

Maeda Corporation



# Upgrading of Ting Kok Road Pumping Station No. 5

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Monthly EM&A Report No. 10  
for October 2006

November 2006

Report no: 01284R0302

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Monthly EM&A Report No. 10 for October 2006

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**Report no:** EA01284R0302

**Date:** November 2006

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**Certified by Landfill Gas Team Leader  
Alexi Bhanja**

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# 1 Executive Summary

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Drainage Services Department (DSD) awarded the contract for the Upgrading of Ting Kok Road Pumping Station No. 5 to Maeda Corporation in September 2005. Maeda appointed Hyder Consulting Limited as the Contractor's Landfill Gas (LFG) Team during the construction period. The construction contract commenced in September 2005 and the total construction period is approximately 28 months.

This report recorded the results and findings of the required EM&A works undertaken during October 2006. All relevant mitigation measures and requirements were implemented. There have been no exceedances in Action/Limit (A/L) Levels at any of the locations monitored under the EM&A programme.

An 11m-deep borehole, designated "M1", was installed by the Contractor to provide an "early warning" of potential LFG problems that could affect surface trenches, but does not form part of the EM&A programme. The Contractor has noted the monitoring results from M1 and will take them into consideration when planning surface trench works in the vicinity.

Manhole M2 was dismantled in July 2006 because of planned works and therefore monitoring at M2 has been terminated since July 2006. However, LFG has never been detected at M2 and so it is not considered that termination of monitoring at this location will have any significant impact on the overall effectiveness of the environmental monitoring programme, as monitoring at manhole M3 will continue.

Environmental Protection Department (EPD) has not conducted any site visit in the reporting period.

## Event and Action Levels

The baseline monitoring results documented in the baseline monitoring report for the Project (our report ref.: EA01284R0022) provided the A/L Levels for LFG impact monitoring and also the Action Plan. For methane, A/L Levels are 0.5%/1.0%; for carbon dioxide, A/L Levels are 0.5%/1.5%; and for oxygen, A/L Levels are 19.0%/18.0%.

## Complaint Log

There were no non-compliances in terms of the EM&A programme during the reporting period and no complaints regarding LFG were received.

## Reporting Changes

There have been no reporting changes during the reporting period.

## Future Key Issues

Based on anticipated construction activities for next month, on the construction programme and on the review of relevant Contractor's method statements by the LGT, no significant future key issues in terms of LFG have been identified at this time.

## 2 Introduction

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### 2.1 Basic Project Information

Upgrading of Ting Kok Road Pumping Station No. 5 (TKRPS) under North District and Tolo Harbour Sewerage, Sewage Treatment and Disposal – High Priority Works is implemented based on the findings of the Study *Review of North District and Tolo Harbour Sewerage Master Plan*.

The purpose of the Project is to upgrade the existing TKRPS to cope with the sewerage needs of both existing and future developments along Ting Kok Road up to Tai Mei Tuk. The design pumping capacity of TKRPS has to be increased from 2,888m<sup>3</sup>/day to 11,520m<sup>3</sup>/day in order to serve the increasing sewage flow along Ting Kok Road. The Project is of high priority and needs to commence as soon as possible because full commissioning of the upstream sewerage facilities along Ting Kok Road is dependent on the completion of this Project.

The proposed scope of works includes construction of a new pumping station, laying of about 350m long twin 450mm diameter rising mains and 250m long 600mm diameter gravity sewer, and demolition of the existing pump pit. The main pumping station, transformer room, gravity sewers, manholes and boundary wall (except the twin rising mains) will be located outside the existing passive vent trench of Shuen Wan Landfill and the three existing Landfill Gas (LFG) monitoring probes within the Project site will not be affected by the works.

Six village houses are located about 60m away from the boundary of the proposed pumping station. The proposed pumping station upgrading works therefore constitute a Designated Project under type F.3(b)(i) in Schedule 2 of the Environmental Impact Assessment Ordinance. A Project Profile (PP) for direct application of the Environmental Permit (EP) (Application No.DIR-115/2005) was approved by the Environmental Protection Department (EPD) in March 2005 and an EP (EP-212/2005) was granted in April 2005, prior to the commencement of the upgrading works.

Drainage Services Department (DSD) awarded the contract for the upgrading of TKRPS to Maeda Corporation in September 2005. Maeda appointed Hyder Consulting Limited as the Contractor's Landfill Gas Team (LGT) during the construction period. CH2M HILL Hong Kong Limited is the Independent Checker (Landfill Gas) (IC(LG)) of the project. The construction contract commenced in September 2005 and the total construction period is approximately 28 months.

Close proximity of the Project to Shuen Wan Landfill (within the 250m Consultation Zone of Shuen Wan Landfill) may also suggest the possibility of landfill gas being released during excavation works for substructure of pumping station, transformer room and associated rising mains and gravity sewers. As such, a *Report on Landfill Gas Hazard Assessment* has been prepared previously (as Appendix E to the PP) in accordance with EPD's *Landfill Gas Hazard Assessment Guidance Note* and the *Practice Note for Professional Persons – Landfill Gas Hazard Assessment for Development Adjacent to Landfills*.

## 2.2 Management Structure and Project Organisation

The Engineer (DSD) is responsible for overseeing the construction works and ensuring that they are undertaken by the Contractor (Maeda) in accordance with the specification and contractual requirements. The Contractor shall report to the Engineer. The LGT is employed by the Contractor and responsible for conducting the EM&A programme. The IC(LG) shall advise the Engineer on LFG issues related to the Project.

The key personnel contact names and telephone number are summarised in Table 2-1. The project organisation is shown in Appendix 1.

Party	Position	Name:	Tel. No.:
Project Proponent and Engineer – DSD	Project Manager	Raymond LEE	2594 7457
	Engineer's Representative	Tim TSOI	2594 7460
Contractor – Maeda	Site Agent	George CHEUNG	9268 1918
LGT – Hyder Consulting	LGT Leader	Alexi BHANJA	2911 2916
IC(LG) – CH2M HILL	IC(LG)	Aldex LEE	2507 2203

Table 2-1 Contact Details for Key Project Personnel

## 2.3 Construction Programme

Construction programme of the Project is attached in Appendix 2. As can be seen, all works carried out during the reporting period have been carried out with the required LFG control measures in place (e.g. LFG monitoring for “hot works”).

## 2.4 Works Undertaken during the Month

Works undertaken during the reporting period included:

- Construction of gravity sewer and rising main
- Excavation
- Installation of walings and struts
- Pile head cutting and installation of pile head steel plate
- Construction of sub-structure

# 3 Environmental Status

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## 3.1 Works Undertaken during the Month with Illustrations

Works undertaken during the reporting period are identified in Section 2.4. Illustrations of these works, such as location of works, etc., are provided in Appendix 3.

## 3.2 Project Area and Monitoring Locations

The site is located at Ting Kok Road in Tai Po, and the major items to be constructed are located outside the existing passive vent trench of the adjacent Shuen Wan Landfill, which has been restored and is currently being monitored.

The impact monitoring locations specified in the *Report on Landfill Gas Hazard Assessment* comprise “utilities’ manholes and chambers” (i.e. fixed locations for purposes of environmental protection) and at excavations of 1m depth or more (i.e. variable locations for purposes of worker safety).

An 11m-deep borehole, designated “M1”, was installed by the Contractor (in addition to contract requirements) to provide an “early warning” of potential LFG problems that could affect surface trenches. It is not intended that M1 forms part of the EM&A programme, since conditions deep below the surface do not fall within the scope of the EM&A programme (i.e. manholes and excavations >1m).

In terms of fixed monitoring locations, the Baseline Report identified two existing manholes (M2 and M3). Manhole M2, however, was dismantled in July 2006 because of planned works and therefore monitoring at M2 has been terminated since July 2006. LFG has never been detected at M2 and so it is not considered that termination of monitoring at this location will have any significant impact on the overall effectiveness of the environmental monitoring programme, as monitoring at manhole M3 will continue. There are no other suitable manholes within the site that can be monitored in lieu of M2.

The fixed monitoring location is shown in Table 3-2:

Monitoring Station ID	Description	Purpose
M3	Existing Manhole (2m deep)	EM&A programme

**Table 3-2 Fixed Monitoring Locations for LFG EM&A**

In terms of variable monitoring locations, these vary from month to month, depending on site activities.

Project area is shown in Appendix 3 and the fixed monitoring location is shown in Appendix 4.

## 4 Brief Summary of EM&A Requirements

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### 4.1 Monitoring Parameters

During the construction phase, impact monitoring of LFG is to be carried out in accordance with the *Report on Landfill Gas Hazard Assessment* at the selected locations. LFG parameters to be monitored comprise oxygen, methane and carbon dioxide. Temperature is also recorded but this is not a LFG parameter.



## 4.2 Monitoring Equipment

Table 4-3 shows the equipment list for LFG monitoring.

Equipment	Manufacturer / Serial Nos.
Gas Analyser GA 2000	Geotechnical Instruments / GA 08277

**Table 4-3 Equipment List for LFG Monitoring**

## 4.3 Event and Action Levels/Plans

The baseline monitoring results documented in the baseline monitoring report for the Project (our report ref.: EA01284R0022) provided the Action and Limit (A/L) Levels for LFG impact monitoring and also the Action Plan. As per the *Report on Landfill Gas Hazard Assessment*, and in keeping with the standard presentation of LFG EM&A in other projects, both the A/L Levels and Action Plan are shown in the same table.

Table 4-4 shows the combined A/L Level and Action Plan for the Project, to be triggered if the LFG criteria are exceeded at fixed location M3, or at any of the variable locations:

Parameter	A/L Level	Action Plan
Oxygen	<19%	– Ventilate to restore oxygen to > 19%
	<18%	– Stop works – Evacuate personnel/prohibit entry – Increase ventilation to restore oxygen to >19%
Methane	>10% LEL (i.e. > 0.5 % by volume)	– Prohibit hot works – Ventilate to restore methane to < 10% LEL
	> 20% LEL (i.e. > 1% by volume)	– Stop works – Evacuate personnel/prohibit entry – Increase ventilation to restore methane to < 10% LEL
Carbon Dioxide	>0.5%	– Ventilate to restore carbon dioxide to <0.5%
	>1.5%	– Stop works – Evacuate personnel/prohibit entry – Increase ventilation to restore carbon dioxide to >0.5%

**Table 4-4 Action and Limit Levels and Action Plan for Landfill Gas**

## 4.4 Mitigation Measures & Requirements in Contract Documents

Measures for mitigating LFG hazards during the construction works have been stated clearly in the *Report on Landfill Gas Hazard Assessment*, which forms part of the contract documents Specification. Relevant excerpts could be referred to the Project Profile for Upgrading of Ting Kok Road Pumping Station No. 5.

Section 5 and Appendix 5 summarise the mitigation measures and requirements as well as the implementation status.

## 5 Implementation Status of LFG Control Measures

The status of the mitigation measures implemented by the Contractor is listed in Appendix 5. All LFG hazard control measures have been implemented as stipulated in the contract documents and in the *Report on Landfill Gas Hazard Assessment*.

## 6 Monitoring Results

Calibration records for the equipment used for LFG monitoring are provided in Appendix 6. Original *Field Measurement Recording Sheets* are provided in Appendix 7.

### 6.1 Early-warning Location M1

During the reporting period, LFG was monitored at M1 to give an “early warning” of potential LFG problems. M1 is an 11m-deep borehole and the carbon dioxide and methane concentrations may reflect possible influence of LFG at depth below the site. Monitoring results are shown in Table 6-5, below. Location M1 is not subject to EM&A and so A/L Levels are not applicable.

Monitoring Station ID	Date	Gas Concentration (%)			Temperature (°C)
		Methane	Carbon Dioxide	Oxygen	
M1	27 October 2006	0.1	0.5	19.8	26.5

**Table 6-5 Monitoring Results at M1**

Considering the location of M1 adjacent to a restored landfill, the recorded levels are within expected norms and are not cause for concern. Notwithstanding, the Contractor has noted these concentrations and will take them into consideration when planning surface trench works in the vicinity.

### 6.2 Fixed Location M3

During the reporting period, LFG was monitored at the fixed location M3 for purposes of environmental protection. This is shown in Table 6-6, below:

Monitoring Station ID	Date	Gas Concentration (%)			Temperature (°C)
		Methane	Carbon Dioxide	Oxygen	
M3	27 October 2006	0	0.3	19.9	27.1

Note : **bold** indicates an exceedance of Action Level and **bold** indicates exceedance of Limit Level

**Table 6-6 Monitoring Results at M3**

Appendix 4 shows the position of each fixed monitoring station. There were no exceedances of A/L Levels at the fixed location during the reporting period.

## 6.3 Variable Locations

During the reporting period, LFG was also monitored at variable locations (for purposes of worker safety). These locations were within Portions 4 to 7 as shown in Appendix 3. A total of 465 readings for each of carbon dioxide, methane and oxygen were taken for safety-related reasons, including excavation and hot works. There were no exceedances for A/L Levels at any variable locations during the reporting period.

LFG monitoring results for variable locations are provided on the *Field Measurement Recording Sheets* in Appendix 7.

## 7 Report on Non-Compliance and Complaints

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EPD has not conducted any site visit in the reporting period.

There were no non-compliances during the reporting period and no complaints regarding LFG were received.

## 8 Others

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### 8.1 Future Key Issues

Construction activities for next month are anticipated to include:

- Excavation
- Diversion of existing drain
- Construction of gravity sewer and rising main
- Installation of walings and struts
- Construction of sub-structure and super-structure

Based on the above, on the construction programme (shown in Appendix 2) and on the review of relevant Contractor's method statements by the LGT, no significant future key issues in terms of LFG have been identified at this time.

LFG monitoring will be continued and the tentative monitoring schedule at fixed locations for the next three months is shown below:

- 1 November 2006
- 1 December 2006
- 3 January 2007

## 8.2 Comments, Recommendations and Conclusions

The LFG mitigation measures adopted by the Contractor during the reporting period are considered have been implemented in a satisfactory manner and there have been no exceedances in A/L Levels.

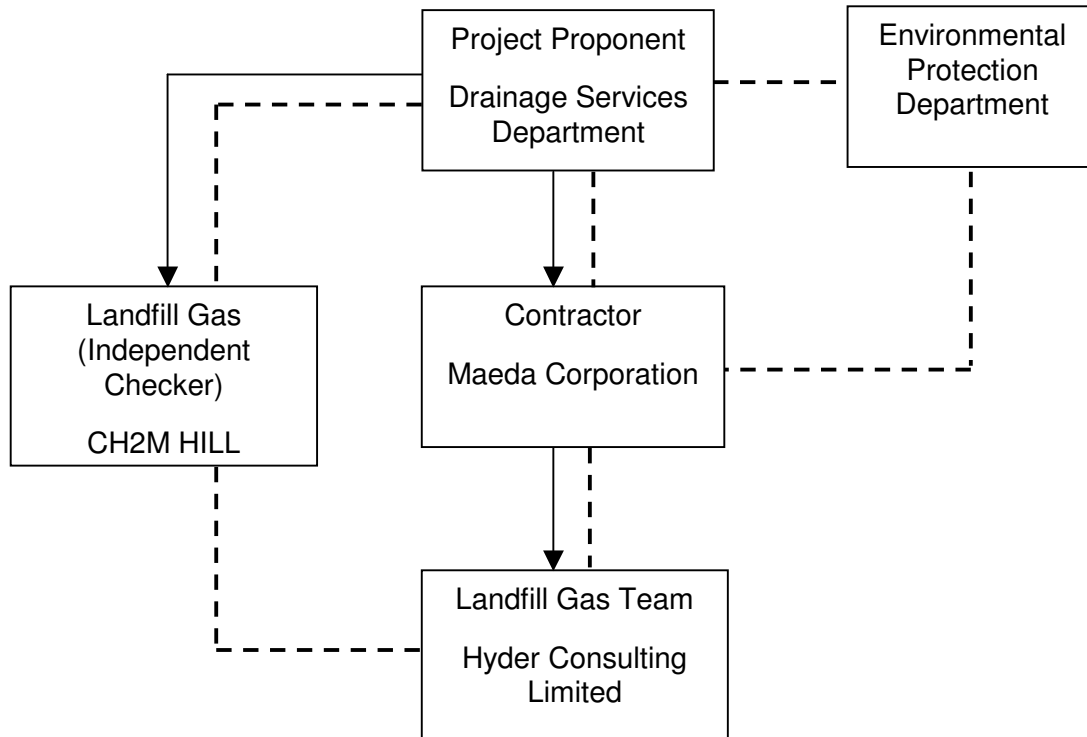
The EM&A programme is considered to have performed acceptably and there are no recommendations for improvements or modifications at this time.

In conclusion, there have been no significant issues relating to LFG hazard during the reporting period.

# Appendix 1

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## Project Organisation



- - - - - Line of communication

→ Line of Authority

# Appendix 2

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## Construction Programme

# Appendix 3

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## Location of Works and Project Area



# Appendix 4

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## Fixed Monitoring Locations

# Appendix 5

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## Updated Implementation Schedule

# Appendix 6

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## Calibration Records

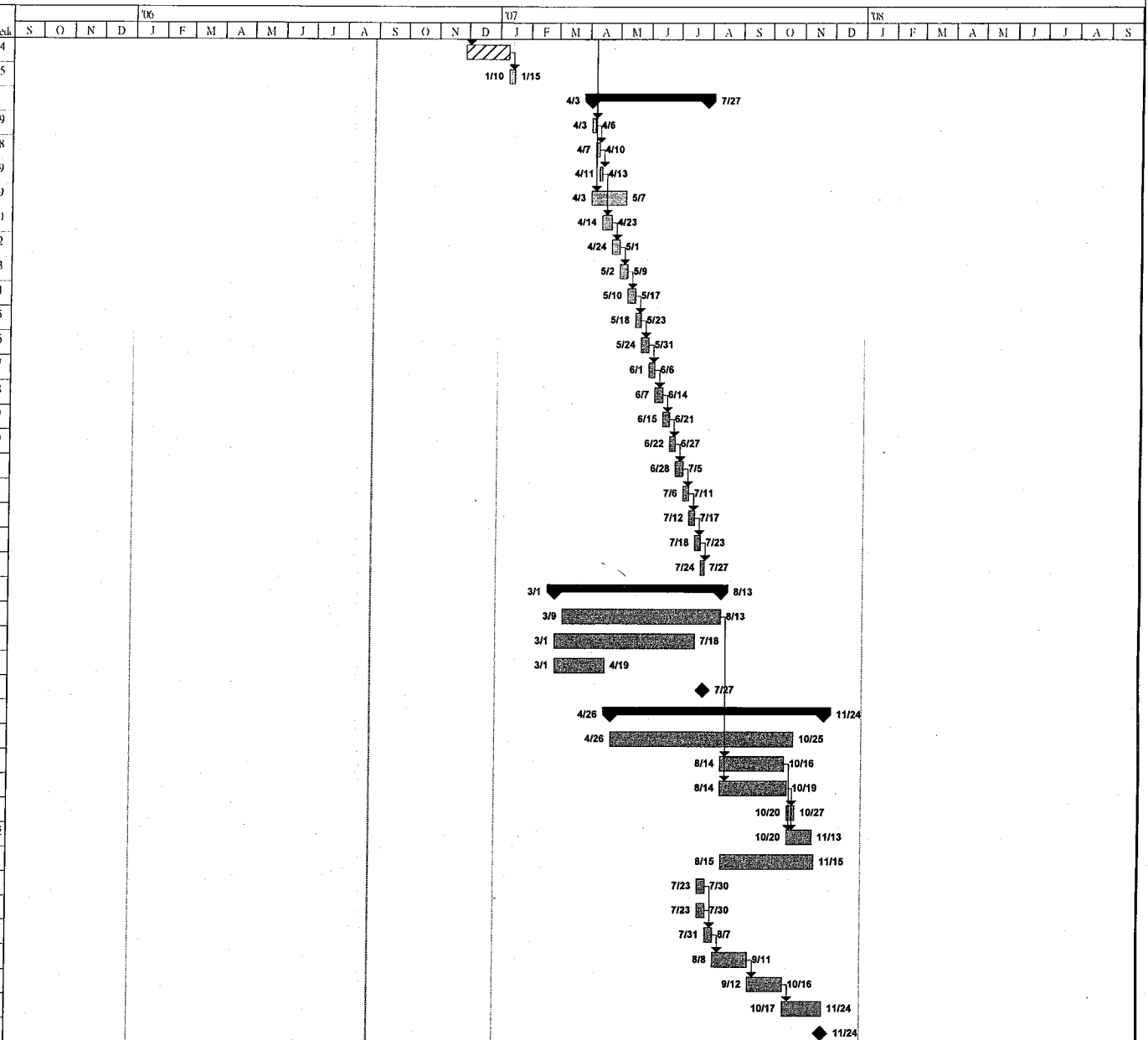
# Appendix 7

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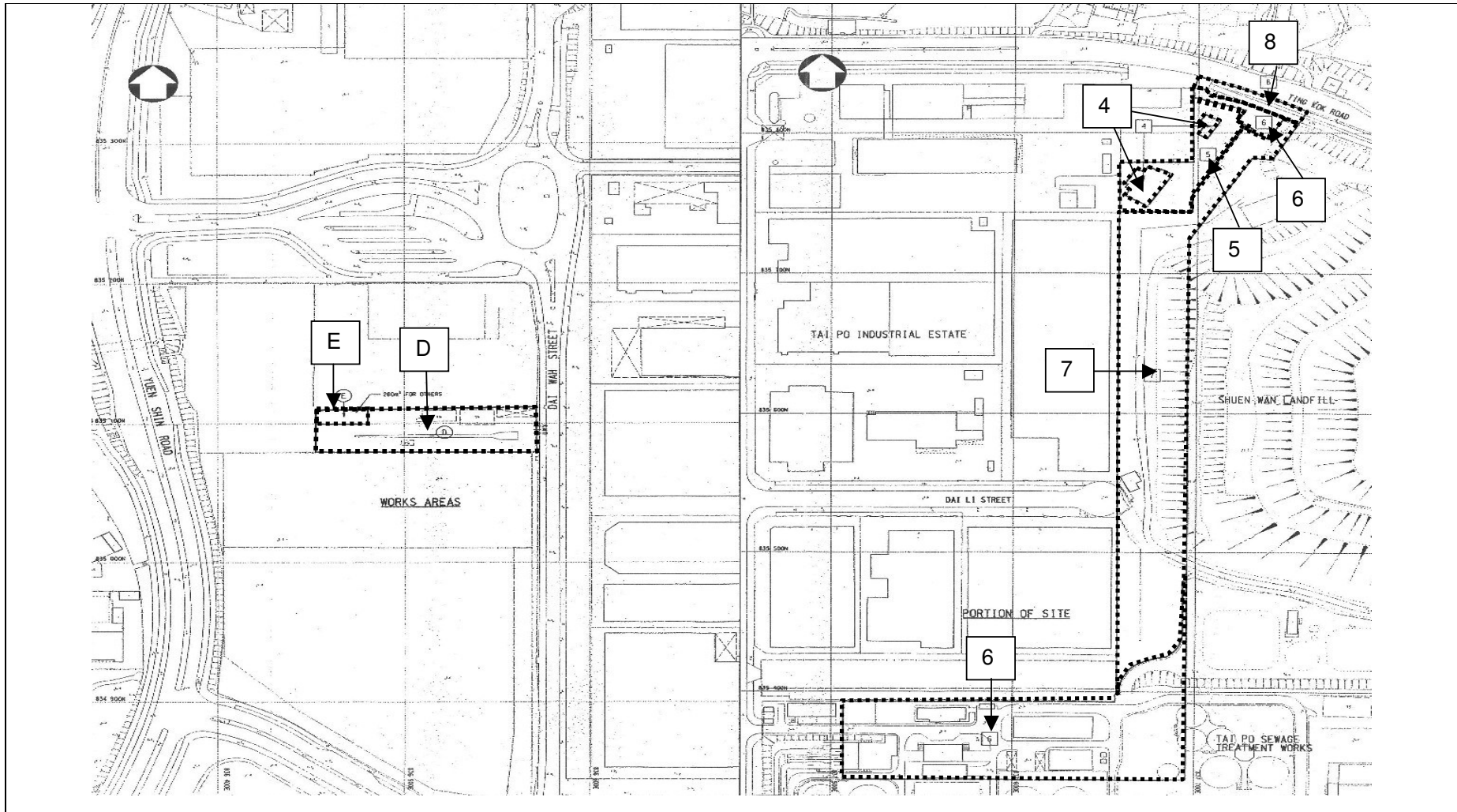
## Field Measurement Recording Sheets

**Maeda Corporation**  
 Contract No. DC/2005/01  
 Expansion of Shek Wu Hui Sewage Treatment Works and  
 Upgrading of Ting Kok Road Pumping Station No.5  
**Master Programme (Rev. 4)**

ID	Task Name	Duration	Start	Finish	Predecessor
775	Stage 4 (MH10 - Existing Manhole)	37 days	Tue 06/11/28	Tue 07/11/9	774
776	CCTV Inspection	5 days	Wed 07/11/10	Mon 07/11/15	775
777	<b>Ting Kok Road Pumping Station No. 5 (Pipeworks)</b>	100 days	Tue 07/11/10	Fri 07/11/27	
778	Laying Sewer MH6 - MH5 (by trenchless method)	4 days	Tue 07/11/10	Fri 07/11/14	769
779	Construction of MH6	3 days	Sat 07/11/11	Tue 07/11/14	778
780	Construction of MH5	3 days	Wed 07/11/11	Fri 07/11/13	779
781	Sheet Piling and Excavation (Type E & F)	30 days	Tue 07/11/13	Mon 07/11/17	769
782	Laying Sewer MH5 - MH4	8 days	Sat 07/11/14	Mon 07/11/23	780
783	Construction of MH4	7 days	Tue 07/11/24	Tue 07/11/31	782
784	Laying Sewer MH4 - MH3	7 days	Wed 07/11/24	Wed 07/11/31	783
785	Construction of MH3	7 days	Thu 07/11/24	Thu 07/11/31	784
786	Laying Sewer MH3 - MH2	5 days	Fri 07/11/24	Wed 07/11/29	785
787	Construction of MH2	7 days	Thu 07/11/24	Thu 07/11/31	786
788	Laying Sewer MH2 - MH1	5 days	Fri 07/11/24	Wed 07/11/29	787
789	Construction of MH1	7 days	Thu 07/11/24	Thu 07/11/31	788
790	Laying Sewer MH4 - F2	6 days	Fri 07/11/24	Thu 07/11/30	789
791	Modification of F2	5 days	Fri 07/11/24	Wed 07/11/29	790
792	Laying Sewer P/S - MH6	7 days	Thu 07/11/24	Thu 07/11/31	791
793	Testing of pipeline	5 days	Fri 07/11/24	Wed 07/11/29	792
794	Laying Sewer P/S - Existing box culvert	5 days	Thu 07/11/24	Tue 07/11/29	793
795	Connection to existing box culvert	5 days	Wed 07/11/24	Mon 07/11/29	794
796	CCTV Inspection	4 days	Tue 07/11/24	Fri 07/11/27	795
797	Remaining Works for P/S and T/H	142 days	Thu 07/11/24	Mon 07/11/31	
798	Civil works for E&M installation (Cable Ducts & Draw Pits)	135 days	Fri 07/11/24	Mon 07/11/31	
799	External Finishes	120 days	Thu 07/11/24	Wed 07/11/29	
800	Roofing Finishes	43 days	Thu 07/11/24	Thu 07/11/29	
801	Key Date of Section 7 of the Works	1 day	Fri 07/11/27	Fri 07/11/27	
802	Section 8 - All Remaining Works	183 days	Thu 07/11/24	Sat 07/11/29	
803	E&M installation (by Others)	157 days	Thu 07/11/24	Thu 07/11/29	
804	External Cable Duct, Drainage & Catchpit	55 days	Tue 07/11/24	Tue 07/11/29	798
805	Construction of Boundary Wall	58 days	Tue 07/11/24	Fri 07/11/29	798
806	Demolition of Existing Boundary Wall	7 days	Sat 07/11/24	Sat 07/11/29	805
807	Road Paving	21 days	Sat 07/11/24	Tue 07/11/29	804
808	Testing and Commissioning (by Others)	80 days	Wed 07/11/24	Thu 07/11/29	
809	Connection to MH F2	7 days	Mon 07/11/23	Mon 07/11/30	
810	Connection to MH1	7 days	Mon 07/11/23	Mon 07/11/30	
811	Demolition of existing pumping pit	7 days	Tue 07/11/31	Tue 07/11/31	809
812	Grouting for Existing Sewer & Manhole	30 days	Wed 07/11/24	Tue 07/11/29	811
813	Landscaping	30 days	Wed 07/11/24	Tue 07/11/29	812
814	Establishment works	34 days	Wed 07/11/24	Sat 07/11/29	813
815	Key Date of Section 8 of the Works	1 day	Sat 07/11/24	Sat 07/11/24	



Date: Mon 06/8/28



Title

Upgrading of Ting Kok Road Pumping Station No. 5 – Portion of Site and Works Area

Date

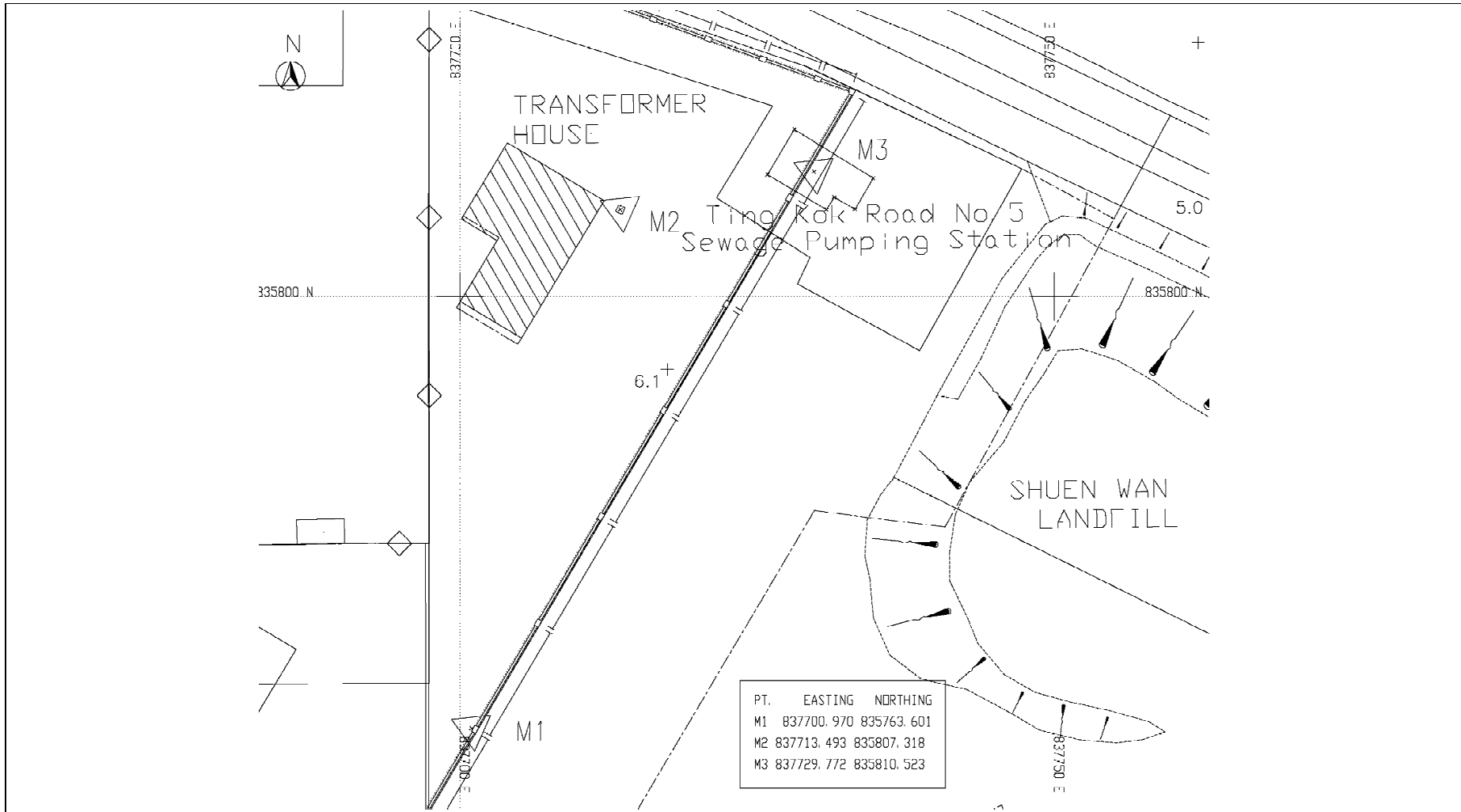
Dec 2005

Figure

N.A.

Scale

NTS



Title

Upgrading of Ting Kok Road Pumping Station No. 5 – LFG Monitoring Station

Date

Dec 2005

Figure

N.A.

Scale

NTS

Section	Environmental Protection Measure	Status	Location	Implementation Agent	Implementation Stage	Relevant Legislation & Guidelines
6.1	Safety officer, trained in the use of gas detection equipment and landfill gas-related hazards should be appointed on site throughout the ground works phase. The Safety Officer should be provided with intrinsically safe portable instruments, appropriately calibrated and capable of measuring the following gases in the ranges indicated: methane            0-100% LEL and 0-100% by volume; carbon dioxide    0-100%;and oxygen              0-21%	Y	Within the work site	Contractor	Construction	Code of practice on Safety and Health at Work in Confined Space.  Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97)
6.2	No smoking and naked flames should be allowed.	Y				Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97)
6.2	No worker should work alone at any time in the confined area or any excavation trenches.	Y				
6.2	Construction equipment should be equipped with a vertical exhaust at least 0.6m above ground level and/or with spark arrestors	Y				
6.2	Electrical motors and electrical extension cords should be explosion-proof or intrinsically safe.	N/A				
6.2	Welding, flame-cutting or other hot works should only be carried out in trenches or confined spaces when controlled by a 'permit to work' procedure, properly authorized by the Safety Officer.	N/A				
6.2	Forced ventilation should be required for workers, if in a trench deeper than 1m.	N/A				



Section	Environmental Protection Measure	Status	Location	Implementation Agent	Implementation Stage	Relevant Legislation & Guidelines
6.2	During piping assembly or conducting construction, all valves/seals should be closed as installed to prevent the migration of gases through the pipeline/conduit. Forced ventilation and gas monitoring should be performed before staff entering and working in large diameter pipe.	N/A	Within the work site	Contractor	Construction	Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97)
6.2	The Safety Officer should set down the monitoring frequency and areas prior to commencement of construction works.	Y				
6.2	Daily and routine monitoring should be carried out in all excavations.	Y				
6.2	All measurements in excavations should be made with the extended monitoring tube located not more than 10mm from the exposed ground surface. Monitoring should be performed properly to make sure that the area is free of landfill gas before any man enters the area.	Y				
6.2	For excavations deeper than 1m, measurement should be carried out: <ul style="list-style-type: none"> <li>▪ at the ground surface before excavation commences;</li> <li>▪ immediately before any worker enters the excavation;</li> <li>▪ at the beginning of each half working day (i.e morning and afternoon) for the entire period the excavation remains open; and</li> <li>▪ periodically through the working day whilst works are in the excavation.</li> </ul>	N/A				

Section	Environmental Protection Measure	Status	Location	Implementation Agent	Implementation Stage	Relevant Legislation & Guidelines
6.2	For excavations between 300mm and 1m deep, measurements should be carried out: <ul style="list-style-type: none"> <li>▪ Directly after the excavation has been completed; and</li> <li>▪ Periodically whilst the excavation remains open.</li> </ul>	Y				
6.2	The landfill gas precautionary measures involved with excavation and piping works should be included in the Safety Plan.	Y	Within the work site	Contractor	Construction	Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97)
6.3	The cracks on the ground level at the working area should be monitored during ground-works construction	N/A				
6.4	Where there are any temporary site offices, or any other buildings that have enclosed spaces with the capacity to accumulate landfill gas, then they should either: <ul style="list-style-type: none"> <li>▪ Be located on an area which has been proved to be free of landfill gas and monitored manually by the Safety officer or an approved and appropriately qualified person to ensure that hazardous concentration of landfill gas does not occur; or</li> <li>▪ Be raised clear of the ground. If buildings are raised clear of the ground, a minimum, clear separation distance should be 500mm.</li> </ul>	Y				
6.5	Such offices or buildings should be provided with some kinds of control of gas by mechanical means e.g. forced ventilation using fans or blowers.	Y				
6.6	Adequate fire extinguishing equipment, fire-resistant clothing and breathing apparatus (BA) sets should be made available on site.	Y				

Section	Environmental Protection Measure	Status	Location	Implementation Agent	Implementation Stage	Relevant Legislation & Guidelines
6.7	Periodic environmental monitoring report with LFG control measures evaluation during construction phase should be provided by contractor and submitted to SP/DSD and EPD.	Y				
7.1	When service voids, manholes or inspection chambers within the proposed site are entered for maintenance, monitoring and a checklist system of safety requirements should be performed before entry.	N/A	Manhole/ chamber	DSD	Operation	Code of Practice on Safety and health at Work in Confined Spaces
7.2	A procedure should be developed as part of the station operation to respond to gas detector alarms. The detection system should be maintained and calibrated regularly in accordance with the manufacturer's recommendations. In the event of a power failure, the detectors should have an 8-hour battery back-up system, and the procedures should indicate for manual monitoring in the station in the event of prolonged power failure (or longer than 8 hours).	N/A	Pumping station			
7.3	Forced ventilation should be used if methane of more than 0.5% (by volume) in the internal atmosphere (e.g. in service voids, manholes, inspection chambers or rooms as mentioned above) is detected.	N/A	Manhole/ chamber/ pumping station			
7.4	No person should enter or remain in a confined spaces or trenches where the carbon dioxide concentration exceed 1.5% (by volume).	N/A				
7.5	Oxygen concentration should be monitored and no person should enter or remain in any confined spaced or trenches where the oxygen content of air has fallen below 18% by volume.	N/A				

Section	Environmental Protection Measure	Status	Location	Implementation Agent	Implementation Stage	Relevant Legislation & Guidelines
7.6	All the access to these confined spaces would be restricted only to authorize personnel who should be aware of the LFG hazard. No member of general public should be permitted or allowed to access these confined spaces, manholes or inspection chambers.	N/A				

Note:

Y – Implemented

N – Not Implemented

N/A – Not Applicable



Environmental Management Division

**CALIBRATION REPORT**

Client : Maeda Corporation  
Address : Tai Po Site Office,  
Ting Kok Road,  
Tai Po

Report No. : CR 000075  
Page No. : 1 of 2  
Issue Date : 23/08/2006

Received Date : 19/08/2006  
Approved Signatory : Grace Ting  
Remarks :

Completion Date : 22/08/2006

**Calibration Results:**

Item : Gas Analyser model GA 2000, Geotechnical Instruments  
Serial No. : GA 08277  
Calibration Method : In house method (calibrated and checked with certified gas standards)  
Date of Calibration : 22/08/2006  
Results: :

**Oxygen**

Expected, %	Reading, %
0.0	0.0
7.7	7.1
20.0	19.8

**Methane**

Expected, %	Reading, %
0.0	0.0
16.6	15.6
31.6	30.4
44.8	45.3
60.0	60.3



Environmental Management Division

## CALIBRATION REPORT

Client : Maeda Corporation  
Address : Tai Po Site Office,  
Ting Kok Road,  
Tai Po

Report No. : CR 000075  
Page No. : 2 of 2  
Issue Date : 23/08/2006

Received Date : 19/08/2006  
Approved Signatory : Grace Ting  
Remarks :

Completion Date : 22/08/2006

### Calibration Results:

Item : Gas Analyser model GA 2000, Geotechnical Instruments  
Serial No. : GA 08277  
Calibration Method : In house method (calibrated and checked with certified gas standards)  
Date of Calibration : 22/08/2006  
Results :

#### Carbon Dioxide

Expected, %	Reading, %
0.0	0.0
11.1	10.6
21.3	21.1
30.1	31.2
40.0	39.9

ANNEX A  
Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKR / P/s No. 5  
Date of measurement: 03/10/06

Sampling equipment used:	Dates calibrated
<u>GA 2000</u>	<u>22/08/06</u>

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 4	03/10/06	08:15	Fine	79.4	0	0	20.5	26.4	3m depth
"	"	08:16	"	79.4	0	0	20.5	26.5	61m depth
Portion 5	"	08:17	"	79.4	0	0	20.5	26.5	1.5m depth
"	"	08:18	"	79.5	0	0	20.4	26.5	4m depth
Portion 7	"	08:19	"	79.5	0	0	20.4	26.5	3m depth
"	"	08:20	"	79.6	0	0	20.5	26.5	5m depth
"	"	08:21	"	79.6	0	0	20.5	26.5	4m depth
"	"	08:22	"	79.6	0	0	20.3	26.4	2m depth
Portion 6	"	08:23	"	79.4	0	0	20.5	26.5	2m depth
"	"	08:24	"	79.4	0	0	20.5	26.6	1m depth
"	"								
"	"								
"	"								

Field Technician: K K K  
supervisor

Checked by: [Signature]  
RSO

PS/APP 1.18 - 15

ANNEX A  
Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: Tkr / P/s No. J  
Date of measurement: 03/10/06

Sampling equipment used:	Dates calibrated
GA 2000	22/08/06

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balanced gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 4	03/10/06	13:21	Fine	79.5	0	0	20.6	30.7	3m depth
"	"	13:22		79.6	0	0	20.3	30.7	6.5m depth
Portion 5	"	13:23		79.5	0	0	20.6	30.6	1.5m depth
"	"	13:24		79.5	0	0	20.6	30.6	6m depth
Portion 7	"	13:25		79.5	0	0	20.6	30.7	5m depth
"	"	13:26		79.4	0	0	20.5	30.6	6m depth
"	"	13:27		79.4	0	0	20.5	30.6	2m depth
"	"	13:28		79.4	0	0	20.5	30.6	2m depth
Portion 6	"	13:29		79.5	0	0	20.6	30.6	1m depth
"	"	13:30							

Field Technician:

*B K K*  
Supervisor

Checked by:

*[Signature]*  
Rso

7/7/2005/01

Particular Specification

PS/APP 1.18-15



ANNEX A  
 Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKR / P/S No. 5  
 Date of measurement: 04/10/06

Sampling equipment used:	Dates calibrated
GA 2000	22/08/06

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes						
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark	
Portion 4	04/10/06	08:07	Faded	79.6	0	0	20.3	26.4	3m depth	
"		08:08		79.6	0	0	20.3	26.4	6.5m depth	
Portion 5		08:09		79.5	0	0	20.4	26.4	1.5m depth	
"		08:10		79.5	0	0	20.4	26.4	4m depth	
Portion 7		08:11		79.5	0	0	20.4	26.4	3m depth	
"		08:12		79.6	0	0	20.3	26.4	5m depth	
"		08:13		79.5	0	0	20.4	26.4	4m depth	
"		08:14		79.4	0	0	20.5	26.4	2m depth	
Portion 6		08:15		79.5	0	0	20.4	26.4	2m depth	
"		08:16		79.4	0	0	20.5	26.4	1m depth	
"										
"										
"										
"										

Field Technician: KKK  
 Supervisor

Checked by: [Signature]  
 RSO

PS/APP 1.18-15  
 Particular Specification

ANNEX A  
 Landfill Gas Monitoring – Field Measurement Recording Sheet (Sample)

Name of site: TKR / P/S No.5  
 Date of measurement: 04/10/06

Sampling equipment used:	Dates calibrated
<u>GA 2000</u>	<u>22/08/06</u>

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 4	04/10/06	13:10	Fine	79.4	0	0	20.5	31.2	3m depth
"		13:11		79.6	0	0	20.3	31.2	6.5m depth
Portion 5		13:12		79.4	0	0	20.5	31.3	1.5m depth
"		13:13		79.6	0	0	20.5	31.3	4m depth
Portion 7		13:14		79.5	0	0	20.4	31.2	3m depth
"		13:15		79.5	0	0	20.4	31.2	5m depth
"		13:16		79.6	0	0	20.5	31.3	4m depth
"		13:17		79.6	0	0	20.3	31.3	2m depth
Portion 6		13:18		79.6	0	0	20.3	31.3	2m depth
"		13:19		79.5	0	0	20.4	31.2	1m depth

Field Technician: K K K  
Supervisor

Checked by: [Signature]  
RSo

NRM/MS/01

Particular Specification

PS/APP I.18-15

ANNEX A  
 Landfill Gas Monitoring – Field Measurement Recording Sheet (Sample)

Name of site: TKR P/S N.S.  
 Date of measurement: 5/10/06

Sampling equipment used:	Dates calibrated
GA 2000	22/8/06

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Point 4	5/10/06	8:14	Fu	79.5	0	0	20.4	27.2	3m depth
"	"	8:12	"	79.5	0	0	20.4	27.3	6.5m depth
Point 5	"	8:20	"	79.5	0	0	20.4	27.3	1.5m depth
"	"	8:17	"	79.4	0	0	20.5	27.3	4m depth
Point 7	"	8:22	"	79.3	0	0	20.6	27.3	3m depth
"	"	8:24	"	79.5	0	0	20.4	27.4	5m depth
"	"	8:23	"	79.3	0	0	20.6	27.5	4m depth
"	"	8:26	"	79.3	0	0	20.6	27.6	2m depth
Point 6	"	8:28	"	79.5	0	0	20.4	27.5	2m depth
"	"	8:31	"	79.3	0	0	20.6	27.6	1m depth

Field Technician: KKK

Checked by: RSO

MUNICIPALITY

Particular Specification

PS/A/P 1.18 - 15


ANNEX A  
 Landfill Gas Monitoring – Field Measurement Recording Sheet (Sample)


Name of site: TKR P/S N65

Date of measurement: 5/10/2006

Sampling equipment used:	Dates calibrated
GA 2000	22/8/2006

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					Remark
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	
Portion 4	5/10/2006	B242	Fin	79.3	0	0	20.6	28.5	3m depth
"	"	B244	"	79.5	0	0	20.4	28.6	6.5m depth
Portion 5	"	B244	"	79.5	0	0	20.4	28.5	1.5m depth
"	"	B247	"	79.6	0	0	20.3	28.6	4m depth
Portion 7	"	B248	"	79.2	0	0	20.7	28.5	3m depth
"	"	B249	"	79.4	0	0	20.5	28.6	5m depth
"	"	B249	"	79.2	0	0	20.7	28.6	4m depth
"	"	B249	"	79.3	0	0	20.6	28.7	2m depth
Portion 6	"	B253	"	79.3	0	0	20.7	28.5	2m depth
"	"	B255	"	79.4	0	0	20.5	28.6	1m depth

Field Technician: K. R. K.   
 Supervisor: S. V. S. V.

Checked by:   
 RSO

MMSM

Particular Specification

PS/APP I.18-15

ANNEX A  
Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKR P/S No.5.

Date of measurement: 6/10/2006.

Sampling equipment used:	Dates calibrated
GA2000	22/8/2006

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 4	6/10/2006	8:14	F	79.5	0	0	20.4	24.6	3m depth
"	"	8:16	"	79.5	0	0	20.4	24.6	6.5m depth
Portion 5	"	8:17	"	79.5	0	0	20.4	24.5	1.5m depth
"	"	8:18	"	79.4	0	0	20.5	24.6	4m depth
Portion 7	"	8:20	"	79.5	0	0	20.4	24.6	3m depth
"	"	8:20	"	79.5	0	0	20.4	24.5	5m depth
"	"	8:21	"	79.5	0	0	20.4	24.5	4m depth
"	"	8:22	"	79.4	0	0	20.5	24.6	2m depth
Portion 6	"	8:26	"	79.5	0	0	20.4	24.6	2m depth
"	"	8:25	"	79.5	0	0	20.4	24.5	1m depth

Field Technician: K. K. K. [Signature]

Checked by: [Signature] RSO

Particular Specification

Particular Specification

PS/APP 1.18 - 15

ANNEX A

Landfill Gas Monitoring – Field Measurement Recording Sheet (Sample)

Name of site: TKR P/S N.E

Date of measurement: 6/10/2006

Sampling equipment used:	Dates calibrated
GA2000	22/8/2006

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 4	6/10/2006	13:17	F	79.3	0	0	20.6	26.3	3m depth
"	"	13:18	"	79.4	0	0	20.5	26.3	6.5m depth
Portion 5	"	13:20	"	79.4	0	0	20.5	26.4	1.5m depth
"	"	13:21	"	79.3	0	0	20.6	26.4	4m depth
Portion 7	"	13:23	"	79.3	0	0	20.6	26.2	3m depth
"	"	13:25	"	79.4	0	0	20.5	26.3	5m depth
"	"	13:25	"	79.4	0	0	20.5	26.2	4m depth
"	"	13:26	"	79.3	0	0	20.6	26.2	2m depth
Portion 6	"	13:30	"	79.3	0	0	20.6	26.4	2m depth
"	"	13:22	"	79.3	0	0	20.6	26.3	1m depth

Field Technician: K. K. K

Checked by: [Signature]  
RSO

MMSM

Particular Specification

PS/APP 1.18-15

ANNEX A

Landfill Gas Monitoring – Field Measurement Recording Sheet (Sample)

Name of site: TKR P/S No.5

Date of measurement: 9-10-2006

Sampling equipment used:	Dates calibrated
GA2000	22/8/2006

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 4	9/10/2006	8:23	Fair	79.4	0	0	20.5	25.5	3m depth
"	"	8:24	"	79.3	0	0	20.6	25.5	6.5m depth
Portion 5	"	8:26	"	79.3	0	0	20.6	25.6	1.5m depth
"	"	8:27	"	79.2	0	0	20.7	25.6	4m depth
Portion 7	"	8:29	"	79.4	0	0	20.5	25.7	3m depth
"	"	8:30	"	79.4	0	0	20.5	25.5	5m depth
"	"	8:39	"	79.2	0	0	20.7	25.5	4m depth
"	"	8:28	"	79.3	0	0	20.6	25.6	2m depth
Portion 6	"	8:32	"	79.4	0	0	20.5	25.5	2m depth
"	"	8:27	"	79.2	0	0	20.7	25.7	1m depth

Field Technician: K. K. K

Checked by: RSO

Particular Specification PS/APP 1.18-15

ANNEX A

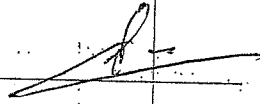
Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)


Name of site: TKR P/S No. 5

Date of measurement: 9-10-2006

Sampling equipment used:	Dates calibrated
<u>GA2000</u>	<u>22/8/2006</u>

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 4	9/10/2006	13:16	Fine	79.3	0	0	20.6	26.2	3m depth
"	"	13:17	"	79.3	0	0	20.6	26.3	6.5m depth
Portion 5	"	13:19	"	79.4	0	0	20.5	26.2	1.5m depth
"	"	13:21	"	79.3	0	0	20.6	26.2	4m depth
Portion 7	"	13:23	"	79.2	0	0	20.7	26.3	3m depth
"	"	13:24	"	79.4	0	0	20.5	26.2	5m depth
"	"	13:25	"	79.3	0	0	20.7	26.4	4m depth
"	"	13:26	"	79.3	0	0	20.6	26.2	2m depth
Portion 6	"	13:27	"	79.4	0	0	20.5	26.4	2m depth
"	"	13:28	"	79.2	0	0	20.7	26.3	1m depth

Field Technician: K K K 

Checked by:  RSO

MMS/MS/01

Particular Specification

PS/APP 1.18-15



ANNEX A

Landfill Gas Monitoring – Field Measurement Recording Sheet (Sample)

Name of site: TKR P/S N.5.  
 Date of measurement:

10-10-2006

Sampling equipment used:	Dates calibrated
<u>GIA2000</u>	<u>22/8/2006.</u>

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 4	10/10/2006	8:24	Fair	79.3	0	0	20.6	25.8	3m depth
"	"	8:25	"	79.4	0	0	20.5	25.8	6.5m depth
Portion 5	"	8:26	"	79.4	0	0	20.5	25.7	1.5m depth
"	"	8:27	"	79.5	0	0	20.4	25.8	4m depth
Portion 7	"	8:27	"	79.4	0	0	20.5	26.0	3m depth
"	"	8:26	"	79.4	0	0	20.5	25.9	5m depth
"	"	8:28	"	79.5	0	0	20.4	25.9	4m depth
"	"	8:26	"	79.4	0	0	20.5	26.0	2m depth
Portion 6	"	8:27	"	79.5	0	0	20.4	25.7	2m depth
"	"	8:29	"	79.6	0	0	20.3	25.8	1m depth

Field Technician: K.K.K

Checked by: [Signature]  
VRSO

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Particular Specification

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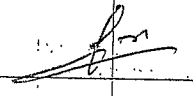
ANNEX A

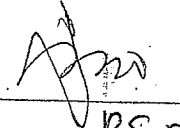
Landfill Gas Monitoring – Field Measurement Recording Sheet (Sample)

Name of site: T&R P/s No. 5  
 Date of measurement: 10/10/2006

Sampling equipment used:	Dates calibrated
<u>GA 2000</u>	<u>22/08/06</u>

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 4	10/10/06	13:20	Fine	79.2	0	0	20.7	29.3	3m depth
✓		13:21		79.2	0	0	20.7	29.4	6.5m depth
Portion 5		13:22		79.3	0	0	20.6	29.4	1.5m depth
✓		13:23		79.3	0	0	20.6	29.4	4m depth
Portion 7		13:24		79.3	0	0	20.6	29.4	3m depth
✓		13:25		79.2	0	0	20.7	29.4	5m depth
✓		13:26		79.3	0	0	20.7	29.4	4m depth
✓		13:27		79.3	0	0	20.6	29.4	2m depth
Portion 6		13:28		79.3	0	0	20.6	29.3	2m depth
✓		13:29		79.3	0	0	20.6	29.4	2m depth

Field Technician: K.K.K 

Checked by:   
RSO

M/M/M/M/M/M

Particular Specification

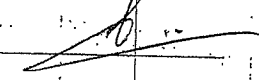
PS/A/P 118-15

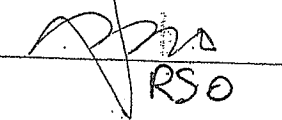
ANNEX A  
Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKR P/c. No. 5  
Date of measurement: 11/10/2006

Sampling equipment used:	Dates calibrated
GA 2000	22/8/2006

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 4	11/10/06	08:10	fume	79.3	0	0	20.6	25.3	3m depth
"	"	08:11		79.2	0	0	20.7	25.3	6.5m depth
Portion 5	"	08:12		79.3	0	0	20.6	25.4	1.5m depth
"	"	08:13		79.3	0	0	20.6	25.3	4m depth
Portion 7	"	08:14		79.3	0	0	20.6	25.4	3m depth
"	"	08:15		79.2	0	0	20.7	25.3	5m depth
"	"	08:16		79.2	0	0	20.7	25.4	4m depth
"	"	08:17		79.2	0	0	20.7	25.4	2m depth
Portion 6	"	08:18		79.2	0	0	20.7	25.4	2m depth
"	"	08:19		79.2	0	0	20.7	25.4	1m depth

Field Technician: K. K. K. 

Checked by:  RSO

T/12/2005/01

Particular Specification

PS/APP 1.18-15

ANNEX A

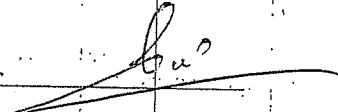
Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)


Name of site: TKR P/S M.S.

Date of measurement: 11/10/2006.

Sampling equipment used:	Dates calibrated
GA 2000	22/8/2006.

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 4	11/10/06	13:15	Fair	79.5	0	0	20.4	26.2	3m depth
"	"	13:17	"	79.5	0	0	20.4	26.3	6.5m depth
Portion 5	"	13:19	"	79.4	0	0	20.5	26.3	1.5m depth
"	"	13:20	"	79.4	0	0	20.5	26.2	4m depth
Portion 7	"	13:21	"	79.5	0	0	20.4	26.3	3m depth
"	"	13:22	"	79.6	0	0	20.3	26.3	5m depth
"	"	13:23	"	79.4	0	0	20.5	26.3	4m depth
"	"	13:23	"	79.6	0	0	20.3	26.3	2m depth
Portion 6	"	13:24	"	79.5	0	0	20.4	26.3	2m depth
"	"	13:25	"	79.6	0	0	20.3	26.2	1m depth

Field Technician: K. L. K. 

Checked by:  RSO

MMS/101

Particular Specification

PSAPP 118-15

ANNEX A  
 Landfill Gas Monitoring – Field Measurement Recording Sheet (Sample)

Name of site: TKR P/S MS  
 Date of measurement: 12/10/2006

Sampling equipment used:	Dates calibrated
<u>GA2000</u>	<u>22/8/2006</u>

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 4	12/10/06	8:20	Fair	79.3	0	0	20.6	26.6	3m depth
"	"	8:21	"	79.2	0	0	20.5	26.7	6.5m depth
Portion 5	"	8:22	"	79.3	0	0	20.6	26.7	1.5m depth
"	"	8:23	"	79.3	0	0	20.6	26.7	4m depth
Portion 7	"	8:23	"	79.3	0	0	20.6	26.3	3m depth
"	"	8:24	"	79.3	0	0	20.6	27.6	5m depth
"	"	8:24	"	79.3	0	0	20.6	27.0	4m depth
Portion 6	"	8:25	"	79.4	0	0	20.5	27.1	2m depth
"	"	8:26	"	79.4	0	0	20.5	26.7	2m depth
"	"	8:26	"	79.3	0	0	20.6	26.9	1m depth

Field Technician: K. K. K.

Checked by: [Signature]  
 RSO

MMS-1

Particular Specification

PS/APP 118 - 15

ANNEX A  
Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKR P/S No 5  
Date of measurement: 12-10-2006

Sampling equipment used:	Dates calibrated
<u>GA2000</u>	<u>22/8/2006</u>

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 4	12/10/06	13:25	Fair	79.4	0	0	20.5	28.6	3m depth
"	"	13:26	"	79.3	0	0	20.6	28.6	6.5m depth
Portion 5	"	13:30	"	79.3	0	0	20.6	28.7	1.5m depth
"	"	13:31	"	79.3	0	0	20.6	28.7	4m depth
Portion 7	"	13:27	"	79.4	0	0	20.5	28.7	3m depth
"	"	13:32	"	79.4	0	0	20.5	28.6	5m depth
"	"	13:26	"	79.3	0	0	20.6	28.7	4m depth
"	"	13:33	"	79.3	0	0	20.6	28.7	2m depth
Portion 6	"	13:35	"	79.4	0	0	20.5	28.8	2m depth
"	"	13:36	"	79.3	0	0	20.6	28.6	1m depth

Field Technician: K. K. K

Checked by: [Signature]  
RSO

P/APP 1.18-15

P/APP 1.18-15

P/APP 1.18-15

ANNEX A  
Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKR P/S No. 3.  
Date of measurement: 13-10-2006.

Sampling equipment used:	Dates calibrated
<u>GTA 2000</u>	<u>22/8/2006.</u>

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					Remark
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	
Point 4	13-10-2006	8:21	F	79.3	0	0	20.6	26.5	3m depth
"	"	8:22	"	79.4	0	0	20.5	26.5	6.5m depth
Point 5	"	8:23	"	79.3	0	0	20.6	26.5	1.5m depth
"	"	8:24	"	79.3	0	0	20.6	26.3	4m depth
Point 7	"	8:26	"	79.4	0	0	20.5	26.5	3m depth
"	"	8:27	"	79.3	0	0	20.6	26.6	5m depth
"	"	8:28	"	79.3	0	0	20.5	26.5	4m depth
Point 6	"	8:31	"	79.4	0	0	20.6	26.5	2m depth
"	"	8:26	"	79.3	0	0	20.5	26.3	2m depth
"	"	"	"	"	"	"	20.6	26.4	1m depth

Field Technician: K.K.K  
Supervisor

Checked by: [Signature]  
RSO

P/S/APP 1.18-15

Particular Specification

P/S/APP 1.18-15

ANNEX A  
Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKR PLS No5  
Date of measurement: 13-10-2006

Sampling equipment used:	Dates calibrated
<u>GA2000</u>	<u>22/8/2006</u>

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 4	13-10-2006	13:22	Fine	79.4	0	0	20.5	27.2	3m depth
"	"	13:26	"	79.5	0	0	20.5	27.3	6.5m depth
Portion 5	"	13:27	"	79.3	0	0	20.6	27.2	1.5m depth
"	"	13:28	"	79.5	0	0	20.4	27.3	4m depth
Portion 7	"	13:28	"	79.4	0	0	20.5	27.3	3m depth
"	"	13:29	"	79.4	0	0	20.5	27.3	5m depth
"	"	13:31	"	79.3	0	0	20.6	27.4	4m depth
"	"	13:30	"	79.3	0	0	20.6	27.3	2m depth
Portion 6	"	13:38	"	79.4	0	0	20.5	27.3	2m depth
"	"	13:33	"	79.3	0	0	20.6	27.3	1m depth

Field Technician: K.K.K  
super visor

Checked by: [Signature]  
RSO

MMS/MS/1

Particular Specification

PS/APP 118-15



ANNEX A

Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKR P/S No. 5

Date of measurement: 14-10-2006

Sampling equipment used:	Dates calibrated
GA 2000	22/8/2006

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 4	14-10-2006	8:23	Fine	79.3	0	0	20.6	27.2	<del>6m</del> 3m depth
Portion 4	"	8:24	"	79.2	0	0	20.7	27.2	9.5m depth
Portion 5	"	8:27	"	79.3	0	0	20.7	27.4	1.5m depth
Portion 7	"	8:26	"	79.3	0	0	20.6	27.3	4m depth
"	"	8:27	"	79.3	0	0	20.6	27.4	3m depth
"	"	8:25	"	79.3	0	0	20.6	27.2	5m depth
"	"	8:27	"	79.4	0	0	20.5	27.4	4m depth
Portion 6	"	8:30	"	79.3	0	0	20.6	27.3	2m depth
Portion 6	"	8:33	"	79.3	0	0	20.6	27.2	2m depth
Portion 5	"	8:38	"	79.2	0	0	20.7	27.3	1m depth

Field Technician:

*[Signature]*  
Sub Agent

Checked by:

*[Signature]*  
RSO

M/M/S/1/1

Particular Specification

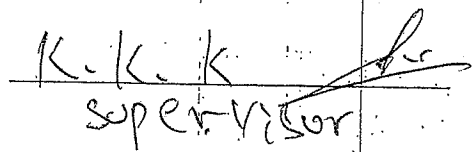
PS/APP 1.18 - 15

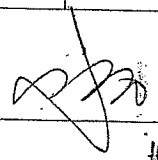
ANNEX A  
 Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKRP/S No.5  
 Date of measurement: 14-10-2006

Sampling equipment used:	Dates calibrated
GA 2000	22/8/2006

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 4	14-10-2006	13:26	Fair	79.3	0	0	20.6	28.5	3m depth
Portion 4	"	13:27	"	79.4	0	0	20.5	28.3	9m depth
Portion 5	"	13:28	"	79.3	0	0	20.6	28.3	15m depth
"	"	13:29	"	79.3	0	0	20.6	28.6	4m depth
Portion 7	"	13:30	"	79.3	0	0	20.6	28.7	3m depth
"	"	13:32	"	79.4	0	0	20.5	28.7	5m depth
"	"	13:33	"	79.4	0	0	20.5	28.8	4m depth
"	"	13:34	"	79.3	0	0	20.6	28.5	2m depth
Portion 6	"	13:37	"	79.3	0	0	20.6	28.5	2m depth
"	"	13:30	"	79.4	0	0	20.6	28.6	2m depth
"	"	"	"	"	"	"	20.5	28.5	1m depth

Field Technician: K.K.K.   
 Supervisor

Checked by:   
 RSO

TRANSFORM

Particular Specification

PS/A/P 1.18-15

ANNEX A  
Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKR P/S No. 5.  
Date of measurement: 16-10-2006.

Sampling equipment used:	Dates calibrated
GA2000	22/18/2006

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 4	16-10-2006	8:21	Fair	79.4	0	0	20.5	25.2	3m depth
"	"	8:20	"	79.3	0	0	20.6	25.3	9m depth
Portion 5	"	8:24	"	79.3	0	0	20.6	25.3	1.5m depth
Portion 7	"	8:25	"	79.3	0	0	20.6	25.3	4m depth
"	"	8:26	"	79.4	0	0	20.5	25.3	3m depth
"	"	8:27	"	79.4	0	0	20.5	25.4	5m depth
"	"	8:28	"	79.3	0	0	20.6	25.3	4m depth
Portion 6	"	8:30	"	79.4	0	0	20.5	25.2	2m depth
"	"	8:21	"	79.4	0	0	20.5	25.2	2m depth
Portion 5	"	8:25	"	79.3	0	0	20.6	25.3	1m depth

Field Technician: K. K. K. SUPERVISOR

Checked by: [Signature] RSO

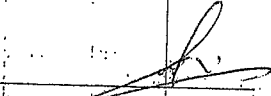
DCA/EP 118-15

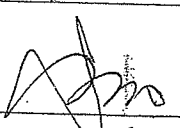
ANNEX A  
Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKR P/S N.S.  
Date of measurement: 16-10-2006.

Sampling equipment used:	Dates calibrated
GA 2006	22/8/2006

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 4	16-10-2006	13:02	F	79.4	0	0	20.5	26.7	3m depth
"	"	13:07	"	79.5	0	0	20.4	26.7	9m depth
Portion 5	"	13:09	"	79.3	0	0	20.6	26.6	1.5m depth
Portion 7	"	13:11	"	79.5	0	0	20.4	26.4	4m depth
"	"	13:13	"	79.3	0	0	20.7	26.5	3m depth
"	"	13:15	"	79.3	0	0	20.6	26.5	5m depth
Portion 6	"	13:17	"	79.5	0	0	20.4	26.4	4m depth
"	"	13:19	"	79.4	0	0	20.5	26.4	2m depth
Portion 5	"	13:16	"	79.4	0	0	20.5	26.7	2m depth
"	"	13:16	"	79.5	0	0	20.4	26.4	1m depth

Field Technician: K.K.K.   
Supervisor

Checked by:   
RSO

ANNEX A  
Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKR P/S No. 5  
Date of measurement: 17-10-2006

Sampling equipment used:	Dates calibrated
<u>G/A 2000</u>	<u>22/8/2006</u>

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 4	17-10-2006	8:17	F	79.6	0	0	20.3	26.6	3m depth
"	"	8:17	"	79.5	0	0	20.4	26.6	9m depth
Portion 5	"	8:20	"	79.4	0	0	20.5	26.6	1.5m depth
Portion 7	"	8:18	"	79.6	0	0	20.3	26.6	4m depth
"	"	8:21	"	79.4	0	0	20.5	26.4	3m depth
"	"	8:23	"	79.4	0	0	20.5	26.3	5m depth
"	"	8:36	"	79.3	0	0	20.6	26.3	4m depth
Portion 6	"	8:29	"	79.5	0	0	20.4	26.4	2m depth
"	"	8:25	"	79.3	0	0	20.6	26.5	2m depth
Portion 5	"	8:19	"	79.6	0	0	20.3	26.5	1m depth

Field Technician: K. K. K  
Supervisor

Checked by: [Signature]  
R50

ANNEX A  
Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKR P/S No 5  
Date of measurement: 17-10-2006

Sampling equipment used:	Dates calibrated
<u>GA2000</u>	<u>22/8/2006</u>

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 4	17-10-2006	13:21	Fair	79.3	0	0	20.6	27.2	3m depth
"	"	13:22	"	79.3	0	0	20.6	27.3	9m depth
Portion 5	"	13:23	"	79.4	0	0	20.5	27.5	1.5m depth
Portion 7	"	13:23	"	79.3	0	0	20.6	27.3	4m depth
"	"	13:24	"	79.4	0	0	20.5	27.5	3m depth
"	"	13:25	"	79.4	0	0	20.5	27.6	5m depth
Portion 6	"	13:26	"	79.3	0	0	20.6	27.6	4m depth
"	"	13:27	"	79.3	0	0	20.6	27.5	2m depth
Portion 5	"	13:27	"	79.4	0	0	20.5	27.3	2m depth
"	"	13:24	"	79.3	0	0	20.6	27.3	1m depth

Field Technician: K. K. K  
Supervisor

Checked by: [Signature]  
RSO

ANNEX A  
Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKR P/Ls No. 5  
Date of measurement: 18-10-2006

Sampling equipment used:	Dates calibrated
<u>GA2000</u>	<u>22/8/2006</u>

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas: (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 4	18-10-2006	8:24	F	79.3	0	0	20.6	27.0	3m depth
"	"	8:25	"	79.4	0	0	20.5	26.8	9m depth
Portion 5	"	8:25	"	79.3	0	0	20.6	26.9	1.5m depth
Portion 7	"	8:27	"	79.2	0	0	20.7	26.8	4m depth
"	"	8:28	"	79.4	0	0	20.5	26.8	3m depth
"	"	8:31	"	79.3	0	0	20.6	26.9	5m depth
"	"	8:30	"	79.3	0	0	20.6	26.8	4m depth
Portion 6	"	8:33	"	79.3	0	0	20.6	26.9	2m depth
"	"	8:34	"	79.4	0	0	20.5	26.8	2m depth
Portion 5	"	8:26	"	79.3	0	0	20.6	26.9	1m depth

Field Technician: K.K.K  
Supervisor

Checked by: [Signature]  
RSO

ANNEX A

Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKR P/S N5  
 Date of measurement: 18-10-2006

Sampling equipment used:	Dates calibrated
<u>GA2000</u>	<u>22/8/2006</u>

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 4	18-10-2006	13:26	Fair	79.3	0	0	20.6	27.6	3m depth
"	"	13:27	"	79.3	0	0	20.6	27.7	9m depth
Portion 5	"	13:27	"	79.4	0	0	20.5	27.6	1.5m depth
Portion 7	"	13:29	"	79.3	0	0	20.6	27.7	4m depth
"	"	13:33	"	79.3	0	0	20.6	27.8	3m depth
"	"	13:36	"	79.4	0	0	20.5	27.5	5m depth
Portion 6	"	13:27	"	79.4	0	0	20.5	27.5	4m depth
"	"	13:29	"	79.4	0	0	20.5	27.7	2m depth
"	"	13:27	"	79.3	0	0	20.6	27.6	2m depth
Portion 5	"	13:24	"	79.4	0	0	20.5	27.7	1m depth

Field Technician: K.K.K. Supervisor

Checked by: [Signature] RSD



ANNEX A  
Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKR P/S N.S.

Date of measurement:

19-10-2006

Sampling equipment used:	Dates calibrated
GA-2000	22/8/2006

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas (%)	Flammable gas (methane %) (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 4	19-10-2006	8:21	Fair	79.5	0	0	20.4	26.4	3m depth
"	"	8:24	"	79.4	0	0	20.5	26.4	9m depth
Portion 5	"	8:23	"	79.4	0	0	20.5	26.5	1.5m depth
Portion 7	"	8:26	"	79.4	0	0	20.5	26.4	4m depth
"	"	8:27	"	79.4	0	0	20.5	26.5	3m depth
"	"	8:27	"	79.4	0	0	20.5	26.7	5m depth
"	"	8:29	"	79.5	0	0	20.4	26.5	4m depth
Portion 6	"	8:33	"	79.4	0	0	20.5	26.5	2m depth
"	"	8:26	"	79.5	0	0	20.4	26.6	2m depth
Portion 5	"	8:22	"	79.4	0	0	20.5	26.7	1m depth

Field Technician:

*[Signature]* Sub-Agent

Checked by:

*[Signature]*  
RSO

ANNEX A  
Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKR P/S No. 5  
Date of measurement: 19-10-2006

Sampling equipment used:	Dates calibrated
GA2000	22/8/2006

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas (%)	Flammable gas (methane %) (%)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 4	19-10-2006	13:27	F	79.3	0	0	20.6	26.7	3m depth
"	"	13:28	"	79.3	0	0	20.8	26.7	7m depth
Portion 5	"	13:29	"	79.3	0	0	20.6	27.1	1.5m depth
Portion 7	"	13:29	"	79.3	0	0	20.6	27.3	4m depth
"	"	13:33	"	79.3	0	0	20.6	27.0	3m depth
"	"	13:34	"	79.2	0	0	20.7	27.2	5m depth
"	"	13:34	"	79.5	0	0	20.7	26.9	4m depth
Portion 6	"	13:36	"	79.8	0	0	20.7	26.7	2m depth
"	"	13:38	"	79.3	0	0	20.6	26.6	2m depth
Portion 5	"	13:35	"	79.2	0	0	20.7	26.9	1m depth

Field Technician: Sub Agent

Checked by: [Signature]

ANNEX A  
Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKR P/S No. 5  
Date of measurement: 20-10-2006

Sampling equipment used:	Dates calibrated
<u>GA 2000</u>	<u>22/8/2006</u>

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 4	20-10-2006	8:26	Fair	79.3	0	0	20.6	25.4	3m depth
"	"	8:27	"	79.3	0	0	20.6	25.3	7m depth
Portion 5	"	8:30	"	79.3	0	0	20.6	25.5	1.5m depth
Portion 7	"	8:29	"	79.4	0	0	20.5	25.4	4m depth
"	"	8:33	"	79.2	0	0	20.7	25.4	3m depth
"	"	8:31	"	79.3	0	0	20.6	25.4	5m depth
"	"	8:32	"	79.2	0	0	20.7	25.4	4m depth
Portion 6	"	8:24	"	79.3	0	0	20.6	25.4	2m depth
"	"	8:27	"	79.4	0	0	20.5	25.4	2m depth
Portion 5	"	8:28	"	79.3	0	0	20.6	25.4	1m depth

Field Technician: [Signature] Sub-Agent

Checked by: [Signature] RSO

ANNEX A  
Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKR P/S No 5  
Date of measurement: 20-10-2006

Sampling equipment used:	Dates calibrated
<u>GA 2000</u>	<u>22/8/2006</u>

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 4	20-10-2006	13:16	Fair	79.3	0	0	20.6	27.7	3m depth
"	"	13:19	"	79.4	0	0	20.5	27.6	9m depth
Portion 5	"	13:17	"	79.3	0	0	20.6	27.5	1.5m depth
Portion 7	"	13:17	"	79.3	0	0	20.6	27.6	4m depth
"	"	13:21	"	79.3	0	0	20.6	27.5	3m depth
"	"	13:22	"	79.4	0	0	20.5	27.7	5m depth
"	"	13:23	"	79.4	0	0	20.5	27.6	4m depth
Portion 6	"	13:25	"	79.3	0	0	20.6	27.7	2m depth
"	"	13:18	"	79.4	0	0	20.5	27.5	2m depth
Portion 5	"	13:27	"	79.3	0	0	20.6	27.6	1m depth

Field Technician:

[Signature] Sub-Agent

Checked by:

[Signature] RSO

ANNEX A  
Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKR P/S N.5

Date of measurement: 21-10-2006

Sampling equipment used:	Dates calibrated
<u>GAZ-00</u>	<u>22/8/2006</u>

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 4	21-10-2006	8:17	Fine	79.3	0	0	20.6	25.6	3m depth
"	"	8:20	"	79.5	0	0	20.4	25.6	9m depth
Portion 5	"	8:16	"	79.5	0	0	20.4	25.4	1.5m depth
Portion 7	"	8:19	"	79.6	0	0	20.3	25.5	4m depth
"	"	8:20	"	79.5	0	0	20.4	25.4	3m depth
"	"	8:21	"	79.6	0	0	20.3	25.4	5m depth
Portion 6	"	8:23	"	79.6	0	0	20.3	25.6	4m depth
"	"	8:34	"	79.3	0	0	20.6	25.8	2m depth
"	"	8:17	"	79.4	0	0	20.5	25.6	2m depth
Portion 5	"	8:26	"	79.4	0	0	20.5	25.6	1m depth

Field Technician:

A Sub-Agent

Checked by:

RSO

Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKR P/S No. 5

Date of measurement: 21 Oct 2006

Sampling equipment used:	Dates calibrated
<u>GA2000</u>	<u>22/8/05</u>

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 5	21/10/06	13:11	Fine	<del>79.5</del>	0	0	20.4	28.4	Ground
Portion 5	"	13:12	"	79.5	0	0	20.4	28.4	6m depth
Portion 4	"	13:16	"	79.4	0	0	20.5	28.4	9m depth
Portion 5	"	13:20	"	79.3	0	0	20.6	28.3	4m depth
Portion 7	"	13:21	"	79.5	0	0	20.4	28.4	4m depth
Portion 7	"	13:22	"	79.2	0	0	20.7	28.4	3m depth
Portion 7	"	13:25	"	79.5	0	0	20.4	28.4	2.5m depth
Portion 7	"	13:27	"	79.4	0	0	20.5	28.5	4m depth
Portion 7	"	13:29	"	79.4	0	0	20.5	28.5	4m depth
Portion 7	"	13:33	"	79.4	0	0	20.5	28.4	2m depth
Portion 6	"	13:40	"	79.4	0	0	20.5	28.4	2m depth

Field Technician: A Sub-agent

Checked by: RSO

Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: **TKR P/S No. 5**

Date of measurement: **23 Oct 2006**

Sampling equipment used:	Dates calibrated
<b>GA2000</b>	<b>22/8/06</b>

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas: (%)	Flammable gas (methane: %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 5	23/10/06	8:15	Fine	79.2	0	0	20.7	26.1	Ground
Portion 5	✓	8:17	✓	79.3	0	0	20.6	26.2	6m depth
Portion 4	✓	8:22	✓	79.2	0	0	20.7	26.2	9m depth
Portion 5	✓	8:26	✓	79.5	0	0	20.4	26.2	4m depth
Portion 7	✓	8:28	✓	79.2	0	0	20.7	26.1	4m depth
Portion 7	✓	8:29	✓	79.2	0	0	20.7	26.1	3m depth
Portion 7	✓	8:31	✓	79.4	0	0	20.5	26.1	2.5m depth
Portion 7	✓	8:34	✓	79.3	0	0	20.6	26.1	4m depth
Portion 7	✓	8:36	✓	79.5	0	0	20.4	26.1	4m depth
Portion 7	✓	8:40	✓	79.3	0	0	20.6	26.2	2m depth
Portion 6	✓	8:44	✓	79.3	0	0	20.6	26.1	2m depth

Field Technician:

*[Signature]* Sub-Agent

Checked by:

*[Signature]*  
RSO

Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKR PLS No. 5

Date of measurement: 23 Oct 2006

Sampling equipment used:	Dates calibrated
<u>GA2000</u>	<u>22/8/06</u>

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas: (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 5	<u>23/10/06</u>	<u>13:14</u>	<u>Fine</u>	<u>79.3</u>	<u>0</u>	<u>0</u>	<u>20.6</u>	<u>25.8</u>	<u>Ground</u>
Portion 5	<u>✓</u>	<u>13:16</u>	<u>✓</u>	<u>79.1</u>	<u>0</u>	<u>0</u>	<u>20.8</u>	<u>25.9</u>	<u>6m depth</u>
Portion 4	<u>✓</u>	<u>13:17</u>	<u>✓</u>	<u>79.3</u>	<u>0</u>	<u>0</u>	<u>20.6</u>	<u>25.9</u>	<u>9m depth</u>
Portion 5	<u>✓</u>	<u>13:19</u>	<u>✓</u>	<u>79.5</u>	<u>0</u>	<u>0</u>	<u>20.4</u>	<u>26.0</u>	<u>4m depth</u>
Portion 7	<u>✓</u>	<u>13:24</u>	<u>✓</u>	<u>79.3</u>	<u>0</u>	<u>0</u>	<u>20.6</u>	<u>26.0</u>	<u>4m depth</u>
Portion 7	<u>✓</u>	<u>13:26</u>	<u>✓</u>	<u>79.2</u>	<u>0</u>	<u>0</u>	<u>20.7</u>	<u>26.0</u>	<u>3m depth</u>
Portion 7	<u>✓</u>	<u>13:27</u>	<u>✓</u>	<u>79.2</u>	<u>0</u>	<u>0</u>	<u>20.7</u>	<u>25.9</u>	<u>25m depth</u>
Portion 7	<u>✓</u>	<u>13:30</u>	<u>✓</u>	<u>79.4</u>	<u>0</u>	<u>0</u>	<u>20.5</u>	<u>25.9</u>	<u>4m depth</u>
Portion 7	<u>✓</u>	<u>13:33</u>	<u>✓</u>	<u>79.2</u>	<u>0</u>	<u>0</u>	<u>20.7</u>	<u>26.0</u>	<u>4m depth</u>
Portion 7	<u>✓</u>	<u>13:35</u>	<u>✓</u>	<u>79.2</u>	<u>0</u>	<u>0</u>	<u>20.7</u>	<u>25.9</u>	<u>2m depth</u>
Portion 6	<u>✓</u>	<u>13:42</u>	<u>✓</u>	<u>79.2</u>	<u>0</u>	<u>0</u>	<u>20.7</u>	<u>26.1</u>	<u>2m depth</u>

Field Technician:

[Signature] Sub Agent

Checked by:

[Signature] RSO



Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKR P/S NO. 5

Date of measurement: 24 Oct 2006

Sampling equipment used:	Dates calibrated
GA2000	22/8/06

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 5	24/10/06	13:13	Fine	79.1	0	0	20.8	27.1	Ground
Portion 5	✓	13:14	✓	79.2	0	0	20.7	27.1	6m depth
Portion 4	✓	13:15	✓	79.5	0	0	20.4	26.9	9m depth
Portion 5	✓	13:17	✓	79.2	0	0	20.7	27.0	4m depth
Portion 7	✓	13:18	✓	79.1	0	0	20.8	27.0	4m depth
Portion 7	✓	13:19	✓	79.3	0	0	20.6	27.0	3m depth
Portion 7	✓	13:21	✓	79.5	0	0	20.4	27.1	2.5m depth
Portion 7	✓	13:24	✓	79.6	0	0	20.3	27.0	4m depth
Portion 7	✓	13:25	✓	79.4	0	0	20.5	27.0	4m depth
Portion 7	✓	13:26	✓	79.3	0	0	20.6	27.1	2m depth
Portion 6	✓	13:31	✓	79.4	0	0	20.5	27.1	2m depth

Field Technician: Sub Agent

Checked by: RSO

Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKR P/S No. 5

Date of measurement: 24 Oct 2006

Sampling equipment used:	Dates calibrated
<u>GA2000</u>	<u>22/8/06</u>

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
Portion 5	24/10/06	8:13	Fine	79.3	0	0	20.6	24.9	Ground
Portion 5	✓	8:15	✓	79.1	0	0	20.8	25.2	6m depth
Portion 4	✓	8:16	✓	79.2	0	0	20.7	25.2	6m depth
Portion 5	✓	8:17	✓	79.6	0	0	20.3	25.3	4m depth
Portion 7	✓	8:22	✓	79.3	0	0	20.6	25.1	4m depth
Portion 7	✓	8:24	✓	79.3	0	0	20.6	25.3	3m depth
Portion 7	✓	8:25	✓	79.2	0	0	20.7	25.2	2.5m depth
Portion 7	✓	8:28	✓	79.5	0	0	20.4	25.2	4m depth
Portion 7	✓	8:32	✓	79.2	0	0	20.7	25.2	4m depth
Portion 7	✓	8:34	✓	79.2	0	0	20.7	25.3	2m depth
Portion 6	✓	8:40	✓	79.3	0	0	20.0	25.3	2m depth

Field Technician: [Signature] Sub-Agent

Checked by: [Signature] RSO

Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKR P/S No. 5  
 Date of measurement: 25 Oct 2006

Sampling equipment used:	Dates calibrated
<u>GA2000</u>	<u>2/8/06</u>

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
P. 5	25/10/06	8:12	Fine	79.2	0	0	20.7	26.4	6.
P. 5	✓	8:13	✓	79.3	0	0	20.6	26.4	6.0d
P. 4	✓	8:15	✓	79.2	0	0	20.7	26.4	9.0d
P. 5	✓	8:17	✓	79.5	0	0	22.4	26.4	4.0d
P. 7	✓	8:18	✓	79.4	0	0	20.5	26.5	4.0d
P. 7	✓	8:19	✓	79.3	0	0	20.6	26.5	3.0d
P. 7	✓	8:23	✓	79.3	0	0	20.6	26.4	2.5d
P. 7	✓	8:24	✓	79.5	0	0	20.4	26.7	4.0d
P. 7	✓	8:26	✓	79.4	0	0	20.5	26.6	4.0d
P. 7	✓	8:29	✓	79.5	0	0	20.4	26.6	2.0d
P. 6	✓	8:36	✓	79.3	0	0	20.6	26.5	2.0d

Field Technician: [Signature] Sub-Agent

Checked by: [Signature]

ANNEX A  
Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKR P/S No. 5  
Date of measurement: 25 Oct 2006

Sampling equipment used:	Dates calibrated
<u>GA 2000</u>	<u>22/8/06</u>

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
P5	25/10/06	13:08	Fine	79.5	0	0	20.4	28.1	G
P5	✓	13:10	✓	79.5	0	0	20.4	28.0	6.0d
P4	✓	13:13	✓	79.3	0	0	20.6	28.0	9.0d
P5	✓	13:15	✓	79.5	0	0	20.5	28.1	4.0d
P7	✓	13:16	✓	79.5	0	0	20.5	27.9	4.0d
P7	✓	13:17	✓	79.2	0	0	20.7	28.0	3.0d
P7	✓	13:19	✓	79.4	0	0	20.5	27.9	2.5d
P7	✓	13:21	✓	79.3	0	0	20.6	28.0	4.0d
P7	✓	13:22	✓	79.4	0	0	20.5	28.0	4.0d
P7	✓	13:27	✓	79.4	0	0	20.5	28.1	2.0d
P6	✓	13:41	✓	79.3	0	0	20.6	28.1	2.0d

Field Technician: SA Sub Agent

Checked by: RS

ANNEX A

Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKR P/S No. 5  
 Date of measurement: 26 Oct 2006

Sampling equipment used:	Dates calibrated
<u>GA 2000</u>	<u>22/8/06</u>

Perimeter on-site and/or off-site monitoring holes

Sample location	Date of measurement	Sampling time	Weather condition	Balance gas (%)	Flammable gas (methane) (%)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	Remark
P5	26/10/06	8:08	Fine	79.3	0	0	20.6	25.9	6.
P5	"	8:09	"	79.2	0	0	20.7	26.2	6.0d
P4	"	8:12	"	79.3	0	0	20.6	26.1	9.0d
P5	"	8:13	"	79.3	0	0	20.6	26.1	4.0d
P7	"	8:14	"	79.2	0	0	20.7	26.0	4.0d
P7	"	8:17	"	79.4	0	0	20.5	26.0	3.0d
P7	"	8:19	"	79.3	0	0	20.6	26.1	2.5d
P7	"	8:21	"	79.4	0	0	20.5	26.0	4.0d
P7	"	8:23	"	79.3	0	0	20.6	26.0	4.0d
P7	"	8:24	"	79.3	0	0	20.6	26.0	2.0d
P6	"	8:29	"	79.2	0	0	20.7	26.0	2.0d

Field Technician:

J Sub Agent

Checked by:

Bo

ANNEX A

Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKR P/S N/S  
Date of measurement: 26-Oct 2006

Sampling equipment used:	Dates calibrated
GA 2000	22/8/06

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					Remarks
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	
Portion 5	26/10/06	13:17	SKY	79.4	0	0	20.5	26.6	Ground
Portion 5	"	13:19	"	79.9	0	0	20.5	26.4	6m depth
Portion 4	"	13:21	"	79.3	0	0	20.6	26.3	9m depth
Portion 5	"	13:21	"	79.3	0	0	20.6	26.3	4m depth
Portion 7	"	13:22	"	79.3	0	0	20.6	26.2	4m depth
Portion 7	"	13:20	"	79.5	0	0	20.4	26.5	3m depth
Portion 7	"	13:24	"	79.4	0	0	20.5	26.6	2.5m depth
Portion 7	"	13:26	"	79.5	0	0	20.4	26.5	4m depth
Portion 7	"	13:25	"	79.5	0	0	20.4	26.4	4m depth
Portion 7	"	13:32	"	79.3	0	0	20.6	26.4	2m depth
Portion 6	"	13:31	"	79.4	0	0	20.5	26.5	2m depth

Field Technician:

*R*  
Sub Agent

Checked by:

*J* RSO

Annex A

FROM: 1. NOV. 2006 16:56 MAEDA CO. (DC200501) 2673 8999 26634373854373  
 Oct. 27 2006 09:51:24 AM +1 P.01 98% 455 2616 4245 21-01 17-01 2006 10:11 24

**FAX**

Annex page

10-6161 Ho  
 Form: GMLF-RS

ANNEXA  
 Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKR Pumping Station No. 5  
 Date of measurement: 27-10-2006

Sampling equipment used:	Dates calibrated
<u>GAZ000</u>	<u>22/18/2006</u>

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					Remark
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	
M 1	27/10/2006	5:18	Fair	79.5	0.1	0.5	19.8	26.5	
M 3		5:24		79.7	0	0.3	19.9	27.1	

Hyder Consulting Limited

Date received

Reg no.

Div/Dep GM

Manager GM

Date received in Div/Dep

For Action	For Info	Sign	Date

Copy to

Reply date

File ref

Field Technician: [Signature]

Checked by: [Signature] R50

ANNEX A

ANNEX A

Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: **TKR P/S N.S.**

Date of measurement: **27 Oct 2006**

Sampling equipment used:	Dates calibrated
<b>GA200</b>	<b>22/8/2006</b>

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					Remark
				Balanced gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	
Porton 5	27 Oct 06	8:12	Fair	79.3	0	0	20.6	27.2	Ground
Porton 5	"	8:13	"	79.3	0	0	20.6	27.3	6m depth
Porton 4	"	8:14	"	79.3	0	0	20.6	27.3	9m depth
Porton 5	"	8:17	"	79.3	0	0	20.6	27.1	4m depth
Porton 7	"	8:18	"	79.3	0	0	20.6	27.4	4m depth
Porton 7	"	8:20	"	79.4	0	0	20.6	27.5	3m depth
Porton 7	"	8:21	"	79.4	0	0	20.5	27.5	2.5m depth
Porton 7	"	8:21	"	79.3	0	0	20.5	27.4	1m depth
Porton 7	"	8:22	"	79.4	0	0	20.6	27.5	4m depth
Porton 7	"	8:23	"	79.5	0	0	20.5	27.5	2m depth
Porton 6	"	8:24	"	79.4	0	0	20.6	27.5	2m depth

Field Technician:

*[Signature]*  
Sub Agent

Checked by:

*[Signature]* P.S.O.



ANNEX A

Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKR P/B No. 5

Date of measurement:

27-Oct-2006

Sampling equipment used:	Dates calibrated
<u>GA2000</u>	<u>22/8/2006</u>

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					Remark
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	
Portion 5	27 Oct 2006	13:21	Fair	79.3	0	0	20.6	28.6	Ground
Portion 5	"	13:22	"	79.4	0	0	20.5	28.6	6m depth
Portion 4	"	13:23	"	79.4	0	0	20.5	28.6	9m depth
Portion 5	"	13:24	"	79.3	0	0	20.6	28.7	11m depth
Portion 7	"	13:25	"	79.4	0	0	20.5	28.9	14m depth
Portion 7	"	13:26	"	79.4	0	0	20.5	28.6	3m depth
Portion 7	"	13:27	"	79.3	0	0	20.6	28.7	25m depth
Portion 7	"	13:27	"	79.4	0	0	20.5	28.6	4m depth
Portion 7	"	13:27	"	79.4	0	0	20.5	28.7	4m depth
Portion 7	"	13:29	"	79.3	0	0	20.6	28.7	2m depth
Portion 6	"	13:30	"	79.4	0	0	20.5	28.8	2m depth
				79.4	0	0			
				79.5	0	0			
				79.5	0	0			

Field Technician:

*A. Sub-agent*

Checked by:

*[Signature]*

Annex A

B. NOV. 2006 15:15 MAEDA CO (DC200501) 2673 8999 NO. 638 P. 5

P.05 99% +R52 2616 4246

ANNEX A

Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: **TKR P/S N.5**

Date of measurement:

**28 Oct 2006**

Sampling equipment used:	Dates calibrated
<b>GA2 200</b>	<b>22/8/2006</b>

Perimeter on-site and/or off-site monitoring holes

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					Remark
				Balanced gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	
Porton 5	28-Oct-2006	8:17	Fair	79.3	0	0	20.6	27.5	Ground
Porton 5	"	8:19	"	79.2	0	0	20.7	27.6	6m depth
Porton 4	"	8:17	"	79.3	0	0	20.7	27.6	9m depth
Porton 5	"	8:22	"	79.3	0	0	20.6	27.5	4m depth
Porton 7	"	8:22	"	79.3	0	0	20.6	27.5	4m depth
Porton 7	"	8:24	"	79.3	0	0	20.6	27.3	3m depth
Porton 7	"	8:25	"	79.3	0	0	20.7	27.5	2.5m depth
Porton 7	"	8:26	"	79.3	0	0	20.6	27.5	4m depth
Porton 7	"	8:27	"	79.3	0	0	20.6	27.6	4m depth
Porton 7	"	8:27	"	79.3	0	0	20.7	27.5	2m depth
Porton 6	"	8:30	"	79.2	0	0	20.7	27.6	3m depth

Field Technician:

*[Signature]* Sub Agent

Checked by:

*[Signature]* P. SO

Annex A

ANNEX A

Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKR PIS No 5  
 Date of measurement: 28 Oct - 2006

Sampling equipment used:	Dates calibrated
<u>GA2000</u>	<u>22/8/2006</u>

Perimeter on-site and/or off-site monitoring holes

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					Remark
				Balanced gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	
Portion 5	28 Oct 06	13:06	Fair	79.2	0	0	20.6	28.7	Ground
Portion 5	"	13:07	"	79.3	0	0	20.6	28.5	1m depth
Portion 4	"	13:27	"	79.3	0	0	20.6	28.5	9m depth
Portion 5	"	13:28	"	79.3	0	0	20.6	28.6	4m depth
Portion 7	"	13:29	"	79.4	0	0	20.5	28.7	4m depth
Portion 7	"	13:29	"	79.6	0	0	20.5	28.7	3m depth
Portion 7	"	13:29	"	79.2	0	0	20.7	28.7	2.5m depth
Portion 7	"	13:31	"	79.4	0	0	20.5	28.6	4m depth
Portion 7	"	13:30	"	79.4	0	0	20.5	28.7	4m depth
Portion 7	"	13:30	"	79.2	0	0	20.6	28.6	2m depth
Portion 6	"	13:33	"	79.4	0	0	20.5	28.5	2m depth

Field Technician:

*[Signature]*  
 Sub Agent

Checked by:

*[Signature]*  
 RSO

ANNEX A

Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: TKR P/S No. 5

Date of measurement: 31-01-2006

Sampling equipment used:	Dates calibrated
GA2000	22/8/2006

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					Remark
				Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	
Portan 5	31-10-2006	8:31	Fine	79.3	0	0	20.6	26.6	Ground
Portan 5	"	8:34	"	79.3	0	0	20.6	26.6	6m depth
Portan 4	"	8:34	"	79.3	0	0	20.6	26.7	9m depth
Portan 5	"	8:35	"	79.3	0	0	20.6	26.7	4m depth
Portan 7	"	8:36	"	79.3	0	0	20.6	26.7	4m depth
Portan 7	"	8:37	"	79.4	0	0	20.5	26.8	3m depth
Portan 7	"	8:38	"	79.3	0	0	20.6	26.7	2.5m depth
Portan 7	"	8:39	"	79.3	0	0	20.6	26.8	4m depth
Portan 7	"	8:40	"	79.3	0	0	20.6	26.7	4m depth
Portan 7	"	8:41	"	79.4	0	0	20.5	26.7	2m depth
Portan 6	"	8:42	"	79.3	0	0	20.6	26.8	2m depth

Field Technician:

*A Sub Agent*

Checked by:

*PSU*

ANNEX A

Landfill Gas Monitoring - Field Measurement Recording Sheet (Sample)

Name of site: **TKR PLS MS**  
 Date of measurement:

**31-Oct-2006**

2006-10-31

Hydrex Corporation  
 Date received: **8 NOV 2006**  
 Reg. no.: **2806-**  
 Div/Dep: **ENV**  
 Manager: **GL**  
 Date received in Div/Dep: **8 NOV 2006**  
 For info: **GH**  
 Copy to: \_\_\_\_\_  
 Empty date: \_\_\_\_\_  
 File ref: \_\_\_\_\_

To: Giki Ho.  
 From: Zaira My  
 Total pages

Annex A  
**FAX**

Sampling equipment used:	Dates calibrated:
GIA2--	22/8/2006.

Sample location	Date of measurement	Sampling time	Weather condition	Perimeter on-site and/or off-site monitoring holes					Remark
				Balanced gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C)	
Portion 5	31-10-2006	13:32	Fair	79.4	0	0	22.5	26.6	Ground
Portion 5	"	13:33	"	79.4	0	0	22.5	26.7	6m depth
Portion 4	"	13:34	"	79.4	0	0	22.5	26.7	7m depth
Portion 5	"	13:37	"	79.5	0	0	22.4	26.7	4m depth
Portion 7	"	13:36	"	79.4	0	0	22.5	26.7	4m depth
Portion 7	"	13:37	"	79.4	0	0	22.5	26.8	3m depth
Portion 7	"	13:37	"	79.4	0	0	22.5	26.7	2.5m depth
Portion 7	"	13:39	"	79.5	0	0	22.4	26.7	4m depth
Portion 7	"	13:38	"	79.4	0	0	20.5	26.8	4m depth
Portion 7	"	13:39	"	79.4	0	0	20.5	26.9	2m depth
Portion 6	"	13:46	"	79.5	0	0	22.4	26.7	2m depth

Field Technician:

*[Signature]* Sub-Agent

Checked by:

*[Signature]* Rso

Annex A