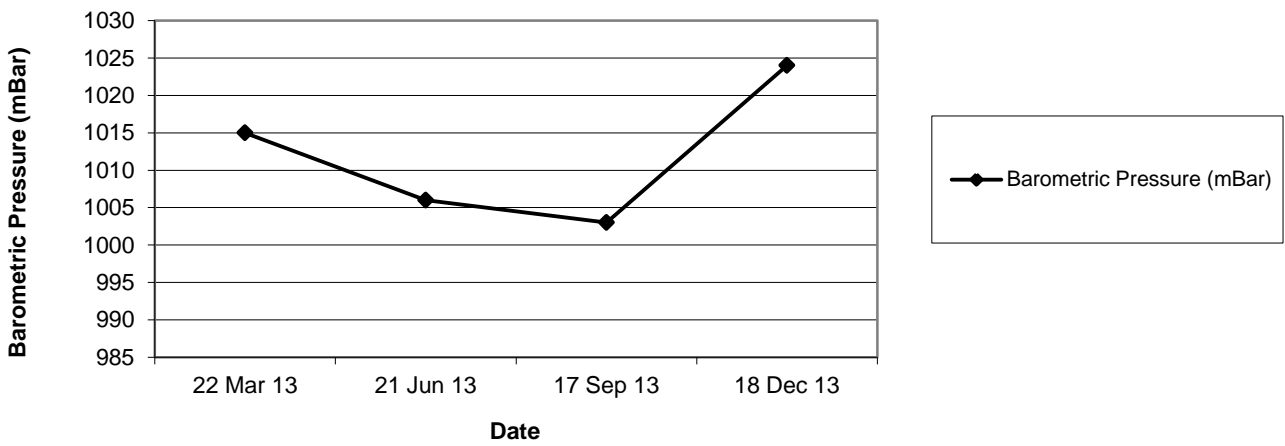
Measured Carbon Dioxide Level (% v/v) at EP2-2



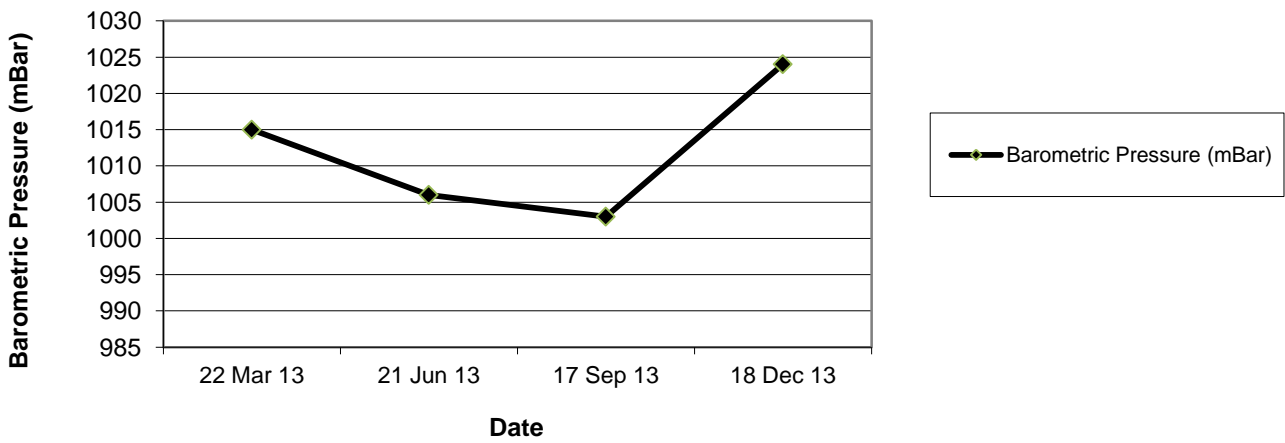
Measured Barometric Pressure (mBar) at EP1-1



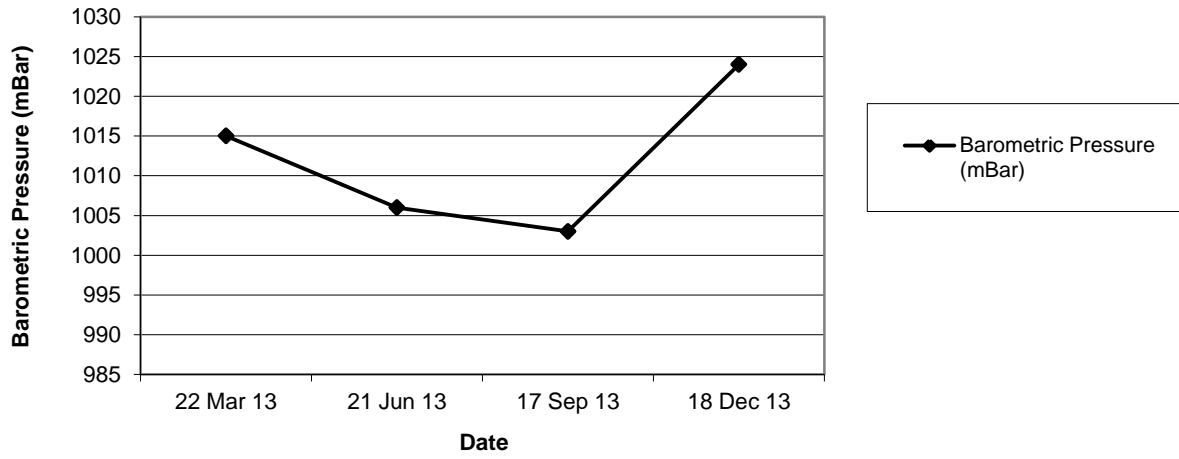
Measured Barometric Pressure (mBar) at EP1-2



Measured Barometric Pressure (mBar) at EP1-3



Measured Barometric Pressure (mBar) at EP2-1



Measured Barometric Pressure (mBar) at EP2-2

