ASB Biodiesel (Hong Kong) Limited

Development of a Biodiesel Plant at Tseung Kwan O Industrial Estate

Monthly EM&A Report July 2013 (Version 1.0)

Certified By

(Environmental Team Leader)

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

CINOTECH accepts no responsibility for changes made to this report by third parties

CINOTECH CONSULTANTS LTD

Room 1710, Technology Park, 18 On Lai Street, Shatin, NT, Hong Kong Tel: (852) 2151 2083 Fax: (852) 3107 1388 Email: info@cinotech.com.hk



Address: 5/F, Winning Commercial Building, 46-48 Hillwood Road, Tsim Sha Tsui, Kowloon Tel: 852 - 3168 2028 Fax: 852 - 3168 2022

To:	Cinotech	Date:	13 August 2013
Attn:	Ms. Ivy Tam / Ms. Betty Choi	Fax:	3107 1388
From:	Mr. Mark Cheung	Ref:	D1067/H02935
Job No.	D1067	Total Pages:	1
Subject:	Development of a Biodiesel Plant at Tseung Kwan O Industrial Estate Monthly EM&A Summary Report for July 2013		

Dear Madam,

We refer to your submission of the Monthly EM&A Report for July 2013 via email dated 13 August 2013.

We write to advise that we have no comment on the captioned report.

Regards,

Mark Cheung

Independent Environmental Checker

KTd/gk

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EXECUTIVE SUMMARY

Introduction

- 1. This is the 50th monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for Development of a Biodiesel Plant at Tseung Kwan O Industrial Estate". This report documents the findings of EM&A Works conducted in July 2013.
- 2. The major site activities undertaken in the reporting month included:
 - General site cleaning and tidying
 - WWTP Equipment installation work
 - Building Services P&D work
 - Building Services Fire Service work
 - Building Services MVAC work
 - Building Services Electrical work
 - External Works Boundary wall construction work
 - External Works Storm water drainage work
 - External Works Foul water drainage work
 - External Works Fresh water main installation work
 - External Works Salt water main installation work
 - External Works Fire Services pipe laying work
 - External Works Draw Pit construction & Cable Ducts laying work
 - External Works Pavement work

Environmental Monitoring and Audit Works

3. Environmental monitoring and audit works for the Project were performed regularly as stipulated in the EM&A Manual and the results were checked and reviewed. The implementation of the environmental mitigation measures and environmental complaint handling procedures were also checked.

Environmental Licenses and Permits

4. Licenses/Permits granted to the Project include the Environmental Permit (EP) for the Project. Environmental Permits No. EP-319/2009 and EP-319/2009/A were issued on 11 March 2009 and 7 April 2009 respectively. The Contractor has applied for the Registration of Chemical Waste Producer (WPN-5113-839-C1186-15), Construction Noise Permit (GW-RE0709-13), Wastewater Discharge License (WT00004508-2009), Notification of Works under APCO (337009) and Waste Discharge Account (7013917).

Key Information in the Reporting Month

5. Summary of key information in this reporting month is tabulated in **Table I**.

 Table I
 Summary Table for Key Information in the Reporting Month

E-ron4	Ev	ent Details	A officer Toleres	C4-4	Remark	
Event	Number	Nature	Action Taken	Status	Kemark	
Complaint received	0		N/A	N/A		
Changes to the assumptions and key construction / operation activities recorded	0		N/A	N/A		
Status of submissions under EP	1	Monthly EM&A Report for June 2013	Submitted to EPD on 15 July 2013	Verified by IEC		
Notifications of any summons & prosecutions	0		N/A	N/A		

Future Key Issues

- 6. Major site activities for the coming three months will include:
 - General site cleaning and tidying.
 - Building Services Fire services work
 - Building Services MVAC work
 - Building Services Electrical work
 - Building Services P&D work
 - External Boundary wall construction work
 - External Works Storm water drainage work
 - External Works Foul water drainage work
 - External Works Plumbing laying work
 - External Works Fire Services piping laying work
 - External Works Draw Pit construction & Cable Ducts laying work
 - External Works Pavement work
- 7. The future environmental concerns are air quality, water quality, waste management and surface runoff from construction works.

1 INTRODUCTION

Background

- 1.1 Development of a Biodiesel Plant at Tseung Kwan O Industrial Estate is a Designated Project (hereafter referred to as "the Project") under the Environmental Impact Assessment Ordinance (Cap. 449). A study of environmental impact assessment (EIA) was undertaken to consider the key issues of air quality, noise, water quality, ecological and identify possible mitigation measures associated with the works. An EIA Report was approved by the Environmental Protection Department (EPD) on 26 February 2009.
- 1.2 The project is to construct and operate a 100,000 tonnes per annum biodiesel plant at Tseung Kwan O Industrial Estate. The plant will use a multi-feedstock which consists of waste cooking oil (WCO), oil and grease recovered from grease trap waste (GTW), Palm Fatty Acid Distillate (PFAD) and animal fats. The proposed biodiesel plant not only offers a convenient recycling outlet for GTW and WCO but also converts the oil and grease recovered from these wastes into useful products. The Project also offers a cleaner alternative to diesel fuel to the Hong Kong market. The main processes include the followings:-
 - Construction of feedstock reception and storage facilities, and offices;
 - Construction of a grease trap waste pre-treatment facility (with a designated treatment capacity of about 200,000 tonnes per annum);
 - Construction of a wastewater treatment plant (with a designed treatment capacity of about 170,000 m³ per annum);
 - Installation of biodiesel production and glycerine purification system;
 - Construction of product storage and ancillary facilities;
 - Pretreatment of grease trap waste;
 - Treatment of wastewater generated from feedstock pre-treatment and glycerine dewatering process, and filtrates from dewatering process of sludge treatment;
 - Transesterification of feedstock with alcohol-catalyst; and
 - Purification of biodiesel.
- 1.3 The general layout of the Project is shown in **Figure 1.1.**
- 1.4 Layout plan of tank farm **2A**, **2B** to **2E** is revised and a report is made by Environmental Resources Management (ERM) regarding such change. The report concluded that no deviation is found from the approved EIA report.
- 1.5 Environmental Permits (EP) No. EP-319/2009, EP-319/2009/A and EP-319/2009/B were issued on 11 March 2009, 7 April 2009 and 31 Jan 2013 respectively for Development of a Biodiesel Plant at Tseung Kwan O Industrial Estate to ASB Biodiesel (Hong Kong) Limited as the Permit Holder. A VEP was submitted and the latest EP No. EP-319/2009/C was issued by EPD on 5 Mar 2013.
- 1.6 Cinotech Consultants Limited was commissioned by the Contractor to undertake the Environmental Monitoring and Audit (EM&A) works for the Project. This is the 50th Monthly EM&A report summarizing the EM&A works for the Project in July 2013.

Project Organizations

- 1.7 Different parties with different levels of involvement in the project organization include:
 - Project Proponent ASB Biodiesel (Hong Kong) Limited
 - Project Manager AECOM
 - Contractor China Harbour Engineering Company Limited (CHEC)
 - Environmental Team (ET) Cinotech Consultants Limited
 - Independent Environmental Checker (IEC) Mannings (Asia) Consultants Ltd.
- 1.8 The responsibilities of respective parties are detailed in Section 1.10 of the Final EM&A Manual of the Project.
- 1.9 The key contacts of the Project are shown in **Table 1.1**.

Table 1.1 Key Project Contacts

Party	Role	Name	Position	Phone No.	Fax No.
ASB	Project Proponent	Ms. Sylvia Har	Senior Plant Engineer	9479 0949	3741 1661
		Dr. HF Chan	ET Leader	2151 2088	
Cinotech	Environment al Team	Ms. Ivy Tam	Project Coordinator	2151 2090	3107 1388
		Ms. Betty Choi	Audit Team Leader	2151 2072	
	Independent	Mr. Mark Cheung	Independent Environmental Checker	3168 2028	
Mannings	Environment al Checker	Mr. Gavin Kwok	Assistant to Independent Environmental Checker	3168 2028	3168 2022
AECOM	Project Manager	Mr. Matthew Lau	Construction Manager	9363 5586	N/A
		Mr. Peter Chung	Project Manager	9471 2438	
СНЕС	Contractor	Mr. Anson Wong	Safety and Environmental Officer	9656 3837	2623 9226
		Mr. Simon Li	Environmental Supervisor (Ass. Planning Engineer)	6152 7867	

Construction Programme

- 1.10 The site activities undertaken in the reporting month were:
 - General site cleaning and tidying
 - WWTP Equipment installation work
 - Building Services P&D work
 - Building Services Fire Service work
 - Building Services MVAC work
 - Building Services Electrical work
 - External Works Boundary wall construction work
 - External Works Storm water drainage work
 - External Works Foul water drainage work
 - External Works Fresh water main installation work
 - External Works Salt water main installation work
 - External Works Fire Services pipe laying work
 - External Works Draw Pit construction & Cable Ducts laying work
 - External Works Pavement work

Summary of EM&A Requirements

- 1.11 The EM&A requirements are described in the following sections, including:
 - Environmental mitigation measures, as recommended in the project EIA study final report; and
 - Environmental requirements in contract documents.
- 1.12 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 3 of this report.

2 ENVIRONMENTAL AUDIT

Site Audits

- 2.1 Site audits were carried out by ET on monthly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summary of the site audit in this reporting month is attached in **Appendix A**.
- 2.2 Site audit was conducted on 19th July 2013 by ET in the reporting month. No non-compliance was observed during the site audits.

Status of Environmental Licensing and Permitting

2.3 All permits/licenses obtained for the Project are summarized in **Table 2.1**.

Status of Waste Management

2.4 The quantities of waste generated in this reporting month are summarized in **Appendix** C.

Implementation Status of Environmental Mitigation Measures

2.5 According to the EIA Study Report, Environmental Permit and the EM&A Manual of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. An updated summary of the EMIS is provided in **Appendix B**.

Table 2.1 Summary of Environmental Licensing and Permit Status

Downit / Linguage Ma	Valid	Period	Deteile	
Permit / License No.	From	To	Details	Status
Environmental Permit (El	?)			
EP-319/2009/A	07/04/2009	N/A	Construction and operation of	Valid
			(i) a biochemical plant with a storage capacity of more than 500 tonnes and in which substances are processed and produced;	
			(ii) a storage, transfer and transhipment of oil facility with a storage capacity of not less than 1,000 tonnes; and	
			(iii) a dangerous goods godown with a storage capacity exceeding 500 tonnes .	
Registration of Chemical	Waste Produce	r	-	
WPN-5113-839-C1186-15	12/06/2009	-	Spent Lubrication oil.	Valid
Construction Noise Permi	t (CNP)		1	
GW-RE0709-13	02/07/2013	19/01/2014	Use of Powered Mechanical Equipment during 0000-2400 hours on general holidays (including Sundays), 0000-0700 hours and 1900-2400 hours on any day not being a general holiday.	Valid
Wastewater Discharge Lic	ense			
WT00004508-2009	07/09/2009	-	Discharge of wastewater from construction site including wheel washing water and chemical precipitation tank	Valid
Billing Account for Dispos	al of Construct	tion Waste		
A/C No.: 7013917	-	-	-	Valid
Notification of Works und	er APCO	•		
Ref. no.: 337009	26/10/2011	-	-	Valid
		<u> </u>		

2.6 During the site inspection in the reporting month, no non-conformance was identified. The observations and recommendations made during the audit session are summarized in **Table 2.2**.

Table 2.2 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
N/A	N/A	N/A	N/A

Summary of Complaint and Prosecution

- 2.7 No environmental related complaint, prosecution or notification of summons was received in the reporting month.
- 2.8 Since the Project commencement, there were a total of 5 project-related environmental complaints. No prosecution or notification of summons was received since the Project commencement. The Complaint Log is attached in **Appendix D**.

3 FUTURE KEY ISSUES

Key Issues for the Coming Month

- 3.1 Key issues to be considered in the coming month include:
 - Noise from operation of the equipment and machinery on-site;
 - Effluent discharge generated from surface runoff;
 - Dust generated from excavation works and stockpile of dusty materials;
 - Maintenance of de-silting facilities and drainage system, such as U-channels;
 - Storage of chemicals/fuel and chemical waste/waste oil on site;
 - Accumulation of stagnant water in the site areas;
 - Accumulation of C&D waste and general waste on site.

Construction Program for the Next Months

- 3.2 A tentative construction programme is provided in **Appendix E**. The major construction activities in the coming three months will include:
 - General site cleaning and tidying
 - Building Services Fire services work
 - Building Services MVAC work
 - Building Services Electrical work
 - Building Services P&D work
 - External Boundary wall construction work
 - External Works Storm water drainage work
 - External Works Foul water drainage work
 - External Works Plumbing laying work
 - External Works Fire Services piping laying work
 - External Works Draw Pit construction & Cable Ducts laying work
 - External Works Pavement work

4 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 4.1 Environmental audit works were conducted in the reporting month. Site inspections were conducted on monthly basis. The results were reviewed and checked.
- 4.2 No environmental complaint, prosecution or notification of summons was received.

Recommendations

4.3 According to the environmental audit performed in the reporting month, the following recommendations were made:

Water Impact

- To identify any wastewater discharges from site.
- To ensure properly maintenance for de-silting facilities.
- To clear the silt and sediment in the sedimentation tanks.
- To review the capacity of de-silting facilities for discharge.
- To divert all the water generated from construction site to de-silting facilities with enough handling capacity before discharge.
- To avoid accumulation of stagnant and ponding water on site.
- To clear the drainage channel regularly to prevent blockage.
- To set up silt curtain around marine piling work.

Dust Impact

- To remove fugitive dusty material on the haul road periodically.
- Excavated dusty materials or stockpile of dusty materials should be covered by impervious sheeting, or sprayed with water so as to maintain entire surface wet.

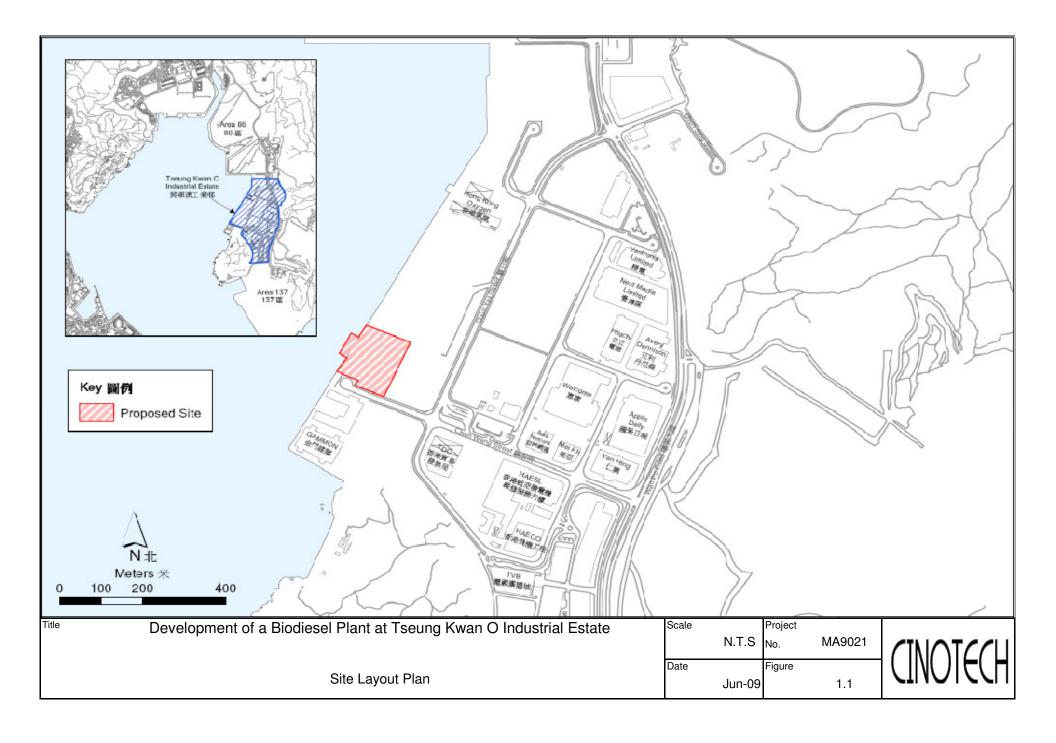
Noise Impact

- To space out noisy equipment and position as far away as possible from sensitive receivers.
- To inspect the noise sources inside the site.

Waste / Chemical Management

- To provide proper rubbish bins / skips for waste collection.
- To provide proper storage area for oil container on site.
- To avoid and check for any accumulation of waste materials or rubbish on site.
- To avoid any discharge or accidental spillage of chemical waste or oil directly from the equipment.

FIGURES



APPENDIX A SITE AUDIT SUMMARY

Development of a Biodiesel Plant at Tseung Kwan O Industrial Estate

Monthly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	130719
	19 July 2013 (Friday)
Time	16:25 – 16:45

Ref. No.	Non-Compliance	Related Item
		No.
-	None	-

Ref. No. Remarks/Observations Related Item Νo. A. Water Quality • No environmental deficiency was identified during site inspection. B. Air Quality • No environmental deficiency was identified during site inspection. C. Noise • No environmental deficiency was identified during site inspection. D. Waste / Chemical Management • No environmental deficiency was identified during site inspection. E. Permit / Licenses • No environmental deficiency was identified during site inspection. F. Reminders • No environmental deficiency was identified during site inspection. G. Others Follow-up on previous audit section (Ref. No.:130624): • All environmental deficiencies were improved/rectified by contractor.

	Name	Signature	Date
Recorded by	Betty Choi	Bethyns	22 July 2013
Checked by	Dr. HF Chan	1/12	22 July 2013

CINOTECH MA9021 130719

APPENDIX B UPDATED ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE

Appendix B - Summary of Environmental Mitigation Implementation Schedule (Construction Phase)

Types of Impacts	Mitigation Measures	Status
	• Dust control measures such as water spaying on roads and dusty areas, covering of lorries by impervious sheets and controlling of the falling height of fill materials will be implemented;	^
	• Effective dust screens, sheeting or netting will be provided to enclose the scaffolding from the ground level of the facility during the building construction;	^
	 All debris and materials will be covered or stored in a sheltered debris collection area; 	^
Construction Dust	 Hoarding from ground level will be provided along the entire length of the site boundary except for a site entrance or exit; Every stockpile of dusty materials will be covered entirely by impermeable sheeting or placed in an area sheltered on the top and the 2 sides. 	^
	and the 3 sides;Regular maintenance and checking of the diesel powered mechanical equipment will be adopted to avoid any black smoke	^
	emissions and to minimize gaseous emissions.	^
	• Monthly site audits will be conducted to ensure the implementation of suitable dust control measures and good site practices.	^
	Only well-maintained plant will be operated on-site and plant will be serviced regularly during the construction program;	٨
	• Silencers or mufflers on construction equipment will be utilized and will be properly maintained during the construction program;	^
	 Mobile plant, if any, will be sited as far from NSRs as possible; 	^
Construction	 Machines and plant (such as trucks) that may be in intermittent use will be shut down between work periods or will be throttled down to a minimum; 	٨
Noise	• Plant known to emit noise strongly in one direction will, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and	٨
	 Material stockpiles and other structures will be effectively utilised, wherever practicable, in screening noise from onsite construction activities. 	^

Compliance of mitigation measure; Remarks: ^

X Non-compliance of mitigation measure;

N/A Not Applicable at this stage; • Non-compliance but rectified by the contractor;

* Recommendation was made during site audit but improved/rectified by the contractor;

* Non-compliance but rectified/improved by the contractor and awaiting IEC's further comment.

Types of Impacts	Mitigation Measures	Status
	• Silt curtain will be installed around the marine piling area to contain any suspended mud and sediments generated during the piling works. Silt removal facilities such as silt traps or sedimentation facilities will be provided to remove silt particles from groundwater (if pumping is required) to meet the requirements of the TM standard under the WPCO. The design of silt removal facilities will be based on the guidelines provided in ProPECC PN 1/94. All drainage facilities and erosion and sediment control structures will be inspected monthly and maintained to ensure proper and efficient operation at all times and particularly during rainstorms. Construction Site Run-off and Drainage	^
Water Quality	 Silt removal facilities such as silt traps or sedimentation facilities will be provided to remove silt particles from runoff to meet the requirements of the TM standard under the WPCO. The design of silt removal facilities will be based on the guidelines provided in ProPECC PN 1/94. All drainage facilities and erosion and sediment control structures will be inspected monthly and maintained to ensure proper and efficient operation at all times and particularly during rainstorms. Careful programming of the works to minimise surface excavations for the construction works during the wet season. If excavation of soil cannot be avoided during the wet season, exposed slope surfaces will be covered by a tarpaulin or other means. Other measures that need to be implemented before, during, and after rainstorms are summarised in ProPECC PN 1/94. Exposed soil surfaces will be protected by paving or fill material as soon as possible to reduce the potential of soil erosion. Open stockpiles of construction materials or construction wastes on-site of more than 50m³ will be covered with tarpaulin or similar fabric during rainstorms. These materials will not be placed near the seawall area. 	^ ^
	 General Construction Activities Debris and refuse generated on-site will be collected, handled and disposed of properly to avoid entering the nearby water sensitive receivers (WSRs). Stockpiles of cement and other construction materials will be kept covered when not being used. Oils and fuels will only be used and stored in designated areas which have pollution prevention facilities. All fuel tanks and storage areas will be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. The bund will be drained of rainwater after a rain event. 	^

Compliance of mitigation measure; Remarks: ^

X Non-compliance of mitigation measure;

N/A Not Applicable at this stage;

* Recommendation was made during site audit but improved/rectified by the contractor;

* Non-compliance but rectified/improved by the contractor and awaiting IEC's further comment.

Types of Impacts	Mitigation Measures	Status
	Sewage generated from On-site Workforce	
	 Temporary sanitary facilities, such as portable chemical toilets, will be provided on-site. A specialised contractor will be responsible for regular collection and appropriate disposal of the sewage and maintenance of these facilities. Monthly site inspections will be carried out during construction to ensure that the mitigation measures listed above are properly implemented. The site audit frequency will be increased to weekly intervals during the piling works. 	^
Ecology	Mitigation measures for minimising water quality impacts are presented in detail above. These measures will be properly implemented and good construction practices will be adopted to minimise potential adverse impacts to marine ecological resources.	۸

[^] Compliance of mitigation measure; X Non-compliance of mitigation measure;
N/A Not Applicable at this stage; • Non-compliance but rectified by the contractor;
* Recommendation was made during site audit but improved/rectified by the contractor;
Non-compliance but rectified/improved by the contractor and awaiting IEC's further comment.

APPENDIX C WASTE GENERATION IN THE REPORTING MONTH Monthly Summary Waste Flow Table For Contract 270 Biodiesel Plant Tseung Kwan O Project Reporting Year: <u>2013</u>

	Actual	l Quantities of Iner	rt C&D Materia	als Generated / Im	uported (in '00)0 m³)	Actua	al Quantities of Ot	her C&D Materials	/ Wastes Gen	ierated
Month	Total Quantities Generated [a+b+c+d]	Broken Concrete (including rock for recycling into aggregates) (a)	Reused in the Contract	Reused in Other Projects (c)	Disposed as Public Fill (d)	Imported C&D Material	Metal (in '000 kg)	Paper/ cardboard packaging (in '000kg)	Plastics (bottles/containers, plastic sheets/ foams from package material) (in '000kg)	Chemical Waste (in '000kg)	Others (e.g. General Refuse etc.) (in '000m3)
January	0	0	0	0	0	0	0	0.005	0	0	0.082
February	0	0	0	0	0	0	0	0.004	0	0	0.020
March	0	0	0	0	0	0	0	0.004	0	0	0.053
April	0	0	0	0	0.918	0	0	0.003	0	0	0.023
May	0	0	0	0	1.962	0	0	0.004	0	0	0.078
June	0	0	0	0	0.966	0	0	0.003	0	0	0.089
Half-year Total	0	0	0	0	3.846	0	0	0.023	0	0	0.345
July	0	0	0	0	0.035	0	0	0	0	0	0.101
August											
September										1	
October											
November											
December											
Yearly Total											

APPENDIX D COMPLAINT LOG

APPENDIX D – COMPLAINT LOG

Reporting Month: July 2013

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
COM- 2012- 08-001	Jetty Area	28-08- 2012	A resident in Lohas Park complained about noise nuisance from the site.	Investigation by EPD identified the source to be chiselling work at the jetty area. Although the chisel machines were covered by valid CNP, the Contractor decided to suspend the corresponding work during restricted hours. The machine was later covered by sound proof canvas to minimize noise transmission. Subsequent inspection and noise measurement by the EPD on 3 rd September 2012 concluded that the noise reduction measure was effective and acceptable at Lohas Park.	Closed
COM- 2012- 09-002	Jetty Area	07-09- 2012	A resident in Lohas Park complained about noise nuisance from the site.	Investigation by EPD identified the source to be chiselling work at the jetty area. Only one chisel machine was operated on the day of complain and it was screened by sound proof canvas. Although the machine was covered by valid CNP, the Contractor decided to suspend the corresponding work during restricted hours during investigation period. Subsequent inspection and noise measurement (daytime at site, night time at Lohas Park) by the EPD on 12 th September 2012 concluded that the noise levels were acceptable at Lohas Park.	Closed
COM- 2012- 09-003	Jetty Area	27-09- 2012	A resident in Lohas Park complained about noise nuisance from the site.	The chisel machine used at JP3 of the jetty area was identified as the noise source. According to the Contractor, the machine was screened by sound proof canvas. Although the machine was covered by valid CNP, the Contractor decided to carry out the corresponding work during normal operation hours only. This was agreed with the complainant in Lohas Park.	Closed
COM- 2012- 09-004	Not Specified	04-10- 2012	A resident in Lohas Park complained about noise nuisance from the site at	According to the Contractor, According to the Contractor, only one drilling machine and chiselling machine were in use, which were covered by valid CNP. We advised the Contractor to communicate with the residents in Lohas	Closed

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
			11:18pm.	Park given consistent noise complains. The Contractor explained to the complainant that chiselling work will stop at 11pm every day and start after 10am during weekends to minimize noise nuisance. Further in November, a noise enclosure was erected to cover the noisy part of the chiselling machine.	
Com- 2012- 11-005	Jetty Area	23-11- 2012	A resident in Lohas Park complained about noise nuisance from the site at around 3:00 am	The chisel machine used of the jetty area was identified as the noise source. According to the Contractor, the machine was screened by enclosure. Although the machine was covered by valid CNP, the Contractor decided to carry out the corresponding work during 7:00 – 23:00. Contractor explained to the complainant that the bored piling will be completed in early December.	Closed

Remarks: N/A

APPENDIX E CONSTRUCTION PROGRAMME

ID	Activity Name	Current Start	Current	Current	BL Start	BL Finish	%	Delay	Total				2012				201	13
			Finish	Duration			Complete	from Initial	Float	N D	Jan F	Mar Apr	M Jun Ju	I A S	Oct N	D Jan F	M Apr	M J Ju
270MC-3	BM-Rolling Programme Ver.2.0 (310713)	30-Jun-13 A	17-Nov-13	141	01-Mar-13	17-Nov-13		0	204									
ey Dates		27-Aug-13	27-Aug-13	0	27-Aug-13	27-Aug-13		0	-79									
ontract Pe		27-Aug-13	27-Aug-13	0	27-Aug-13	27-Aug-13		0	-257									
A15900	Date of Completion of the Works		27-Aug-13*	0		27-Aug-13	0%	0	-257									
Maintenanc	·	27-Aug-13	27-Aug-13	0	27-Aug-13	27-Aug-13		0	-79									
A16490	Commencement of Maintenance Period	27-Aug-13	- 13 1	0	27-Aug-13		0%	0	-79	-			}					
ilestones		30-Jun-13 A	31-Jul-13	31	01-Mar-13	31-Jul-13		0	-91									-
		12-Jul-13 A	13-Nov-13	125	31-Jul-13	13-Nov-13		0	207									_
	g Construction Works							ŭ										
	ss Building	31-Jul-13	28-Oct-13	90		28-Oct-13		0	-242									
	ng and Drainage	31-Jul-13	06-Aug-13	7	31-Jul-13	28-Sep-13	201	53	-159									
A18300	PB-BS Plumbing and Drainage Testing	31-Jul-13	06-Aug-13	7		28-Sep-13	0%	53	-159									
	sing Works	31-Jul-13	28-Oct-13	90	31-Jul-13	28-Oct-13	201	0	-332									
17900	PB-BDI Pipe insulation, Process Electrical & Instrumentation Wor		28-Oct-13	90	31-Jul-13	28-Oct-13	0%	0	-332									
	eparation Building	31-Jul-13	24-Sep-13	56		24-Sep-13		0	121									
	ng and Drainage	31-Jul-13	06-Aug-13	7	31-Jul-13			33	-159		 			1 1			1 1	
19200	FP-BS Plumbing and Drainage Testing	31-Jul-13	06-Aug-13	7		08-Sep-13	0%	33	-159									.
-Fire Serv	vices	06-Aug-13	13-Aug-13	7	J	15-Sep-13		33	-244	-								
19300	FP-Fire Service Testing	06-Aug-13	13-Aug-13	7	06-Aug-13	15-Sep-13	0%	33	-244									
P-Process	sing Works	31-Jul-13	24-Sep-13	56	31-Jul-13	24-Sep-13		0	121									
18900	FP-BDI Pipe insulation, Process Electrical & Instrumentation Wor	ks 31-Jul-13	24-Sep-13	56	31-Jul-13	24-Sep-13	0%	0	121	1		[]						
- Boiler I	Room	31-Jul-13	24-Sep-13	56	31-Jul-13	31-Oct-13		37	257		1 1							
R-Plumbir	ng and Drainage	31-Jul-13	06-Aug-13	7	31-Jul-13	20-Aug-13		14	-158									
20200	BR-BS Plumbing and Drainage Testing	31-Jul-13	06-Aug-13	7	31-Jul-13	20-Aug-13	0%	14	-158									
R-Electric	al	31-Jul-13	06-Sep-13	38	31-Jul-13	20-Sep-13		14	-159									
20050	BR-Lighting installation works	31-Jul-13	28-Aug-13	29	31-Jul-13	29-Aug-13	0%	2	-209									
20061	BR-BS Final connection works(Electrical)	23-Aug-13	30-Aug-13	7	23-Aug-13	13-Sep-13	0%	14	-183	† <u>-</u>								
20090	BR-BS Electrical Testing	30-Aug-13	06-Sep-13	7	30-Aug-13	20-Sep-13	0%	14	-159	1								
R-Fire Ser	rvices	31-Jul-13	08-Sep-13	40	31-Jul-13	31-Oct-13		53	-161									
20080	BR-BS Detector installation works(Fire Services)	31-Jul-13	06-Aug-13	7	31-Jul-13	29-Aug-13	0%	23	-218									
20100	BR-BS Cable laying works (Fire Services)	27-Aug-13	29-Aug-13	3	27-Aug-13	25-Sep-13	0%	27	-161	1								
20150	BR-BS Final connection works (Fire Services)	30-Aug-13	01-Sep-13	3	-	28-Sep-13	0%	27	-161	 	ii							
20300	BR-Fire Service Testing	02-Sep-13	08-Sep-13	7		31-Oct-13	0%	53	-161	1								
	sing Works	31-Jul-13	24-Sep-13	56		24-Sep-13		0	257									
19700	BR-BDI Pipe insulation, Process Electrical & Instrumentation Wor		24-Sep-13	56		24-Sep-13	0%	0	257	•								
- Tank Fa	·	06-Aug-13	13-Nov-13	99		13-Nov-13		0	-258									
-Electrica		06-Aug-13	13-Aug-13	7		20-Aug-13		7	-244									
20870	2A-BS Electrical Testing	06-Aug-13	13-Aug-13	7		20-Aug-13	0%	7	-244									
	sing Works	11-Aug-13	13-Nov-13	94	11-Aug-13	_	070	0	-258									
20700	2A-BDI Pipe insulation, Process Electrical & Instrumentation Wor	-	13-Nov-13	94		13-Nov-13	0%	0	-258									
	eparation Room	12-Jul-13 A	13-Nov-13	64		13-Nov-13	070	0	132									
	eparation Room umbing and Drainage	31-Jul-13	13-Sep-13	14	31-Jul-13	13-Sep-13		0	-166	ļ ļ								
22200	GTWSR-BS Plumbing and Drainage Testing	31-Jul-13 31-Jul-13	13-Aug-13	14		13-Aug-13	0%	0	-166									
WSR-Ele		12-Jul-13 A	13-Aug-13	33	31-Jul-13		U /0	7	-244									
21951	GTWSR-BS Final connection works	12-Jul-13 A	19-Jul-13 A	7		13-Aug-13	100%	26	-Z44									
				7				7	244	1		1 1				1 1		
(21980	GTWSR-BS Electrical Testing	06-Aug-13	13-Aug-13	45		20-Aug-13	0%	·	-244	 	<u> </u>		ļ <u></u>					
WSR-Pro	ocessing Works	31-Jul-13	13-Sep-13	45	31-Jul-13	13-Sep-13		0	132		1 1	1 1	-	1 1	1 1 1		1 1 1	
⊐ BL	◆ Milestone	Proposed Bio-Diesel Pl	ant at T.K.O	. Lot 39 M	ain Contract	for All Rema	aining Wor	:ks		Date			Revisi			Ch	necked	Approv
Actual \	Work ▼ Summary								31-	Jul-13	3 M	onth Rollin	g Programme	<u> </u>				
Remain	ning Work		3 Month	Rolling 1	Programi	ne			l									

ID	Activity Name	Current Start	Current	Current	BL Start	BL Finish	%	Delay	Total			2012					13	
			Finish	Duration		_		from Initial	Float	N D Jan	F Mar Apr	M Jun J	lul A	S Oct N	I D Jan	F M Apr	M J	Ju
A21800	GTWSR-BDI Piping, Electrical, Insulation & Instrumentation W		13-Sep-13	45	31-Jul-13	· ·	0%	0	132	1 1								
B-E Tank		31-Jul-13	01-Oct-13	63	31-Jul-13	01-Oct-13		0	-184									
	2B-2E-Electrical	31-Jul-13	06-Aug-13		31-Jul-13	3		24	-128									
A22870	2BE-BS Electrical Testing	31-Jul-13	06-Aug-13	7	31-Jul-13		0%	24	-128									
	2B-2E-Fire Services	02-Aug-13	19-Aug-13	17		24-Sep-13		36	-141									
A22890	2BE-BS Final connection works(Fire Services)	02-Aug-13	12-Aug-13	10		16-Aug-13	0%	4	-141									
A23000	2BE-Fire Service Testing	12-Aug-13	19-Aug-13	7	-	24-Sep-13	0%	36	-141				1 1					
	2B-2E-Processing Works	31-Jul-13	01-Oct-13	63	31-Jul-13			0	-215									
A22700	2BE-BDI Pipe Insulation, Process Electrical & Instrumentation		01-Oct-13	63	31-Jul-13		0%	0	-215								L	
	Vater Treatment Plant	31-Jul-13	28-Aug-13	29	31-Jul-13	20-Sep-13		23	-181									
	mbing and Drainage	21-Aug-13	28-Aug-13	7	21-Aug-13			23	-181									
A23800	WWTP-BS Plumbing and Drainage Testing	21-Aug-13	28-Aug-13	7		20-Sep-13	0%	23	-181									
WWTP-Elec		31-Jul-13	13-Aug-13	14	31-Jul-13	21-Aug-13		8	-244					1 1				
A23680	WWTP-BS Electrical Testing	31-Jul-13	13-Aug-13	14	31-Jul-13	21-Aug-13	0%	8	-244		 	 						Щ
WWTP-Proc	cessing Works	09-Aug-13	19-Aug-13	10	09-Aug-13	08-Sep-13		20	-262									
A23700	WWTP-Treatment Installation Testing	09-Aug-13	19-Aug-13	10	09-Aug-13	08-Sep-13	0%	20	-262	1 1 1 1 1 1	1 1 1 1 1 1 1 1 1			1 1				
4 - Jetty		30-Jul-13 A	26-Aug-13	28	31-Jul-13	13-Sep-13		18	-179					1 1				1
etty-Plum	bing and Drainage	31-Jul-13	19-Aug-13	20	31-Jul-13	13-Sep-13		25	-179									
A24510	4A-BS Piping works(Plumbing)	31-Jul-13	19-Aug-13	20	31-Jul-13	13-Sep-13	0%	25	-179					1 1				İ
etty-Fire S	Services Control of the Control of t	30-Jul-13 A	26-Aug-13	28	20-Aug-13	09-Sep-13		14	-179									
A24600	4A-Jetty E&M and FS testing	30-Jul-13 A	26-Aug-13	28	20-Aug-13	09-Sep-13	66.67%	14	-179									
cternal W	orks	20-Jul-13 A	24-Aug-13	36	31-Jul-13	28-Sep-13		35	-267									
xternal Plu	umping Works	20-Jul-13 A	24-Aug-13	36	31-Jul-13	28-Sep-13		35	-267									
	er main installation works	20-Jul-13 A	24-Aug-13	36	31-Jul-13	28-Sep-13		35	-267									
A25560	Installation of external fresh watermain 6th stage	20-Jul-13 A	24-Aug-13	36	31-Jul-13		58.33%	35	-267									
ater Supp	-	27-Aug-13	27-Sep-13	32	27-Aug-13	·	00.0070	0	158	i i				1 1				1
\25800	WSD inspection and installation of portable watermeter (WWC	0	27-Sep-13	30	28-Aug-13	'	0%	0	-180									
125810	WSD inspection and installation of FS watermeter (WWO46)	27-Aug-13	25-Sep-13	30	27-Aug-13	· ·	0%	0	160					1 1				1
	CLP Energization	31-Jul-13	06-Aug-13	7	31-Jul-13	<u>'</u>	070	23	-159									
18075	PB-BS Electrical Energization to Sub-main	31-0ul-13	31-Jul-13	0	31-00F13	31-Jul-13	0%	0	-248									
19100	FP-BS Electrical Energization to Sub-main		31-Jul-13	0		31-Jul-13	0%	0	-246									
	-	in Cuitab Danna 24 Jul 42		7	04 1.140			-										
20060	BR-BS installation of switch board and cable termination works	s in Switch Rooms 31-Jul-13	06-Aug-13	/	31-Jul-13	29-Aug-13	0%	23	-187									
20160	BR-BS Electrical Energization to Sub-main		31-Jul-13	0		31-Jul-13	0%	0	-158									
20910	2A-BS Electrical Energization to Sub-main		31-Jul-13	0		31-Jul-13	0%	0	-248		<u> </u>	<u> </u>						
21990	GTWSR-BS Electrical Energization to Sub-main		31-Jul-13	0		31-Jul-13	0%	0	-237									
\22910	2BE-BS Electrical Energization to Sub-main		31-Jul-13	0		31-Jul-13	0%	0	-152	1 1 1 1 1 1				1 1				
23740	WWTP-BS Electrical Energization to Sub-main		31-Jul-13	0		31-Jul-13	0%	0	-244									1
24610	4A-BS Electrical Energization to Sub-main		04-Aug-13	0		04-Aug-13	0%	0	-164	1 1 1 1 1 1	1 1 1 1 1 1 1 1 1			1 1				
aintenar	nce Period	27-Aug-13	08-Oct-13	42	27-Aug-13	08-Oct-13		0	143									
S & OP Ins	spection	27-Aug-13	08-Oct-13	42	27-Aug-13	08-Oct-13		0	143									-
\25900	Notification to FSD	27-Aug-13	24-Sep-13	28	27-Aug-13	24-Sep-13	0%	0	-257					1 1				1
25910	FS Inspection	23-Sep-13	24-Sep-13	1	23-Sep-13	24-Sep-13	0%	0	114	1 1 1 1 1 1	1 1 1 1 1 1 1 1 1			1 1				-
25920	Rectification to FSD Comments	24-Sep-13	08-Oct-13	14	24-Sep-13	08-Oct-13	0%	0	114	i i i i				1 1				i
126000	Notification for OP Inspection	27-Aug-13	24-Sep-13	28	27-Aug-13	24-Sep-13	0%	0	-257	1 1 1 1 1 1				1 1				-
26010	OP Inspection	13-Sep-13	13-Sep-13	1		13-Sep-13	0%	0	167	·	;;; 	; 						
	Other Contractors	31-Jul-13	17-Nov-13	110	31-Jul-13	-		0	204	1 1 1 1 1 1				1 1 1 1 1 1				
,					l e	l e				<u> </u>	!!!!	!!!!		!!!	! ! !	1 1	! !	-
→ BL	◆ Milestone	Proposed Bio-Diesel Pl	lant at T.K.O	Lot 39 Ma	ain Contract	for All Rema	ining Wo	orks	31-J	Date	3 Month Rollin	Revi				Checked	Аррі	rov
Actual 1	,		2 3 4 41	n.w. s	D				31-3	ر مر _{ا ال} م	, WICHTHE INCHILL	girogranili	110					
Remail	ning Work		3 Month	Kolling 1	Programi	ne												
Critical	Remaining Work	_	TIN # 0 4	D	(04 7 7 7	010												
.	ne Milestone	fa	or EM&A	Renort (31 July 2	UI 5)												

Name	Current Start		Current	BL Start	BL Finish	%	Delay	Total					2	012					2013	
		Finish	Duration			Complete	from Initial	Float	N D	Jan	F Ma	ır Apr	M Jur	Jul A	S Oc	t N [) Jan	F M	Apr M	J Jul
	31-Jul-13	17-Nov-13	110		17-Nov-13		0	204												
e Installation Works	31-Jul-13	28-Oct-13	90		28-Sep-13		-30	87								1 1				
ipe Bridges Pipe installation works									 										<u> </u>	
mmissioning																				
							-													
-Testing and Commissioning	19-Aug-13	17-Nov-13	90	19-Aug-13	17-Nov-13	0%	0	204	- 1	-		1 1	1	1 1	1 1	1 1	1 1	1		- }
<mark>mmissio</mark> R-Testin		pning 14-Aug-13 g for Ventilation System (odour test) 14-Aug-13	poning 14-Aug-13 17-Nov-13 g for Ventilation System (odour test) 14-Aug-13 12-Sep-13	pning 14-Aug-13 17-Nov-13 96 g for Ventilation System (odour test) 14-Aug-13 12-Sep-13 30	pning 14-Aug-13 17-Nov-13 96 14-Aug-13 g for Ventilation System (odour test) 14-Aug-13 12-Sep-13 30 14-Aug-13	poning 14-Aug-13 17-Nov-13 96 14-Aug-13 17-Nov-13 g for Ventilation System (odour test) 14-Aug-13 12-Sep-13 30 14-Aug-13 12-Sep-13	pning 14-Aug-13 17-Nov-13 96 14-Aug-13 17-Nov-13 g for Ventilation System (odour test) 14-Aug-13 12-Sep-13 30 14-Aug-13 12-Sep-13 0%	pning 14-Aug-13 17-Nov-13 96 14-Aug-13 17-Nov-13 0 g for Ventilation System (odour test) 14-Aug-13 12-Sep-13 30 14-Aug-13 12-Sep-13 0% 0	pning 14-Aug-13 17-Nov-13 96 14-Aug-13 17-Nov-13 0 204 g for Ventilation System (odour test) 14-Aug-13 12-Sep-13 30 14-Aug-13 12-Sep-13 0% 0 167	pning 14-Aug-13 17-Nov-13 96 14-Aug-13 17-Nov-13 0 204 g for Ventilation System (odour test) 14-Aug-13 12-Sep-13 30 14-Aug-13 12-Sep-13 0% 0 167	pning 14-Aug-13 17-Nov-13 96 14-Aug-13 17-Nov-13 0 204 g for Ventilation System (odour test) 14-Aug-13 12-Sep-13 30 14-Aug-13 12-Sep-13 0% 0 167	pning 14-Aug-13 17-Nov-13 96 14-Aug-13 17-Nov-13 0 204 g for Ventilation System (odour test) 14-Aug-13 12-Sep-13 30 14-Aug-13 12-Sep-13 0% 0 167	pning 14-Aug-13 17-Nov-13 96 14-Aug-13 17-Nov-13 0 204 g for Ventilation System (odour test) 14-Aug-13 12-Sep-13 30 14-Aug-13 12-Sep-13 0% 0 167	poning 14-Aug-13 17-Nov-13 96 14-Aug-13 17-Nov-13 0 204 g for Ventilation System (odour test) 14-Aug-13 12-Sep-13 30 14-Aug-13 12-Sep-13 0% 0 167	pning 14-Aug-13 17-Nov-13 96 14-Aug-13 17-Nov-13 0 204 g for Ventilation System (odour test) 14-Aug-13 12-Sep-13 30 14-Aug-13 12-Sep-13 0% 0 167	Oning 14-Aug-13 17-Nov-13 96 14-Aug-13 17-Nov-13 0 204 g for Ventilation System (odour test) 14-Aug-13 12-Sep-13 30 14-Aug-13 12-Sep-13 0% 0 167	pning 14-Aug-13 17-Nov-13 96 14-Aug-13 17-Nov-13 0 204 g for Ventilation System (odour test) 14-Aug-13 12-Sep-13 30 14-Aug-13 12-Sep-13 0% 0 167	pning 14-Aug-13 17-Nov-13 96 14-Aug-13 17-Nov-13 0 204 g for Ventilation System (odour test) 14-Aug-13 12-Sep-13 30 14-Aug-13 12-Sep-13 0% 0 167	pning 14-Aug-13 17-Nov-13 96 14-Aug-13 17-Nov-13 0 204 g for Ventilation System (odour test) 14-Aug-13 12-Sep-13 30 14-Aug-13 12-Sep-13 0% 0 167	poning 14-Aug-13 17-Nov-13 96 14-Aug-13 17-Nov-13 0 204 g for Ventilation System (odour test) 14-Aug-13 12-Sep-13 30 14-Aug-13 12-Sep-13 0% 0 167

Proposed Bio-Diesel Plant at T.K.O.	♠ Milestone	•	BL
3 Month I	▼ Summary	_	Actual Work Remaining Work
for EM&A I		rk	Critical Remaining Work

Proposed Bio-Diesel Plant at T.K.O. Lot 39 Main Contract for All Remaining Works

Month Rolling Programme	
EM&A Report (31 July 2013)	

Date	Revision	Checked	Approved
1-Jul-13	3 Month Rolling Programme		