



Serco Guardian JV

## **EcoPark Operation EM&A**

Quarterly Report





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# EcoPark Operation EM&A Quarterly Report

February 2009 - April 2009

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February 2009 - April 2009

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Report No

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**Date** 

14 May 2009

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## 1 SUMMARY

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. EcoPark is being developed in two phases at a site in Tuen Mun Area 38 (see *Figure 1-1*). In November 2006, 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 JV (SGJV) by the Environmental Protection Department (EPD). SGJV, the "Operator" of EcoPark have engaged Hyder Consulting as their Environmental Team (ET) to carry out the Environmental Monitoring and Audit (EM&A) required by the EM&A Manual in accordance with the conditions of the Environmental Permit.

This is the eighth quarterly EM&A report prepared for the operation phase of EcoPark and covers February 2009 – April 2009. To-date there have been no complaints received; no notifications of summons; and no successful prosecutions.

In terms of monitoring, only quarterly monitoring of landfill gas (LFG) is required during operation phase EM&A and "following construction". As construction has not yet been completed, operation phase LFG monitoring is not yet required.

In terms of auditing, all of the tenants' recycling activities are to be audited on a monthly basis, and the results are to be summarised in this report. At present, however, EcoPark is still under construction and while a number of tenants have already signed their tenancy agreements, none are carrying out recycling activities within their lots (although three lots are currently being prepared by incumbent tenants).

As such, no recycling activities are being carried out and to there is nothing to report at this time. Notwithstanding, the ET have made monthly site inspections and some general observations have been made.



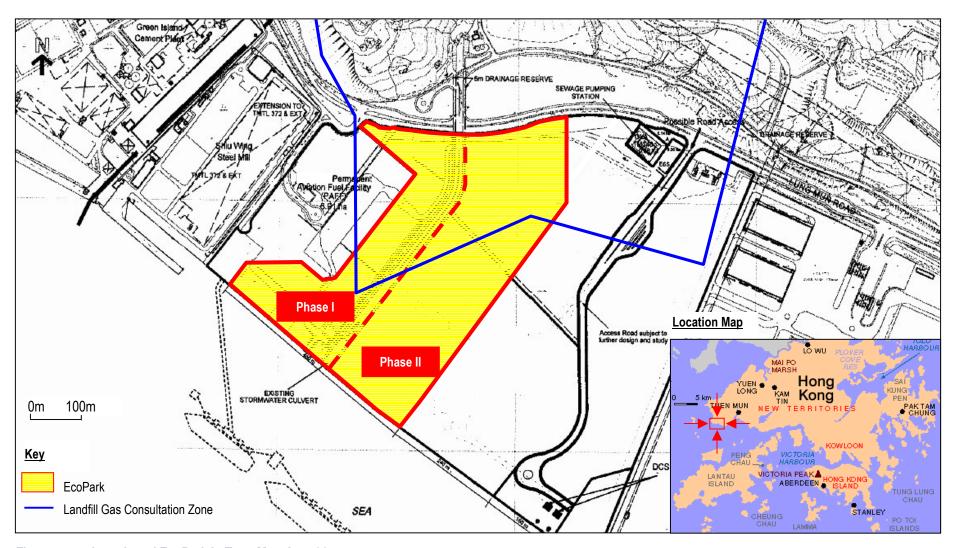


Figure 1-1 Location of EcoPark in Tuen Mun Area 38



## 2 BASIC PROJECT INFORMATION

#### 2.1 Overview

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 realize the full potential of the local recycling industry and alleviate the heavy reliance on the export of recyclable materials recovered from Hong Kong.

EcoPark is to be developed in two phases at a site in Tuen Mun Area 38 (see *Figure 1-1*). The construction contract for EcoPark – *EP/SP/52/06 Development of EcoPark in Tuen Mun Area 38* – was awarded to Kaden Construction in June 2006 by the Environmental Protection Department (EPD). This contract covers development of Phase I (completed) and extends to Phase II (ongoing).

In November 2006, 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 JV (SGJV) by EPD. SGJV, the "Operator" of EcoPark have engaged Hyder Consulting as their Environmental Team (ET) to carry out the Environmental Monitoring and Audit (EM&A) required by the EM&A Manual in accordance with the conditions of the Environmental Permit.

## 2.2 SGJV Organisation

Organisation of SGJV is shown in *Figure 2-1*, below.

## 2.3 Operation Programme

As end of April 2009, no tenants have yet commenced recycling activities within their lots and so there is no operation programme to report at this time. Three tenants, Hong Kong Hung Wai Wooden Board Company, Champway Technology Limited and Li Tong Group, have commenced preparatory works within their lots but have not yet commenced recycling activities.

The Memorandum of Acceptance was sent to Cosmos Star Holdings Co., Limited on 25 February 2009 for recycling materials arising from industrial and commercial activities. The Tenancy Agreement has been signed by Shiu Wing Steel Limited on 16 March 2009.

## 2.4 EM&A Organisation

The EM&A is carried out predominantly by the ET, but SGJV and the Independent Environmental Checker (IEC) are also involved. *Figure 2-2*, below, illustrates the current EM&A organisation:



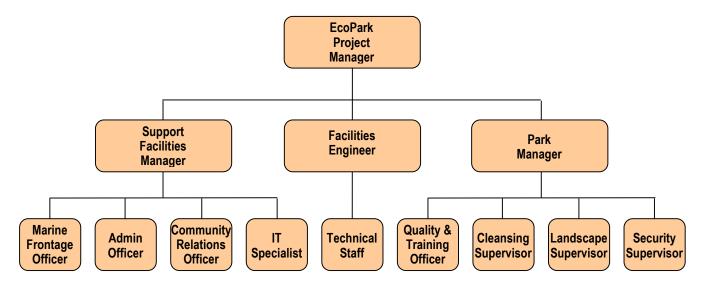


Figure 2-1 SGJV Organisation

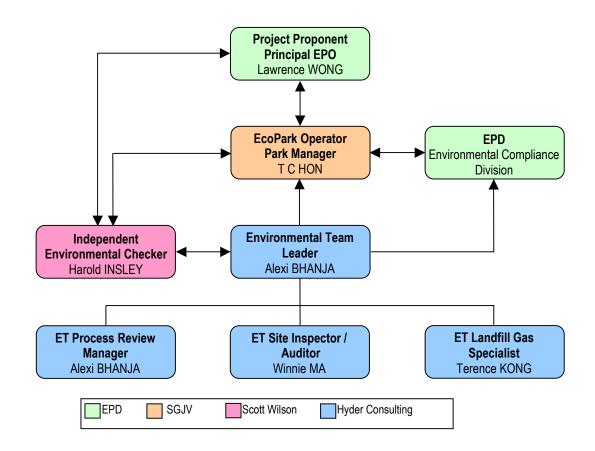


Figure 2-2 EM&A Organisation



## 3 SUMMARY OF EM&A REQUIREMENTS

## 3.1 Monitoring Parameters

The following parameters are required to be monitored as part of the operation phase EM&A programme:

Landfill Gas (LFG). Following construction, routine monitoring is required at service voids and utility boxes (locations to be agreed). Routine monitoring shall be carried out on a quarterly basis, however, should EPD alert the Operator that high LFG levels had been detected during monthly monitoring under the Siu Lang Shui Landfill restoration contract, then 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.

Since operation phase LFG monitoring is required "following construction" and construction has not yet been completed, operation phase LFG monitoring is not yet required to be carried out by the Operator. It should be noted that construction phase LFG monitoring is ongoing and is reported in the Monthly EM&A Reports prepared by the construction contractor's ET. These reports can be downloaded from:

http://www.epd.gov.hk/eia/english/register/index8/vep2212006 content.html

## 3.2 Environmental Quality Performance Limits and EAP

The Action/Limit Levels and Event Action Plan (EAP) for LFG are shown below in *Table 3-1*. 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 operation phase EM&A.

Parameter	Level		Action
Oxygen (O <sub>2</sub> )	Action Level	<19% O <sub>2</sub>	Ventilate trench/void to restore O <sub>2</sub> to > 19%
	Limit Level	<18% O <sub>2</sub>	Stop works Evacuate personnel/prohibit entry Increase ventilation to restore O <sub>2</sub> to > 19%
Methane (CH <sub>4</sub> )	Action Level	>10% LEL	Post "No Smoking" signs Prohibit hot works Increase ventilation to restore CH <sub>4</sub> to <10% LEL
	Limit Level	>20% LEL	Stop works Evacuate personnel/prohibit entry Increase ventilation to restore CH <sub>4</sub> to<10% LEL
Carbon Dioxide (CO <sub>2</sub> )	Action Level	>0.5% CO <sub>2</sub>	Ventilate to restore CO <sub>2</sub> to < 0.5%
	Limit Level	>1.5% CO <sub>2</sub>	Stop works  Evacuate personnel / prohibit entry  Increase ventilation to restore $CO_2$ to <0.5%

Table 3-1 Action Levels, Limit Levels and Event and Action Plan for LFG



#### 3.3 Environmental Audit of Non-monitored Parameters

Site inspections provide a direct means to trigger and enforce the environmental protection and pollution control measures specified in the EIA Report and are undertaken routinely by the ET to inspect operational practice. Regular site inspections are carried out by the ET once per month, and the ET is accompanied by the IEC once per quarter. *Ad hoc* site inspections are also carried out if significant environmental problems are identified. Inspections may also be required subsequent to receipt of an environmental complaint, or as part of the investigation work, as specified in the EAP. The following parameters are required to be audited as part of the operation phase EM&A programme:

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

## 3.4 Environmental Mitigation Measures

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

## 3.5 Environmental Requirements in Tenancy Agreements

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

## 4 OPERATION STATUS

*Figure 4-1* shows the location of the lots within EcoPark, the tenancy numbers and the names of the tenants.

## 4.1 Tenants and Processes

## 4.1.1 Tenancy EP06-034

Lot Size: Approx. 5,000m<sup>2</sup>

Activity: Recycling of Waste Wood

Tenant: Hong Kong Hung Wai Wooden Board Company

Recycling activities have not yet commenced. Preparatory works within the tenant are still in progress. Building submissions have been sent to Buildings Department (BD) and approval is expected by the end-May 2009. Building contractors will be invited to submit tenders during June and construction is expected to commence at the beginning of July 2009.



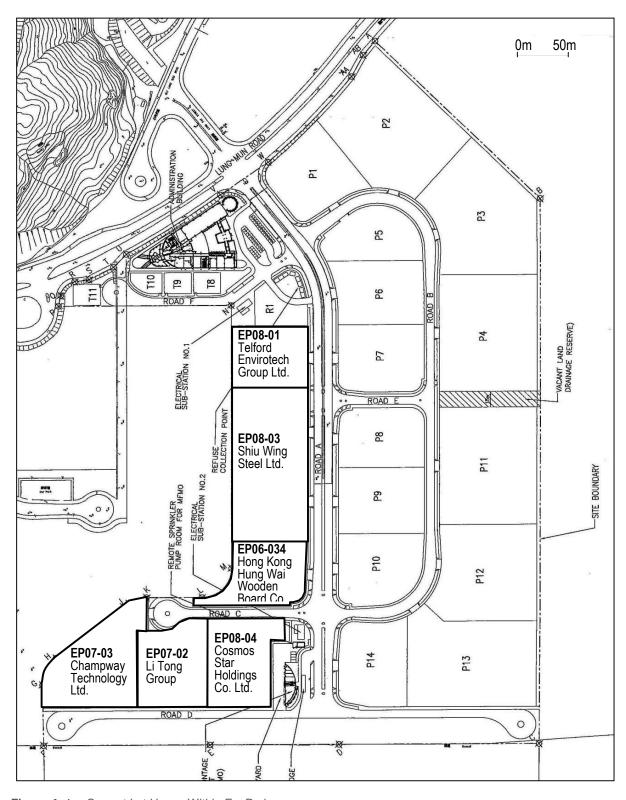


Figure 4-1 Current Lot Usage Within EcoPark



## 4.1.2 Tenancy EP07-02

Lot Size: Approx. 6,500m²
 Activity: Recycling of WEEE
 Tenant: Li Tong Group

As end of April 2009, the tenant has commenced preparatory works within their lot but have not yet commenced recycling activities. Formal approval of buildings submissions has been received from BD. Dismantling of the temporary building on site is being planned. The tenant has been carrying out tendering for the construction works, which are scheduled to commence in mid-May 2009.

## 4.1.3 Tenancy EP07-03

Lot Size: Approx. 6,000m<sup>2</sup>

Activity: Recycling of Organic Waste (Waste Cooking Oil)

Tenant: Champway Technology Limited

All buildings submissions have been approved by BD and consent of construction has also been granted. Construction of the production plant commenced on 7 March 2009. The application for registration as chemical waste producer was approved in April 2009. The wastewater discharge licence application (under the WPCO) was being prepared in April 2009.

As end of April 2009, the tenant has not yet commenced formal recycling activities, however, waste cooking oil has been delivered to the site for simple treatment and treated waste cooking oil was generated. Details of waste throughout are provided in *Section 4.2*.

**Photograph 4-1** shows the current status of this site. A trial run is expected to commence in August 2009 and Phase 1 of the plant is expected to be in operation in September 2009.



Photograph 4-1 Current Status of Tenancy EP 07-03



## 4.1.4 Tenancy EP08-01

Lot Size: Approx. 5,000m<sup>2</sup>

Activity: Recycling of Waste Plastics

Tenant: Hong Kong Telford Envirotech Group Limited

The tenant took over the lot on 30 June 2008. As of end-April 2009, the tenant has commenced preparatory works but has not yet commenced recycling activities. No buildings submissions have yet been sent to BD for approval. The Process Review Checklist was submitted in March 2009, and is provided in *Appendix 3* for reference.

## 4.1.5 Tenancy EP08-03

Lot Size: Approx. 9,500 m<sup>2</sup>

Activity: Recycling of Waste Metals

Tenant: Shiu Wing Steel Limited

The Tenancy Agreement has been signed by Shiu Wing Steel Limited on 16 March 2009. The Authorized Person for the construction works has been selected. The possession date of Shiu Wing's lot will be 16 June 2009.

#### 4.1.6 Tenancy EP08-04

Lot Size: Approx. 4,000 m<sup>2</sup>

Activity: Recycling of materials arising from industrial and commercial activities

Tenant : Cosmos Star Holdings Co., Limited

The Memorandum of Acceptance was issued on 25 February 2009.

## 4.2 Throughput Statistics

As advised by the Operator, one truck load of waste wood (approximately 60kg of waste wood) were delivered to Hung Wai's site in the reporting quarter.

Approximately 258,268 tonnes of waste cooking oil were delivered to Champway's site with an output of 240,189 tonnes of treated waste cooking oil and 18,079 tonnes of organic waste and water waste (slurry and semi-solid waste) in the reporting quarter.

However, as of 30 April 2009 no tenants have yet commenced actual recycling activities within their lots. Throughput details are shown in *Appendix 4*.



## 5 IMPLEMENTATION STATUS OF ENVIRONMENTAL PROTECTION MEASURES

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*.

As of 30 April 2009, no tenants have yet commenced formal recycling activities within their lots and so no environmental protection measures need to be implemented.

## 6 MONITORING RESULTS

Only LFG is required to be monitored on a quarterly basis. However, since operation phase LFG monitoring is only required "following construction" and construction is not yet complete, operation phase LFG monitoring is not required to be carried out by the Operator at this time.

## 7 WASTE GENERATION STATISTICS

As of 30 April 2009, no tenants have commenced formal recycling activities within their lots. However, Champway conducted a simple treatment for waste cooking oil which generates a total of 18,079 tonnes of waste including 12,914 tonnes of organic waste and 5,165 tonnes of water waste, including semi-solid and slurry, in the reporting quarter.

The collected waste cooking oil was heated up and separated into organic waste and cooking oil. No waste water was discharged but water waste such as semi-solid and slurry were generated from the separation process. These organic waste and water waste were transported and disposed to WENT Landfill as general refuse.

Waste generation details are shown in Appendix 4.



## 8 SUMMARY OF ENVIRONMENTAL AUDIT

## 8.1 February 2009

The environmental audit was carried out by the ET on 24 February 2009. At this time, construction of EcoPark Phase I was ongoing and no tenants were yet carrying out formal recycling activities within EcoPark. As such, there were no processes to be audited. No significant observations were made.

#### 8.2 March 2009

The environmental audit was carried out by the ET on 26 March 2009. At this time, construction of EcoPark Phase I was ongoing and no tenants were yet carrying out formal recycling activities within EcoPark. As such, there were no processes to be audited.

Although no effluent observed discharge into sewer system, Champway was reminded to apply for a discharge licence under the WPCO for effluent generated from centripetal separation from waste cooking oil. The application was under preparation at by end-April 2009.

## 8.3 April 2009

The environmental audit was carried out by the ET and IEC on 29 April 2009. At this time, construction of EcoPark Phase I was ongoing and no tenants were yet carrying out formal recycling activities within EcoPark. As such, there were no processes to be audited.

Champway was advised to spray water over their entire site, especially near access road, to minimize dust generation.

## 9 COMPLAINTS

As of 30 April 2009, no tenants have yet commenced formal recycling activities within their lots and no complaints have been received related to recycling activities.

## 10 CONCLUSIONS

As of 30 April 2009, no tenants have yet commenced formal recycling activities within their lots and so there are no conclusions to draw relating to the operation of the operation phase EM&A programme at this time.



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	1			<u> </u>	
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 Qua	ality				
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 and 6 of IMO Code of Practice for the Safe Loading/Unloading of Bulk Carriers
5.5.19		Contaminated water collected in the surface drainage systems shall be treated at the WTF or other appropriate treatment facility.	Within EcoPark throughout the life of the facility.	Operator	



EIA Ref.	EM&A Ref.	Environmental Protection Measures Identified in the Implementation Schedule that are Applicable to the Operation Phase of EcoPark	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Relevant Legislation and Guidelines
5.5.23 to 5.5.25	4.2.5 to 4.2.7	An Emergency Response Plan (ERP) will be formulated to address various accident scenarios. The ERP will be certified by the Environmental Team (ET) and verified by the Independent Environmental Checker (IEC) under the operation EM&A programme.	Within EcoPark throughout the life of the facility.	Operator	
5.6.4		For uncovered areas where recovery process identified as causing potentially high level of contamination are located, stop-logs will be installed in the perimeter drainage system to isolate contamination.	Within EcoPark throughout the life of the facility.	Operator	
	4.2.2	The ET should develop an audit checklist, with the agreement of the IEC, to ensure that each mitigation measure is implemented when appropriate and operated correctly when implemented.	Within EcoPark throughout the life of the facility.	ET with IEC	

#### Waste Management

6.8.7	5.2.4	The Operator should register with EPD as a chemical waste producer.	Within EcoPark throughout the life of the facility.	Operator	Waste Disposal (Chemical Waste) (General) Regulation
6.8.16		The dust collected by any air pollution control equipment installed by tenants must be tested to ensure compliance for landfill disposal.	Within EcoPark throughout the life of the facility.	Operator	Practice Note for disposal of dusty waste at landfills & Admission Ticket System
6.8.18 & 6.8.22	5.2.4	Sludge will be disposed of at WENT landfill, or at any future dedicated sludge treatment facility. Sludge will be collected by a Licensed collector at regular intervals, as determined by the operation of the WTF	Within EcoPark throughout the life of the facility.	Operator	
6.8.21	5.2.4	Chemical wastes shall be stored in appropriate containers in a covered area. "No Smoking" signs will be clearly displayed to prevent accidental ignition of any flammable materials. Drip trays capable of storing 110% of the volume of the largest container will be used to mitigate possible leakage.	Within EcoPark throughout the life of the facility.	Operator	Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes
	5.2.3 & 5.2.5	The ET should develop an audit checklist, with the agreement of the IEC, to ensure that each mitigation measure is implemented when appropriate and operated correctly when implemented.	Within EcoPark throughout the life of the facility.	ET with IEC	



EIA Ref.	EM&A Ref.	Environmental Protection Measures Identified in the Implementation Schedule that are Applicable to the Operation Phase of EcoPark	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Relevant Legislation and Guidelines
Preventi	on of Conta	nminated Land			1
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 the storage of chemical wastes, therefore the following measures should be followed:	Within EcoPark throughout the life of the facility.	Operator	
		<ul> <li>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.</li> </ul>			
		<ul> <li>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.</li> </ul>			
		<ul> <li>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.</li> </ul>			Waste Disposal (Chemical Waste) (General) Regulation
		<ul> <li>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.</li> </ul>			Code of Practice on the Packaging, Labelling and Storage of Chem Wastes & Chemical Waste (General) Regulation



EIA Ref.	EM&A Ref.	Environmental Protection Measures Identified in the Implementation Schedule that are Applicable to the Operation Phase of EcoPark	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Relevant Legislation and Guidelines
	5.3.3	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 G	as				
8.7.10 & 8.7.11	6.1.2	<ul> <li>Alert workers and visitors of possible LFG hazards</li> <li>Prohibit smoking and open fires on site</li> <li>Conduct regular (quarterly) LFG monitoring at mobile offices, equipment stores, etc.</li> </ul>	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
Landscap	e and Visu	ıal			
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 – Application No.VEP-221/2006 (including updated information about the Permit, any amended permit and any further permit) and all mitigation measures recommended and to be recommended in submissions that shall be deposited with or approved by the Director as a result of permit conditions contained in the Environmental Permit No. EP-226/2005 as amended by the Variation of Environmental Permit – Application No.VEP-221/2006 (including updated information about the Permit, any amended permit and any further permit). The Tenant shall refer to, inter alia, Conditions 4.1 to 4.14 (and Annexes A and B) and Conditions 3.7 and 3.8 (and Figures 2 and 3) of the Environmental Permit No. EP-226/2005 as amended by the Variation of Environmental Permit – Application No.VEP-221/2006 regarding measures to mitigate air quality impact, measures to mitigate hazard to life impact, measures to prevent land contamination, measures to mitigate landfill gas hazard, maintenance of landscape and visual measures (see also hereinbelow regarding Condition 5 of the Environmental Permit and specified Ordinances).
  - (d) All information, conditions, submissions, mitigation measures, orders, notices and requirements under on going surveillance and monitoring activities during all stages of the Project and during the tenancy under the Tenancy Agreement (e.g. any additional mitigation measures recommended and to be recommended under the Process Review and Design Audit (carried out and to be carried out in accordance with the EM&A Manual) for various environmental impacts including, but not limited to, noise pollution, air quality, hazard to life, landfill gas hazard, landscape and visual measures, waste management and land contamination).
  - (e) All recommendations referred to in the documents of the EIAO Register which are not expressly referred to in Environmental Permit No. EP-226/2005 as amended by the Variation of Environmental Permit Application No.VEP-221/2006 and any amended Environmental Permit (unless expressly excluded or impliedly amended in the Environmental Permit No. EP-226/2005 as amended by the Variation of Environmental Permit Application No.VEP-221/2006 and any amended Environmental Permit).
- 9.2 Further to Condition Nos. 6 and 8 hereinabove, the Tenant shall at its own cost provide relevant environmental monitoring data, information, documents and assistance to the Director and/or the Environmental Protection Department and shall permit authorised representatives of the



Environmental Protection Department to access, inspect, take samples and monitor the Premises and operations for the Process Review and the Design Audit carried out and/or to be carried out pursuant to Conditions 4.1 and 5 of the Environmental Permit No. EP-226/2005 as amended by the Variation of Environmental Permit – Application No.VEP-221/2006 (and any updated Permit, amended permit and further permit).

- 9.3 If the Tenant's operations (i.e. activities and facilities for recovery and/or recycling and/or reprocessing) are not covered by the EIA Report and/or deviate from the development parameters mentioned in inter alia the EIA Report, the Environmental Permit No. EP-226/2005 as amended by the Variation of Environmental Permit – Application No.VEP-221/2006 (including the parameters at Annex A) and/or any environmental licence (e.g. the Water Treatment Facility ("WTF") Discharge Licence), and if additional mitigation measures are not available or are not effective in the opinion of the Director, to ensure compliance with the EIA Report, the Environmental Permit No. EP-226/2005 as amended by the Variation of Environmental Permit - Application No.VEP-221/2006 (including any updated Permit, amended permit and further permit) and the relevant environmental licence(s), the Tenant shall comply with any modified parameters and/or the Tenant shall immediately modify its operations in such a way that the findings and requirements of the EIA Report, the Environmental Permit No. EP-226/2005 as amended by the Variation of Environmental Permit – Application No.VEP-221/2006 (including any updated Permit, amended permit and further permit) and the environmental licence(s) are complied with and shall immediately cease to continue the offending part of the operations or activity in question.
- 9.4 The Tenant shall at its own cost(s) apply for, obtain, renew, maintain and comply with all the relevant licences related to compliance with all relevant Ordinances, by-laws, regulations, statutory technical memorandums, codes of practice, rules, non-statutory guidance notes, schemes, abatement notices and the environmental permits for the time being in force in Hong Kong (including those relating to the environment and governing the control of any form of pollution). The Tenant shall obtain, renew and comply with all the said licences within the relevant time limits (in any event, within one (1) calendar month of the date of signing and/or execution of the Tenancy Agreement), shall comply with all abatement notices, orders, directions and requests of the relevant authorities and public officers and shall be responsible for paying all relevant fees, costs, fines and penalties.
- 9.5 The Tenant shall not do anything or omit to do anything which would cause, contribute to or involve a breach or potential breach by the Director relating to any of the matters mentioned in Conditions 9.1 to 9.4 hereinabove (and other Conditions hereinbelow).
- 9.6 The Tenant shall fully indemnify the Government and/or the Director for any fees, costs, damages, expenses, fines, penalties, losses and claims arising (a) out of any breach of any of the matters mentioned in inter alia Conditions 9.1 to 9.4 hereinabove (and other Conditions hereinbelow) or (b) from the use of the Premises or (c) out of any works carried out at any time during the term to or at the Premises or (d) out of anything now or during the term attached to or projecting from the Premises or (e) from any neglect or default by the Tenant or by its respective servants or agents or by any express licensee of the Tenant.

#### SPECIFIC ENVIRONMENTAL RESPONSIBILITIES

#### Air Pollution

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



- air pollutant as defined in Section 2 of the Air Pollution Control Ordinance (Cap. 311 of the Laws of Hong Kong)), which exists or which is imminent, without the prior written approval of the Director.
- 11. No alteration to the installation and method of manufacture shall be made without the prior written consent of the Director. In any event, the Tenant shall at its own cost(s) comply with, inter alia, Conditions 4.2 to 4.7 and Annex A of the Environmental Permit No. EP-226/2005 as amended by the Variation of Environmental Permit Application No.VEP-221/2006 regarding design, installation and operation of chimney, location of fresh air intakes and use of ultra-low sulphur or other cleaner fuel(s) as agreed by the Director (and the conditions of any updated Permit, amended permit and further permit regarding measures to mitigate air quality impact), good practices and relevant provisions of the EIA Report and Final EM&A Manual.

#### Noise Pollution

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

#### Waste Management

- 14. The Tenant shall not permit, allow or suffer any fuel or chemical and any sewage, waste water or effluent containing sand, cement, silt or any suspended or dissolved material to flow, escape or run from the Premises onto any adjoining land or allow any waste matter which does not form part of the recovery and/or recycling and/or reprocessing operation or is not part of the final product of such operation to be deposited, kept, held or stored anywhere within the Premises and other areas of EcoPark. The Tenant shall at its own cost(s) have all such matters and all waste arising from recycling activities, chemical waste arising from maintenance of plant and equipment, sewage sludge (from WTF) and general daily waste from the operation removed from the Premises or any building(s) or structure(s) or any part of any building(s) or structure(s) erected or to be erected thereon in a proper manner to the satisfaction of the Director.
- 15. In any event, the Tenant shall at its own cost(s) comply with, inter alia, Conditions 4.11 and 4.12 of the Environmental Permit No. EP-226/2005 as amended by the Variation of Environmental Permit Application No.VEP-221/2006 regarding paving all areas of the Premises with concrete/using concrete hardstanding and siting all fuel tanks and chemical storage areas on the specified sealed areas, respectively (and comply with the conditions of any updated Permit, amended permit and further permit regarding measures to prevent land contamination). The Tenant shall at its own cost(s) comply with relevant provisions of the Waste Disposal Ordinance (Cap.354 of the Laws of Hong Kong) good practices and relevant provisions of the EIA Report and Final EM&A Manual.

#### Water Pollution

In the event that the Tenant produces, generates, permits, causes, allows or suffers any discharge which is subject to control under the Water Pollution Control Ordinance (Cap. 358 of the Laws of Hong Kong) any regulations made thereunder and any amending legislation, and is not covered by a WTF Discharge Licence issued under the Water Pollution Control Ordinance (Cap. 358 of the Laws of Hong Kong) the Tenant shall apply to the Director for a licence and comply with the terms and conditions stipulated in the licence and the WTF Discharge Licence at the Tenant's own cost(s). Otherwise, the Tenant is not allowed to discharge directly or indirectly or to produce, generate,



permit, cause, allow or suffer any discharge into any public sewer, storm-water drain, channel, stream-course, sea or any area inside or outside the Premises any trade effluent or foul or contaminated water or cooling or hot water. Subject to the said licence from the Director and WTF Discharge Licence, the Tenant shall at its own cost(s) separate, collect, discharge and send all process or industrial wastewater to the WTF for treatment to the standard required for discharge into a sewer leading to the sewage treatment works at Pillar Point or other treatment works specified in the licence.

- 17. Subject to obtaining advance written approval of the Director, the Tenant shall at its own cost(s) provide, install, operate and maintain its own waste water pre-treatment plants within the Premises if such process or industrial wastewater could not meet the influent limits / exceeds the maximum influent criteria of the WTF (in accordance with paragraph 7.2.9 of the Final E&MA Manual). The Tenant shall at its own cost(s) separate, collect, discharge and send all domestic wastewater (i.e. other than process or industrial wastewater) to the Pillar Point Sewage Treatment Works directly for treatment or other treatment works specified in the licence.
- 18. In any event, the Tenant shall prevent any spilled materials from entering the surface water drainage system and prevent contamination of the sea at its own cost(s) by, inter alia, providing, installing, operating and maintaining stop-logs or interceptors in the surface water drainage system and at the marine frontage area, respectively, or as required by the licence. The Tenant shall at its own cost comply with relevant provisions of the Dumping at Sea Ordinance (Cap 466 of the Laws of Hong Kong) good practices and relevant provisions of the EIA Report and Final EM&A Manual.

#### Hazard to Life Impact

- 19. To mitigate hazard to life impact, the Tenant shall comply with, inter alia, Conditions 4.8 to 4.10 of the Environmental Permit No. EP-226/2005 as amended by the Variation of Environmental Permit Application No.VEP-221/2006 (and comply with the conditions of any updated Permit, amended permit and further permit regarding measures to mitigate hazard to life impact) and shall not:-
  - (a) Bring, keep, store or transport chlorine within the Premises and other areas of EcoPark;
  - (b) Bring, keep, store, locate or transport dangerous goods, substances and fuels supporting combustion including oxygen, acetylene, hydrogen peroxide, rubber tyres and diesel within 10 metres from the boundary of the site of EcoPark; and
  - (c) Exceed the building height restrictions for buildings on the Premises which are on/near the western boundary of the site of EcoPark as mentioned in Annex B to the Environmental Permit No. EP-226/2005 as amended by the Variation of Environmental Permit Application No.VEP-221/2006 (including any updated Permit, amended permit and further permit).

#### Landfill Gas Hazard

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

#### Landscape and Visual Impacts

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



Appendix 3

## Process Review Checklist for Hong Kong Telford Envirotech Group Limited

## **EcoPark Process Review Checklist**



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PRC	No.		004 (PRC <u>1</u> of <u>1</u>	)	
Tena	nt Ref. No	).			
Tena	nt Name		Hong Kong Telford Envirotech G	roup L	td
EcoP	ark Lot N	0.	EP08-01		
Relat	ed Proces	sses PRC			
Mate	rial Type		Plastic		
Proc	ess Name	•	Plastic extrusion & Plastic Wood	d Compo	osite (PWC) m
Proc	Plastic sorting, flaking and washing				
- 100000 Opod00			Plastic cooling and cutting and c	entrifu	igal drying
			PWC Manufacturing		
Detai	Is Attach	ed	✓ Yes (attached) ☐ No, not	require	d
Associated Material Throughput			Material	In/O ut	Throughput (tonnes/yr)
(incl.	. DGs, if a	ny)	Mixed Plastics (Phase I)	In	12,480
			Mixed Plastics (Phase II)	In	20,448
			PO, PE, PET, PWC etc. (Phase I)	Out	13,728
			PO, PE, PET, PWC etc. (Phase II)	Out	8,976
			Other waste	Out	10,224
Throughput < EIA Limit? ✓ Yes ☐ No, exceeds by  Risk Assessment ☐ Yes (attached) ✓ No, not required					
<b>✓</b> P	rocess has	s already b	een assessed in the EIA (from E	IA Tab	ole 14.1):
Impa	cts to:				
AQ	✓ Yes	☐ No	Fugitive dust and VOC controls		
WQ	<b>✓</b> Yes	☐ No	Process water / cooling water tr	reated	at WTP
WM	✓ Yes	☐ No	Minimal non plastic / plastic was	te	
CL	☐ Yes	<b>√</b> No	None		

Note: AQ=Air Quality | WQ = Water Quality | WM = Waste Management | CL=Contaminated Land



## 香港德福環保科技集團有限公司 Hong Kong Telford Envirotech Group LTd

編號: dc0903051/li

致:安誠工程顧問有限公司

2009年3月5日

彭卓凡先生

感謝貴司提出環保園內工序檢討問題, 敝公司非常樂意提供有關資料。查在投標書內, 因未能在設置塑膠注塑公序數量上作出評估, 未能有合適處理報價。

現附上裝設資料供貴司參考。該項設置針對敝司單一排放在塑料熔化過程中所產生廢氣裝置設備及流程圖,在其它工序例如:破碎清洗,因由水力帶動物料處理淨化,過程中無排放揚塵及揮發性有機化合物。在標書內已有污水排放設施。敝公司保證排放排發性有機代合物。將達至環保園內要求。

隨函附上廢氣排放設備流程圖一份供貴司參考。

香港德福環保科技集團 李慶德



#### 4.2 工业废气处理工艺流程

塑料熔化过程中产生的废气通过引风机抽出,进入 THY-EQ60500 工业废气 UV 高效光解净化设备内,经高能紫外线光束裂解/臭氧氧化处理后,最终通过管道排放到大气中。

工业废气净化处理的工艺流程:(如下图所示)

达标排放 ⑤

## THY工业废气IV高效光解净化设备



**集风**口

#### 4.3 技术原理

紫外线/臭氧光解氧化技术是一种新型废气治理技术,其基本原理:废气一方面在高能紫外线照射下,使挥发性有机物(VOCs)开环和断裂等多种反应,降解转变成 CO<sub>2</sub>,H<sub>2</sub>O等低分子化合物;一方面利用高能紫外光照射空气中的氧气生成臭氧,臭氧吸收紫外线生成氧自由基和氧气,氧自由基与空气中的水蒸气作用生成羟基自由基,一种更强的氧化剂,与醇、醛、羧酸等有机废气,彻底氧化为水、二氧化碳等无机物。另外,未吸收紫外线的臭氧也是一种强氧化剂,与一些有机废物接触后将其氧化生成水、二氧化碳等无机物。

## 5. 净化处理设备及其参数

#### 5.1 废气净化处理设备

THY-EQ60500 工业废气 UV 高效光解净化设备

数量: 1 套

功率: 7900w/220v

设备尺寸 mm: 1700×1500×2100

风口尺寸 mm: 1500×700

#### 5.2 废气排风机

选择风量为 15000m³/h 左右的中压风机

#### 5.3 废气排放管道

管道材料建议选择钢板,净化设备后排风管道尺寸 mm: 800×800

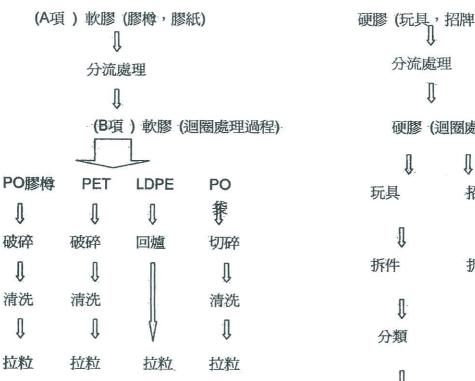
为达到最佳净化效果,需有 2~3 秒反应时间,THY 净化设备后排风管道长度需 20 米以

	Ď	関			迴		
	特     生産線     (晶片成品)       本     生産線     (片料)	展 選	理 生産線 (片科) 區 生産線 (片科)		型 型 票	再	四十二二二十二四十二十二八十二八十二八十二八十二八十二十二十二十二十二十二十二十
	$\uparrow$ $\uparrow$		$\uparrow$ $\uparrow$				
破碎	破破破		破破破路	(有10		個遭	
少被签述	( 存該國)			田宜區	包		製

生産線分佈圖

## 屯門38區環保園 循環再生項目 (循環處理流、全港十八區廢塑膠)





注:PET樽 = 礦泉水樽,汽水樽

PO樽 = 洗潔精樽 + 果汁樽,牛奶樽

LDPE = 包裝膠紙

PO袋 = 膠袋

硬膠 (玩具,招牌,影音產品) 硬廖 (迴圈處理過程) Û 招牌 拆件 分類

破碎,清洗 破碎,清洗 ABS, PMMA PS, PC 拉粒

#### B1 (5)

#### 廢塑料處理/回收量

第一期:每月外判運輸回收量: 520 噸

2 班外判運輸回收量:520 噸 x 2=1040 噸

第二期: 每月外判運輸回收量: 852 噸

2 班外判運輸回收量: 852 噸 x 2=1704 噸

#### 每季回收/處理量:

第一期 每季回收/處理量:		第一 、 二期每季共回收	女/處理量
第一班:520 噸 x 3 月= 156	0 噸	第一班:852 噸 x 3 月 =2:	556 噸
第二班:1040 噸 x3 月=	3120 噸	第二班:1704 噸 x3 月=	5112 噸

#### 每區每月回收量:

第一班 每月回收量:	第一、二班 每月共回收量:
一班:520 噸 / 18 區 = 28.8 噸/月	一班: 852 噸 /18 區 =47.3 噸/月
二班:1040 噸/18 區 = 57.7 噸/月	二班: 1704 噸/ 18 區 =94.6 噸/月

第一班生產量	第二班生產量
每月生產:18.4(T) x 26 日= 478 (T)	每月生產: 32.8(T) x 26 日 = 852(T)
每月每天 2 班工作計	每月每天 2 班工作計算:852(T)x2=
算:478(T)x2=956(T)	1704(T)



## 處理量

#### 第一期生產表(一班計算)8小時

產品	每天產量(8小時)	每月產量	每季產量
PO樽	2.4(T)	62.4 噸	187.2噸
(再生粒料)			
PE(再生粒彩	1.6(T)	41.6噸	124.8噸
廖袋(成品)	2.8(T)	72.8噸	218.4噸
PO生產線	4(T)	104噸	312噸
PE生產線	3.6(T)	93.6噸	280.8噸
PET生產線	3.6(T)	93.6噸	280.8噸
廖袋粒料	2(T)	52噸	156噸
塑木生產線	2(T)	52噸	156噸

## 第一期1班每月生產量:

22噸 x 26天 = 572噸

第一期2班每月生產量:

572噸 x 2班 =1144噸

第一期2班每季生產量:

1144噸 x 3個月 = 3442噸

## 第二期機械投入後每月生產量:

第二期機械投資後1班生產量:

14.4噸 x26天=374.4噸

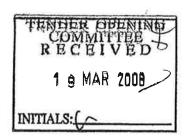
第二期機械投入後2班生產量:

374.4噸 x2班=748噸

第二期機械投入後2班每季生產量:

748噸 x3個月=2244噸

## \* 每季處理量可達 5686噸



## serco

## **EcoPark Process Review Checklist**

	Proposed Mitigation	Wastewater Tre	Wastewater Treatment Plant (WTP) is proposed to									
	treat wastewater and minimal wastewater will be discharged as the treated											
	water will be reused in the process. Hydraulic driven system is proposed to											
	suppress dust generated during extrusion process and the water will be treated											
ned	in WTP. VOC emission w	WTP. VOC emission will be mitigated by UV photolysis.										
(confir	Includes Chimney ?	☐ Yes	<b>▼</b> No									
ssment	If Yes, Complies with EIA Table 13.1?	☐ Yes ☐ N	lo Pending Confirmation									
Impact Assessment (continued)	Process has not be Design Audit becau		IA but is unlikely to warrant a full									
Summary	<ul><li>☐ Process is unlik</li><li>✓ No unacceptable €</li><li>☐ Unacceptable/u</li></ul>	EIA requirements (second to be selected to warrant a full Denvironmental impacts and etermined environrate until Design Audit	e above). esign Audit (see above) s — allow process to operate mental impacts — do not allow has been completed and approved of the process review flowchart, EIA Report Figure 12.1									

ign-off Requirements

	ध	IEC	EPD	Operator	
Name	Hyder Consulting	Scott Wilson	Waste Reduction & EcoPark Group	Serco Guardiar Joint Venture	
Sign-off	Certifled	Verified	Approved	Tenant Advised	
Date	17/5/09	191512009	20/5/2609	20/5/2009	
Signed	Alexi BHANJA	Harold Insley	Lawrence WONG	T C HON	
Role	ET Leader	IEC	Principal EPO	Park Manager	
Signature	M.	Omh	Milong	V Justo	



Appendix 4

Summary of EcoPark Throughputs



## Throughput of Hong Kong Hung Wai Wooden Board Company (EP06-034)

	Waste In	put (kg)	Product Ou	itput (kg)*	Waste Disposal (kg)*			
Date	Waste Wood	Cum Total	Wooden Board	Cum Total	General Refuse	Cum Total		
Jun-08	21,000	21,000	-	-	-	-		
Jul-08	7,000	28,000	-	-	-	-		
Aug-08	-	28,000	-	-	-	-		
Sep-08	8,000	36,000	-	-	-	-		
Oct-08	1,000	37,000	-	-	-	-		
Nov-08	1,000	38,000	-	-	-	-		
Dec-08	-	38,000	-	-	-	-		
Jan-09	60	38,060	-	-	-	-		
Feb-09	60	38,120	-	-	-	-		
Mar-09	-	38,120	-	-	-	-		
Apr-09	-	38,120	-	-	-	-		

 $\textbf{Note:} \ ^{\star} \ \mathsf{Tenant} \ \mathsf{has} \ \mathsf{not} \ \mathsf{yet} \ \mathsf{commenced} \ \mathsf{formal} \ \mathsf{recycling} \ \mathsf{activities} \ \mathsf{within} \ \mathsf{the} \ \mathsf{lot}$ 



## Throughput of Champway Technology Limited (EP07-03)

	Waste Input (kg)				Product Output (kg)*				Waste Disposal (kg)*					
Date	Cooking Oil	Grease Trap Waste	Total	Cum Total	Treated Cooking Oil	Biodiesel	Glycerin	Total	Cum Total	Inorganic Waste	Organic Waste	Water Waste^	Total	Cum Total
Oct-08	120,000	-	120,000	120,000	-	-	-	-	-	-	-	-	-	_
Nov-08	8,000	-	8,000	128,000	-	-	-	-	-	-	-	-	-	-
Dec-08	2,000	-	2,000	130,000	-	-	-	-	-	-	-	-	-	-
Jan-09 <sup>#</sup>	93,454	-	93,454	223,454	86,912	-	-	86,912	86,912	-	4,673	1,869	6,542	6,542
Feb-09	86,855	-	86,855	310,309	80,775	-	-	80,775	167,687	-	4,343	1,737	6,080	12,622
Mar-09	88,883	-	88,883	399,192	82,661	-	-	82,661	250,348	-	4,444	1,778	6,222	18,844
Apr-09	82,530	-	82,530	481,722	76,753	-	-	76,753	327,101	-	4,127	1,650	5,777	24,621

Notes:\* Tenant has not yet commenced formal recycling activities within the lot

<sup>&</sup>lt;sup>#</sup>Tenant revised the amount of waste cooking oil input in January 2009 from 4,443 kg to 93,454 kg

<sup>^</sup> Water waste includes slurry and semi-solid waste and is disposed of at landfill