



EM&A Report

EcoPark Operation

Annual EM&A Compliance Report

January to December 2011





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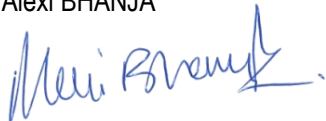
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EXECUTIVE SUMMARY

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 fifth annual EM&A report prepared for the operation phase of EcoPark and covers January to December 2011.

As of end-December 2011, seven tenants (Champway, Shiu Wing, Hung Wai, Li Tong, Yan Oi Tong, Telford and St. James' Settlement) have commenced recycling activities within their lots. One tenant (Cosmos) has not commenced recycling activities and it is carrying out preparatory works within its lots.

The first batch of Phase 2 lots of was awarded to new tenants in August 2011.

Throughout the year, 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 2011 are summarized 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.

Tenant	Waste Materials	Waste Input (tonnes)	Product Output (tonnes)	Product Output (pieces)	Waste Disposal (tonnes)
Champway ^[Note 1]	Waste Oil	9,492	2,453	-	5,564
Hung Wai ^[Note 2]	Waste Wood	1,610	5,788	-	1,736
Li Tong	WEEE	540	240	-	-
Shiu Wing	Waste Metals	18,069	18,069	-	-
Telford	Waste Plastic	641	229	-	-
Yan Oi Tong	Waste Plastic	1,088	1,012	-	149
St James' Settlement	WEEE	291	135	5,380	18

Notes:

- Output includes biodiesel and glycerine.
- The plant operation has been suspended and stopped receiving wood since October 2011, with a view to modifying the operation modes.

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 2011, LFG monitoring was undertaken on 17 January, 26 April, 19 July and 27 October, at five locations (three in Phase 1 and two in Phase 2). No Action/Limit Level exceedances were recorded.

Summary of Complaints, Summons and Prosecutions

- **Complaints:** Three complaints, Nos. 001, 002 and 003, were received on 29 April, 9 June and 15 June 2011, respectively. All were related to odour nuisance from Champway's lot. Remedial measures were quickly undertaken and no further complaints were received.
- **Summons:** Zero; and
- **Successful Prosecutions:** Zero.

Reporting Changes

The format of this report has been enhanced this year for improved presentation of information.

Future Key Issues

No key issues are anticipated in the next year. 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 2011. The operation of EcoPark in environmental terms is therefore considered to be of an acceptable level.

In terms of monitoring methodology, since there has never been any LFG detected within EcoPark, either during the construction phase, which commenced in 2006, or during the operation to-date, the ET Leader therefore recommends that LFG monitoring is discontinued with immediate effect.

In terms of the practicality and effectiveness of 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.

Other than discontinuing LFG monitoring, no improvements to the EM&A programme are recommended.

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. To this end, EcoPark is a key element that aims to promote 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.
- 1.1.2 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.
- 1.1.3 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 2011, there were a total of 8 tenants in EcoPark comprising:
- Seven tenants (Champway, Shiu Wing, Hung Wai, Li Tong, Telford, Yan Oi Tong (YOT) and St. James' Settlement) carrying out recycling operations; and
 - One tenant (Cosmos) who is carrying out preparatory works.

- 1.2.2 In December 2011, Li Tong had completed their Phase 2 expansion to increase open storage areas for semi-products and products. To increase production capacity at YOT, a 37kW (50HP) powered crusher is proposed to be installed in order to granulate large pieces of waste plastic. The proposed crusher would not cause any variation in the recycling process reviewed in the approved Process Review Checklist (PRC). YOT advised that the proposed crusher will be delivered and operated in the first quarter of 2012.
- 1.2.3 The first batch of Phase 2 lots of was awarded to new tenants in August 2011, but none commenced recycling operations during 2011. A workshop for the new tenants to brief them on EcoPark issues relating to planning, construction and operation of their facilities was held on 22 September 2011.

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**.

Table 1-1 EM&A Personnel Contact Details

Position	Name	Email Address	Telephone No.
Project Proponent – EPD			
Principal EPO	Lawrence WONG	lawrwong@epd.gov.hk	2872 1700
Operator – SGJV			
Project Manager	Noel AU	nkfau@ecopark-mgnt.com	2496 7633
Park Manager	Morgan CHIU	morganchiu@ecopark-mgnt.com	2212 5910
IEC – Atkins			
IEC	Sharifah OR	sharifah.or@atkinglobal.com	2972 1802
IEC Site Inspector	Keith CHAU	keith.chau@atkinglobal.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

- 1.3.2 The organisation of SGJV is shown in **Figure 1-2** and the current EM&A organisation is illustrated in **Figure 1-3**.

Figure 1-2 Organisation Chart of SGJV

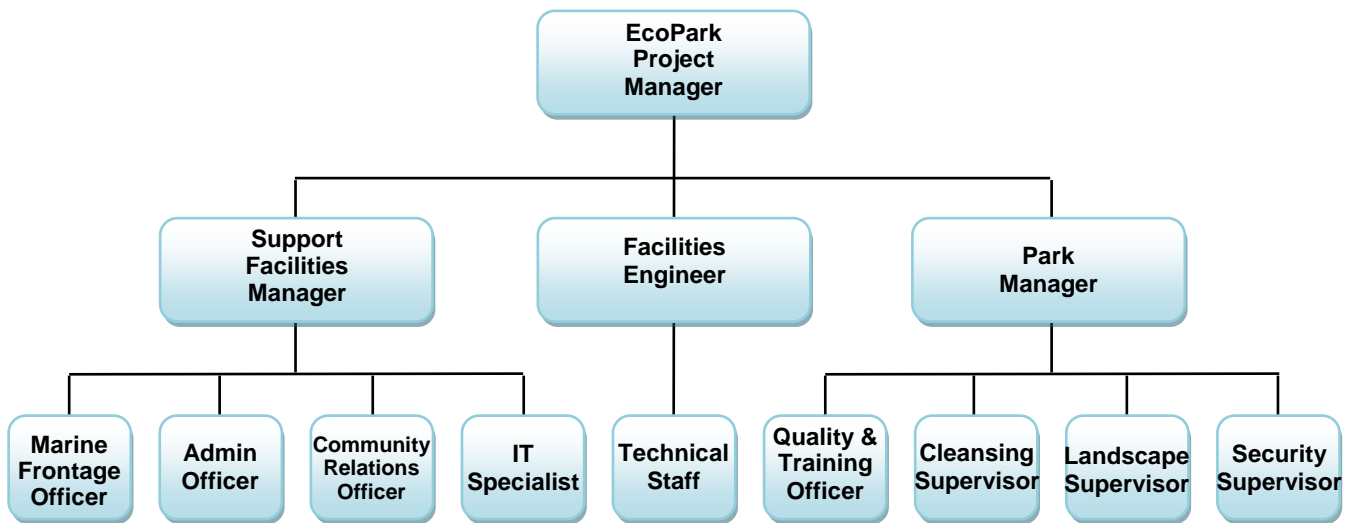
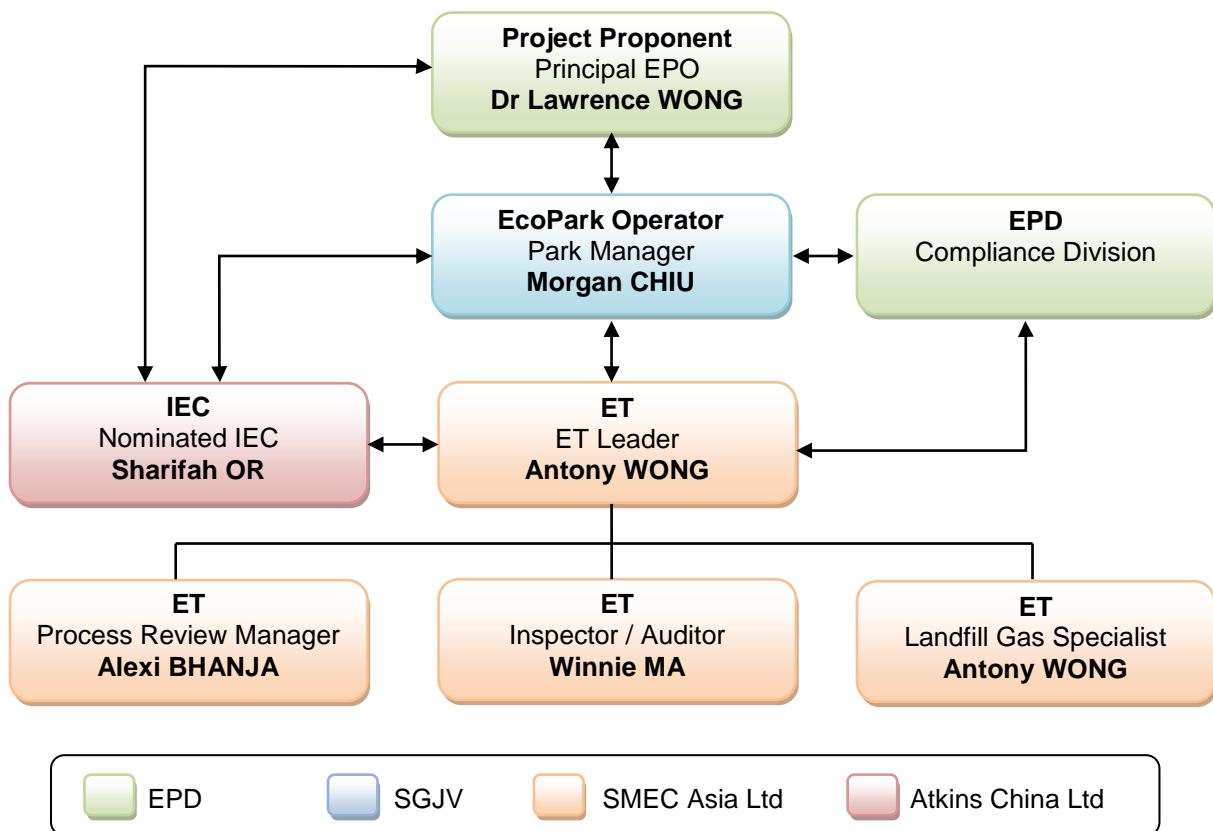


Figure 1-3 Organisation Chart of EM&A Works (Operation)



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 LFG monitoring has been carried out at Phase 1 and Phase 2 of EcoPark since the quarter August to October 2009 and the quarter November 2010 to January 2011, respectively, after completion of Phase 1 construction in July 2009 and completion of Phase 2 construction in November 2010.
- 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 2-1** is a replacement page 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:

1. Air Quality;
2. Water Quality;
3. Waste Management; and
4. Land Contamination.

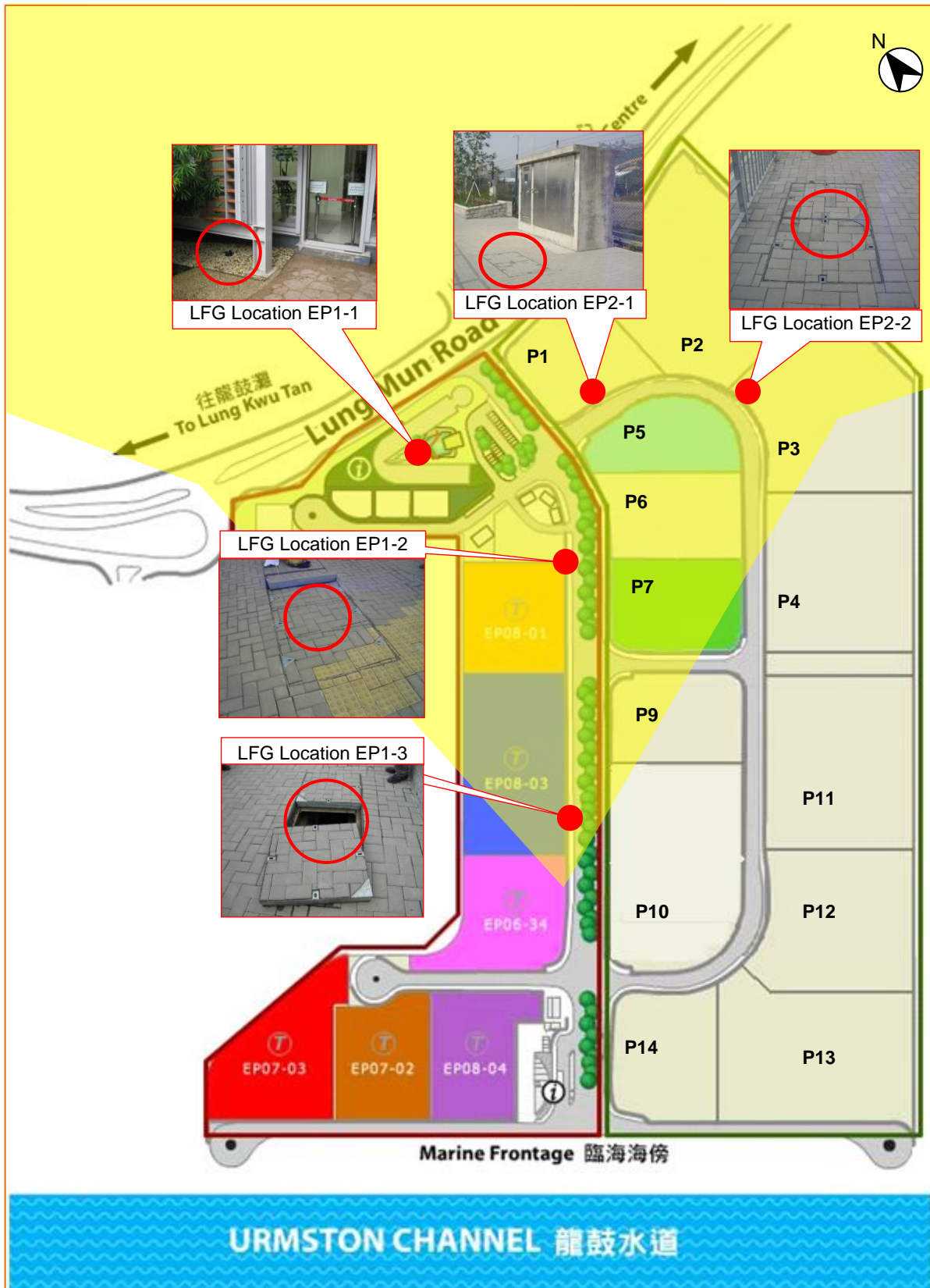
2.4 Environmental Mitigation Measures

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



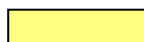
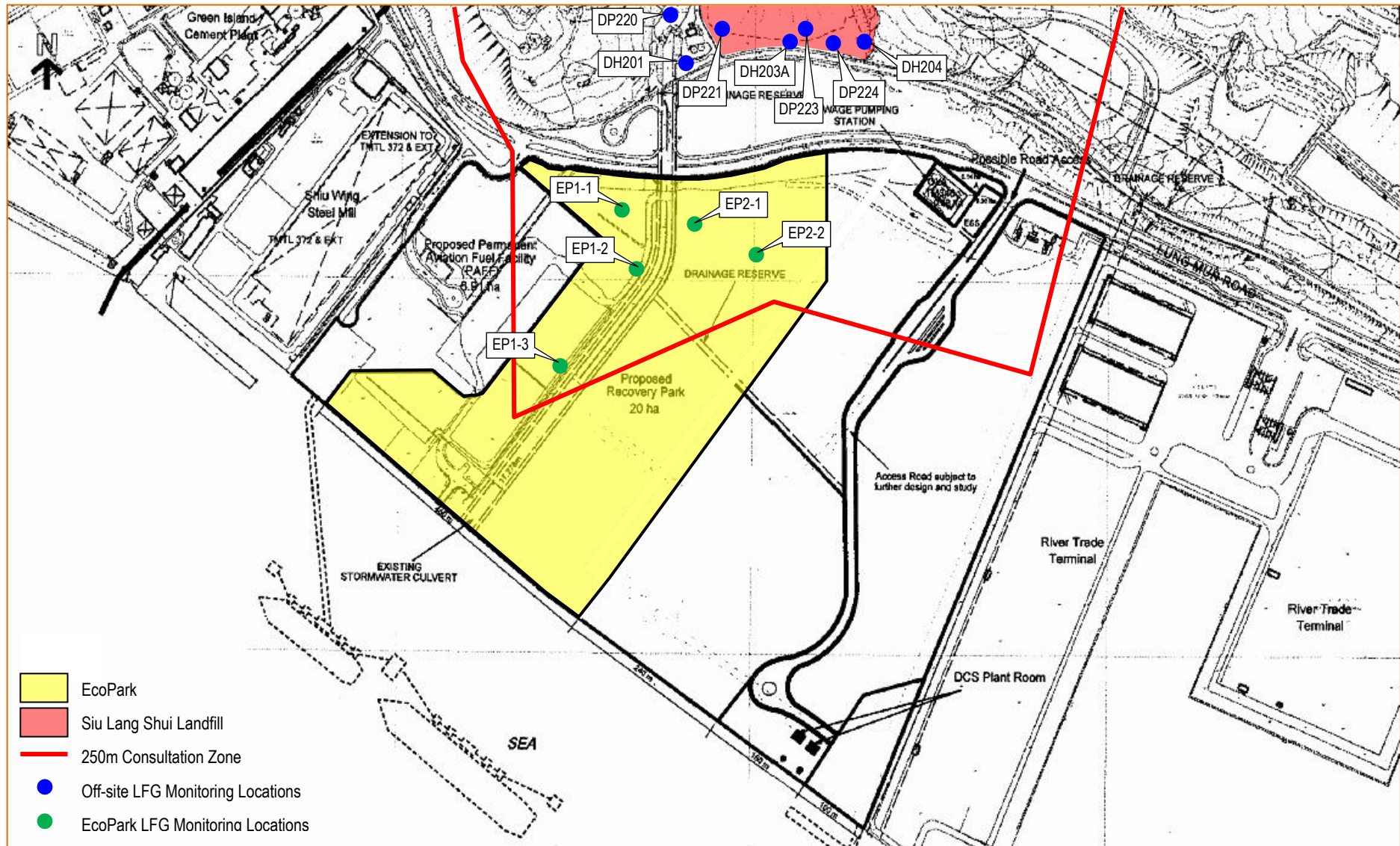
 Area Within the Shiu Lang Shui Landfill Gas Consultation Zone

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 on *Figure 3-1*.
- 3.1.2 The first batch of Phase 2 lots was awarded to new tenants in August 2011 and the preparation works are being carried out. Therefore, none of the new tenants are yet on-site and 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 3.10*.

3.2 Champway Technology Ltd.

- **Lot 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 In 2011, a significant amount of treated cooking oil has been processed and biodiesel produced.

3.3 Shiu Wing Steel Ltd.

- **Lot 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 2011, large amount of waste metal/steel scrap have been processed.

3.4 Hong Kong Hung Wai Wooden Board Co.

- **Lot No.:** EP06-034 (Phase 1)
- **Lot Size:** Approx. 5,000m²
- **Activity:** Recycling of Waste Wood
- **Recycling Process:** Shred waste wood into wooden chips for further processing in Mainland China. Ferrous metals will be separated by magnets.

- 3.4.1 In 2011, large quantities of wood chips (product output) have been produced. However, the plant operation suspended and stopped receiving wood since October 2011, with a view to modifying the operation modes.

3.5 Li Tong Group

- **Lot 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.).

3.6 Hong Kong Telford Envirotech Group Ltd.

- **Lot 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 As of end-December 2011, plastic stockpiled in the lot, the recycling equipment has been installed and operated.

3.7 Cosmos Star Holdings Co. Ltd.

- **Lot No.** EP08-04 (Phase 1)
- **Lot Size:** Approx. 4,000 m²
- **Activity:** Recycling of materials arising from industrial and commercial activities
- **Recycling Process:** Separate waste lead-acid and lithium batteries by mechanical / physical means. The battery acid will be drained and treated by the on-site wastewater treatment system.

3.7.1 As of end-December 2011, building works were still in progress.

3.8 YOT EcoPark Plastic Resources Recycling Centre

- **Lot No. :** P7 (Phase 2)
- **Lot Size:** Approx. 5,000 m²
- **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.

3.8.1 In 2011, large amount of waste plastics have been sorted.

3.9 St. James' Settlement "WEEE GO GREEN" EcoPark

- **Lot No.:** P5 (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

3.10 Throughput Statistics

- 3.10.1 The first batch of Phase 2 lots was awarded to new tenants in August 2011, but none of the new tenants are yet on-site and so there are no throughput statistics to discuss in this section.
- 3.10.2 For the active recyclers, most of the waste materials and products were delivered by land transportation and the wood chips generated by Hung Wai were delivered by marine transportation.
- 3.10.3 The throughputs in 2011 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 2011

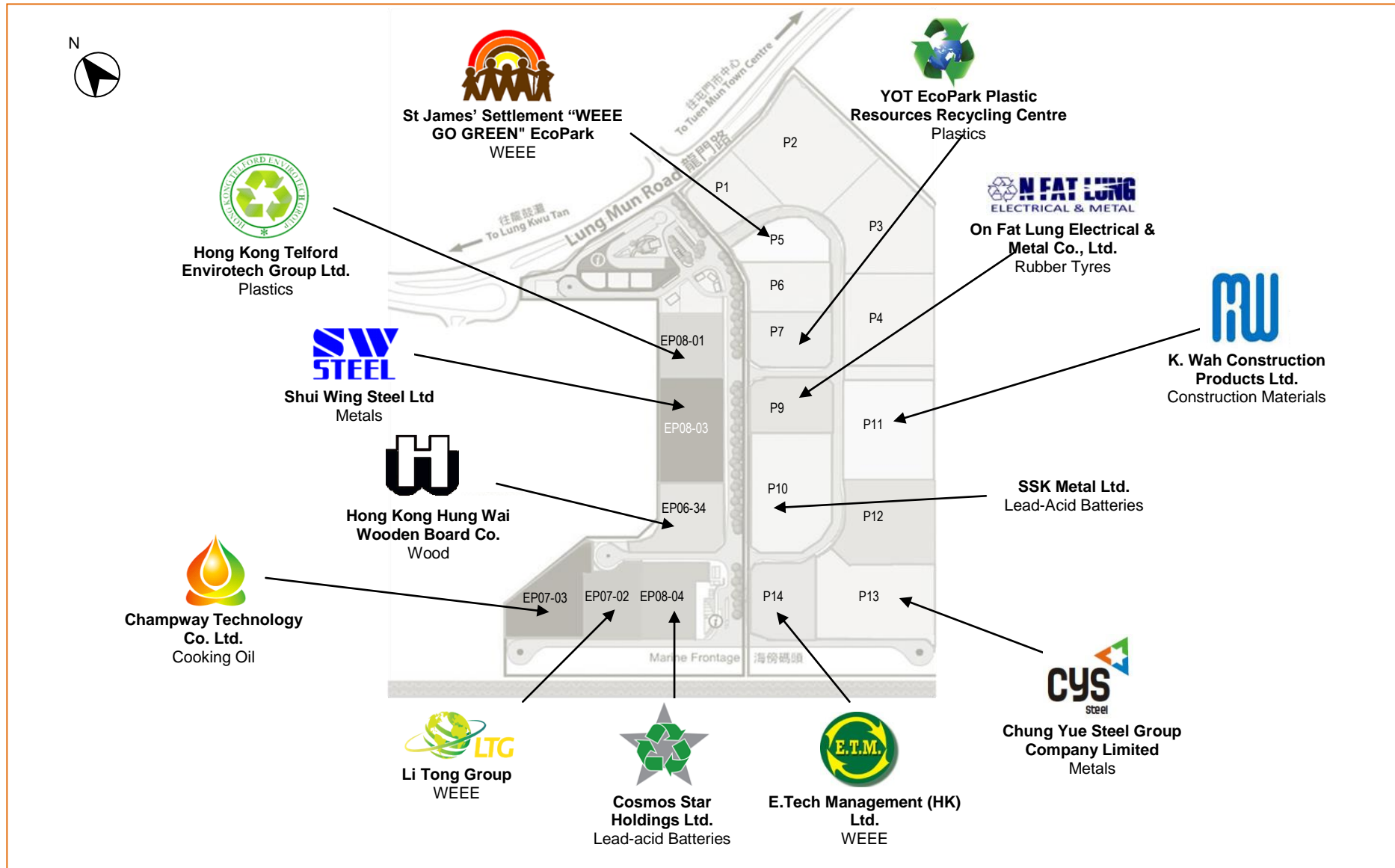
Tenant	Waste Materials	Waste Input (tonnes)	Product Output (tonnes)	Product Output (pieces)	Waste Disposal (tonnes)
Champway ^[Note 1]	Waste Oil	9,492	2,453	-	5,564
Hung Wai ^[Note 2]	Waste Wood	1,610	5,788	-	1,736
Li Tong	WEEE	540	240	-	-
Shiu Wing	Waste Metals	18,069	18,069	-	-
Telford	Waste Plastic	641	229	-	-
Yan Oi Tong	Waste Plastic	1,088	1,012	-	149
St James' Settlement	WEEE	291	135	5,380	18

Notes:

1. Output includes biodiesel and glycerine.
2. The plant operation has been suspended and stopped receiving wood since October 2011, with a view to modifying the operation modes.

- 3.10.4 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 2011, seven tenants (Champway, Shiu Wing, Hung Wai, Li Tong, Yan Oi Tong, Telford and St. James' Settlement) have commenced recycling activities within their lots. Appropriate environmental protection measures are in place.

5 MONITORING RESULTS

5.1 Monitoring Date, Time, Frequency and Duration

5.1.1 LFG measurement was conducted on quarterly basis at five monitoring locations: three monitoring locations in Phase 1 and two monitoring locations in Phase 2^[Ref.#1]. Measurements were undertaken during the joint IEC site inspections on 17 January, 26 April, 19 July and 27 October 2011. 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	17 January 2011	10:36 – 10:40	4 minutes	11°C	Fine
EP1-2		10:16 – 10:20			
EP1-3		10:10 – 10:14			
EP2-1		10:24 – 10:28			
EP2-2		10:29 – 10:33			
EP1-1	26 April 2011	10:50 – 10:54	4 minutes	27°C	Fine
EP1-2		10:30 – 10:34			
EP1-3		10:20 – 10:24			
EP2-1		10:35 – 10:39			
EP2-2		10:40 – 10:44			
EP1-1	19 July 2011	11:11 – 11:15	4 minutes	30°C	Fine
EP1-2		10:53 – 10:57			
EP1-3		10:47 – 10:51			
EP2-1		10:58 – 11:02			
EP2-2		11:03 – 11:07			
EP1-1	27 October 2011	10:49 – 10:53	4 minutes	24°C	Fine
EP1-2		10:34 – 10:38			
EP1-3		10:26 – 10:30			
EP1-1		10:39 – 10:43			
EP1-2		10:42 – 10:46			

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**.

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

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

Parameters	Measurement Ranges
Carbon Dioxide (CO ₂)	0-100% v/v
Barometric Pressure	mBar (absolute)

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

1. Where possible, comply with BS 6020 and be approved by BASEEFA as intrinsically safe, suitable for use in a Zone 2 are to BS 5345.
2. Be capable of continuous monitoring of methane, oxygen and carbon dioxide.
3. Be capable of continuous barometric pressure and gas pressure measurements.
4. Normally operate in diffusion mode unless required for spot sampling, when it should be capable of operating by means of an aspirator or pump.
5. Have low battery, fault and over range indication incorporated.
6. Store monitoring data, and shall be capable of being down-loaded directly to a PC.
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**.

5.4.2 With reference to the monitoring results, no Action or Limit Level exceedance was recorded.

Table 5-3 LFG Monitoring Results

Station ID	Date	Monitoring Results				
		CH4 (% v/v)	CH4 (% LEL)	O2 (% v/v)	CO2 (% v/v)	Barometric Pressure (mBar)
EP1-1	17 January 2011	0.0	0	20	0.3	1026
EP1-2		0.0	0	21	0.0	1026
EP1-3		0.0	0	21	0.0	1026
EP2-1		0.0	0	21	0.0	1026
EP2-2		0.0	0	21	0.0	1026
EP1-1	26 April 2011	0.0	0	21	0.0	1014
EP1-2		0.0	0	21	0.0	1014
EP1-3		0.0	0	21	0.0	1013
EP2-1		0.0	0	21	0.0	1015
EP2-2		0.0	0	21	0.0	1014
EP1-1	19 July 2011	0.0	0	21	0.0	1007
EP1-2		0.0	0	20	0.0	1007
EP1-3		0.0	0	19	0.0	1007
EP2-1		0.0	0	21	0.0	1007
EP2-2		0.0	0	20	0.0	1007
EP1-1	27 October 2011	0.0	0	21	0.0	1018
EP1-2		0.0	0	21	0.1	1020
EP1-3		0.0	0	21	0.0	1020
EP2-1		0.0	0	21	0.0	1020
EP2-2		0.0	0	21	0.0	1020

6 SUMMARY OF TENANT AUDITS

6.1 General

6.1.1 The first batch of Phase 2 lots was awarded to new tenants in August 2011 but none of the new tenants were on-site by end-December 2011. As such, site audits for the new tenants were not carried out.

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.

6.2 January 2011

6.2.1 Environmental audits of active tenants were carried out by the ET and the IEC in a joint inspection on 17 January 2011.

6.2.2 **Champway.** Uncovered oil bucket and oil stains at the reserved area were observed. The Tenant was reminded to use proper covers for all chemicals/chemical waste containers, and remove the oil stains/oil contaminated soil and dispose it properly. No follow-up action was required from the previous site audits in 2010.

6.2.3 **Shiu Wing.** Debris/materials inside surface channels and oil leakage found at various places around the lot were observed in this site audit. The Tenant was reminded to clear the materials, keep regular maintenance for surface channels and clean up the leaked materials and contaminated soil. Handling of Asbestos Containing Materials (ACM) should be followed in next month audit. No follow-up action was required from the previous site audit.

6.2.4 **Hung Wai.** No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.

6.2.5 **Li Tong.** No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.

6.2.6 **Yan Oi Tong.** Stagnant water and refuse found inside the gully gratings along the access road during were observed in this site audit. The Tenant was reminded to clear the materials inside the gully gratings to prevent potential water pollution. Previous observation in 2010 including housekeeping and stagnant water underneath refuse storage container were still outstanding. The Tenant was reminded to implement rectification ASAP.

6.2.7 **St. James' Settlement.** Refuse inside surface channels and improper storage and handling of chemical waste were observed in the site audit. The Tenant was reminded to clear the refuse, provide regular maintenance to the surface channels and store chemical waste properly. No follow-up action was required from the previous site audits in 2010.

6.3 February 2011

- 6.3.1 Environmental audits of active tenants were carried out by the ET on 22 February 2011.
- 6.3.2 **Champway.** Overflowed glycerine entering the surface channels and uncovered oil buckets were observed in this site audit. The Tenant was reminded to removed Glycerine, cover all oil buckets and remove the oil stains and dispose of waste materials properly. The uncovered oil buckets and oil stains at the reserved area observed in the site audit in January 2011 were still outstanding. The Tenant was reminded to implement rectification ASAP.
- 6.3.3 **Shiu Wing.** No critical environmental deficiencies were observed in this site audit. The leaked materials and oil stain observed in the site audit in January 2011 was rectified by the Tenant. However debris/materials inside the surface channel was remained outstanding. The Tenant was reminded to implement rectification ASAP.
- 6.3.4 **Hung Wai.** No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.
- 6.3.5 **Li Tong.** No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.
- 6.3.6 **Yan Oi Tong.** A stagnant water pool behind the manual separation area was recorded during the audit, and the Tenant was reminded to clear the water ASAP. Previous observations of overflow from the wastewater collection system and stagnant water underneath refuse storage containers were rectified by the Tenant, whilst materials littering around the waste storage area, stagnant water and refuse inside the gully gratings remained outstanding. The Tenant was reminded to implement rectification ASAP.
- 6.3.7 **St. James' Settlement.** No critical environmental deficiencies were observed in this site audit. Except provision of maintenance of chemical storage area was rectified by the Tenants, observations recorded in site audit in January 2011 were still outstanding including providing "lock" to chemical waste storage area and clearing debris and refuse inside surface channels. The Tenant was reminded to implement rectification ASAP.

6.4 March 2011

- 6.4.1 Environmental audits of active tenants were carried out by the ET on 29 March 2011.
- 6.4.2 **Champway.** Oil/grease inside the sewer was observed in this site audit. The Tenant was reminded to clear the oil/grease ASAP. Previous observations including uncovered oil buckets and overflow of glycerine were rectified by the Tenant except oil stains around the lot and diesel odour observed in January 2011 were remained outstanding. The Tenant was reminded to implement rectification ASAP.
- 6.4.3 **Shiu Wing.** Stagnant water inside the uncovered containers was observed in this site audit. The Tenant was reminded to clear the stagnant water ASAP and cover the containers. The Tenant had cleared the debris/materials inside surface channels and covered the channels as observed in previous site audit.
- 6.4.4 **Hung Wai.** No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.

- 6.4.5 **Li Tong.** No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.
- 6.4.6 **Yan Oi Tong.** No critical environmental deficiencies were observed in this site audit. Previous observations including refuse inside the gully gratings and stagnant pool of water behind the separation area were rectified. Refuse was observed around the site since January 2011. The Tenant was reminded to implement rectification ASAP.
- 6.4.7 **St. James' Settlement.** No critical environmental deficiencies were observed in this site audit. The Tenant had rectified the observations recorded in site audit in January 2011 including providing "lock" to chemical waste storage area and clearing debris and refuse inside surface channels.

6.5 April 2011

- 6.5.1 Environmental audits of active tenants were carried out by the ET and the IEC in a joint inspection on 20 April 2011.
- 6.5.2 **Champway.** New waste oil collection tank was not in use during this site audit. The Tenant was suggested to check with EPD if a variation to the current Specified Process (SP) Licence needed. Uncovered oil buckets and oil stains observed in January 2011 and oil/grease inside the sewer observed in March 2011 were still outstanding. The Tenant was reminded to implement rectification ASAP.
- 6.5.3 **Shiu Wing.** No critical environmental deficiencies were observed in this site audit. Previous observation of stagnant water inside containers was rectified by the Tenant.
- 6.5.4 **Hung Wai.** No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.
- 6.5.5 **Li Tong.** No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.
- 6.5.6 **Yan Oi Tong.** No critical environmental deficiencies were observed in this site audit. Poor housekeeping observed in January 2011 was rectified by the Tenant.
- 6.5.7 **St. James' Settlement.** Non-chemical wastes being placed inside the chemical waste storage area was recorded during this site audit. The Tenant was reminded to remove these materials accordingly. No follow-up action was required from the previous site audit.

6.6 May 2011

- 6.6.1 Environmental audits of active tenants were carried out by the ET on 25 May 2011.
- 6.6.2 **Champway.** No critical environmental deficiencies were observed in this site audit. EPD advised that there is no need for variation for the current Specified Process (SP) Licence for the new oil collection tank observed in previous site audit. Previous observations of uncovered oil buckets and oil stains, oil/grease inside the sewer recorded in February 2011 were remained outstanding. The Tenant was reminded to implement rectification ASAP.
- 6.6.3 **Shiu Wing.** No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.

- 6.6.4 **Hung Wai.** No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.
- 6.6.5 **Li Tong.** No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.
- 6.6.6 **Yan Oi Tong.** No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.
- 6.6.7 **St. James' Settlement.** Stagnant water pool on WEEE at the storage area was observed in this site audit. The Tenant was reminded to clear the stagnant water and cover the materials ASAP. Previous observation of misplacement of non-chemical wastes into chemical storage room was rectified by the Tenant.

6.7 June 2011

- 6.7.1 Environmental audits of active tenants were carried out by the ET on 21 June 2011.
- 6.7.2 **Champway.** Oil stains inside the surface channels and improper storage of the activated carbon were recorded during this site audit. The Tenant was reminded to clear oil stains, prevent the leaked oil entering the surface channels and store activated carbon properly. Previous observations of oil leakage/stains and oil/grease inside the sewer recorded in February 2011 were remained outstanding. The Tenant was reminded to implement rectification ASAP.
- 6.7.3 **Shiu Wing.** No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.
- 6.7.4 **Hung Wai.** Fugitive dust from the shredding machine was observed in this site audit. The Tenant was reminded to reduce dust emission. No follow-up action was required from the previous site audit.
- 6.7.5 **Li Tong.** No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.
- 6.7.6 **Yan Oi Tong.** Material littering and colour stains on the ground were observed in this site audit. The Tenant was reminded to improve housekeeping and remove the stains ASAP. No follow-up action was required from the previous site audit.
- 6.7.7 **St. James' Settlement.** No critical environmental deficiencies were observed in this site audit. No pools of stagnant water (recorded in May 2011) were found at the WEEE storage area.

6.8 July 2011

- 6.8.1 Environmental audits of active tenants were carried out by the ET and the IEC in a joint inspection on 19 July 2011.
- 6.8.2 **Champway.** Uncovered container and odour nuisance were observed in this site audit. The Tenant was reminded to enclose the containers and mitigate the odour. The Tenant had rectified oil leakage/stains and oil/grease inside the sewer. For the observations of oil stains inside the surface channels and improper storage of the activated carbon recorded in previous site audit was remained outstanding. The Tenant was reminded to implement rectification ASAP.

- 6.8.3 **Shiu Wing.** Stagnant water on the metal over the gully and uncovered containers were observed in this site audit. The Tenant was reminded to remove the stagnant water and cover the open containers, or place the containers upside-down to avoid collecting water. No follow-up action was required from the previous site audit.
- 6.8.4 **Hung Wai.** No critical environmental deficiencies were observed in this site audit. Previous observation of fugitive dust from the shredding machine was remained outstanding. The Tenant was reminded to implement rectification ASAP.
- 6.8.5 **Li Tong.** Misplacement of non-chemical wastes and unlocked chemical storage room were observed in this site audit. The Tenant was reminded to remove non-chemical waste from the chemical waste storage room and lock the doors of the area when it is not in use. No follow-up action was required from the previous site audit.
- 6.8.6 **Yan Oi Tong.** No critical environmental deficiencies were observed in this site audit. Due to heavy rainfall, follow-up action for observations observed in June 2011 including housekeeping and colour stain issues at Lot P6 would be followed up in next site audit.
- 6.8.7 **St. James' Settlement.** No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.

6.9 August 2011

- 6.9.1 Environmental audits of active tenants were carried out by the ET on 26 August 2011.
- 6.9.2 **Champway.** Oil stain at the reserved area was observed in this site audit. The Tenant was reminded to remove the oil stain. Previous observation of stagnant water on containers was rectified by the Tenant. Oil leakage/stains inside the surface channels and improper storage of activated carbon observed in June 2011 and odour nuisance observed in July 2011 were remained outstanding. The Tenant was reminded to implement rectification ASAP.
- 6.9.3 **Shiu Wing.** No critical environmental deficiencies were observed in this site audit. Previous observation of stagnant water on the metal cover over the gully was rectified by the Tenant.
- 6.9.4 **Hung Wai.** No critical environmental deficiencies were observed in this site audit. The Tenant advised that fugitive dust emission would be mitigated as a new machine which fully enclosed the entire recycling process would soon begin operation.
- 6.9.5 **Li Tong.** No critical environmental deficiencies were observed in this site audit. Previous observation of the unlocked chemical storage room was rectified by the Tenant.
- 6.9.6 **Yan Oi Tong.** No critical environmental deficiencies were observed in this site audit. Housekeeping issue at Lot P6 as well as colour stains as observed in June 2011 were improved.
- 6.9.7 **St. James' Settlement.** No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.

6.10 September 2011

- 6.10.1 Environmental audits of active tenants were carried out by the ET on 30 September 2011.
- 6.10.2 **Champway.** No critical environmental deficiencies were observed in this site audit. Odour nuisance recorded since June 2011 were rectified by the Tenant. However, previous observations of the oil leakage/stains inside the surface channels (recorded since February 2011) and improper storage of activated carbon (recorded since June 2011) and stagnant water found in an uncovered bucket stored at part of Lot R1 (recorded in August 2011) were still outstanding. The Tenant was reminded to implement rectification ASAP.
- 6.10.3 **Shiu Wing.** No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.
- 6.10.4 **Hung Wai.** No critical environmental deficiencies were observed in this site audit. A new machine with full enclosure would be operated later; fugitive dust from the existing shredding machine observed in July 2011 would not be anticipated.
- 6.10.5 **Li Tong.** No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.
- 6.10.6 **Yan Oi Tong.** No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.
- 6.10.7 **St. James' Settlement.** No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.

6.11 October 2011

- 6.11.1 Environmental audits of active tenants were carried out by the ET and the IEC in a joint inspection on 27 October 2011.
- 6.11.2 **Champway.** Leakage from the containers was observed in this site audit. The tenant was reminded to replace the containers and clear the leakage. Previous observation of improper storage of the activated carbon was observed in place. Some previous observations were still outstanding including oil leakage/stains found in the lot (recorded since February 2011) and stagnant water found in an uncovered bucket stored at part of Lot R1. The Tenant was reminded to implement rectification ASAP.
- 6.11.3 **Shiu Wing.** Mud/deposit found inside the surface channel and emissions of fugitive dust from dusty operation were observed in this site audit. The Tenant was reminded to implement rectification ASAP. No follow-up action was required from the previous site audit.
- 6.11.4 **Hung Wai.** The gate of the lot was closed during site audit. No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.
- 6.11.5 **Li Tong.** Misplacement of non-chemical waste to the chemical waste storage room was recorded during the audit. The Tenant was reminded to remove non-chemical waste ASAP. No follow-up action was required from the previous site audit.

- 6.11.6 **Yan Oi Tong.** Waste engine oil on-site and numerous piles of large size of waste were observed in this site audit. The Tenant was reminded to find out if it is necessary to apply for a Chemical Waste Disposal Licence for disposing waste engine oil and provide appropriate machine to process piles of plastics as soon as possible. No follow-up action was required from the previous site audit.
- 6.11.7 **St. James' Settlement.** No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.

6.12 November 2011

- 6.12.1 Environmental audits of active tenants Tenant Audits were carried out by the ET on 15 November 2011. Effective from November 2011, Telford was considered to have become an "active" tenant.
- 6.12.2 **Champway.** Large piece of sponge found in the surface channels and leakage from containers were observed in this site audit. The Tenant was reminded to implement rectification accordingly. Stagnant water found in an uncovered bucket stored at part of Lot R1 was rectified by the Tenant. Some oily water was found near the inlet of the sewer although oil leakage and leaked materials were not observed (recorded since February 2011). The Tenant was reminded to implement rectification ASAP. The efficiency of placing stones/pebbles on oil stains for absorption purpose (recorded since October 2011) would be followed up in next month audit.
- 6.12.3 **Shiu Wing.** No critical environmental deficiencies were observed in this site audit. Pervious observation in October 2011 including mud/deposit found inside the surface channel and emissions of fugitive dust from dusty operation were rectified by the Tenant. No follow-up action was required from the previous site audit.
- 6.12.4 **Hung Wai.** The gate of the lot was closed during the site audit. No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.
- 6.12.5 **Li Tong.** No critical environmental deficiencies were observed in this site audit. Non-chemical waste was removed from the chemical waste storage room as observed in the site audit in October 2011.
- 6.12.6 **Yan Oi Tong.** Waste plastics were found next to the covered surface channels. The Tenant was reminded to clear the plastics ASAP. For observations in October 2011, the Tenant advised that waste engine oil were collected by licensed chemical waste collector. The Tenant advised that new machines would be purchased to reduce the accumulation of storage of over sized plastics.
- 6.12.7 Leakage of blue wastewater from a working area of the Yan Oi Tong lot occurred on 28 November 2011. The ET Leader provided advice on the incident to SGJV via email dated 6 December 2011 and arranged a site investigation on 7 December 2011. In accordance with the site investigation carried out on 7 December 2011 and the advices of Yan Oi Tong, the leakage of blue wastewater was due to unexpected cracks in the drain pipe cap of a washing tank. Yan Oi Tong immediately replaced the broken drain pipe cap and placed sandbags at the entrance to prevent wastewater flowing into the stormwater drain. During the site audit on 22 December 2011, no wastewater was observed near the washing tank.

6.12.8 **St. James' Settlement.** No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.

6.12.9 **Telford.** No critical environmental deficiencies were observed in this site audit. Previous observations including lots of debris/refuse inside the surface channels and oil stains near the chemical drums (recorded since January 2011) as well as chemical drums without covers or secondary containment (recorded since February 2011), water leakage near machine as well as bucket inside the surface channel (recorded since October 2011) were still remained outstanding. The Tenant was reminded to implement rectification ASAP.

6.13 December 2011

6.13.1 Environmental audits of active tenants were carried out by the ET on 22 December 2011.

6.13.2 **Champway.** Oil leakage from containers and grease in surface channel were observed in this site audit. Previous observations of large piece of sponge found in the surface channels, leakage from damaged containers, oil stains and oily water at the inlet of sewer were rectified by the Tenant.

6.13.3 **Shiu Wing.** No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.

6.13.4 **Hung Wai.** The gate of the lot was closed during the site audit. No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.

6.13.5 **Li Tong.** No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.

6.13.6 **Yan Oi Tong.** No critical environmental deficiencies were observed in this site audit. Previous observation of waste plastics found next to the covered surface channels was rectified by the Tenant. The Tenant advised that new machines would be purchased to reduce the accumulation of storage of large pieces of plastics.

6.13.7 **St. James' Settlement.** No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.

6.13.8 **Telford.** No critical environmental deficiencies were observed in this site audit. Previous observations including lots of debris/refuse inside the surface channels and oil stains near the chemical drums, chemical drums without covers or secondary containment, water leakage near machine as well as improper housekeeping were rectified by the Tenant.

7 SUMMARY OF GENERAL ECOPARK AUDITS

7.1 General

7.1.1 During the joint site inspection, LFG monitoring was undertaken at the three monitoring locations agreed by the ET, IEC and SGJV at the three monitoring locations (*Table 2-1* and *Figure 2-1 refer*). The monitoring results are presented in *Section 5.4*. No action / limit level exceedances were recorded.

7.2 January 2011

7.2.1 The general EcoPark audit was carried out by the ET and the IEC in a joint inspection on 17 January 2011.

7.2.2 **Telford.** Refuse inside the surface channels, no provision of secondary containment for the chemical drums, oil stains around the machines and uncovered oil buckets and diesel odour were recorded during the audit. The Tenant was reminded to remove the refuse and provide regular maintenance of the surface channels, provide secondary containment underneath all chemical drums, clear the oil stains/oil contaminated soil and dispose it properly and provide the proper containers with cover to eliminate the diesel odours. No follow-up action was required from the previous site audits in 2010.

7.2.3 **Cosmos.** A lot of a chemical drums were observed without provision of secondary containment underneath. The Tenant was reminded to provide secondary containment underneath all chemical drums.

7.2.4 **Other areas.** Muddy trail (from Phase 2 construction works) outside lot of P9 was observed. SGJV was advised to liaise with the Resident Engineer (RE) for cleaning the entrance of P9 and provide appropriate measures such as wheel-washing. No follow-up action was required from the previous site audits in 2010.

7.3 February 2011

7.3.1 The general EcoPark audit was carried out by the ET on 22 February 2011.

7.3.2 **Telford.** During this site audit, large amount of plastics was stored in the lot. The tenant should remove the debris and refuse ASAP and provide regular maintenance of the surface channels. Observations in the site audit in January 2011 were still outstanding including lots of debris/refuse inside the surface channels, chemical drums without covers or secondary containment, oil stains near the machines, uncovered oil buckets and diesel odour. The Tenant was reminded to implement rectification ASAP.

7.3.3 **Cosmos.** No critical environmental deficiencies were observed in this site audit. Stagnant water inside a drip tray was still observed since the site audit in January 2011. The Tenant should clear stagnant water ASAP.

7.3.4 **Other areas.** Muddy trail was not observed outside the lot of P9 in this site audit.

7.4 March 2011

- 7.4.1 The general EcoPark audit was carried out by the ET on 29 March 2011.
- 7.4.2 **Telford.** Oil stains were found near the chemical drums during this site audit. The Tenant was reminded to clear the oil stains properly and provide secondary containment. Except for uncovered oil buckets that were removed by the Tenant, observations from the site audit in January 2011 were still outstanding, including debris/refuse inside the surface channels, chemical drums without covers or secondary containment, oil stains near the machines. The Tenant was reminded to implement rectification ASAP.
- 7.4.3 **Cosmos.** The gate of the lot was closed during the site audit. No critical environmental deficiencies were observed in this site audit. Stagnant water inside a drip tray was observed in the site audit in January 2011 was rectified by the Tenant.

7.5 April 2011

- 7.5.1 The general EcoPark audit was carried out by the ET and the IEC in a joint inspection on 26 April 2011.
- 7.5.2 **Telford.** No critical environmental deficiencies were observed in this site audit. Debris/refuse inside the surface channels observed in January 2011, chemical drums without covers or secondary containment observed in February 2011 and oil stains were found near the chemical drums observed in March 2011 were still outstanding. The Tenant was reminded to implement rectification ASAP.
- 7.5.3 **Cosmos.** No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.

7.6 May 2011

- 7.6.1 The general EcoPark audit was carried out by the ET on 25 May 2011.
- 7.6.2 **Telford.** No critical environmental deficiencies were observed in this site audit. Debris/refuse inside the surface channels observed in January 2011, chemical drums without covers or secondary containment observed in February 2011 and oil stains were found near the chemical drums observed in March 2011 were still outstanding. The Tenant was reminded to implement rectification ASAP.
- 7.6.3 **Cosmos.** No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.

7.7 June 2011

- 7.7.1 The general EcoPark audit was carried out by the ET on 21 June 2011.
- 7.7.2 **Telford.** Oil/water mixture flowing into the surface channels was recorded in this site audit. Thus the Tenant was reminded to remove the mixture ASAP. Debris/refuse inside the surface channels observed in January 2011, chemical drums without covers or secondary containment observed in February 2011 and oil stains were found near the chemical drums observed in March 2011 were still outstanding. The Tenant was reminded to implement rectification ASAP.

7.7.3 **Cosmos.** No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.

7.8 July 2011

7.8.1 The general EcoPark audit was carried out by the ET and the IEC in a joint inspection on 19 July 2011.

7.8.2 **Telford.** No critical environmental deficiencies were observed in this site audit. The access of the Tenant Lot was inaccessible as the gate of the lot was closed during the site audit, outstanding observations were followed in next monthly site audit.

7.8.3 **Cosmos.** No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.

7.9 August 2011

7.9.1 The general EcoPark audit was carried out by the ET on 26 August 2011.

7.9.2 **Telford.** A bucket inside the surface channel was observed in this site audit. The Tenant was reminded to remove the bucket ASAP. Oil/water mixture were not found near chemical drums at baling machine. While debris/refuse inside the surface channels observed in January 2011, chemical drums without covers or secondary containment observed in February 2011 and large numbers of oil stains near the machines observed in January 2011 were still outstanding. The Tenant was reminded to implement rectification ASAP.

7.9.3 **Cosmos.** The gate of the lot was closed during site audit. No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.

7.10 September 2011

7.10.1 The general EcoPark audit was carried out by the ET on 30 September 2011.

7.10.2 **Telford.** Plastic extruding/pelletizing machine fuelled by combustion of wood pellets was installed in site. The efficiency of water spraying should be provided for ET preparing PRC and Design Audit (DA). No critical environmental deficiencies were observed in this site audit. No bucket was observed inside the surface channel. Previous observations including lots of debris/refuse inside the surface channels and oil stains near the chemical drums (recorded since January 2011) as well as chemical drums without covers or secondary containment (recorded since February 2011) were still remained outstanding. The Tenant was reminded to implement rectification ASAP.

7.10.3 **Cosmos.** The gate of the lot was closed during the site audit. No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.

7.11 October 2011

- 7.11.1 The general EcoPark audit was carried out by the ET and the IEC in a joint inspection on 27 October 2011.
- 7.11.2 **Telford.** A bucket inside the surface channel was observed in this site audit. The Tenant was reminded to remove the bucket ASAP. Previous observations including lots of debris/refuse inside the surface channels (recorded since January 2011) and oil stains near the chemical drums (recorded since January 2011) as well as chemical drums without covers or secondary containment (recorded since February 2011) were still remained outstanding. The Tenant was reminded to implement rectification ASAP. In addition, wood pellet combustion should be suspended until PRC and DA are completed.
- 7.11.3 **Cosmos.** The gate of the lot was closed during the site audit. No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.

7.12 November 2011

- 7.12.1 The general EcoPark audit was carried out by the ET on 15 November 2011. Effective from November 2011, Telford was considered to have become an “active” tenant and will no longer be assessed under the general EcoPark Audit.
- 7.12.2 **Cosmos.** The gate of the lot was closed during the site audit. No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.

7.13 December 2011

- 7.13.1 Environmental audits of active tenants and the general EcoPark audit were carried out by the ET on 22 December 2011.
- 7.13.2 **Cosmos.** The gate of the lot was closed during the site audit. No critical environmental deficiencies were observed in this site audit. No follow-up action was required from the previous site audit.

8 COMPLAINTS, NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTIONS

8.1 General

8.1.1 As of end-December 2011, a total three complaints, Nos. 001, 002 and 003 had been received in 2011. All three complaints related to odour nuisance from Champway's lot. The details of these complaints are described below.

8.2 Complaint No. 001

8.2.1 Odour nuisance with "rotten, decayed and/or sour smell" from Champway's lot was received by EPD on 29 April 2011, and the IEC and ET Leader were notified by EPD on 4 May 2011.

8.2.2 A site investigation was carried out by the ET and SGJV on the morning of 5 May 2011 to identify the cause of odour. The odour is believed to be generated from the two newly installed oil/water storage tanks. Another potential source of odour is the oil/water mixture pumping process.

8.2.3 To abate odour, Champway had improved the air collection system, and improvement works were completed on 3 May 2011. To further minimise the odour, Champway would enclose the unwanted dreggy water storage tank and connect the air of the tank to the activated carbon filter. Furthermore, the vent pipe of the tanker will be connected to a flexible pipe and the air from the tanker will be treated by activated carbon.

8.2.4 The performance of Champway's odour abatement system was monitored by the ET in subsequent monthly site audits.

8.3 Complaint Nos. 002 & 003

8.3.1 Odour nuisance with "rotten, decayed smell from grease trap waste" from Champway's lot were again received by the Operator on 9 and 15 June 2011. The ET Leader was informed by the Operator on 10 and 16 June 2011 and the IEC was then notified by the ET Leader on 13 and 17 June 2011.

8.3.2 Site investigations were therefore carried out by the ET and the Operator on 14 and 21 June 2011, respectively to identify the cause of odour. Referring to the second site investigation on 21 June 2011, odour may be caused by leakage of the extraction system. In addition, the key sources of odour identified in the first site investigation were not observed or carried out.

8.3.3 In order to abate odour, Champway was suggested to instruct workers with proper operational procedures, seal the covers of the Oil/Water Mixture Storage Tanks and the Surplus Water with Dregs Storage Tank, switch on the air pollution control system for any activities that can emit odour, store the activated carbon in a dry and weatherproof environment, and not to open the cover of the Oil/Water Mixture Storage Tanks as far as practicable. Champway's would use two more activated carbon filters and one more extraction fan on 5 July 2011.

8.3.4 The Complaint Log of Complaints 001 to 003 is provided in **Appendix 6**.

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 2011, 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 2011. 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. No Action/Limit Level exceedances were recorded in 2011. 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.

9.3.2 There has never been any LFG detected within EcoPark, either during the construction phase, which commenced in 2006, or during the operation to-date. The ET Leader therefore recommends that LFG monitoring is discontinued with immediate effect. However, should EPD alert the Operator that high LFG levels have been detected during monthly monitoring under the Siu Lang Shui Landfill restoration contract, then LFG monitoring shall immediately recommence on a monthly basis until such time as EPD inform the Operator that quarterly monitoring can be resumed.

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

9.4.1 As of end-December 2011, seven tenants (Champway, Shiu Wing, Hung Wai, Li Tong, Yan Oi Tong and St. James' Settlement) had commenced recycling activities in their lots.

9.4.2 The EM&A programme has been fully utilised throughout 2011, which was practical and effective to monitor the operation status of tenants. The mitigation measures proposed in the EIA Study are effective and efficient.

9.4.3 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.

9.4.4 Other than discontinuing LFG monitoring, no improvements to the EM&A programme are recommended.

10 CONCLUSIONS

- 10.1.1 This is the fifth annual EM&A report prepared for the operation phase of EcoPark and covers January to December 2011. 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 eight tenants in EcoPark Phase 1 and Phase 2.
- 10.1.2 As of end-December 2011, seven tenants (Champway, Shiu Wing, Hung Wai, Li Tong, Yan Oi Tong, Telford and St. James' Settlement) have commenced recycling activities within their lots. One tenant (Cosmos) has not commenced recycling activities and it is carrying out preparatory works within its lots.
- 10.1.3 The first batch of Phase 2 lots of was awarded to new tenants in August 2011.
- 10.1.4 Throughout the year, 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.
- 10.1.5 No critical environmental deficiencies were identified at various tenant lots in EcoPark in 2011. The operation of EcoPark in environmental terms is therefore considered to be of an acceptable level.
- 10.1.6 The throughputs during 2011 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 2011

Tenant	Waste Materials	Waste Input (tonnes)	Product Output (tonnes)	Product Output (pieces)	Waste Disposal (tonnes)
Champway ^[Note 1]	Waste Oil	9,492	2,453	-	5,564
Hung Wai ^[Note 2]	Waste Wood	1,610	5,788	-	1,736
Li Tong	WEEE	540	240	-	-
Shiu Wing	Waste Metals	18,069	18,069	-	-
Telford	Waste Plastic	641	229	-	-
Yan Oi Tong	Waste Plastic	1,088	1,012	-	149
St James' Settlement	WEEE	291	135	5,380	18

Notes:

- Output includes biodiesel and glycerine.
- The plant operation has been suspended and stopped receiving wood since October 2011, with a view to modifying the operation modes.

- 10.1.7 LFG monitoring was undertaken on 17 January, 26 April, 19 July and 27 October 2011. No Action/Limit Level exceedances were recorded. 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.

- 10.1.8 Having said that, there has never been any LFG detected within EcoPark, either during the construction stage, which commenced in 2006, or during the operation to-date. The ET Leader therefore recommends that LFG monitoring is discontinued with immediate effect.
- 10.1.9 Three complaints, Nos. 001, 002 and 003, were received on 29 April, 9 June and 15 June 2011, respectively. All were related to odour nuisance from Champway's lot, described as a "rotten, decayed smell from grease trap waste". Remedial measures were quickly undertaken and no further complaints were received.
- 10.1.10 Environmental deficiencies and general observations noted during the monthly site inspections were detailed in **Section 6**. Remedial actions were recommended to tenants where appropriate.
- 10.1.11 The EM&A programme has been fully utilised throughout 2011, 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 Other than discontinuing LFG monitoring, 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	
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	

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
	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	
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. 			

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
		<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	
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

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 (EP-226/2005/A) (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 hereinbelow).
- 9.6 The Tenant shall fully indemnify the Government and/or the Director for any fees, costs, damages, expenses, fines, penalties, losses and claims arising (a) out of any breach of any of the matters mentioned in inter alia Conditions 9.1 to 9.4 hereinabove (and other Conditions hereinbelow) or (b) from the use of the Premises or (c) out of any works carried out at any time during the term to or at the Premises or (d) out of anything now or during the term attached to or projecting from the Premises or (e) from any neglect or default by the Tenant or by its respective servants or agents or by any express licensee of the Tenant.

SPECIFIC ENVIRONMENTAL RESPONSIBILITIES

Air Pollution

10. Save with an appropriate exemption under the Air Pollution Control Ordinance (Cap. 311 of the Laws of Hong Kong) any regulations made thereunder and any amending legislation, the Tenant shall not install or permit or suffer to be installed upon the Premises or any part thereof or any building(s) or structure(s) or part of any building(s) or structure(s) erected or to be erected thereon any furnace, oven, chimney or flue or any other combustion equipment or use or permit or suffer to be used any fuel or any method or process of manufacture or treatment that might in any circumstance result in, cause or contribute to the discharge or emission of any pollutant or any noxious, harmful or corrosive matter, whether it be in the form of gas, smoke, liquid, solid or otherwise (including but not limited to air pollutant as defined in Section 2 of the Air Pollution Control Ordinance (Cap. 311 of the Laws of Hong Kong)), which exists or which is imminent, without the prior written approval of the Director.
11. No alteration to the installation and method of manufacture shall be made without the prior written consent of the Director. In any event, the Tenant shall at its own cost(s) comply with, inter alia, Conditions 4.2 to 4.7 and Annex A of the Environmental Permit No. EP-226/2005 as amended by the Variation of Environmental Permit (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 3

Material and Waste Throughputs

A3.1 CHAMPWAY TECHNOLOGY LIMITED (EP07-03)

Date	Waste Input (tonnes)			Product Output (tonnes)			Waste Disposal (tonnes)			
	Cooking Oil	Grease Trap Waste	Total	Biodiesel	Glycerine	Total	Inorganic Waste	Organic Waste	Water Waste [Note 1]	Total
Oct-Dec 08	130	-	130	-	-	-	-	-	-	-
Jan-Dec 09	1,277	726	2,003	-	-	1,863	-	100	40	140
Jan-Dec 10	1,347	1,147	2,494	1,922	84	4,254	96	143	98	337
Jan-11	106	117	223	157	5	353	4	16	15	36
Feb-11	105	145	250	110	3	162	8	47	97	151
Mar-11	107	504	611	211	6	113	8	110	211	329
Apr-11	97	725	822	185	6	218	12	259	314	584
May-11	101	1,181	1,282	261	8	190	8	205	587	800
Jun-11	113	1,189	1,302	176	5	268	12	189	633	833
Jul-11	143	1,004	1,147	291	9	181	8	187	507	702
Aug-11	133	831	964	208	6	300	10	153	412	574
Sep-11	133	874	1,007	237	7	214	12	138	449	599
Oct-11	132	700	832	124	4	128	4	137	320	461
Nov-11	123	91	213	112	3	116	4	20	62	86
Dec-11	115	722	838	309	9	319	22	95	346	462

Notes:

1. The plant operation commenced since October 2008.
2. Water waste includes slurry and semi-solid waste and is disposed of at landfill.

A3.2 SHIU WING STEEL LIMITED (EP08-03)

Date	Waste Input (tonnes)	Product Output (tonnes)			Waste Disposal (tonnes)
	Waste Metal/Steel Scrap/ Construction Waste	Light Ferrous Scrap (Baled)	Heavy Ferrous Scrap (Sheared)	Total	Non-ferrous Scrap / General Refuse
Apr-Dec 10	4,562	-	4,562	4,562	-
Jan-11	1,403	-	1,403	1,403	-
Feb-11	649	-	649	649	-
Mar-11	935	-	935	935	-
Apr-11	721	-	721	721	-
May-11	1,641	-	1,641	1,641	-
Jun-11	2,564	-	2,564	2,564	-
Jul-11	1,949	-	1,949	1,949	-
Aug-11	1,033	-	1,033	1,033	-
Sep-11	1,001	-	1,001	1,001	-
Oct-11	1,692	-	1,692	1,692	-
Nov-11	2,310	-	2,310	2,310	-
Dec-11	2,171	-	2,171	2,171	-

Notes:

1. Plant operation commenced since April 2010.

A3.3 HONG KONG HUNG WAI WOODEN BOARD COMPANY (EP06-034)

Date	Waste Input (tonnes)	Product Output (tonnes)	Waste Disposal (tonnes)
	Waste Wood	Wooden Board	General Refuse
Jun-Dec 08	38	-	-
Jan-Dec 09	0.1	-	-
Jan-Dec 10	4,492	1,072	-
Jan-11	220	849	-
Feb-11	106	450	-
Mar-11	182	1,398	-
Apr-11	196	396	-
May-11	176	699	-
Jun-11	151	736	-
Jul-11	102	-	-
Aug-11	114	660	-
Sep-11	343	-	-
Oct-11	20	600	-
Nov-11	-	-	-
Dec-11	-	-	-

Note:

1. The plant operation commenced since June 2008.
2. Amount of waste input materials is based on rough estimation.

A3.4 LI TONG GROUP (EP07-02)

Date	Waste Input (tonnes)	Product Output (tonnes)			Waste Disposal (tonnes)
	WEEE	Metals (e.g. ferrous metals, aluminium)	Non-metals (e.g. fibres, plastics)	Total	General Refuse
Sep-Dec 10	85	10	34	44	-
Jan-11	36	2	6	8	-
Feb-11	21	2	6	7	-
Mar-11	33	9	2	11	-
Apr-11	38	11	6	16	-
May-11	39	-	18	18	-
Jun-11	37	6	18	24	-
Jul-11	31	9	30	39	-
Aug-11	50	8	28	36	-
Sep-11	53	2	35	37	-
Oct-11	65	4	11	14	-
Nov-11	72	-	10	10	-
Dec-11	70	8	11	19	-

Note:

1. The plant operation commenced since September 2010.

A3.5 HONG KONG TELFORD ENVIROTECH GROUP LIMITED (EP08-01)

Date	Waste Input (tonnes)	Product Output (tonnes)	Waste Disposal (tonnes)
	Waste Plastic	PO, PE, PET, PWC	General Refuse
Jul-Dec 09	20	-	-
Jan-Dec 10	124	-	-
Jan-11	30	5	-
Feb-11	8	-	-
Mar-11	24	10	-
Apr-11	34	56	-
May-11	93	43	-
Jun-11	99	35	-
Jul-11	57	63	-
Aug-11	26	17	-
Sep-11	46	-	-
Oct-11	70	-	-
Nov-11	62	-	-
Dec-11	92	-	-

Note:

1. Formal recycling activities commenced since November 2011.

A3.6 YOT EcoPark Plastic Resources Recycling Centre (P7)

Date	Waste Input (tonnes)	Product Output (tonnes)	Waste Disposal (tonnes)
	Waste Plastic	Processed Plastic	General Refuse
Apr-Dec 10	615	417	111
Jan-11	99	67	14
Feb-11	59	53	12
Mar-11	60	78	16
Apr-11	92	69	22
May-11	86	87	18
Jun-11	90	94	15
Jul-11	99	75	12
Aug-11	116	79	7
Sep-11	78	85	5
Oct-11	96	98	6
Nov-11	105	114	8
Dec-11	114	111	14

Note:

1. The plant operation commenced since April 2010.

A3.7 ST. JAMES' SETTLEMENT (P5)

Date	Waste Input (tonnes)	Product Output (tonnes)					Waste Disposal (tonnes)		
	WEEE	Repaired / Refurbished EEE (pieces) ^[Note 1]	Reusable Parts	Metals (e.g. ferrous metals, aluminium)	Non-metals (e.g. fibres, plastics)	Total	General Refuse	Chemical Waste	Total
Oct-Dec 10	52	1,021	-	-	0.5	1,021 pieces + 0.5 tonnes	1.9	0.2	2.2
Jan-11	27	344	-	17	7.2	344 pieces + 23.2 tonnes	1.0	0.6	1.6
Feb-11	19	323	-	-	0.1	323 pieces + 0.1 tonnes	0.5	-	0.5
Mar-11	36	419	-	-	0.8	419 pieces + 0.8 tonnes	1.3	0.2	1.5
Apr-11	16	310	-	9	0.1	310 pieces + 9.1 tonnes	0.7	0.6	1.3
May-11	14	329	-	-	12.2	329 pieces + 12.2 tonnes	1.0	-	1.0
Jun-11	29	590	-	21	0.1	590 pieces + 21.1 tonnes	1.6	-	1.6
Jul-11	26	486	-	-	4.5	486 pieces + 4.5 tonnes	0.7	0.6	1.3
Aug-11	30	558	-	12	0.4	558 pieces + 12.4 tonnes	1.7	-	1.7
Sep-11	27	294	-	3	7.4	294 pieces + 10.4 tonnes	-	-	-
Oct-11	17	289	-	13	2.7	289 pieces + 15.7 tonnes	6.6		6.6
Nov-11	28	690	-	8	3.2	690 pieces + 11.2 tonnes	0.4	0.1	0.5
Dec-11	21	748	-	11	1.8	748 pieces + 12.8 tonnes	0.5	-	0.5

Note:

1. The plant operation commenced since October 2010.

APPENDIX 4

Calibration Certificate of Infrared Gas Analyser

FUGRO TECHNICAL SERVICES LIMITED

MaterialLab Division,
 Fugro Development Centre,
 5 Lok Yi Street, 17 M.S. Castle Peak Road,
 Tai Lam, Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
 Fax : +852-2450 6138
 E-mail : matlab@fugro.com.hk
 Website : www.materiallab.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 : 29/12/2010

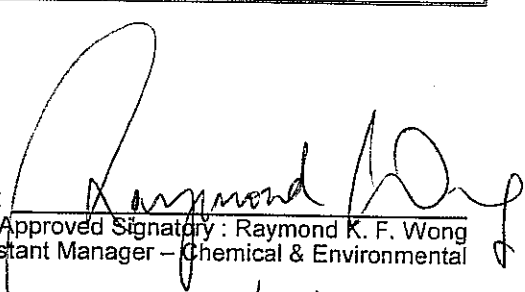
Next calibration date : 29/06/2011

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)	15.1	14.9	-0.2
Oxygen (O ₂)	1.03	1.2	-0.17

Calibrated by : C. F. Leung

Certified by : 
 Approved Signatory : Raymond K. F. Wong
 Assistant Manager – Chemical & Environmental

Date : 29/12/2010

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

FUGRO TECHNICAL SERVICES LIMITED

MaterialLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materiallab.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 : 23/06/2011

Next calibration date : 23/12/2011

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)	15.1	15.1	0.0
Oxygen (O ₂)	1.03	0.9	-0.13

Calibrated by : C. F. Leung

Certified by : Raymond K. F. Wong

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

Date

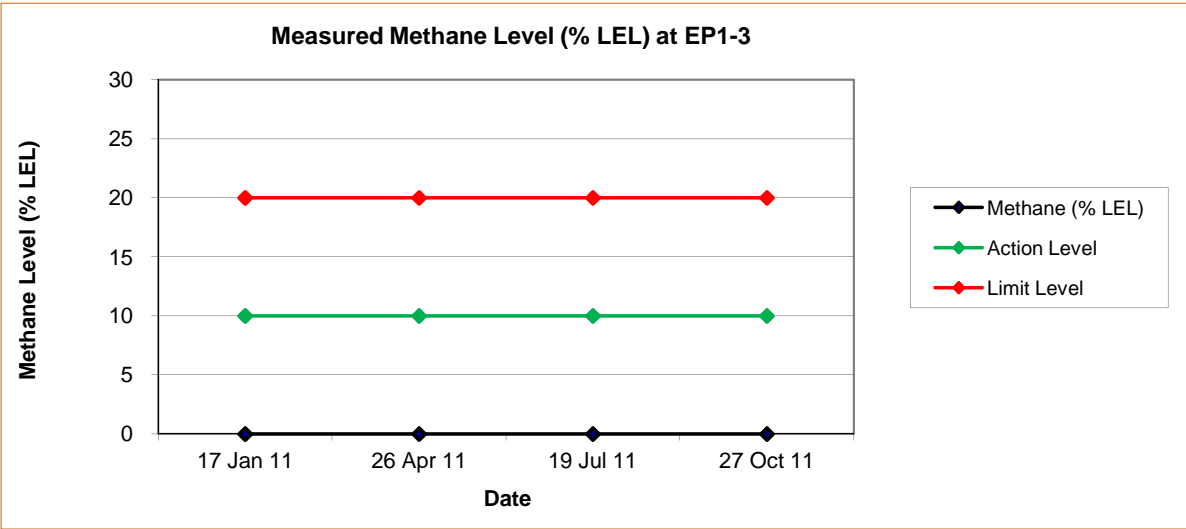
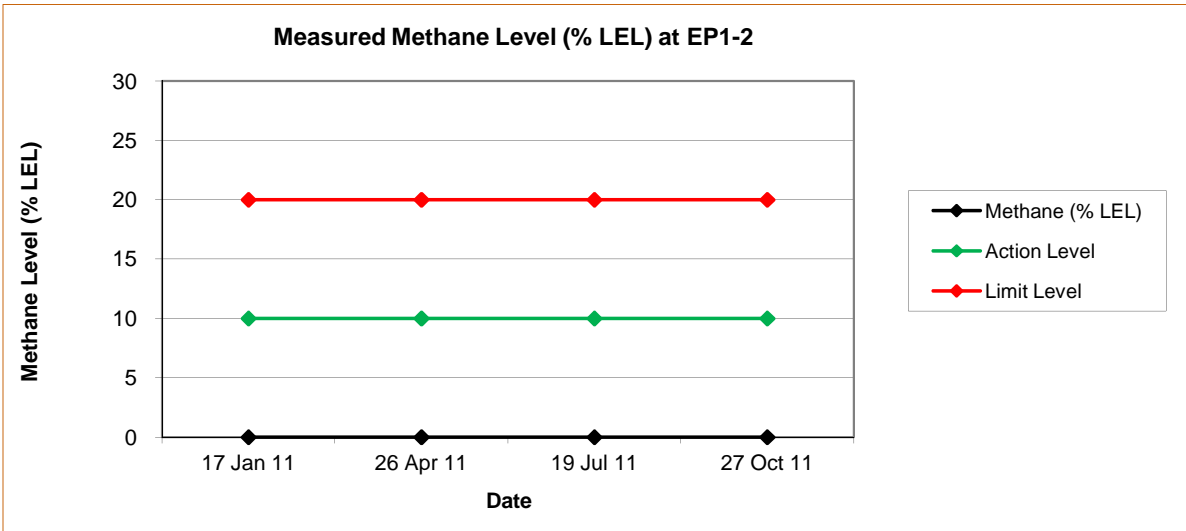
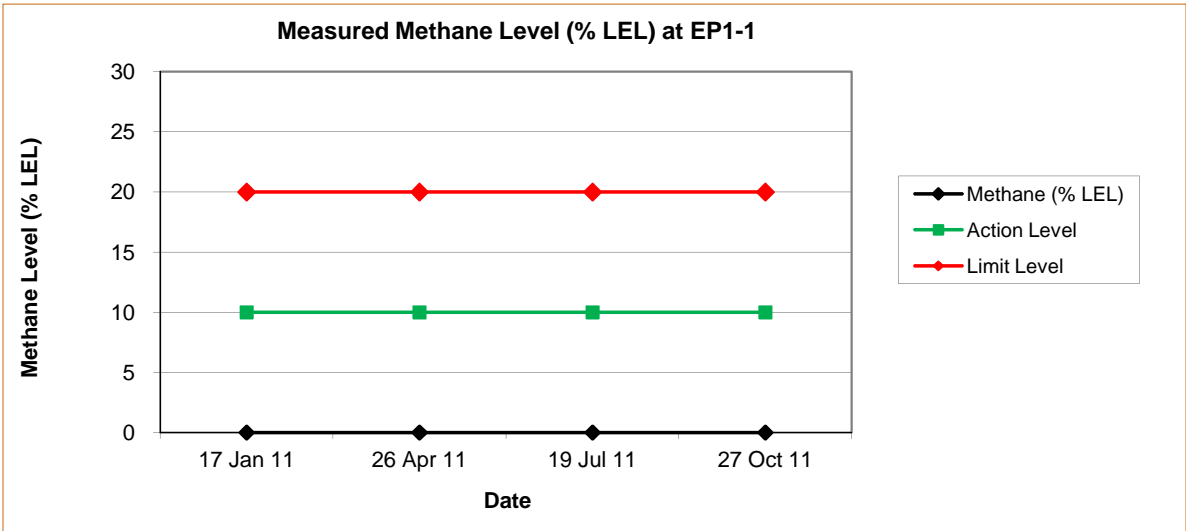
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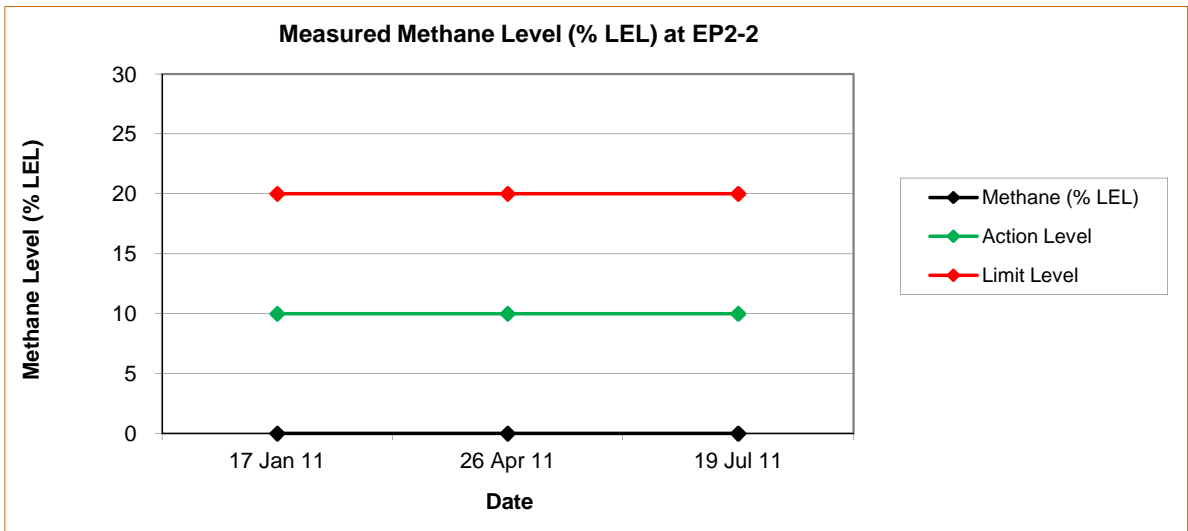
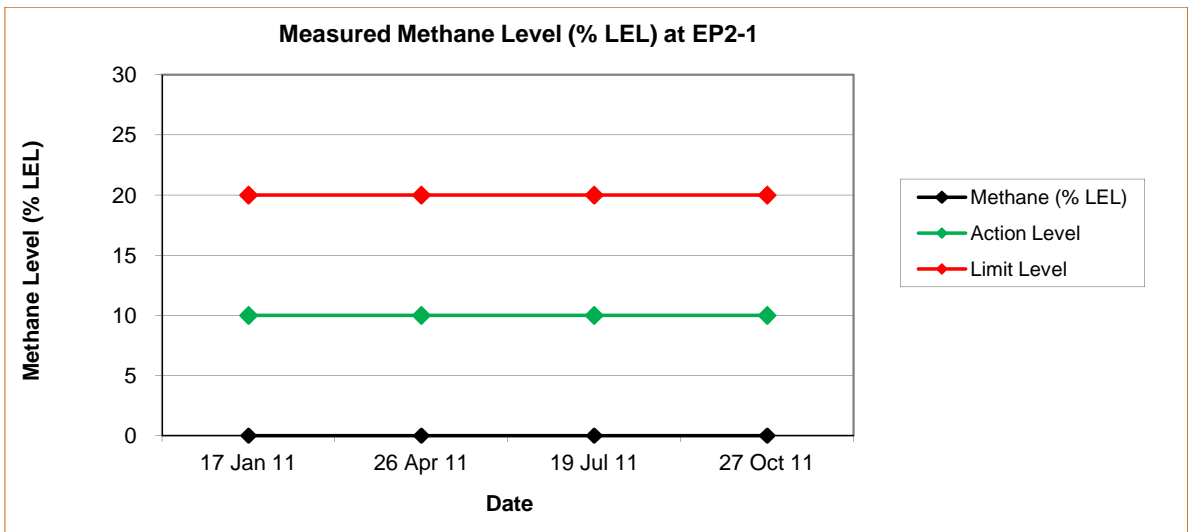
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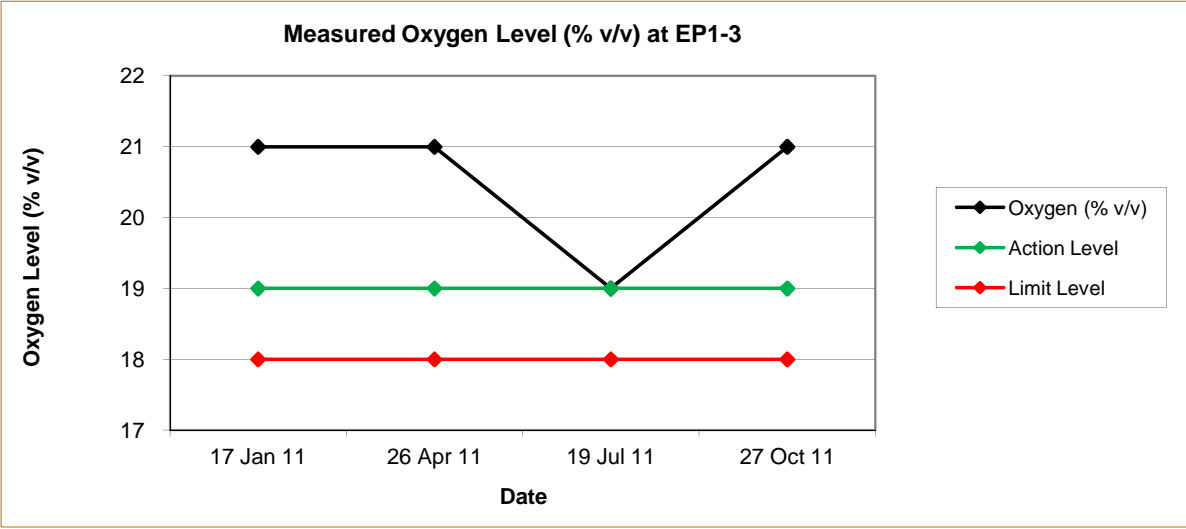
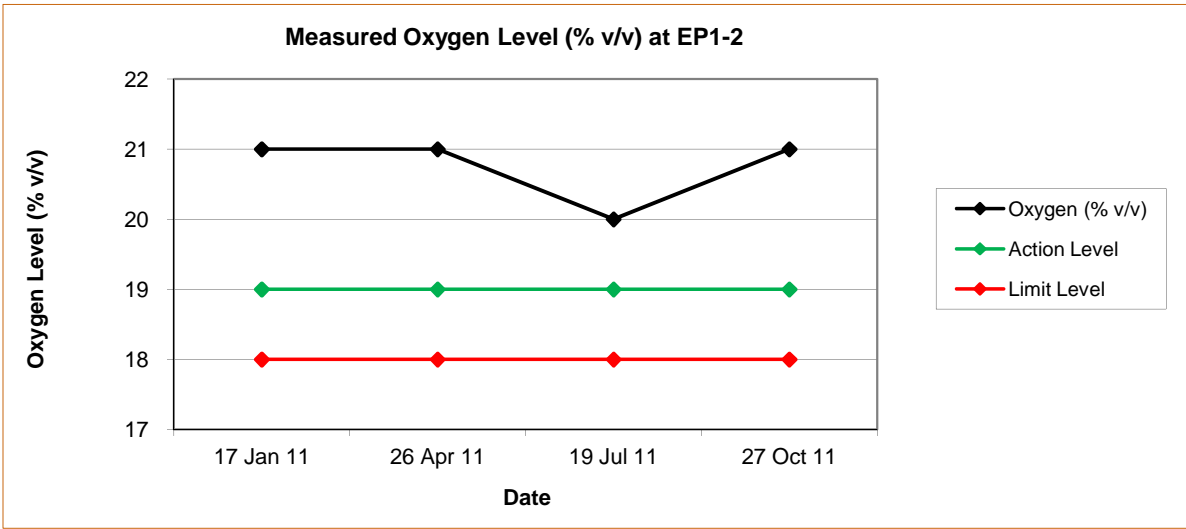
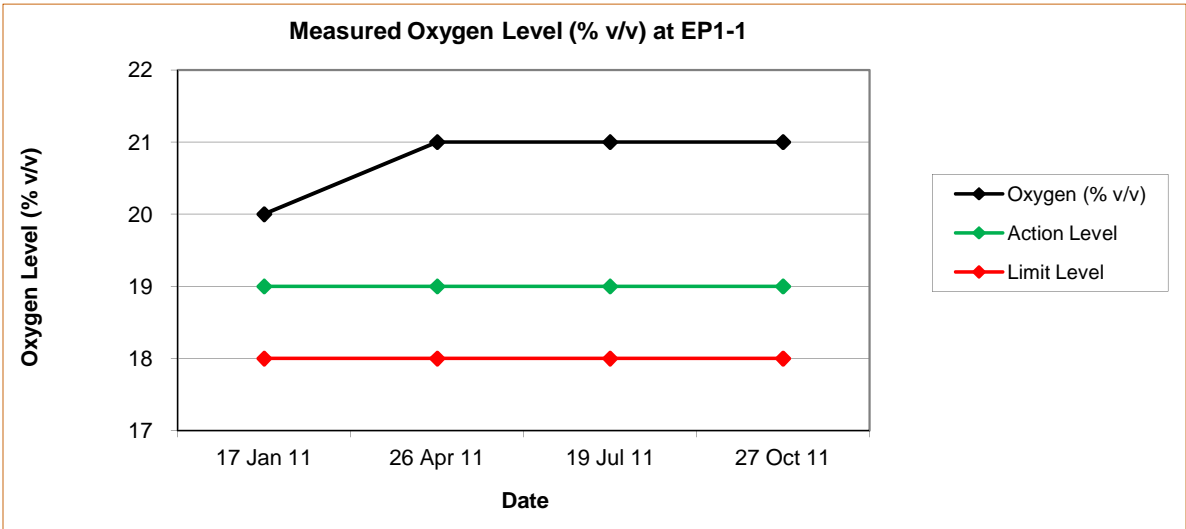
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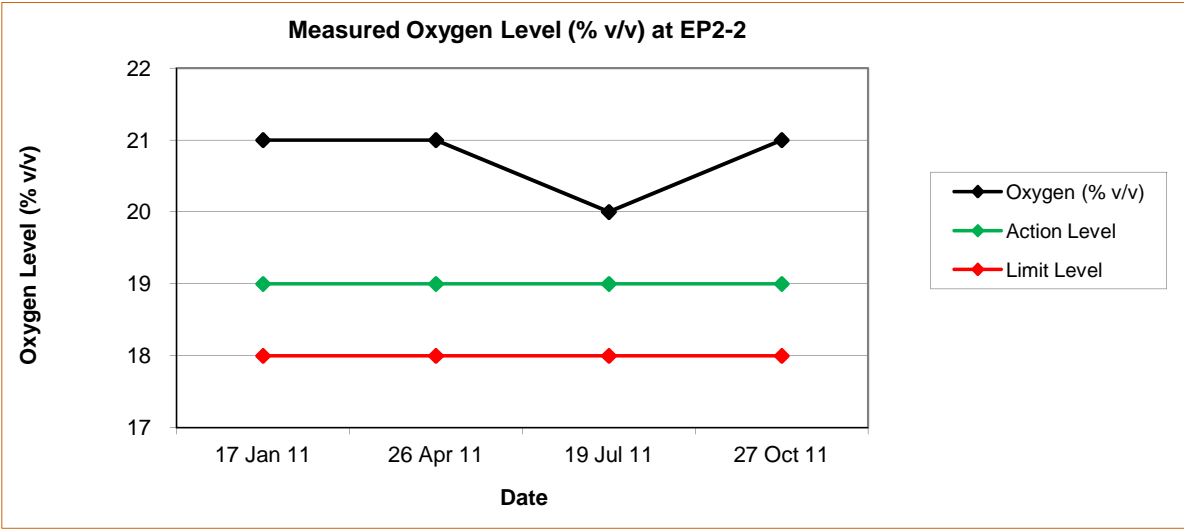
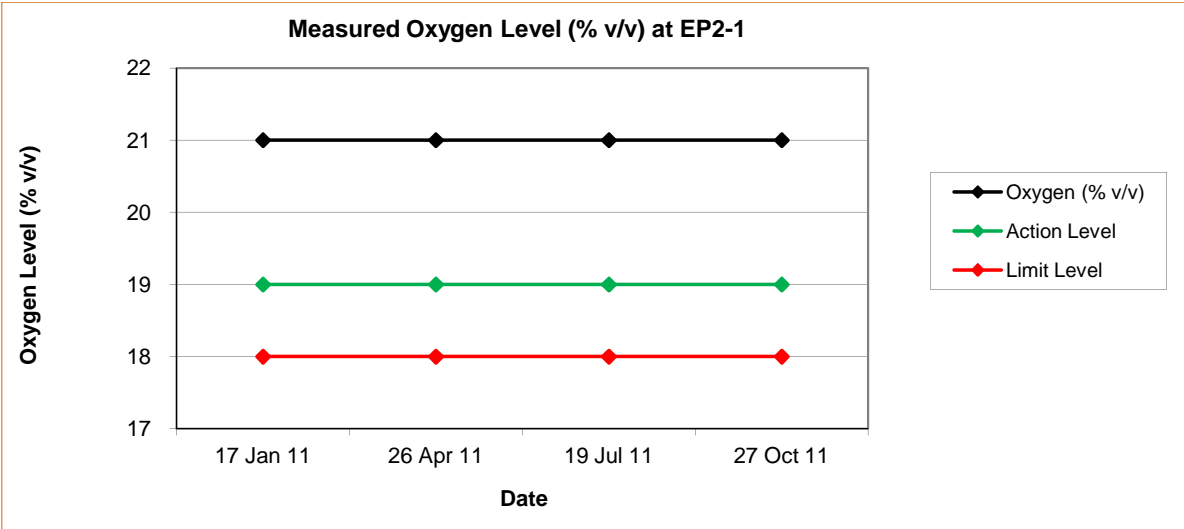
APPENDIX 5

Graphical Plots of LFG Monitoring

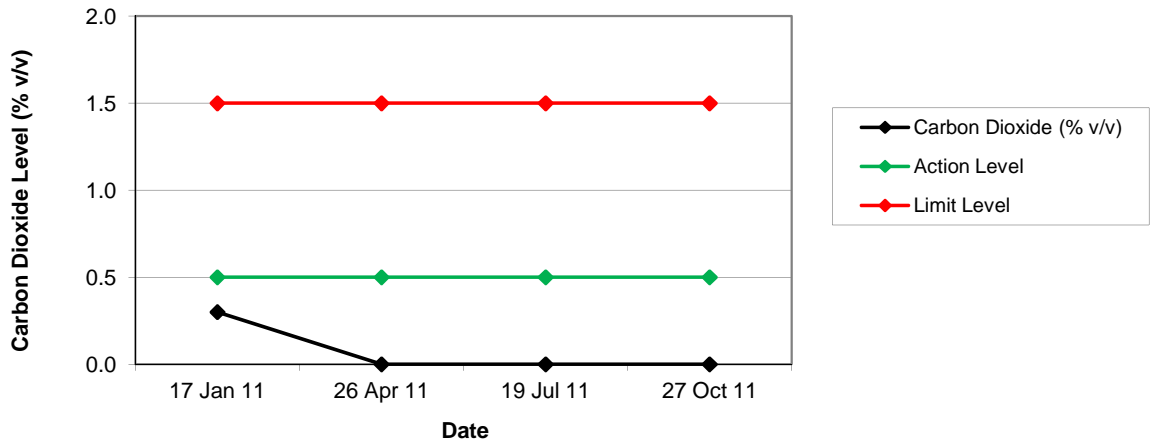




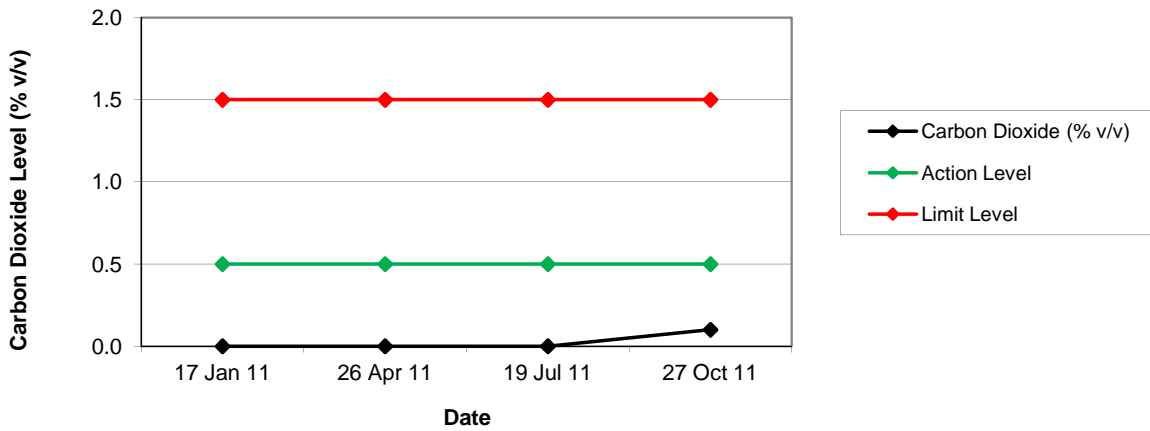




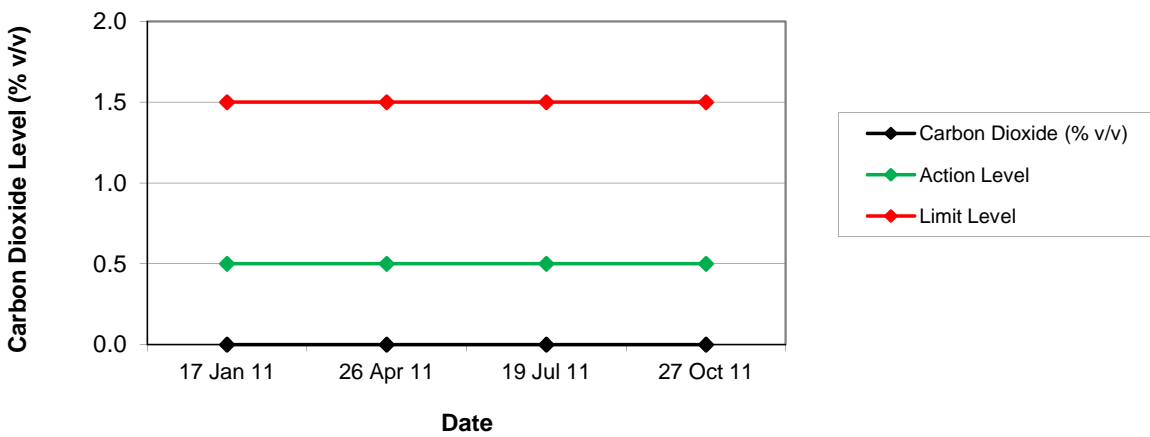
Measured Carbon Dioxide Level (% v/v) at EP1-1



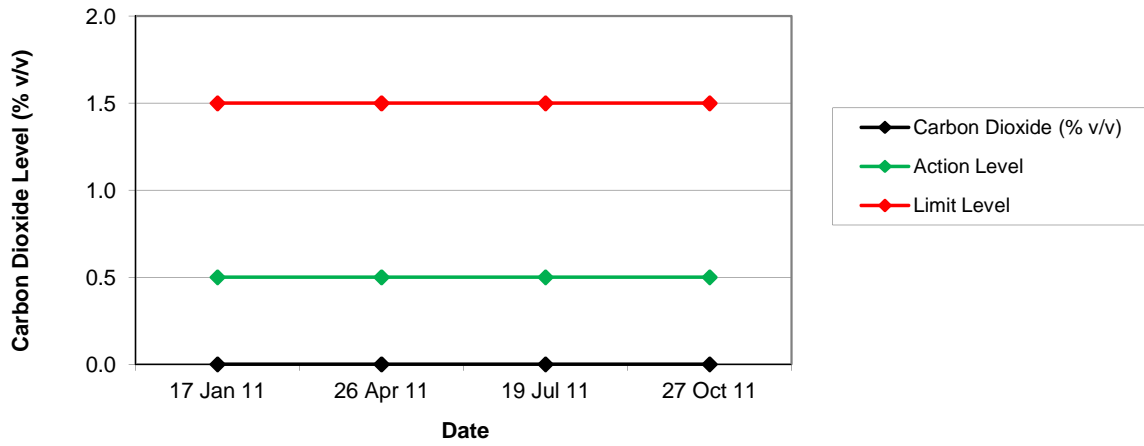
Measured Carbon Dioxide Level (% v/v) at EP1-2



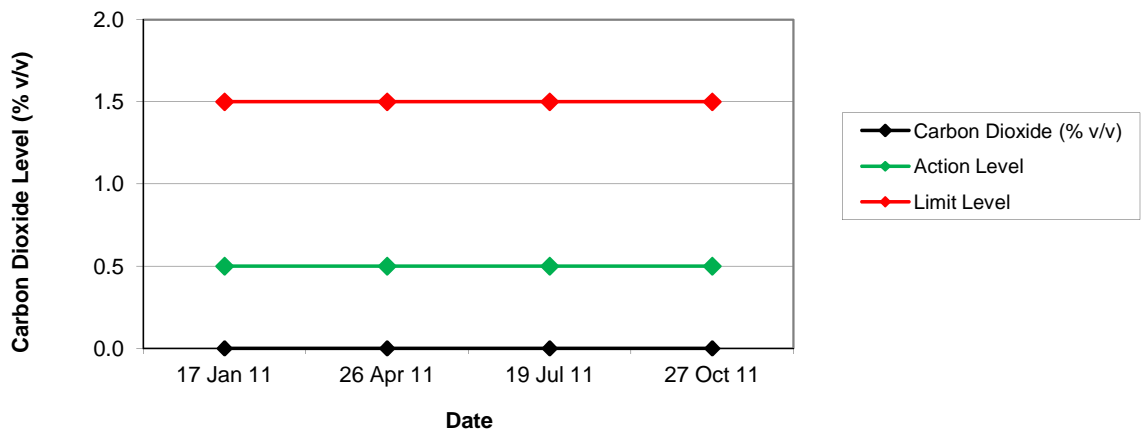
Measured Carbon Dioxide Level (% v/v) at EP1-3



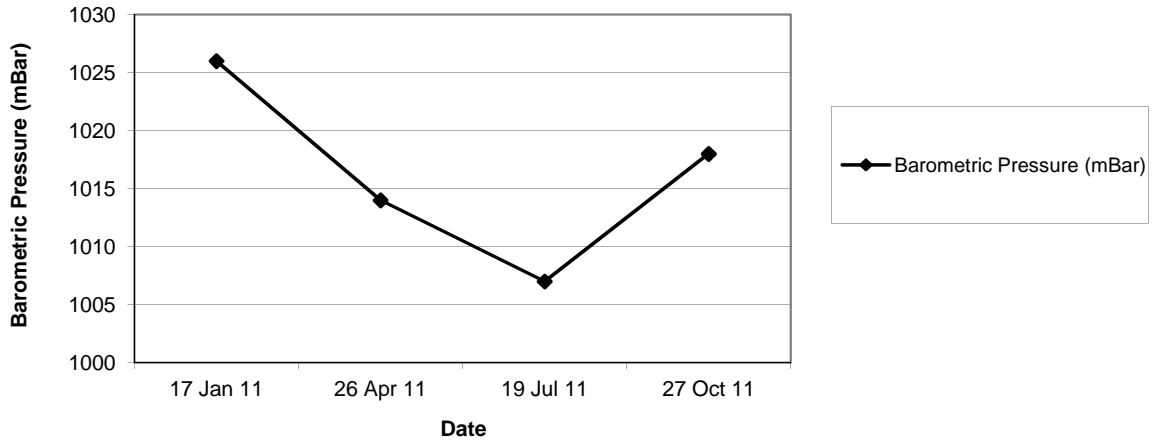
Measured Carbon Dioxide Level (% v/v) at EP2-1



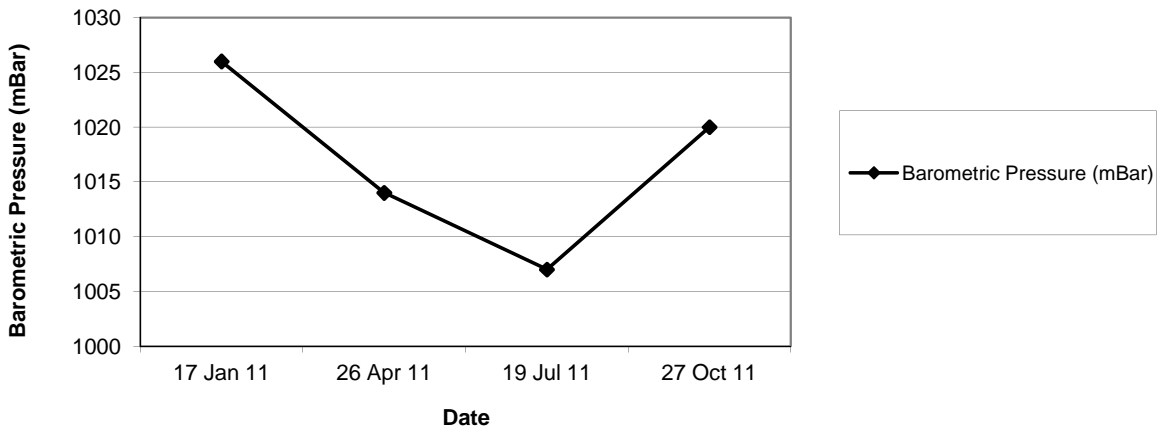
Measured Carbon Dioxide Level (% v/v) at EP2-2



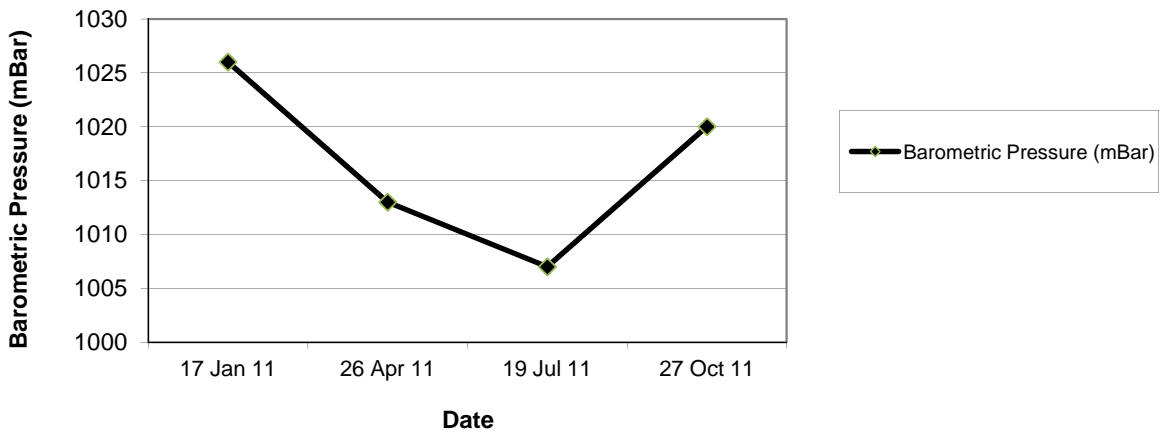
Measured Barometric Pressure (mBar) at EP1-1



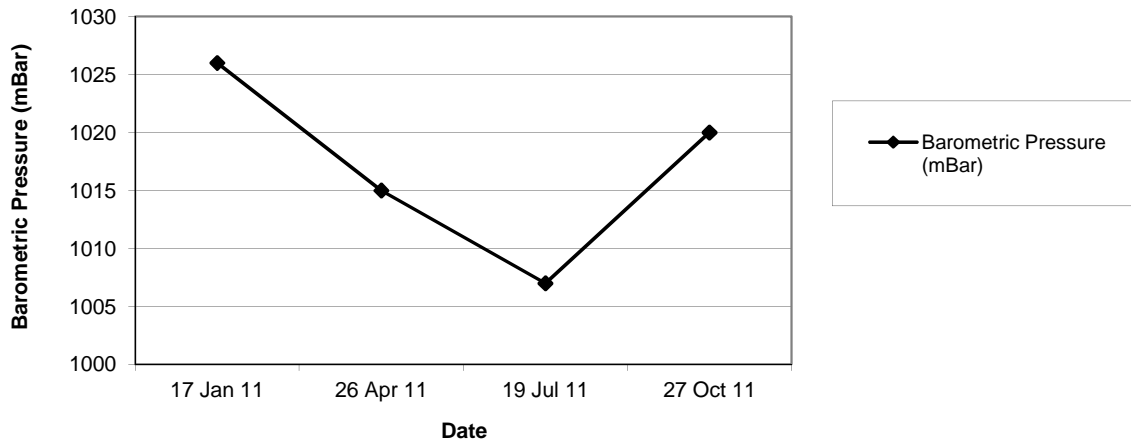
Measured Barometric Pressure (mBar) at EP1-2



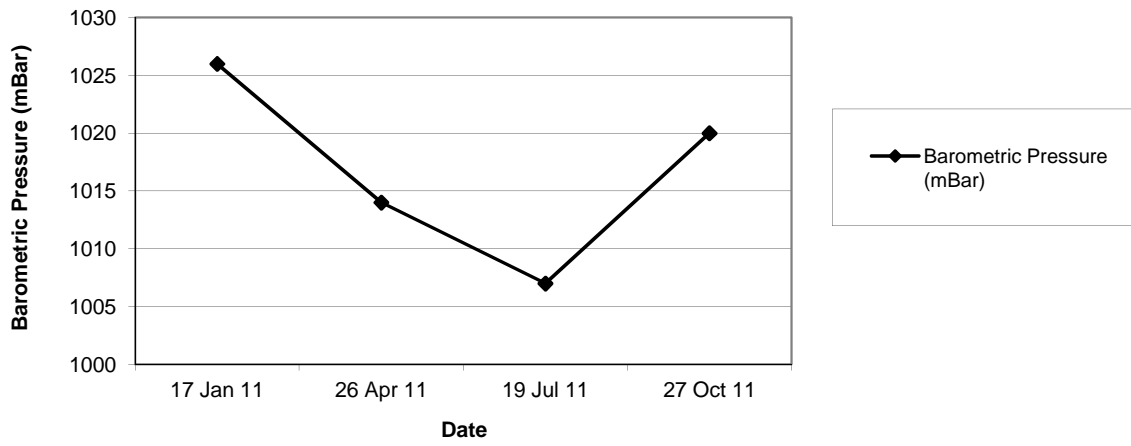
Measured Barometric Pressure (mBar) at EP1-3



Measured Barometric Pressure (mBar) at EP2-1



Measured Barometric Pressure (mBar) at EP2-2



APPENDIX 6

Complaint Log

Summary

Report No.	001	Previous Related Reports	NA
Tenant Concerned	Champway Technology Ltd.		
Lot No.	EP07-03		
Type of Incident	Odour Complaint		
Incident Occurred	Date unknown	Time	unknown
Complaint Received	Date 29 April 2011	Time	11:26am
ET Advised on	Date 4 May 2011		
ET Action on	Date 5 May 2011		

Details

Incident

The Regional Office (West) of EPD (RO/EPD) received a complaint from a Mr HO about an odour nuisance with rotten, decayed and/or sour smell (酸餿氣味) from Champway. The IEC and ET Leader were notified about the complaint by Mr Allan LEUNG of RO/EPD via email on 4 May 2011. The ET Leader then notified RO/EPD, SGJV (the Management Office of EcoPark) and the IEC that the complaint was noted and a site investigation would be arranged at ~9:30am on 5 May 2011 to find out the cause of odour via email on 4 May 2011. The ET Leader’s email on 4 May 2011 is enclosed for reference.

Investigation

A site investigation to the odour complaint was conducted by Ms Noel AU of SGJV and Mr Antony WONG/Ms Carman CHUNG of the ET between 9:30am and 11:30am on 5 May 2011. Interviews with Mr Teddy CHOI/Mr HO Chi Cheong of Champway and Mr Kwok Hin SO of Li Tong Group (Li Tong) which is the nearest air sensitive receiver to Champway were made by SGJV and the ET. The findings of the site investigation are summarised below:

1. Two new tanks are constructed for storing Lipofit Grade B (*the recovered oil and fat fraction from grease trap waste*) (~45 to 90% oil and grease content as per EPD’s website) delivered from the Grease Trap Waste Treatment Facility (GTWTF) of West Kowloon Refuse Transfer Station. After treating the oil/water mixture, the unwanted water with dregs is then pumped into another new storage tank next to the two oil/water storage tanks. The wastewater will be collected by tankers and delivered back to GTWTF. The tanks are shown in **Photo 1**.
2. As advised by Champway, air from the two oil/water storage tanks was collected and treated by activated carbon but the two oil/water storage tanks were not previously provided with complete enclosures. Also, the air from the tanks was collected by PVC pipes to the activated carbon for filtering and the PVC pipes were damaged due to high temperature. In order to abate odour nuisance, Champway further improved the system by providing more complete enclosures and replace the PVC pipes by galvanized steel pipes, and the improvement works have just been completed on 3 May 2011.
3. Since the improvement works of the air collection system was being constructed in April, the odour nuisance is believed to occur before completion of the improvement works.
4. As further advised by Li Tong, unpleasant odour was firstly noted after Lunar New Year in February 2011 but then the odour issue had been improved. No significant odour, however, was noted by Li Tong in the last week of April 2011.

Details (continued)

Investigation (continued)

5. The ET inspected the oil/water mixture pumping process at ~11:15am Champway (*Photo 2* refers). No odour was noted during the transference of Lipofit. However, the vent pipe of the tanker was blocked after transference and purging was required. While some odour was noted at ~1 to 2m from the tanker during the purging process, no odour was noted at marine frontage and at Li Tong’s lot as confirmed with Li Tong afterwards.
6. The two oil /water storage tanks were found to be enclosed and the air was collected to the activated carbon filter for treatment (*Photo 3* refers). The storage tank for the unwanted water with dregs was open but no odour was noted even at ~1m away from the opening of the tank (*Photo 4* refers).

Actions Taken / To Be Taken

In order to further abate odour, Champway advised that they would enclose the unwanted water storage tank and connect the air to the activated carbon filter. In addition, the vent pipe of a tanker will be connected with a flexible pipe and the air from the tanker will be further treated by the activated carbon filter. It is expected that odour should be further minimised.

The performance of the odour abatement system provided by Champway will be monitored by the ET in subsequent monthly site audits.

Remarks

Li Tong advised that the situation had continually improved between February and the date of site investigation, and Li Tong were satisfied with the implemented odour mitigation measures.

Photo Record

Photo 1 The Recently Installed Storage Tanks



Lipofit/Water Mixture Storage Tanks

Unwanted Water with Dregs Storage Tank

Photo 2 Transference of Oil/Water Mixture from Tanker to Oil/Water Mixture Storage Tanks



Photo Record (continued)

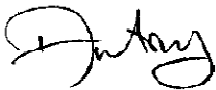

Photo 3 Control Valves of the Air Extraction System Installed at the Oil/Water Storage Tanks



Photo 4 Top View of the Storage Tank for Unwanted Water With Dregs



Sign-off

	ET	IEC
Organisation	SMEC Asia Ltd	Atkins China Ltd
Signed By	Antony WONG	Sharifah OR
Role	ET Leader	IEC
Signature		
Date	6 May 2011	11 May 2011

Appendix 1 ET Leader’s Email to RO/EPD on 4 May 2011

From: Wong, Antony
Sent: Wednesday, May 04, 2011 12:45 PM
To: 'dennisleung@epd.gov.hk'
Cc: Chung, Carman; Bhanja, Alexi; Sharifah Or (Atkins); Keith Chau (Atkins); Morgan Chiu (SGJV); Noel Au (SGJV); May Wu (SGJV); Michael Chan (SGJV); 'samuel_hk_chui@epd.gov.hk'; 'slleung@epd.gov.hk'
Subject: J494A: Odour nuisance complaint for Champway

Dear Dennis,

As spoken, the complaint was received at ~11:26am on 29 Apr 2011 (last Friday) about odour with rotten, decayed and/or sour smell (酸餿氣味) from Champway. Actually we had inspected Champway on 20 April 2011 and we will further inspect Champway tomorrow (5 May 2011) morning at ~9:30am to discuss with Champway’s representative to find out the cause of the odour.

Please feel free to contact me on 3995 8120 should there be any queries.

Kind regards,

Antony Wong | Principal Environmental Consultant
SMEC Asia Limited
27/F Ford Glory Plaza,
37-39 Wing Hong Street, Cheung Sha Wan,
Kowloon, Hong Kong

T +852-3995-8100 | F +852-3995-8101 | D +852-3995-8120 | M +852-6779-2613 | **Skype** antony.SMEC
antony.wong@smec.com | www.smec.com

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-----Original Message-----

From: slleung@epd.gov.hk [mailto:slleung@epd.gov.hk]
Sent: Wednesday, May 04, 2011 11:18 AM
To: Wong, Antony; sharifah.or@atkinsglobal.com
Cc: samuel_hk_chui@epd.gov.hk; dennisleung@epd.gov.hk
Subject: Odour nuisance complaint

Dear Mr. Antony WONG, Environmental Team Leader & Ms. Sharifah OR,
Independent Environmental Checker

EPD received a complaint from Mr. HO against odour nuisance caused by Champway Technology Ltd. While appropriate action is being taken by EPD, I refer this case to you for investigation and follow-up action.

Should you require further information, you can contact our Mr. Dennis Leung at tel. no. 2417 6063.

Regards

Mr. Allan S.L. Leung
Environmental Protection Department
Environmental Compliance Division, Regional Office (West)
7/F., Tsuen Wan Government Offices, 38 Sai Lau Kok Road, Tsuen Wan, N.T.
Tel No. 2417 6138
E-mail: slleung@epd.gov.hk

Summary

Report No.	002	Previous Related Reports	001
Tenant Concerned	Champway Technology Ltd.		
Lot No.	EP07-03		
Type of Incident	Odour Complaint		
Incident Occurred	Date Since September 2010	Time	Throughout the day
Complaint Received	Date 9 June 2011	Time	4:44pm
ET Advised on	Date 10 June 2011		
ET Action on	Date 14 June 2011		

Details

Incident SGJV (the Management Office of EcoPark) received a complaint from Mr Michael KAY, the General Manager of ECO Aviation Fuel Services Ltd. (ECO) about an odour nuisance from Champway. The ET Leader was notified about the complaint by Ms Noel AU of SGJV via email on 10 June 2011. The ET Leader then notified WRG/EPD, SGJV and the IEC via email on 13 June 2011 that the complaint was noted and a site investigation would be arranged at ~10am on 14 June 2011 to find out the cause of odour. The ET Leader’s email on 13 June 2011 is enclosed in **Appendix 1** for reference.

Investigation A site investigation for the odour complaint was conducted by Ms Noel AU of SGJV and Ms Carman CHUNG/Ms Lily LIU of the ET between 10am and noon on 14 June 2011. Telephone interviews with Mr Chris TAM of ECO and Mr Kwok Hin SO of Li Tong Group (Li Tong, the nearest air sensitive receiver to Champway), as well as interviews with Mr Teddy CHOI/Mr WONG Tsz Kit/Mr Kenji WONG of Champway were carried out by SGJV and the ET. The findings of the site investigation are summarised below:

1. As described by Mr TAM of ECO, the odour nuisance noted at their site was similar to the rotten, decayed smell from grease trap waste. The odour became stronger in the last 2 months, particularly on Thursday and Friday, and it could last from 7am to 10pm. He questioned if such smell would affect the health of their staff, such as the upper respiratory system.
2. During the site investigation, the ET noted strong odour with rotten, decayed smell throughout the majority of Champway’s lot, especially near the Oil/Water Mixture Storage Tanks and the Surplus Water with Dregs Storage Tank.
3. Steam was observed to be emitted from gaps of the cover of the Surplus Water with Dregs Storage Tank (**Photo 1** refers). Such emission was considered as one of the key sources of odour.
4. Cleaning or transfer of oil from the Oil/Water Mixture Storage Tanks to the oil separators (**Photo 2** refers) was performed during the site investigation. One of the covers of the tanks was completely opened whilst this process took place, which was another key source of odour.
5. As advised by Champway, only one of the five activated carbon filters was in use, and the replacement of activated carbon was undertaken weekly.

Actions Taken / To Be Taken Since the odour nuisance was likely to be caused by improper working practice, Champway advised that correction actions such as instructing the workers to operate the air pollution control system prior to manufacturing have been taken. Notwithstanding, in order to control the odour emission, the followings should be provided to the ET / implemented:

Details (continued)

Actions Taken / To Be Taken (continued)

1. **Schematic Flow Diagram and Operational Procedures:** drawings and documents that describe the procedures of manufacturing biodiesel, operation of air pollution control system, as well as collection, storage and disposal of waste cooking oil / biodiesel should be provided to the ET for reference and review. Such guidelines should also be distributed to workers so that they are familiar with the proper operational practice.
2. **Sealing the cover of tanks:** the covers of Oil/Water Mixture Storage Tanks and Surplus Water with Dregs Storage Tank should be sealed as far as practicable to minimize the gaps.
3. **Use of air pollution control system:** the system must be in use for any activities which can cause odour emission, including oil and surplus water transfer and biodiesel manufacturing.
4. **Tank cleaning and oil transfer within the site:** the oil is manually transferred from the Oil/Water Mixture Storage Tanks after settling for about one day and visual inspection is required. Since emission from the opened covers is one of the key sources of odour, Champway should consider not to open the cover when cleaning the tanks or transferring the oil as far as practicable. Alternatively, more extraction fans could be switched on to create a negative pressure so as to minimise the odour emission from the opening.
5. **Storage of activated carbon:** the activated carbon should be stored in a dry and weatherproof environment so that its removal efficiency could be optimised.

The ET will follow-up the implementation of the above mitigation measures in the Monthly Site Audit on 21 June 2011.

Remarks

Mr. SO of Li Tong advised that odour nuisance with rotten, decayed and/or sour smell (酸餿氣味) from Champway was noted recently. The odour was relatively stronger during non-working hours.

Photo Record

Photo 1 Steam emitted from gaps of the cover of the Surplus Water with Dregs Storage Tank

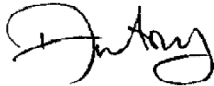



Photo Record

Photo 2 Cleaning or Transference of oil at the Oil/Water Mixture Storage Tanks



Sign-off

	ET	IEC
Organisation	SMEC Asia Ltd	Atkins China Ltd
Signed By	Antony WONG	Sharifah OR
Role	ET Leader	IEC
Signature		
Date	17 June 2011	17 June 2011

Appendix 1 **ET Leader’s Email to WRG/EPD, SGJV and the IEC on 13 June 2011**

From: Wong, Antony
Sent: Monday, June 13, 2011 9:48 PM
To: Or, Sharifah
Cc: Chau, Keith; Chung, Carman; Bhanja, Alexi; Noel Au; 'Morgan Chiu (SGJV)'; 'May Wu (SGJV)'; 'Michael Chan (SGJV)'; samchoi@epd.gov.hk; Liu, Lily
Subject: Odour Complaint of Champway from ECO Aviation Fuel Services Limited

Dear Sharifah,

Attached please find the complaint letter from PAFF provided by SGJV on last Friday for your reference. We will visit Champway tomorrow (14 Jun 2011) to investigate this odour complaint.

Please let us know should there be any queries.

Kind regards,

Antony

From: Noel Au [mailto:nkfau@ecopark-mgmt.com]
Sent: Friday, June 10, 2011 12:41 PM
To: Wong, Antony
Cc: Bhanja, Alexi; Chung, Carman; morganchiu@ecopark-mgmt.com; maywu@ecopark-mgmt.com; samchoi@epd.gov.hk
Subject: Odour Complaint of Champway from ECO Aviation Fuel Services Limited

Dear Antony,

Attached please find the letter from our neighbor, ECO Aviation Fuel Services Limited complained the odour from Champway.

As their queries concerning professional knowledge especially on environmental protection, grateful if you can assist to answer their queries/concern before we send them formal reply letter. Thanks!

Please feel free to discuss with me.

Regards,

Noel

Summary

Report No.	<u>003</u>	Previous Related Reports	<u>001 & 002</u>
Tenant Concerned	<u>Champway Technology Ltd.</u>		
Lot No.	<u>EP07-03</u>		
Type of Incident	<u>Odour Complaint</u>		
Incident Occurred	Date <u>13 June 2011</u>	Time	<u>9:00pm</u>
Complaint Received	Date <u>15 June 2011</u>	Time	<u>10:50am</u>
ET Advised on	Date <u>16 June 2011</u>		
ET Action on	Date <u>21 June 2011</u>		

Details

Incident SGJV (the Management Office of EcoPark) received a complaint from Mr Alan LAI of Shiu Wing Steel Ltd. (SW) about an odour nuisance from Champway. The ET Leader was notified about the complaint by Ms Noel AU of SGJV *via* email on 16 June 2011. The ET Leader then notified SGJV and the IEC *via* email on 17 June 2011 that the complaint was noted and a site investigation would be arranged at ~10:30am on 21 June 2011 to find out the cause of odour. The ET Leader’s email on 17 June 2011 is enclosed in **Appendix 1** for reference.

Investigation A site investigation for the odour complaint was conducted by Ms Noel AU of SGJV and Ms Carman CHUNG/Ms Lily LIU of the ET between 10:40am and noon on 21 June 2011. Telephone interviews with Mr Alan LAI of SW and Mr Chris TAM of ECO Aviation Fuel Services Ltd. (ECO), as well as interviews with Mr Teddy CHOI/Mr WONG Tsz Kit/Mr HO Chi Cheong of Champway were carried out by SGJV and the ET. The findings of the site investigation are summarised below:

1. As described by Mr LAI of SW, the odour nuisance noted at their site was similar to the rotten, decayed smell from grease trap, and it could last from time to time. At about 9pm on 13 June 2011, the odour was so strong that SW staff needed to stop working and leave the stinking area;
2. The ET noted the smell of odour at the lot, yet its level was relatively weak compared with that of the previous site investigation on 14 June 2011;
3. No steam was emitted from gaps of the cover of the Surplus Water with Dregs Storage Tank;
4. The cleaning of the Oil/Water Mixture Storage Tanks or transfer of oil from the Oil/Water Mixture Storage Tanks to the oil separators was not carried out during the site visit (**Photo 1** refers); and
5. Odour was noted at the extraction system/activated carbon storage container (**Photo 2** refers). As this may be caused by leakage of the extraction system, it was suggested to check the system thoroughly.

The implementation of mitigation measures suggested in the Incident/Complaint Report 002 was found as follows:

1. **Schematic Flow Diagram and Operational Procedure:** posters that describe the pre-treatment procedures were placed at various parts of the lot, and the workers seemed to follow such guidelines;
2. **Sealing the covers of tanks:** as advised by Champway, the sealing of covers may not be possible due to the high temperature of the oil/water;

Details (continued)

Investigation (continued)

3. **Use of air pollution control system:** it was again reminded that the control system should be used for any activities which can cause odour emission, no matter during day time or night time. During the site visit, only 1 of the 5 activated carbon filters was in use;
4. **Tank cleaning and oil transfer within the site:** as advised by Champway, it may not be possible to use transparent cover or not to open the cover when cleaning the tanks or transferring the oil; and
5. **Storage of activated carbon:** activated carbon was not stored in fully enclosed container (*Photo 3* refers).

Actions Taken / To Be Taken (continued)

1. **Schematic Flow Diagram and Operational Procedure:** Champway has provided the schematic flow diagram to the ET on 27 June 2011;
2. **Air pollution control system:** Champway is going to use 2 more activated carbon filters in conjunction with the existing one in 2 weeks’ time, and their efficiencies shall be monitored in the next Quarterly Site Audit in July 2011;
3. **Extraction fans:** Champway is going to install 1 more extraction fan in the coming 2 weeks so as to control the odour emission. The efficiency of the 3 extraction fans (2 existing and 1 newly installed) shall be monitored in the next Quarterly Site Audit in July 2011; and
4. **Storage of activated carbon:** in order to ensure that the activated carbon is stored in a dry and weather proof environment, it was suggested to fully enclose the storage container, such as closing the door and covering the vent.

Remarks

Mr. Chris TAM of ECO advised that the situation has been improved, yet the odour during night time and weekend was still rather strong. ECO will keep log of the odour issue.

Photo Record

Photo 1 Covers of the Oil/Water Mixture Storage Tanks and Surplus Water with Dregs Storage Tank Remained Closed



Photo Record

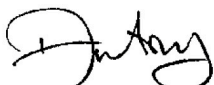

Photo 2 Air Extraction System inside the Activated Carbon Storage Container



Photo 3 The Storage of Activated Carbon in the Open Environment



Sign-off

	ET	IEC
Organisation	SMEC Asia Ltd	Atkins China Ltd
Signed By	Antony WONG	Sharifah OR
Role	ET Leader	IEC
Signature		
Date	28 June 2011	29 June 2011

Appendix 1 **ET Leader's Email to WRG/EPD, SGJV and the IEC on 17 June 2011**

From: Wong, Antony
Sent: Friday, June 17, 2011 8:39 PM
To: Or, Sharifah
Cc: Chau, Keith; Bhanja, Alexi; Chung, Carman; samchoi@epd.gov.hk; 'Morgan Chiu (SGJV)'; 'May Wu (SGJV)'; Liu, Lily
Subject: FW: Complaint on Odour from Shiu Wing Steel

Dear Sharifah,

Please find the attached emails forwarded by SGJV complaining about the odour from Champway for your reference.

We will investigate the odour complaint on next Tue.

Kind regards,

Antony

From: Noel Au [mailto:nkfau@ecopark-mgnt.com]
Sent: Thursday, June 16, 2011 9:24 AM
To: Wong, Antony
Cc: Chung, Carman; Bhanja, Alexi; samchoi@epd.gov.hk; morganchiu@ecopark-mgnt.com; 'May wu'
Subject: Complaint on Odour from Shiu Wing Steel

Dear Antony,

Attached please find the e-mail from Shiu Wing Steel which is adjacent to Champway as well (not inside EcoPark) complaining the odour from Champway.

I should be grateful if you could investigate the case and advise Champway what measures should be done to prevent the emission of odour smell.

Kindly please note that I have sent a reply via e-mail to Alan Lai of Shiu Wing.

Many thanks!

Regards,

Noel