

Contract No. : EP/SP/52/06
Development of EcoPark in Tuen Mun Area 38

ENVIRONMENTAL MONITORING AND AUDIT

MONTHLY EM&A REPORT for


May 2009

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APPROVAL SHEET

DOCUMENT DATE: 31 May 2009

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Signature: 
Miss Patricia Chung

Date: 19 JUN 2009

Verified by: 
IEC*

Date: 23 JUN 2009

* IEC – Independent Environmental Checker

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EXECUTIVE SUMMARY

This is the thirty-fifth monthly Environmental Monitoring and Audit (EM&A) Report for the Environmental Protection Department Contract No. EP/SP/52/06 entitled "Development of EcoPark in Tuen Mun Area 38". (Environmental Permit No. EP-226/2005/A).

This report contains the results and findings of site inspection activities and EM&A works carried out by the Environmental Team (ET) of the Works Contractor as required in the contract during May 2009.

The site activities in the reporting period mainly consisted of excavation and site formation works and construction of drainage in Phase II construction site.

Several environmental issues, such as improper accommodation of chemical drums, inadequate dust suppression measures and water accumulation in excavation pits, have been identified by ET during weekly site inspections in the reporting month. Contractor has implemented some mitigation measures to address those problems as advised by ET. Some of the measures taken by the contractor were considered as effective to minimize negative impact to the environment. On-going investigation will be carried out to observe performance and effectiveness of those measures. Outstanding environmental items will be inspected in the following month.

LFG monitoring was carried out in May in Phase II construction site on weekly basis. LFG monitoring on 21 May 2009 was suspended as equipment was sent out for battery replacement and hence unavailable on site. As instructed by the Engineer's Representative, one more monitoring point, at site entrance/exit, has been added since 08 May 2009. The measurement results from ET shown in Table 3.5 were within Action and Limit Levels in accordance with EM&A manual.

There were no notifications of summons or successful prosecution during May 2009.

Regarding to the water discharge to storm drainage incident recorded in March 2009,

ET continued to investigate and monitor the mitigation actions carried out by the contractor. There was no water discharge observed in the construction site during the reporting month. As informed by contractor, no further action has been taken by EPD in regard to the above incident.

Planned activities for June 2009 with regard to development of EcoPark consist of:

- 1) Site formation works,
- 2) Excavation works,
- 3) Road formation works and
- 4) Construction of drainage, sewerage & water mains

1. BASIC PROJECT INFORMATION

1.1 Introduction

This is the thirty-fifth monthly Environmental Monitoring and Audit (EM&A) Report for the Environmental Protection Department Contract No. EP/SP/52/06 entitled “Development of EcoPark in Tuen Mun Area 38”. The site layout plan is shown in Appendix 1. The report was prepared by the Environmental Team, Environmental Pioneers & Solutions Limited, of the Works Contractor, Kaden Construction Limited. The report is to be submitted to the Works Contractor, the Engineer and the Environmental Protection Department for the project.

This report presents the results of the environmental monitoring of the project activities conducted during the month of May 2009. This included regular site inspections once per week for verification of implementation of the mitigation measures as recommended in the EM&A Manual and the Contractor’s Environmental Management Plan (EMP).

The construction works of Phase I have already commenced in July 2006 and have been completed in November 2008.

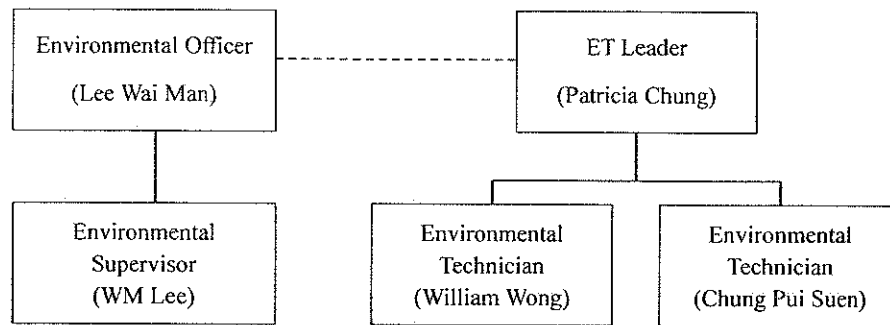
The construction works of Phase II commenced in December 2008 and is anticipated to be completed in December 2009.

The contact person and telephone number of key personnel for the captioned project are shown in Appendix 2.

1.2 Project Organization and Management

The Works Contractor has commissioned Environmental Pioneers & Solutions Limited as the Environmental Team, which comprises the environmental team leader and the environmental technicians to undertake the environmental monitoring and audit work for this project. The project Organization Chart of Environmental Team is shown in Figure 1.1.

Figure 1.1 Organization Chart of Environmental Team



2. SUMMARY OF WORK ACTIVITIES AND CONSTRUCTION STATUS

2.1 Works Undertaken during the Month

A summary of the site installation works in this month, with the information of locations, activities, equipment/materials and dates of occurrence, is provided by the Contractor, as shown in Table 2.1.

Item	Work Activities & Location	Date of Occurrence
1	Site formation works	01 May 2009 – 31 May 2009
2	Excavation works	01 May 2009 – 31 May 2009
3	Road Formation works	01 May 2009 – 31 May 2009
4	Construction of drainage	01 May 2009 – 31 May 2009

Machineries		
	Equipment/ Plant	Quantity
1	Mobile Crane	0
2	Excavator	6
3	Generator	2
4	Air Compressor	1
5	Roller	0
6	Loader	1
7	Grab Lorry	0
8	Crane Lorry	1
9	Water Truck	1
10	Dump Truck	1

Remarks:

- As informed by the Contractor, most equipment is mobile at site subject to work progress.
- Refer to Appendix 1 – Site layout plan for location of construction activities.

2.2 Future Key Issues

The Contractor has provided an updated construction program in Table 2.2 to show the planned activities for the coming month (June 2009). The anticipated environmental issues are summarized as follow:

Item	Works	Anticipated Environmental Issues
1	Site formation works, excavation works & road works	<ul style="list-style-type: none"> - Generation of C&D waste; excavated material should be reused as much as practicable. - Dust may be generated; the wheel washing machine should be in operation. - Haul road should be sprayed regularly, by truck or sprinkler. - Stagnant water should be removed. - Mosquito mitigation measures should be implemented. - Landfill gas monitoring should be carried out.
2	Construction of drainage, sewerage & water mains	<ul style="list-style-type: none"> - Generation of C&D waste; excavated material should be used as much as practicable - Dust may be generated; the wheel washing machine should be in operation

The site inspection schedule for the next month (June 2009) is designated on 05, 12, 19 and 26 of June 2009.

3. STATUS OF ENVIRONMENTAL PROTECTION AND SITE INSPECTIONS

3.1 Environmental Site Inspections

Environmental site inspections are required to inspect the construction activities of the Development of EcoPark in order to ensure that appropriate environmental protection and pollution control mitigation measures are properly implemented. Regular site inspections should be carried out by the ET once per week during construction phase.

Outstanding issues at the end of April 2009 includes:

- 1) Well-constructed wheel washing bay was not available for wheel washing machine at the exit of Phase II construction site. Manual wheel-washing facilities were provided at the temporary site exit. Contractor was reminded that proper wheel washing machine with a washing bay should be provided at the new exit of Phase II construction site. Implementation status will be inspected when construction of the new exit begins tentatively in August.
- 2) Water and oily matters have been found accumulated at the trays of chemical storage cabinet on inspections carried out on April 2009. Contractor took action to clear the oily matter and drums that were not in use in the cabinet as observed in 24 April 2009. Accumulated water was removed as observed on 08 May 2009.

Site inspection of Phase I construction site was conducted on 08 May 2009. Special observations include:

- 1) Drip pan has not yet been provided for the three plastic chemical drums adjacent to the cooling tower in the administration building. ET was informed that a proper drip pan is being designed.

Outstanding issues will be inspected in the next reporting month.

Site inspections for Phase II construction site were conducted on 08, 14, 21 and 29 of May 2009.

A detailed checklist of each site inspection together with comments, relevant photos and maps have been filed and kept.

The findings and results of site inspections are provided in Table 3.1:

Date	Observations	Advice from ET	Action taken	Closing Date
April 09	Well-constructed wheel washing bay was not available for wheel washing machine at the entrance of Phase II construction site.	Contractor was reminded that proper wheel washing machine and bay should be provided at the new exit of Phase II construction site as soon as possible.	Manual wheel-washing facilities were provided at the temporary site exit.	To be followed in the next reporting month
08 May 09	Exposed soil has been observed surrounds the excavation pits near the waterfront	Contractor was reminded to provide coverings to exposed soil in order to prevent surface runoff during rainy days.	Contractor took action to cover the exposed soil with tarpaulin as advised.	14 May 2009
08 May 09	Dusty stockpiles have been observed in several locations in Phase II construction site	Contractor was reminded to take dust suppression measures on site include covering stockpiles that are expected to stay long with tarpaulin.	Contractor took action to provide tarpaulin covering for stockpiles near site exit.	14 May 2009
08 May 09	Stagnant water has been observed at the excavation pit near site entrance.	Contractor was reminded to provide anti-mosquito measures and treat accumulated water properly.	Contractor took action to pump out and transfer accumulated water to a soakaway pond nearby.	14 May 2009
08 May 09 29 May 09	Water and oily matters have been found accumulated at the trays of chemical storage cabinet	Contractor was reminded to always maintain the chemical storage cabinet in good condition.	Contractor took action to clear the oily matter and accumulated water. Accumulated water was still observed right after rainy days.	To be followed in the next reporting month.
14 May 09	A chemical drum without drip trays was observed in Phase II construction site.	Contractor was reminded to provide drip trays for all chemical drums on site	Contractor took action to place chemical drums inside chemical storage area.	21 May 2009
21 May 09	LFG monitoring equipment was sent for battery replacement and unavailable on site. LFG monitoring was suspended for one week.	Proper equipment for LFG monitoring should always be available. Spare monitoring equipment should be provided to minimize influence due to breakdown / other reasons.	LFG monitoring equipment was sent back for monitoring.	29 May 2009

3.2 Air Dust

Excavation work is being carried out in Phase II construction site. Dust problem may be arisen when stockpiles of excavated materials are not enclosed, covered or dampened during dry or windy conditions. Dust suppression measures such as water spraying and

coverings with tarpaulin on stockpiles have been observed in the reporting month.

3.3 Noise

The major noise source was vehicle movement and machinery in the EcoPark. Since the nearby NSRs were remote, the noise impact was minimal. There was no specific observation noted regarding noise issue. The Contractor has obtained the Construction Noise Permit on 07 August 2007 but it had been expired on 28 Feb 2008. The contractor should renew the permit as necessary.

3.4 Surface Water Quality

Since there was no water discharge at manhole, the Contractor removed the silt curtain installed at discharge point on 4 April 2007, as agreed by the Engineer's Representative. No muddy water was observed at discharge point for Phase I construction site. As informed by Engineer's Representative, there was no direct water discharge at manhole in Phase II construction site. No muddy water discharge is expected.

Chemical toilets (1 nos.) have been provided in Phase II construction site by a licensed contractor, of which sewage generated is collected every three to five days without causing contamination on surface water. The Effluent Discharge License was issued to the Contractor on 20 November 2006.

The temporary storage tank was used to store the effluent of aerobic wastewater treatment system and the stored effluent was pumped away regularly. As checked by the ET, there was no effluent discharge into the storm water drain. To avoid any sewage overflow, frequent checking is required after the commencement of Phase II construction works.

Regarding to the water discharge to storm drainage incident recorded in March 2009, ET continued to investigate and monitor the mitigation actions carried out by the contractor. There was no water discharge observed in the construction site during the reporting month. As informed by contractor, no further action has been taken by EPD in regard to the above incident.

3.5 Visual and Landscape Impact

Hoarding was erected at the site egress and aligned along the site boundary along Lung Mun Road. Hoardings were specially designed to be movable for future re-use in other locations. Some of the hoardings have been removed at the interface between Phase I and Phase II construction site. Re-installation has been completed as observed during inspection carried out on 24 April 2009.

3.6 Waste / Chemical Waste

The Contractor implemented visual inspection and distributed flyers/ notices to ensure all dump trucks have mechanical covers closed when leaving EcoPark site.

Separate waste collection bins were made available for collecting aluminum cans, waste paper and plastic bottles etc. The Contractor has provided the revised site layout plan for refuse collection points as shown in Appendix 3.

Waste dumpers were used for the collection and storage of general waste. Temporary storage areas for waste metals and waste tyres were established in Phase I construction site. For Phase II construction site, a designated refuse collection point has been established and location is shown in Appendix 3.

Excavated materials are reused as back-fill material to balance cut and fill and hence reduce the generation of materials. Surplus materials are returned to stock in centralized area with suitable protective measures. The Contractor was reminded to comply with the requirements and conditions for disposal at public fill facility and all oversized aggregates should be crushed to less than 250mm before delivering to the public fill.

Materials are recycled and re-used at site as much as practicable to minimize waste generation. Timbers are recycled to make temporary tools and access ladders etc. Excavated rocks, concrete and asphalts are stored for future re-use in land formation and structural construction etc.

Registered waste collectors will be arranged to collect and transport the wastes

whenever necessary.

The Contractor has provided sufficient drip trays for all temporary electricity generators at site. These drip trays should be covered by tarpaulin sheet to minimize rainfall accumulation.

Table 3.4 provides a summary table of waste disposal in May 2009. The Contractor has been reminded to keep good record at site in order to have a clear presentation of waste disposal.

Type of Waste	Disposal Site	Quantity	Remarks
General Waste	WENT Landfill	3 tonnes	-
Inert C&D Material	Public Fill Facility	890 tonnes	-

3.7 Landfill Gas

Landfill gas (LFG) monitoring equipment (GEM 2000) has been repaired and sent back on 09 April 2009. Calibration certificate is provided in Appendix 6.

LFG monitoring was carried out in May when there were excavations of 1m depth or more in Phase II construction site on weekly basis. LFG monitoring on 21 May 2009 was suspended as equipment was sent out for battery replacement and unavailable on site. As instructed by the Engineer's Representative, one more monitoring point, at site entrance/exit, has been added since 08 May 2009. LFG monitoring was carried out on site at six locations on 08, 14 and 29 May 2009.

Measurement results are summarized in Table 3.5. All results are within the Action / Limit Levels in accordance with the EM&A Manual, as shown in Table 3.6.

Sampling Location	Date of Measurement	Sampling Time	Weather Condition	Methane (CH ₄) %LEL	Carbon Dioxide (CO ₂) %LEL	Oxygen (O ₂)
S3	08 May 09	11:51	Sunny	0.00%	0.00%	20.2
FMH 37	08 May 09	11:39	Sunny	0.00%	0.00%	20.7
FMH 35	08 May 09	11:43	Sunny	0.00%	0.00%	20.5
FMH 33 – 34	08 May 09	11:45	Sunny	0.00%	0.00%	20.4
FMH 33	08 May 09	11:47	Sunny	0.00%	0.00%	20.3
Site exit	08 May 09	11:36	Sunny	0.00%	0.00%	21.0
S3	14 May 09	11:08	Sunny	0.00%	0.00%	20.2
FMH 37	14 May 09	10:59	Sunny	0.00%	0.00%	20.9
FMH 35	14 May 09	11:00	Sunny	0.00%	0.00%	20.8
FMH 33 – 34	14 May 09	11:02	Sunny	0.00%	0.00%	20.6
FMH 33	14 May 09	11:03	Sunny	0.00%	0.00%	20.6
Site exit	14 May 09	10:55	Sunny	0.00%	0.00%	21.2
S3	21 May 09	/	Sunny	N/A*	N/A*	N/A*
FMH 37	21 May 09	/	Sunny	N/A*	N/A*	N/A*
FMH 35	21 May 09	/	Sunny	N/A*	N/A*	N/A*
FMH 33 – 34	21 May 09	/	Sunny	N/A*	N/A*	N/A*
FMH 33	21 May 09	/	Sunny	N/A*	N/A*	N/A*
Site exit	21 May 09	/	Sunny	N/A*	N/A*	N/A*
S3	29 May 09	12:06	Rain	0.00%	0.00%	20.8
FMH 37	29 May 09	11:45	Rain	0.00%	0.00%	21.1
FMH 35	29 May 09	11:52	Rain	0.00%	0.00%	20.9
FMH 33 – 34	29 May 09	11:55	Rain	0.00%	0.00%	20.8
FMH 33	29 May 09	11:59	Rain	0.00%	0.00%	20.9
Site exit	29 May 09	11:41	Rain	0.00%	0.00%	21.1
Remarks:						
1) LFG monitoring was suspended as equipment was sent out for battery replacement and unavailable on site.						
2) Landfill gas measurements, including oxygen level, were carried out with the repaired equipment (GEM 2000) since 09 April 2009.						

Table 3.5 Summary of LFG Measurement for May 2009

Sampling Location	Date of Measurement	Sampling Time	Weather Condition	Methane (CH ₄) %LEL	Carbon Dioxide (CO ₂) %LEL	Oxygen (O ₂)
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Table 3.6 Action Levels, Limit Levels and Event and Action Plan for LFG (From EM&A Manual)

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

4. SUMMARY OF ENVIRONMENTAL PERMIT AND LICENCES

ET has checked with the Contractor for the status of all environmental permits and licenses for this project as at May 2009, which is summarized in Table 4.1. ET will follow the application process of the outstanding permits / licenses and will provide suitable assistance whenever appropriate.

Description	License / Permit No.#	Date of Issue	Date of Expiry	Status/Remarks
Environmental Permit	EP-226/2005/A	9-Sept-2005	--	Issued
Registration of Waste Producer	5111-421-K2869-02	27-Jul-2006	--	Issued
Construction Noise Permit	GW-RW0402-07	07-Aug-2007	28-Feb-2008	Expired
Effluent Discharge Licence	EP760/421/011762/I	20-Nov-2006	1-Dec-2011	Issued

5. CUMULATIVE LOG OF COMPLAINTS AND REMEDIAL ACTION

The cumulative log of complaints is referred in Appendix 5.

6. CUMULATIVE LOG OF NOTIFICATION OF SUMMONS AND PROSECUTIONS

No notification of summons and no prosecutions occurred during May 2009.

7. CONCLUSION

There is no summon nor prosecutions reported during May 2009.

Regarding to the water discharge to storm drainage incident recorded in March 2009, ET continued to investigate and monitor the mitigation actions carried out by the contractor. There was no water discharge observed in the construction site during the reporting month. As informed by contractor, no further action has been taken by EPD in regard to the above incident.

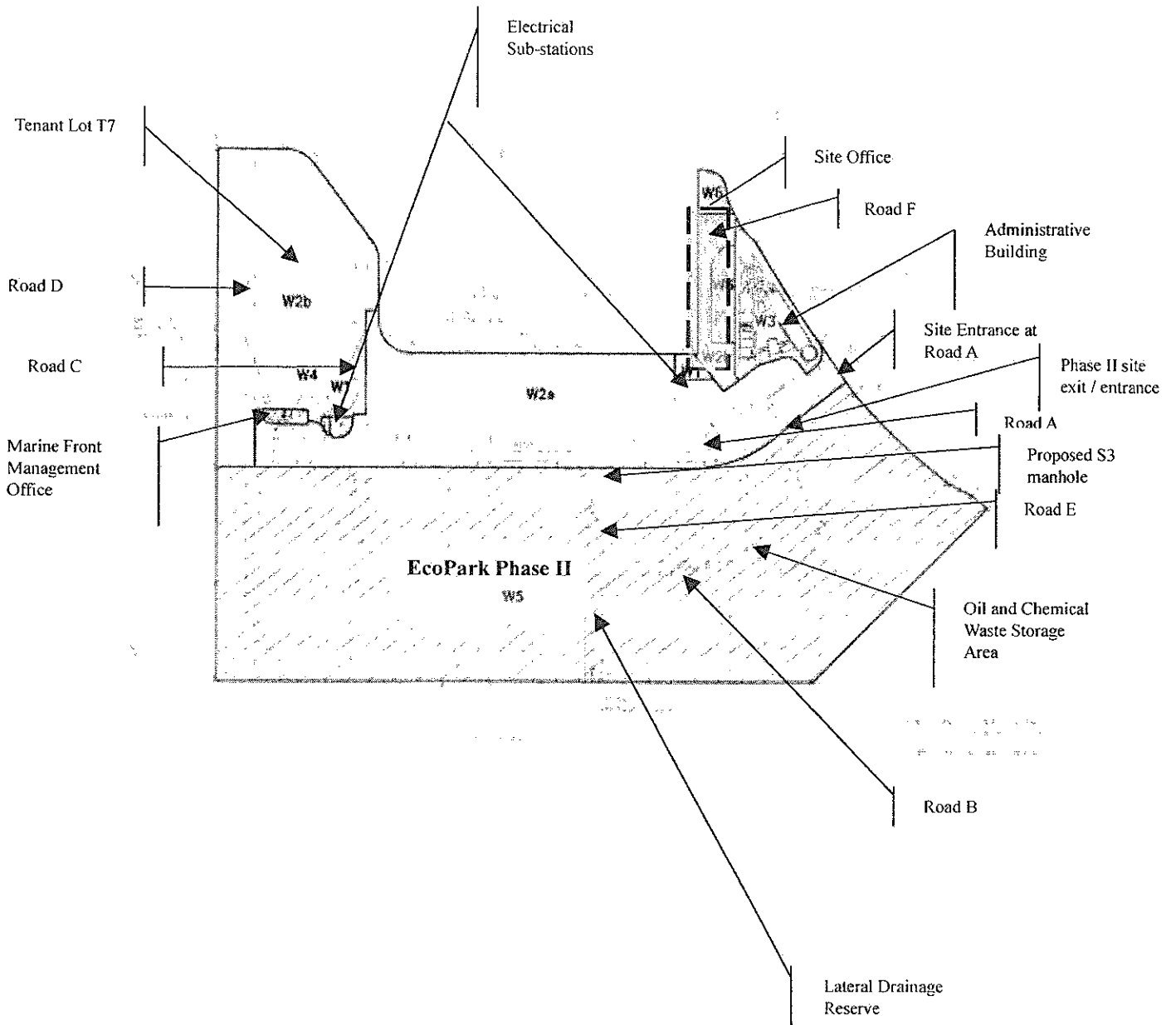
Several environmental issues, such as improper accommodation of chemical drums, inadequate dust suppression measures and water accumulation in excavation pits, have been identified by ET during weekly site inspections in the reporting month. Contractor has implemented some mitigation measures to address those problems as advised by ET. Some of the measures taken by the contractor were considered as effective to minimize negative impact to the environment. On-going investigation will be carried out to observe performance and effectiveness of those measures. Outstanding environmental items will be inspected in the following month.

The Contractor has been using the waste management and record system including allocation of waste storage areas and the trip ticket system as proposed in the Environmental Management Plan.

LFG monitoring was carried out in May 2009 on weekly basis, except on 21 May 2009 due to battery replacement of the monitoring equipment. The measurement results from ET shown in Table 3.5 were within Action and Limit Levels in accordance with EM&A manual.

The ET will continue to implement the environmental monitoring & audit programme in accordance with the EM&A Manual and Environmental Permit requirement.

APPENDIX 1 - SITE LAYOUT PLAN



APPENDIX 2 - THE CONTACT PERSONS, TELEPHONE NUMBERS OF KEY PERSONNEL FOR DEVELOPMENT OF ECOPARK IN TUEN MUN AREA 38

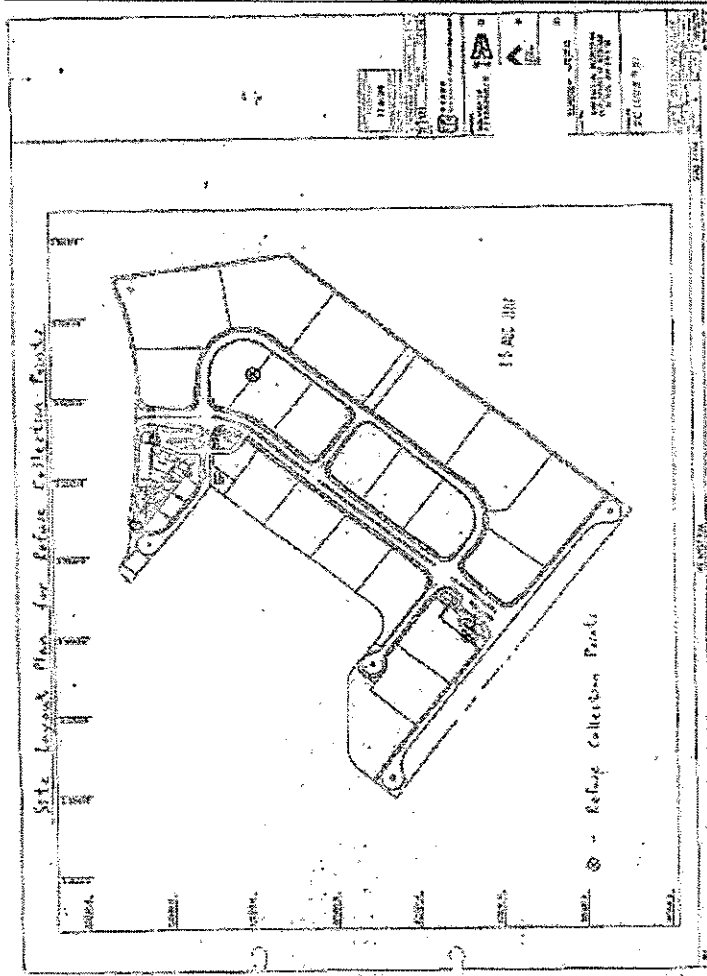
Company/Department	Name	Position	Telephone
Scott Wilson Ltd.	Harold Insley	Independent Environmental Checker	2410 3858
Scott Wilson Ltd.	Mr. Andy Cheung	Resident Engineer	6111 9703
Scott Wilson Ltd.	Mr. T W Wong	Inspector	6111 9705
Kaden Construction Limited	Mr. K M Book	Project Manager	9193 8680
Kaden Construction Limited	Mr. Stephen Leung	Section Agent	9071 7657
Environmental Pioneers & Solutions Limited	Miss. Patricia Chung	Environmental Team Leader	2185 0123
Environmental Pioneers & Solutions Limited	Mr. William Wong	Environmental Technician	2185 0154
Environmental Pioneers & Solutions Limited	Mr. Stephen Tsang	Environmental Technician	2185 0172

APPENDIX 3 – REVISED SITE LAYOUT PLAN FOR REFUSE COLLECTION POINTS

Development of EcoPark in Tuen Mun Area 38

Contract No. EP/SP/52/06
EM&A Report No. 39 (December 2008)

APPENDIX 3 – REVISED SITE LAYOUT PLAN FOR REFUSE COLLECTION POINTS



APPENDIX 4 - ORIGINAL LANDFILL GAS FIELD MEASUREMENT RECORDING SHEETS

Environmental Pioneers and Solutions Limited

Contract No.: EP/SP/52/06 - Development of EcoPark in Tuen Mun Area 38

Landfill Gas Monitoring - Field Measurement Recording Sheet

Date of Monitoring: 08 May 2009

Weather condition: Sunny

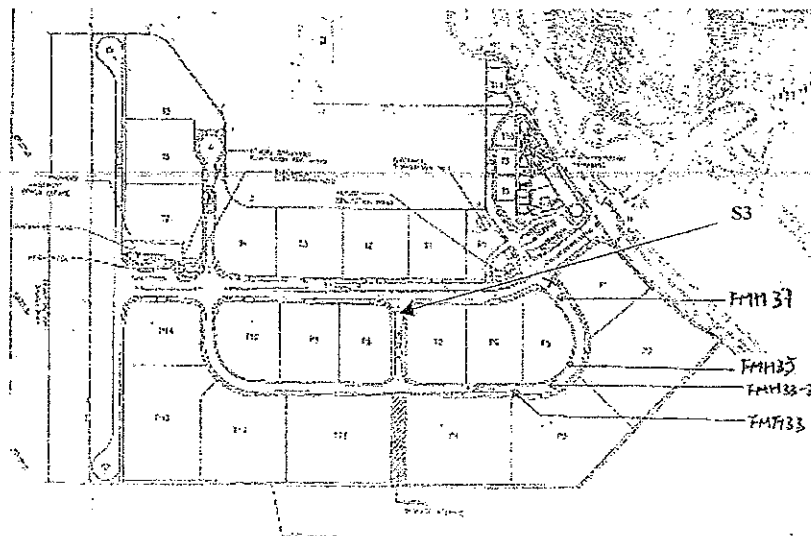
Monitoring performed by: William Wang

Monitoring instrument:

Instruments	Model: GEM 2000	Last calibration:	03 April 2009
	S/N: GM-08793106	Next calibration:	02 April 2010

Monitoring results:

Location	Time	Results				
		Methane (CH ₄) %	Carbon Dioxide (CO ₂) %	Oxygen (O ₂) %	Bal. Gas %	Baro. Pressure %
S3	11:51	0.00	0.00	20.2	79.8	29.82
FMH 33	11:47	0.00	0.00	20.3	79.4	29.82
FMH 33-34	11:45	0.00	0.00	20.4	79.4	29.82
FMH 35	11:43	0.00	0.00	20.5	79.3	29.82
FMH 37	11:39	0.00	0.00	20.7	79.1	29.82
Site entrance	11:36	0.00	0.00	21.0	78.9	29.82



Environmental Pioneers and Solutions Limited

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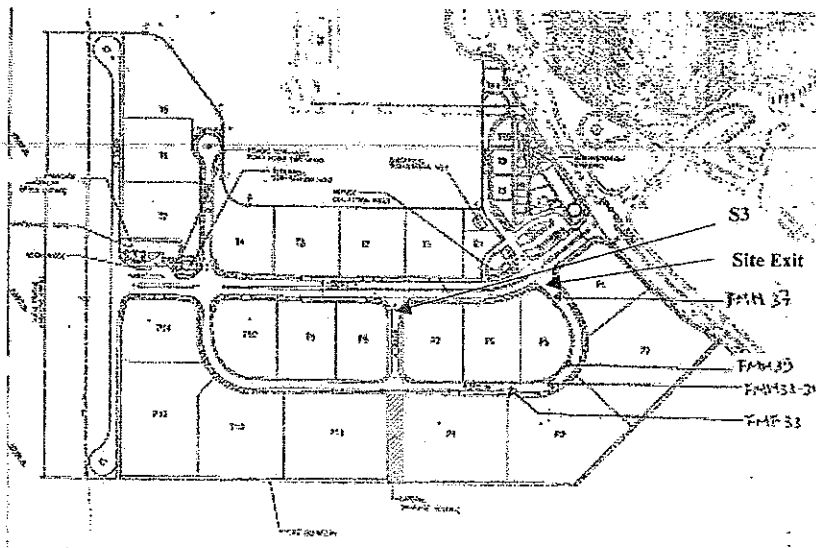
Landfill Gas Monitoring – Field Measurement Recording Sheet

Date of Monitoring: 14 May 2009
 Weather condition: Sunny
 Monitoring performed by: William Wong
 Monitoring instrument:

Instruments	Model: GEM 2000	Last calibration:	03 April 2009
	S/N: GM-08793106	Next calibration:	02 April 2010

Monitoring results:

Location	Time	Results				
		Methane (CH ₄) %	Carbon Dioxide (CO ₂) %	Oxygen (O ₂) %	Bal. Gas %	Baro. Pressure %
S3	11:00	0.00	0.00	20.2	79.7	29.84
FMH 33	11:03	0.00	0.00	20.6	79.2	29.84
FMH 33 - 34	11:02	0.00	0.00	20.6	79.3	29.84
FMH 35	11:00	0.00	0.00	20.8	79.1	29.84
FMH 37	10:59	0.00	0.00	20.7	78.9	29.84
Site exit	10:55	0.00	0.00	21.2	78.6	29.84



Environmental Pioneers and Solutions Limited

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Landfill Gas Monitoring – Field Measurement Recording Sheet

Date of Monitoring: 21 May 2009

Weather condition: Sunny

Monitoring performed by: William Wong

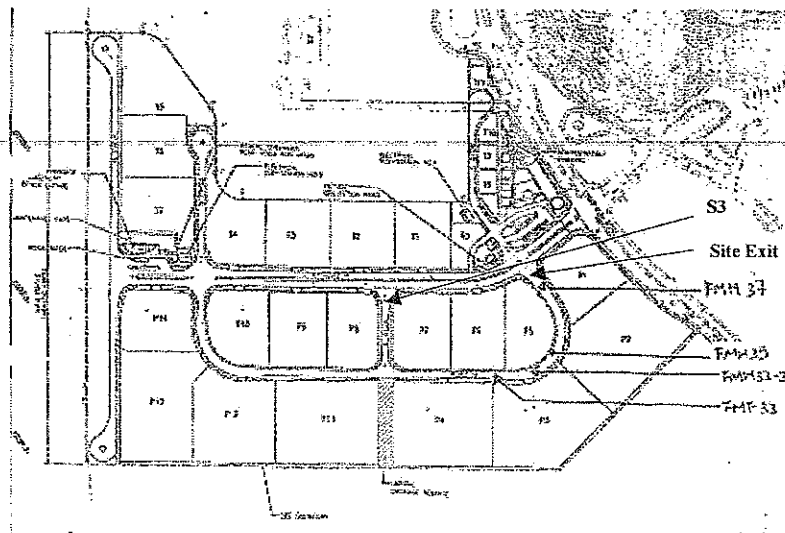
Monitoring instrument:

Instruments	Model: GEM 2000	Last calibration:	03 April 2009
	S/N: GM-08793106	Next calibration:	02 April 2010

Monitoring results:

Location	Time	Results				
		Methane (CH ₄) %	Carbon Dioxide (CO ₂) %	Oxygen (O ₂) %	Bal. Gas %	Baro. Pressure %
S3						
FMH 33						
FMH 33 – 34						
FMH 35						
FMH 37						
Site exit						

* LFEI monitoring equipment was unavailable on site



Environmental Pioneers and Solutions Limited

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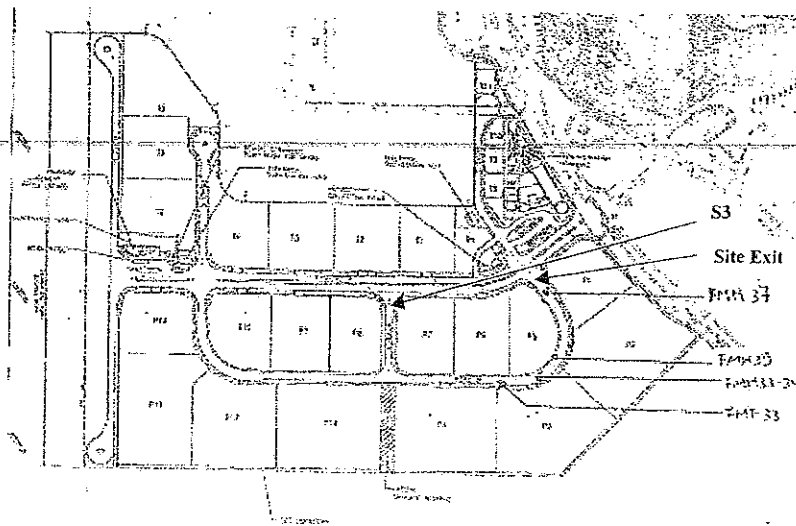
Landfill Gas Monitoring – Field Measurement Recording Sheet

Date of Monitoring: 29/5/2009
 Weather condition: Rain
 Monitoring performed by: Chung Kai Suen
 Monitoring instrument:

Instruments	Model: GEM 2000	Last calibration:	03 April 2009
	S/N: GM-08793106	Next calibration:	02 April 2010

Monitoring results:

Location	Time	Results				
		Methane (CH ₄) %	Carbon Dioxide (CO ₂) %	Oxygen (O ₂) %	Bal. Gas %	Baro. Pressure %
S3	1206	00.0	00.0	20.8	79.0	29.82
FMH 33	1159	00.0	00.0	20.9	79.0	29.82
FMH 33 – 34	1155	00.0	00.0	20.8	79.0	29.82
FMH 35	1152	00.0	00.0	20.9	78.9	29.82
FMH 37	1145	00.0	00.0	21.1	78.7	29.82
Site exit	1141	00.0	00.0	21.1	78.7	29.82



APPENDIX 5 – CUMULATIVE LOG OF COMPLAINTS**CUMULATIVE LOG OF COMPLAINTS**

Environmental Parameters	No. of Outstanding Complaints	No. of complaints received in May 2009	Cumulative no. of complaints received since the commencement of project
Air	0	0	2
Noise	0	0	0
Water	0	0	0
Waste	0	0	0
Total	0	0	2

DETAILS OF COMPLAINTS AND REMEDIAL ACTIONS

Log Ref.	Date of Complaint received	Location	Complainant /Date	Details of Complaint	Investigation /Mitigation Action	Investigated by/ Date
-	-	-	-	-	-	-

APPENDIX 6 – Calibration Certificates for GEM 2000



Hong Kong Calibration Ltd.
香港校正有限公司

Calibration Certificate

Certificate No. 91563

Page 1 of 2 Pages

Customer : Kaden

Address : 屯門38區環保園

Order No. : Q90664

Date of receipt : 3-Apr-09

Item Tested

Description : Gas Analyzer

Manufacturer : CES-LANDTEC

Model : GEM 2000

Serial No. : GM08793106

Test Conditions

Date of Test : 7-Mar-09

Supply Voltage : --

Ambient Temperature : (23 ± 3)°C

Relative Humidity : (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure : V06, Manufacturer recommended method.

Test Results

All results were within the manufacturer's specification.

The results are shown in the attached page(s).

Main Test equipment used:

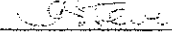
Equipment No.	Description	Cert. No.	Due Date	Traceable to
S138J	Volumetric Syringe	64104	8-Sep-09	NIM-PRC
S138G	Volumetric Syringe	64101	8-Sep-09	NIM-PRC
S158L	Std. Gas	61388	29-Mar-10	NIST-USA
S158F(13)	Std. Gas	83395	3-May-09	NIST-USA
S158A(III)	Std. Gas	60217	28-Dec-09	NIST-USA

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).

The test results apply to the above Unit-Under-Test only

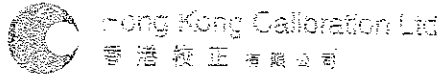
Calibrated by : 
Dorothy Cheuk

Approved by : 
Steve Kwan

Date: 8-Apr-09

This Certificate is issued by:
Hong Kong Calibration Ltd
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.
Tel: 2425 8891 Fax: 2425 8845

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Calibration Certificate

Certificate No. 91563

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Results :

1. Appearance Check : Pass
2. Gas Sampling Tube Leak Check : Pass
3. Internal Pump Check : Pass
4. Gas Response

Applied Gas		UUT Reading (After adjust.)		Mfr's Spec.
CH4	0.00 % Vol.	0.0 % Vol.		± 0.3 % Vol.
	0.50 % Vol.	0.4 % Vol.		
	2.50 % Vol.	2.4 % Vol.		
CO ₂	0.00 % Vol.	0.0 % Vol.		± 0.3 % Vol.
	0.50 % Vol.	0.4 % Vol.		
	4.85 % Vol.	4.8 % Vol.		
	14.37 % Vol.	14.1 % Vol.	± 1 % Vol.	
	40.06 % Vol.	39.3 % Vol.	± 3 % Vol.	
O ₂	0.00 % Vol.	0.0 % Vol.		± 1 % Vol.
	20.9 % Vol.	20.9 % Vol.		

5. t90 Response Time Check : Pass

Remarks :

1. UUT : Unit-Under-Test
2. Uncertainty : ± 0.5 % rdg., for a confidence probability of not less than 95%.
3. The UUT was repaired before the calibration. Fault found – there was a kink in one of the rubber tubing inside the UUT causing restricted flow of sample gas, resulting in under-reading of gas value.

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