

Comhairle Chontae Laois
Laois County Council



Annual Environmental Report
For Kyletalesha Landfill
Waste Licence W0026-02

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County Hall
Portlaoise
Co. Laois

March 2009

Contents:

1.	Introduction
2.	Reporting Period
3.	Waste activities carried out at the facility
4.	Quantity and Composition of waste received, disposed of and recovered during the reporting period and each previous year
5	Calculated remaining capacity of the facility and year in which final capacity is expected to be reached
6.	Methods of deposition of waste
7.	Summary report on emissions
8.	Summary of results and interpretation of environmental monitoring
9.	Resource and energy consumption summary
10	Proposed development of the facility and timescale of such development.
11.	Volume of leachate produced and volume of leachate transported / discharged off-site
12.	Report on development works undertaken during the reporting period, and a timescale for those proposed during the coming year
13.	Report on restoration of completed cells/ phases
14.	Site survey showing existing levels of the facility at the end of the reporting period
15.	Estimated annual and cumulative quantities of landfill gas emitted from the facility
16.	Estimated annual and cumulative quantity of indirect emissions to groundwater
17.	Annual water balance calculation and interpretation
18.	Report on the progress towards achievement of the Environmental Objectives and Targets contained in previous year's report
19.	Schedule of Environmental Objectives and Targets for the forthcoming year
20.	Full title and a written summary of any procedures developed by the licensee in the year which relates to the facility operation
21.	Tank, pipeline and bund testing and inspection report
22.	Report on the performance and compatibility of the septic tank (and associated percolation area) with the Agency's Wastewater Treatment manual: Treatment Systems for Single Houses
23.	Reported incidents and Complaints summaries
24.	Review of Nuisance Controls
25.	Reports on financial provision made under this licence, management and staffing structure of the facility, and a programme for public information..
26.	Report on training of staff
27.	Certification
28.	Appendix I. Volumetric Surveys
29.	Appendix II. Monitoring Locations
30.	Appendix III. Bund Integrity Tests
33.	Appendix IV. Weather Data
34.	Appendix V. Site Survey
35.	Appendix VI. Pollutant Release & Transfer Register

1. Introduction.

The contents of the report are based on Schedule C of the Waste License and the report format follows guidelines set in the “Draft Guidance on Environmental Management Systems and Reporting to the Agency” issued by the Environmental Protection Agency (the Agency). The proposed content and reporting format was discussed and agreed with the EPA before the preparation of the report.

This report discusses the findings of the monitoring events completed and reported on to the Agency since the last AER.

Laois County Council (the Council) operates the facility. The addressees of the facility and the operator are as follows: -

Landfill

Kyletalesha Landfill,
Portlaoise,
County Laois.

Operator

Laois County Council,
County Hall,
Portlaoise,
County Laois.

2. Reporting Period.

This is the Ninth Annual Environmental Report (AER) for Kyletalesha Landfill, Clonsoughy, Kyleclonhobert, County Laois. The AER covers the period from 1st January 2008 to the 31st December 2008 and was prepared in compliance with Condition 11.6.2 of Waste Licence Register Number (W0026-2), which superseded Waste Licence (W0026-1) on the 12th November 2003.

3. Waste Activities carried out at the Facility.

Waste Disposal and Recovery operations are carried out at the site in accordance with the schedule of licensed activities. The site is licensed to accept the following categories of waste for disposal; household, commercial, construction & demolition and industrial non-hazardous wastes. The site also accepts wastes for recovery at the civic amenity area, which include glass bottles, car batteries, household batteries, light bulbs, gas cylinders, white goods, metal, aluminum cans, waste oil, waste oil filters, cooking oil, dvd, cd and video tapes, fridges, textiles, hard plastics, cardboard, tyres, plate glass, polystyrene, household hazardous waste and the WEE facility.

4. Quantity and Composition of Waste Received, Disposed of and Recovered during the Reporting period and each previous year.

A summary of the total quantity of each type of waste landfilled at the facility for the reporting period is presented in *Table 1.0* as specified in Schedule A.1 of Waste License (W0026-2). A further 546.50 tonnes of material was landfilled from types outside of that listed under the headings in *Table 1.0*.

Table 1.0

WASTE TYPE	Tonnage
Household	33,676.67
Commercial	13,277.91
Industrial Non-Hazardous Solids	2,253.48
Construction & Demolition	154.54
Total	49,362.60

A full breakdown of waste landfilled at the facility is presented in *Table 1.1* and a full breakdown of waste recovered at the Civic Amenity Facility is given in *Table 1.2*.

Table 1.1

Waste Type	Tonnes	Waste type (As per Schedule A.1)	Landfilled	Re-Used
BUILDERS RUBBLE 170107	743.52	Reused		743.52
BUILDING WASTE 170107	154.54	Construction & Demolition	154.54	
COMMERCIAL WASTE 200301	757.20	Commercial	757.20	
COVERING MATERIAL 170504	18,845.84	Reused		18,845.84
DOMESTIC WASTE 200301	5,472.95	Household	5,472.95	
HOUSEHOLD 200301	1,075.52	Household	1,075.52	
ILLEGAL DUMPING 200303	109.96	Other	109.96	
INDUSTRIAL WASTE 200301	6.52	Industrial	6.52	
MUNICIPAL WASTE 200301	7,682.58	Household 65% Commercial 30% Industrial 5%	7,682.58	
RUBBER 1912041	160.18	Industrial	160.18	
STONE 170107	2,454.02	Reused		2,454.02
STREET SWEEPINGS 200303	436.54	Other	436.54	
TRANSFER STATIONS 200301	34,053.11	Household 65% Commercial 30% Industrial 5%	34,053.11	
TROMMEL FINES 170504	749.30	Reused		749.30
Total Tonnage			49,909.10	22,792.68

Table 1.2

Waste Type	Tonnes
200140 ALUMINUM	18.10
200133 HOUSEHOLD BATTERIES	1.84
200101 CARDBOARD	275.48
200339 DVD'S, DVD'S & VIDEOS	2.86
030103 CAR TYRES	24.10
200339 PLASTIC BOTTLES	109.12
130204 OIL FILTERS	1.40
200307 GAS CYLINDERS	2.00
200201 GRASS	0.44
200201 HEDGE TRIMMINGS	699.96
200339 HARD PLASTICS	68.46
200101 MAGAZINES	12.92
200101 NEWSPAPERS	351.04
200102 PLATE GLASS	20.96
080121 PAINTS	24.78
200339 POLYSTYERENE	0.72
200123 FRIDGES	38.94
200102 BOTTLE GLASS	213.80
200140 SCRAP METAL	275.92
200111 TEXTILES	105.64
200136 W.E.E.E.	165.34
200136 HOUSEHOLD APPLIANCES	92.26
130204 WASTE ENGINE OIL	17.82
Total Tonnage	2,523.90

The total quantity of waste received for 2008 is recorded as being $(49,362.60 + 546.50) = 49909.10$ tonnes exclusive of that material recovered for landfill cover and maintenance.

The total quantity of waste received for 2007 is recorded as being $(41727.71 + 454.73) = 42182.458$ tonnes exclusive of that material recovered for landfill cover and maintenance.

The total quantity of waste received for 2006 is recorded as being $(47550.47 + 747.74) = 48298.213$ tonnes exclusive of that material recovered for landfill cover and maintenance.

The total quantity of waste received for 2005 is recorded as being $(47974.20 + 430.10) = 48404.3$ tonnes exclusive of that material recovered for landfill cover and maintenance.

The total quantity of waste received for 2004 is recorded as being 49835.90 tonnes exclusive of that material recovered for landfill cover and maintenance.

The total quantity of waste received for 2003 is recorded as being 34870.10 tonnes exclusive of that material recovered for landfill cover and maintenance.

The total quantity of waste received for 2002 is recorded as being 40510.80 tonnes exclusive of that material recovered for landfill cover and maintenance.

5. Calculated Remaining Capacity of the Facility and year in which Final Capacity is expected to be reached.

It was originally anticipated that the site would have a waste capacity of 1,060,000 tonnes. Based on estimates and records of waste inputs, approximately 430,876 tonnes was deposited to 10th May 2002. A further 24,434.7 tonnes was deposited to 31st December 2002. In total $430,876 + 24,434.7 = 455,310.7$ tonnes were deposited to 31st December 2002. The total quantity of waste received since 31st December 2002 is recorded as being $(34870.1 + 49835.9 + 48404.3 + 48298.21 + 42182.458 + 49,909.10) = 273,500.06$ tonnes exclusive of that material recovered for landfill cover and maintenance. This leaves a remaining capacity of $(1,060,000 - 455,310.7 - 273,500.06) = 331,189.24$ tonnes. At a maximum filling rate of 47,100 tonnes per annum and maintaining the proposed final profile levels this leaves approximately 7 years capacity.

It is previously recorded that approximately 47,600 m² of the landfill has been filled with waste since 1996 comprising of Cells 1, 2, 3, 4 & 5.

It is estimated that the total plan area for Cell 12 is 9,562 m².

It is estimated that the total plan area for Cell 13 is 19,006 m².

It is estimated that the total plan area for Cell 14 is 25,000 m².

It is estimated that the total plan area for Cell 15 is 27,000 m².

6. Methods of Deposition of Waste.

Waste is normally deposited at the top of a waste face. The waste is placed in layers not greater than 0.5m thick and a waste face with an average gradient not steeper than 1:3 is maintained. A steel wheeled landfill compactor is used to level and compact the waste. Any large articles or hollow containers, likely to cause voids, are crushed and buried to a depth of not less than one meter from the surface of the waste and two meters from the flanks and face.

Volumetric surveys of the active cell are regularly undertaken to determine the remaining capacity and the performance of the compaction equipment.

The waste face is covered daily with a soil material. The soil weekly cover material is applied in 150mm thick layers and is free draining to prevent the development of perched water within the waste body. Sufficient stockpiles of soil are maintained on-site to meet all daily and weekly operational requirements.

Only one working face is operated at any time. The working face is maintained at less than 25 meters wide x 50 meters long and 2.5 meters in height after compaction with a slope of no greater than 1 in 3, as per Condition 5.4 of the Waste License.

7. Summary Report on Emissions.

The Council carries out a comprehensive environmental monitoring programme in compliance with license conditions to assess the significance of emissions. The monitoring programme includes Surface Water Quality, Groundwater Quality, Landfill Gas, Leachate Level and Quality, Noise and Dust.

The full details of the monitoring were routinely submitted to the Agency during the reporting period and an overview of the monitoring results is presented in Section 8. The results are discussed in the context of the impact of the emissions on the environment and compared with available data on background and or ambient conditions.

8. Summary of results and interpretation of environmental monitoring.

Since July 2004 monitoring results for the landfill facility have been inputted into the Labinfo Database as supported by the Local Government Computer Services Board.

Appendix II gives the six-digit grid reference for each monitoring location. Monitoring locations labeled G relate to Groundwater, monitoring locations labeled L relate to Leachate, monitoring locations labeled M relate to Landfill Gas, monitoring locations labeled S relate to Surface Water, monitoring locations labeled V relate to Visual Inspections, monitoring locations labeled BA relate to Biological Assessment, monitoring locations labeled D relate to Dust and monitoring locations labeled N relate to Noise.

Groundwater Monitoring

In accordance with Waste Licence (W0026-2) the Council monitors groundwater quality in 3 monitoring boreholes (G001, G002 & G008) located around the landfill. The Council also conducts groundwater monitoring at two additional monitoring locations G012 and G013. Groundwater monitoring began at G012 and G013 in March 2003 in order to obtain baseline data for the northern end of the site, i.e. down gradient of new-engineered Cells 12, 13 and 14.

Monitoring is conducted by the EPA at quarterly intervals in accordance with licence conditions and includes in situ and laboratory analysis at EPA laboratory, Kilkenny. The Council also carries out groundwater monitoring where analysis is carried out by an Environmental technician in Laois County Council. The range of analysis is as specified in Schedule D.5 of Licence (W0026-2) and includes dissolved oxygen, pH, electrical conductivity, organic and inorganic parameters.

The sampling and analysis is carried out in accordance with recognised quality standards. The detailed monitoring results are presented in the quarterly monitoring reports submitted to the Agency during the reporting period and can also be viewed on the attached compact disc.

Groundwater level monitoring undertaken in the shallow bedrock indicates a groundwater divide trending east west across the site. Groundwater in the northern portion of the site flows to the northwest while groundwater in the southern portion of the site flows to the southeast.

Monitoring locations G001, G002 and G008 are all located in the catchment which drains to the southeast towards the River Triogue. This catchment contains the unlined historic fill areas of the facility. G012 and G013 are located in a separate catchment, which drains to the northwest towards the River Blackwater. This catchment contains the current active fill area Cell 14 and lined Cells 12 and 13.

Monitoring locations G001 & G008 are located in the forest to the south of and down gradient of the active landfill. Monitoring location G002 is located on Mr. Pat Smiths turf plot down gradient of the landfill. In compliance with Waste Licence W0026-02, Condition 8.7.1, the council conducts annual private well monitoring at three locations that are within 250m of the facility boundary. These locations comprise of two farmyard water supplies in the northwest catchment in the farmyard of Mr. Denis Whelan, and a monitoring location in the southeast catchment in Mr. Charles Lawless's knackery yard.

Groundwater Levels

Table 8.1 below shows the groundwater levels recorded for the reporting period.

Table 8.1 - Groundwater Levels (Metres OD)

	G001	G002	G008	G013
Sample Date	Depth	Depth	Depth	Depth
31/01/2008	17.54	24.27	14.21	8.39
20/02/2008	17.70	24.40	14.00	8.40
26/03/2008	17.69	24.32	14.04	NT
14/05/2008	17.48	24.27	14.04	8.42
30/07/2008	17.30	24.00		
31/07/2008			14.00	8.30
07/08/2008	15.40	23.40	13.30	6.12
09/09/2008	15.30	23.90	13.46	7.43
17/11/2008	17.30	24.00	14.00	8.30
17/12/2008	17.90	25.00	14.20	8.60

Groundwater Quality

The agency conducts groundwater monitoring and analysis on a quarterly basis. Laois County Council carries out ground water quality monitoring in excess of Licence requirements. The detailed monitoring results are presented in the quarterly monitoring reports submitted to the Agency during the reporting period and can also be viewed on the attached compact disc.

All the monitoring locations show concentrations of ammonia typical of a peat land area. In compliance with condition 6.4.2 and EU Directive 1999/31/EC baseline groundwater quality trigger levels for each groundwater monitoring location have been compiled and submitted to the Agency.

Surface Water Quality Monitoring

The Council monitors surface water quality in 12 locations (S001, S002, S003, S004, S007, S008, S009, S010, S011, S012, S025 & S030). S001, S002, S003 & S007 are located on the Tip Stream. S004 is located on a surface water drain on the landfill site. S010 and S025 are located upstream of the former leachate treatment plant discharge to the Triogue. The leachate treatment plant was decommissioned in May 2007, and no leachate had been discharged from the plant since June 2006. S008 is located beside the former discharge point to the River Triogue and S009 is located downstream of the former leachate treatment discharge point. Surface water monitoring began at S030 in March 2003 in order to obtain baseline data for the northern end of the site, i.e. down gradient of new-engineered Cells 12, 13 and 14.

The monitoring is to be conducted at quarterly intervals in accordance with Licence conditions and includes in situ and laboratory testing. The range of analysis is as specified in Schedule D.5 of Licence (W0026-02) and includes dissolved oxygen, pH, electrical conductivity, and organic and inorganic parameters. The agency conducts surface water monitoring and analysis on a quarterly basis. Laois County Council carries out surface water quality monitoring and analysis in excess of licence requirements.

The sampling and analysis is carried out in accordance with recognized quality standards. The detailed monitoring results are presented in the quarterly monitoring reports submitted to the Agency during the reporting period and can also be viewed on the attached compact disc.

Biological Assessment

Under the requirements of Condition 8.12 of the Licence, Laois County Council must carry out an annual biological assessment on the River Triogue. Euro Environmental were commissioned to carry out the Biological Assessment and were given the locations S1, S2 and S3 as per the previous years report. Euro Environmental understood these three locations to be Surface Water locations which are situated along the Tip Stream inside the boundary of the Landfill Site. As a result the monitoring locations have been relabelled from S1, S2 and S3 to BA1, BA2 and BA3 respectively. This issue was identified too late in the year to carryout another biological assesment in 2008 we have been advised mid 2009 would be earliest time the test can be carried due to the absence of some species at this time of year. The amended test and subsequet report will be carried out as soon as recommended and the results will be forwarded to the EPA

Leachate Quality

Leachate sampling from the inspection chambers on Cells 1-5 (at monitoring locations L021, L023, L025 and L026), Cell 12 (at monitoring location L016), Cell 13 (at monitoring location L018) and the active Cell 14 (at monitoring location L019) is required as part of the annual EPA monitoring for the site. The samples are analyzed for a range of organic and inorganic parameters defined in the Waste Licence. Leachate is also sampled at the lined lagoon (at monitoring location L017), the unlined lagoon (at monitoring location L050), the new storage tank (at monitoring location L027) and in historically filled areas outside cells 1-5 (at monitoring locations L002, L003 and L004). In addition to annual EPA leachate monitoring, the council conducts analysis in excess of licence requirements. This data will be used to model changes in leachate characteristics in relation to rainfall levels, seasonal temperature variations, age of waste, and type of waste, depth of fill and effectiveness of capping. The detailed monitoring results are presented in the quarterly monitoring reports submitted to the Agency during the reporting period and can also be viewed on the attached compact disc.

The onsite leachate treatment plant was decommissioned on the 21st of May 2007; therefore treated leachate quality monitoring is no longer required. Discharge of treated leachate to the River Triogue has not taken place since June 2006.

Leachate Levels

Leachate levels are currently monitored manually in Cells 1-5 (at monitoring locations L021, L023, L025 and L026). Levels are continuously monitored in fully lined and capped Cells 12 and 13 (at monitoring locations L016 and L018). Levels are also continuously monitored in the active cell 14 (at monitoring location L019). Weekly average leachate levels recorded at location L019 exceeded the 1.0m stipulated in condition 5.11.2 of Waste Licence W026-2. The main contributing factor was the ingress of excessive rainfall over the reporting period. The detailed monitoring results are presented in the quarterly monitoring reports submitted to the Agency during the reporting period and can also be viewed on the attached compact disc.

The freeboard in the new storage tank exceeded the 0.75 meters limit stipulated in condition 5.11.4 of Waste Licence (W0026-2) during the reporting period. The main contributing factor to the elevated level was due to particularly high levels of rainfall during the reporting period. The freeboard in the lined leachate storage lagoon exceeded the 0.75 meters limit stipulated in condition 5.11.4 of Waste Licence (W0026-2) during the reporting period. The main contributing factor to the elevated level was again due to particularly high levels of rainfall during the reporting period.

Elevated leachate levels at these monitoring locations were, at the request of the agency, treated as an incident. All elevated leachate levels are reported to the agency as an incident and entered in to the relevant quarterly monitoring reports. The detailed monitoring results are presented in the quarterly monitoring reports submitted to the Agency during the reporting period and can also be viewed on the attached compact disc.

Toxicity

Under the requirements of Condition 8.8.2 of the Licence, Laois County Council must carry out a bi-annual toxicity assessment on the treated leachate discharge. Following consultation with the EPA Licence Inspector, this assessment is no longer required due to the decommissioning of the onsite leachate treatment plant.

Landfill Gas

The Council currently monitors landfill gas at 16 monitoring locations on a monthly basis around the perimeter of the landfill. The monitoring locations are positioned both inside and outside the landfill cells.

In compliance with condition 3.20.1(b) of Waste Licence (W0026-2), a permanent landfill gas monitoring system has been installed in all site buildings and in compliance with condition 3.19.2(e) the data gathered from this system is recorded. The monitoring includes methane, carbon dioxide, oxygen, atmospheric pressure, and temperature. The detailed monitoring results are presented in the quarterly monitoring reports submitted to the Agency during the reporting period and can also be viewed on the attached compact disc.

Trace levels of methane have been detected in all site buildings (i.e. site office, weighbridge office, civic amenity building and the LIFE project building), but the levels detected were all well below the trigger level of 1.0% v/v. Carbon dioxide has been detected in all of the site buildings, during different monitoring events, however the levels detected were all well below the trigger level of 1.5% v/v.

Carbon dioxide concentration greater than 1.5% v/v was measured in trial pits M001, M002, M003, M004, M006, M015 and M016 during the monitoring period. Elevated gas levels in trial pits are, at the request of the agency on the 11/09/2001, treated as an incident. In all cases, Corrective Action Procedure CAP 5 was applied and the agency was notified.

Monitoring locations M001 to M004 are located within the body of waste. Permission is currently being sought from Coillte for the installation of proposed wells M010 and M011 to replace these monitoring points.

Monitoring locations M007, M008 & M009 are located in the south western area of the site, while M015 & M016 are located in the northwestern area of the site. Site investigations involving excavation in the respective surrounding areas showed that all five locations are located in peat, which naturally emits CO₂. "Report on Landfill Gas Monitoring at Laois County Council

Kyletalesha Landfill Site” was submitted to the agency on 23/10/2002 and states that carbon dioxide levels above the trigger limit values in landfill gas monitoring locations outside the body of waste are attributable to natural background levels from the natural decay of peat.

Monitoring locations M001 to M004 are located inside the body of waste where carbon dioxide and methane levels above Exceedance Limit Values are expected and therefore are not a non-compliance issue.

Landfill Gas Control

In accordance with condition 3.14.1 of Waste Licence (W0026-2), infrastructure for the collection and flaring of landfill gas from Cells 1 to 5 and Cell 12 and 13 has been installed. The horizontal gas extraction system is currently being installed in cell 14(b). This is carried out with each lift of waste. Following the completion of mini Cell 14(a) five vertical wells were constructed and connected to the Landfill gas infrastructure. These vertical wells supersede the horizontal wells constructed during the filling of the mini Cell 14(a). In September 2008 Laois Co Co installed a temporary gas flare to assist in the collection and flaring of landfill gas from the active Cell 14.

Noise Monitoring

Noise monitoring is carried out at four locations, N1 to N4 in accordance with Schedule C.1 of Waste Licence (W0026-2). Full details of analysis may be found in the quarterly monitoring reports as submitted to the Agency and can also be found on the attached compact disc.

The Noise limit in the waste licence of 55dB(A) for daytime hours was exceeded at monitoring location N3. The main contributing factor to the elevated noise levels was traffic from the N80 road. Elevated noise levels at this monitoring location were, at the request of the agency, treated as an incident. All elevated noise levels are reported to the agency as an incident and entered in to the relevant quarterly monitoring reports. The detailed monitoring results are presented in the quarterly monitoring reports submitted to the Agency during the reporting period and can also be viewed on the attached compact disc.

Dust Monitoring

In accordance with schedule D.3.1, dust monitoring was carried out at monitoring locations D1, D2, D3 and D4. Full details of analysis may be found in the quarterly monitoring reports as submitted to the Agency and can also be found on the attached compact disc.

The dust deposition limit stipulated in the waste license ($350\text{mg}/\text{m}^2/\text{day}$) was exceeded at monitoring location D2 during the reporting period. The main contributing factor to the elevated dust levels was due to the dry weather conditions and high traffic along the road between the N80 junction and Larkins Cross. Elevated dust deposition levels at this monitoring location were, at the request of the agency, treated as an incident. All elevated dust depositions are reported to the agency as an incident and entered in to the relevant quarterly monitoring reports. The detailed monitoring results are presented in the quarterly monitoring reports submitted to the Agency during the reporting period and can also be viewed on the attached compact disc.

Parameter Exceedances

In 2008 a total of 434 samples for perimeter landfill gas, groundwater, surface water, leachate, noise and dust deposition were taken and analyzed by either independent laboratories or the Council laboratory. This figure is exclusive of the comprehensive continuous monitoring which takes place on site. The maximum parameter values are those referred to in Schedule C of Waste Licence (W0026-2). Details of parameter exceedances are presented in *Table 8.2*.

Table 8.2 Parameter Exceedances (Schedule C)

Date:	Parameter Exceedance:	Reason:
29-01-2008	CO2 in Trial Pits	Peat Naturally emitting CO2
26-02-2008	CO2 in Trial Pits	Peat Naturally emitting CO2
25-03-2008	CO2 in Trial Pits	Peat Naturally emitting CO2
29-04-2008	CO2 in Trial Pits	Peat Naturally emitting CO2
27-05-2008	CO2 in Trial Pits	Peat Naturally emitting CO2
17-06-2008	CO2 in Trial Pits	Peat Naturally emitting CO2
25-07-2008	CO2 in Trial Pits	Peat Naturally emitting CO2
22-08-2008	CO2 in Trial Pits	Peat Naturally emitting CO2
22-08-2008	Dust Deposition	Traffic along Adjoining Road
23-08-2008	CO from Landfill Flare	Temperature Drop in Flare
09-09-2008	CO2 in Trial Pits	Peat Naturally emitting CO2

25-09-2008	Noise Emission	N80 Traffic
13-10-2008	CO2 in Trial Pits	Peat Naturally emitting CO2
19-11-2008	CO2 in Trial Pits	Peat Naturally emitting CO2

9. Resource and energy consumption summary.

The following resources were used on-site during the reporting period: -

• Electricity

A of **24,373 kWhr.** was used onsite throughout the reporting period

• Water

Surface Water Lagoon:

Dust Suppression using a 9m^3 tanker, 10 weeks at 5 days per week at 3 passes per day
 $= 9 \times 10 \times 5 \times 3 = \mathbf{1,350\ m^3}$

Metered:

A total of $\mathbf{920\text{m}^3}$ was used from the mains supply throughout the reporting period.

• Diesel.

Approximately **24,000** was used throughout the reporting period for onsite machinery.

• Stone

A total of **2,454.02** tonnes was used for landfill roads throughout the reporting period

10. Proposed development of the facility and timescale of such development.

For the work undertaken in 2008 and work due for completion in 2009 please refer to chapter 12. There are no details available present for development works proposed for beyond the next reporting period.

11. Volume of leachate produced and volume of leachate transported / discharged off-site.

The historically filled areas, including Cells 1 to 5, and lined Cells 12 and 13 have been permanently remediated. Incident rainfall on historical filled areas is now diverted to surface water source. Incident rainfall on the active fill area Cell 14 is collected via the leachate drainage blanket and pumped to on-site lined leachate storage lagoon prior to treatment at council

wastewater treatment plant and discharge to surface water. Other potential sources of leachate such as groundwater and surface water run-off are prevented from entering the waste fill areas by cell design. Leachate collected from each unlined landfill cell is directed to the leachate storage tank located in the eastern area of the landfill. Leachate is tankered off site to waste water treatment plants for treatment. **Table 11** identifies the volume of leachate tankered off site for treatment during the reporting period.

The onsite leachate treatment plant has been decommissioned since the 21st of May 2007; therefore discharge of treated leachate to the River Triogue is no longer taking place. The last discharge of treated leachate took place in June 2006. A new leachate storage tank has been installed near to the unlined lagoon and is now fully commissioned. The unlined lagoon will be decommissioned over a phased period.

Table 11.0 – Volume of Leachate Tankered Off-Site

Mass of Leachate Removed (Tonnes)	Volume of Leachate Removed (m ³)	Month
1,334.06	1,227.34	Jan
1,564.70	1,439.56	Feb
1,052.84	968.61	March
330.22	303.80	April
775.46	713.42	May
1,242.98	1,143.54	June
897.68	825.86	July
1,045.82	962.15	Aug
1,062.30	977.32	Sept
1,218.30	1,120.84	Oct
1,286.98	1,184.02	Nov
1,430.88	1,316.41	Dec
13,242.22	12,182.87	Grand Total

12. Report on development works undertaken during the reporting period and a timescale for those proposed during the coming year.

Developments Undertaken in 2008:

1. In compliance with condition 4 of waste licence W0026-2 works on the capping of mini cell 14(a) commenced in December 2008. The only work carried out in 2008 was the grading of the soil material from the onsite stockpile which is to be used in the final capping.
2. In compliance with condition 3.5.1 of waste licence W0026-2 site roads were provided and maintained to ensure the safe movement of vehicles within the facility. The main access road through the landfill was resurfaced on a regular basis from a location past the wheel wash to the lined lagoon. This work was carried out using a clause 804 material sourced from a nearby quarry. The access road from the public tipping area to the new storage lagoon was also resurfaced using a tar and chip material.
3. In compliance with condition 3.20.2 of waste licence W0026-2 a telemetry system was installed at the facility for the recording of all specified monitoring. The new scada system was installed and operational in September 2008. The scada system monitors leachate levels and flows from Cells 12, 13 and 14. Leachate levels are also monitored from the new storage tank and the lined lagoon. In addition to this ,the scada monitors Landfill Gas concentrations from the permanent Landfill Gas Flare and also from the permanent gas system installed in the buildings. The new camera security system (see no. 4) can also be accessed through the scada system. The scada contains a full logging and reporting facility and can also be accessed remotely using a laptop from anywhere outside the facility during non operational hours.
4. In compliance with condition 3.4.3 of waste licence W0026-2 security cameras were installed at the facility for monitoring security. In total 10 security camera were installed at specific locations around the facility. Three security cameras were installed in the

Civic Amenity Facility, two at the weighbridge, one at the main entrance, one at the main site office, one at the machinery shed, one at the Landfill Gas Flare and one at the back entrance from the N80 road. All data from the security cameras is stored for a period of time on a dedicated storage device located in the main site office. All security cameras can be viewed remotely using a laptop from anywhere outside the facility during non operational hours.

5. A floating cover was constructed in March 2008 to prevent the ingress of rainfall to the Leachate Storage Lagoon by FLI Environmental. The cover consists of a HDPE cover which is welded to the existing liner and is weighted so as all rainfall will accumulate in the centre of the cover where it is pumped to the nearby surface water drain.
6. In compliance with condition 3.14.3 of waste licence W0026-2 landfill gas extraction wells were provided in July 2008 by Irish Bio-Tech in the lined Cell 14(a) so as to match the phased development of the Cell. A total of five well were constructed by drilling to a dept of 10m using a 600mm auger. Perforated HDPE pipes of 160mm diameter were placed in the borehole and backfilled with a suitable pea gravel material. The top of the well consists of a 160mm solid HDPE pipe which is connected to a well head. The borehole was sealed with a bentonite material to prevent passive venting of landfill gas. Each well head is connected to the main gas line using a 125mm solid HDPE pipe.
7. In compliance with condition 3.4.1.of waste licence W0026-2 new hedding was planted where there were breaches in the existing hedgerow network along the N80 road. The planting was carried out by Abbeyleix Woodland Services in February 2008 and the species planted consisted of birch, larch, scots pine, beech and alder.
8. In order to maintain adequate power supply for the facility it was necessary to install an additional power supply at the northern end of the site. The poles and transformer were installed by the E.S.B. in June 2008. Ducting for this supply was carried out by David Walsh Plant Hire in July 2008 and the connections were carried out by Shaw Automation in September 2008.
9. The permanent Landfill Gas Flare was relocated to the northern end of the site to increase well head pressure on the gas field. The road crossing to house the main gas pipe

underground was carried out by Gorman Plant Hire and the moving of the flare was carried out by A.F.S. in September 2008

Proposed Development work for 2009

1. Capping of mini Cell 14(a) to the requirements of condition 4.3 of the waste licence (W0026-2) is to be completed by February 2009.
2. Capping of mini Cell 14(b) to the requirements of condition 4.3 of the waste licence (W0026-2) is to be completed by June 2009.
3. Construction of Cell 15 to the requirements of condition 3.12 and 3.16 of the waste licence (W0026-2) is to commence in July 2009.
4. In compliance with condition 3.20.1(a) of waste licence (W0026-2) additional landfill gas monitoring locations will be provided subject to agreement with the agency. Laois County Council still awaiting way leave decision for two remaining locations.
5. Site road resurfacing to the requirements of condition 3.5.1 of the waste licence W0026-2 will be ongoing throughout 2009
6. Horizontal landfill gas extraction wells to be provided in the active cell 14(b) and 14(c) to the requirements of condition 3.14.3 of the waste licence (W0026-2) will be ongoing throughout 2009.
7. Permanent landfill gas extraction wells to be provided in the active cell 14(b) to the requirements of condition 3.14.3 of the waste licence (W0026-2) is to be completed by May 2009.
8. Landfill gas extraction pipe work replacement on Cell12 is to be completed by January 2009

13. Report on Restoration of Completed Cells

In compliance with condition 4 of waste licence (W0026-2) final capping of mini cell 14(a) commenced in December 2008 and is due for completion in February 2009. Cells 12 and 13 are

now fully capped and restored.

14. Site survey showing existing levels of the facility at the end of the reporting period. :

Focus Ireland carried out a complete site Survey for year ended 31/12/2008 in January 2009 and can be viewed in **Appendix V**.

15. Estimated annual and cumulative quantities of landfill gas emitted from the facility.

Landfill Gas Volumes

The Council prepared a report entitled “Proposal for Utilisation of Landfill Gas as an Energy Source” which was submitted and accepted by the Agency in compliance with Condition 4.17.7 of the waste licence 26-1. This report estimated that approximately 1,941 m³ of landfill gas would be generated on-site in the year 2000. The results of this assessment indicated that the feasibility for utilisation of landfill gas as an energy source in the short to medium term (10 years) was not viable. A repeat assessment is currently being carried out by RPS Consultants on the feasibility of utilising landfill gas as an energy source.

The exceedances recorded in **Table 15** are due to the fact that trial pits M001, M002, M003 and M004 are situated in waste which was historically deposited at the edge of the site. M015 and M016 are located in peat, which naturally emits CO₂. A gas assessment report was submitted to the Agency in October 2002 to confirm this entitled “Report on Landfill Gas Monitoring at Laois County Council Kyletalesha Landfill Site”.

Table 15: Average Landfill Gas Concentrations for 2008.

Location	CH₄	CO₂	O₂
TPITM001 Average	0.09	3.72	15.51
TPITM002 Average	0.05	1.72	18.95
TPITM003 Average	0.07	2.15	17.95
TPITM004 Average	0.13	3.65	16.08
TPITM005 Average	0.07	0.21	20.14
TPITM006 Average	0.07	0.55	19.88
TPITM007 Average	0.09	0.77	19.75
TPITM008 Average	0.07	0.28	20.13
TPITM009 Average	0.07	0.64	19.93
TPITM014 Average	0.10	0.30	20.03
TPITM015 Average	0.15	1.66	18.33
TPITM016 Average	0.15	2.86	14.22
TPITM017 Average	0.09	0.38	20.01
Overall Average	0.09	1.45	18.53

16. Estimated annual and cumulative quantity of indirect emissions to groundwater.

The historically filled areas, including Cells 1 to 5, and lined Cells 12 and 13 have been permanently restored and vegetated. Incident rainfall on the active fill areas is collected in the leachate collection drains and treated in a council waste water treatment plant.

The landfill is designed to utilise the natural ground conditions to mitigate environmental impacts associated with leachate. The design incorporates leachate collection facilities using internal and perimeter drains to direct leachate and leachate contaminated surface water to the on-site leachate lagoon.

The peat and the underlying boulder clays have a low permeability, which inhibits the percolation of leachate downward to limestone bedrock beneath the site. A comprehensive site investigation at the site completed in 2000 established that the thickness of the peat ranges from 3 - 7 m and the boulder clay from 7.5 - 10 m across the site. The permeability of the peat ranges from 1.9×10^{-9} m/s to 9.8×10^{-10} m/s. The underlying till has variable permeability depending on composition. In some sand and gravel zones permeability of 1×10^{-4} m/s can be expected. The till is however, more silt dominated and in these areas permeabilities ranging from 2.41×10^{-8} m/s to 4.78×10^{-10} m/s have been recorded.

The groundwater level monitoring indicates that the bedrock aquifer is confined by the overlying boulder clays and peats across much of the site. These conditions also inhibit the percolation of leachate to the bedrock due to differences in pressure head.

There is the potential for the indirect discharge of leachate to groundwater in the bedrock aquifer either by percolation through the underlying peat and boulder clay, or through recharge by contaminated surface water.

Using Darcy's equation which calculates groundwater flow and assuming a permeability of 1.9×10^{-9} m/s, an average depth of 5 m of underlying peat, a 1 m head of leachate and a fill area of $186,600 \text{ m}^2$, it is estimated that the theoretical potential percolation through the basal peats and boulder clays is approximately $48.54 \text{ m}^3/\text{acre}/\text{year}$ which is less than 1.5% of the total annual rainfall. The calculation does not take into consideration the pressure head in the bedrock aquifer, which would inhibit the discharge to the bedrock aquifer.

The peat has a proven capability, as demonstrated in the leachate treatment plant, to effectively reduce the concentration level of contaminants in the leachate. Any leachate that does percolate to groundwater will have undergone significant attenuation. This is confirmed by the groundwater quality monitoring at the site which shows that the landfill is not impacting on groundwater quality.

17. Annual water balance calculation and interpretation.

The water balance calculations are based on the methodology specified in the EPA's Landfill Site Design Manual. The calculation used is as follows:

$$L_o = [ER(A) + LW + IRCA + ER(l)] - [aw]$$

Lo	leachate produced (M3)
ER	effective rainfall (m) (Use actual rainfall (R) for active cells)
A	Area of cell (M2)
LW	liquid waste (also includes excess water from sludges) (M3)
IRCA	infiltration through restored and capped areas (m)
l	surface area of lagoon (M2)
a	absorptive capacity of waste (m ³ /t)
W	weight of waste deposited (t/a)

The meteorological data used was from the Birr, Co Offaly weather station. The meteorological reports for both the Birr and Mullingar weather stations can be found in *Appendix IV*. The landfill areas included in the calculations were the active fill area and the temporary restored area of Cell 14. The calculations in *Table 17.0* are based on the Actual Rainfall and do not allow for Evapotranspiration. An absorptive capacity of 0.06 m³ per tonne was assumed based on a compacted waste density of 0.85 tonnes/m³. *Table 17.1* compares Leachate produced and Leachate tankered off site for treatment.

Table 17.0: Water Balance Calculations

Cell	14
Active Area	7,000m ²
Active Area Infiltration	7,000 x 1.0174 = 7,121.80m³ (1)
Liquid Waste	0m³ (2)
Restored Area	18,000m ²
Restored Area Infiltration	18,000 x 0.712 = 12,816 m³ (3)
Total Water (1 + 2 + 3)	19,937.80m³ (a)
Absorptive Capacity	77,000 x 0.06 = 4,620m³ (b)
Leachate Produced (a – b)	15,318m ³

Table 17.1 Leachate produced and Leachate Tankered Offsite

Leachate Tankered Off site	12,182m3
Estimated Leachate Volumes	15,318m3

18. Report on the progress towards achievement of the Environmental Objectives and Targets contained in previous year's report.

OBJECTIVE	TARGET	PROGRESS
<p>1. To communicate effectively to all users of the landfill the Environmental Policy Statement.</p>	<p>Policy to be communicated on an ongoing annual basis in conjunction with seasonal waste minimization and recycling campaigns.</p>	<p>Policy to be communicated on an ongoing annual basis in conjunction with seasonal waste minimization and recycling campaigns.</p>
<p>2. Increase public awareness on waste issues and encourage reduction, recovery and recycling on a county wide basis as well as at the landfill in accordance with the Waste Management Plan for the Midland Region.</p>	<p>Maintain seasonal public information campaigns to encourage reduction, and recycling.</p> <p>Complete and distribute public information leaflets to promote waste reduction and recycling.</p> <p>Environmental Awareness Officer: Host public information evenings for community groups Host waste mgt seminars for the business community Promote sustainable waste mgt practices via schools education programme.</p> <p>Provide householders in County Laois with relevant information on reducing, reusing and recycling their waste (A5 brochure) Deliver national waste programmes</p> <p>At a local level e.g. Race Against Waste programme Update www.laois.ie with relevant information.</p>	<p>Ongoing public information campaigns to encourage reduction, and recycling. Ongoing tours of landfill facility given to schools, public representatives and community groups.</p> <p>Ongoing distribution of public information leaflets to promote waste reduction and recycling.</p> <p>On going on a annual Basis</p> <p>Ongoing on a annual Basis</p>

OBJECTIVE	TARGET	PROGRESS
<p>3. Improvements to Site Infrastructure.</p>	<p>Installation of a telemetry system for the recording of all specified monitoring data as per licence condition 3.19.2 (c).</p> <p>Install wastewater treatment system at the facility</p>	<p>Installed</p> <p>Ongoing</p>
<p>4. Landfill Gas Management.</p>	<p>Horizontal extraction system in place in cell 14 and is being updated as the</p>	<p>Ongoing</p>

	cell fills with waste.	
5. Landfill Site Restoration	Continue works in Cell 14 in compliance with condition 4 of waste licence (W0026-2) Installation of Horizontal gas extraction system	Ongoing Ongoing
6. Staff Training.	Review and update if necessary landfill staff training manuals and training matrix to represent waste licence (W0026-2).	Ongoing
7. Landfill Site Information Brochures	Distribute landfill site and waste information brochures as follows. <ul style="list-style-type: none"> • Landfill site design and operation. • Waste Disposal at Laois County Council landfill site. • Waste reduction and recycling. 	Ongoing
8. Prepare and Implement Written Procedures.	Complete review of all written procedures to include:	Ongoing
OBJECTIVE	TARGET	PROGRESS
9. Surface Water	Install surface water management system in compliance with licence condition 3.15.1.	Ongoing

19. Schedule of Environmental Objectives and Targets for the forthcoming year.

OBJECTIVE	TARGET
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<p>1. To communicate effectively to all users of the landfill the Environmental Policy Statement.</p>	<p>Policy to be communicated on an ongoing annual basis in conjunction with seasonal waste minimization and recycling campaigns.</p>
<p>2. Increase public awareness on waste issues and encourage reduction, recovery and recycling on a county wide basis as well as at the landfill in accordance with the Waste Management Plan for the Midland Region.</p>	<p>Annual surveys to measure public feed back in relation to waste services provided at the facility.</p> <p>Maintain seasonal public information campaigns to encourage reduction, and recycling.</p> <p>Complete and distribute public information leaflets to promote waste reduction and recycling.</p> <p>Environmental Awareness Officer: Host public information evenings for community groups Host waste mgt seminars for the business community Promote sustainable waste mgt practices via schools education programme.</p> <p>Provide householders in County Laois with relevant information on reducing, reusing and recycling their waste (A5 brochure) Deliver national waste programmes at a local level e.g. Race Against Waste programme Update www.laois.ie with relevant information.</p>
<p>OBJECTIVE</p>	<p>TARGET</p>
<p>3. Improvements to Site Infrastructure.</p>	<p>Review of wastewater treatment system at the facility.</p> <p>Construction of Cell 15</p>
<p>4. Landfill Gas Management.</p>	<p>Continue horizontal gas extraction system in cell 14.</p>

<p>5. Landfill Site Restoration</p>	<p>Continue works in Cell 14 in compliance with condition 4 of waste licence (W0026-2)</p>
<p>6. Staff Training</p>	<p>Review and update if necessary landfill staff training manuals and training matrix to represent waste licence (W00262).</p>
<p>7. Landfill Site Information Brochures</p>	<p>Distribute landfill site and waste information brochures as follows.</p> <ul style="list-style-type: none"> • Landfill site design and operation. • Waste Disposal at Laois County Council landfill site. • Waste reduction and recycling.
<p>8. Prepare and Implement Written Procedures.</p>	<p>Complete review of all written procedures.</p>

20. Full title and a written summary of any procedures developed by the licensee in the year which relates to the facility operation.

A full review of current and additional procedures is being undertaken.

21. Tank, pipeline and bund testing and inspection report.

In Compliance with condition 3.11.5 of Waste Licence W0026-2 the integrity and water tightness of all the bunds and leachate/contaminated waste storage tanks were assessed. The New Leachate Storage Tank and the existing Lined Leachate Lagoon are assessed by independent contractors while the civic amenity oil bund, the Green waste area leachate drainage sumps (A, B & C), the waste quarantine area sump, the waste inspection area sump and the Leachate collection sump L005 were assessed by Laois County Council. Details of all integrity tests carried out in the reporting period are presented in **Appendix III** of this report.

24. Report on the performance and compatibility of the septic tank (and associated percolation area) with the Agency's Wastewater Treatment manual: Treatment Systems for Single Houses.

The new site facility office has been connected to the existing septic tank which has proven to be in good working order

25. Reported incidents and Complaints summaries.

The Council maintains a comprehensive register of incidents and complaints received in accordance with Condition 3.13 of the waste licence. **Table 25** lists the incidents and complaints throughout the reporting period.

Table 25: Incident and Complaints for 2008

Date	Ref.	Incident	Complaints
14/01/2008	14.01.08	Lined Lagoon Exceedance	
W/E 18-01-2008			3 Odour Complaints
29-01-2008	29.01.08	CO2 Exceedance in Trial Pits M001 & MO15	
W/E 01-02-2008			3 Odour Complaints
08-02-2008	08022008	Flare Shut Down – Transmitter Fault	
Date	Ref.	Incident	Complaints

W/E 15-02-2008			3 Odour Complaints
W/E 22-02-2008			4 Odour Complaints
26-02-2008	26.02.08	CO2 Exceedance in Trial Pits M004, M015 & M016	
W/E 29-02-2008			1 Odour Complaint
25-03-2008	25.03.08	CO2 Exceedance in Trial Pits M001 & M016	
04-04-2008	04042008	Flare Shut Down – Power Failure	
W/E 18-04-2008			1 Odour Complaint
W/E 25-04-2008			2 Odour Complaints
27-05-2008	27.05.08	CO2 Exceedance in Trial Pits M001, M002, M003, M004, M006 & M016	
29-05-2008	220508	Flare Shut Down – Faulty Methane Board	
W/E 13/06/2008			1 Odour Complaint
18-06-2008	18.06.08	CO2 Exceedance in Trial Pits M001, M002, M003, M004, M009, M015 & M016	
23-06-2008	230608	Flare Shut Down – Open Gas Pipe	
W/E 30-06-2008			2 Odour Complaint
30-06-2008	270608	Flare Shut Down – Faulty Methane Board	
W/E 05-07-2008			3 Odour Complaints
31-07-2008	31.07.2008	Lined Lagoon Exceedance	
W/E 12-07-2008			5 Odour Complaints
W/E 01-08-2008			2 Odour Complaints
W/E 09-08-2008			3 Odour Complaints
11-08-2008	110808	Low Temperature Readings on Flare	
Date	Ref.	Incident	Complaints

W/E 16-08-2008			4 Odour Complaints
21-08-2008	200808	Flare Shut Down – Faulty CO2 Board	
W/E 05-09-2008			4 Odour Complaints
08-09-2008	080908	Flare Shut Down – Poor Flame Detection	
W/E 12-09-2008			6 Odour Complaints
19-09-2008	CFJGSept 2008		2 Odour Complaints
W/E 19-09-2008			6 Odour Complaints
W/E 27-09-2008			2 Odour Complaints
09-10-2008	081008	Odour Offsite	
15-10-2008	141008	CO2 Exceedance in Trial Pits M001, M002, M003 & M004	
W/E 02-11-2008			3 Odour Complaints
03-11-2008	031108	Exceedance of Dust Limit	
W/E 07-11-2008			3 Odour Complaints
20-11-2008	191108	CO2 Exceedance in Trial Pits M001 & M004	
W/E 30-11-2008			8 Odour Complaints
04-12-2008	041208	Exceedance of Noise Limit	
W/E 07-12-2008			9 Odour Complaints
12-12-2008			3 Odour Complaints
W/E 14-12-2008			4 Odour Complaints
23-12-2008			1 Odour Complaint

26. Review of Nuisance Controls.

Condition 7.1.

To control landfill odours, vermin, dust, litter and noise in compliance with condition 7.1 of Waste Licence W0026-2 the following is carried out.

- Each evening once work completes, a layer of soil is placed over the entire working face of the active cell to reduce odour emissions and littering.
- At the end of each week a layer of 150mm minimum of soil is place on the working face.
- The use of Rentokill for vermin control.
- During the dry weather water is sprayed continuously on the road way to reduce dust levels
- Netting is placed around the active cell to reduce littering
- Daily litter patrols are carried out around the site.
- Installation of the flaring system.

Condition 7.3.4.

In compliance with condition 7.3.4 and in co-operation with the Waste Enforcement Section of Laois County Council the use of CCTV shall be utilised in identifying vehicles from which litter is emanating due to poor or lack of covering

Condition 7.6.1.

In compliance with condition 7.6.1 the use of Falcons has proven to be a significant factor in bird and vermin control.

27. Reports on financial provision made under this licence, management and staffing structure of the facility, and a programme for public information.

Management and Staffing Structure:

Grade	Name	Responsibility
Exec. Technician	K. Farrell	A/Landfill Manager
Technician Grade 1	M. Chawke	A/Facility Manager
Gen. Services Supervisor	N. Farrell	Overseer
Ganger	L. Dunne	Domestic Waste Area
Light Equip. Operator	M. Brennan	Nuisance Control
General Operator	D. O'Rourke	Weighbridge Operator
General Operator	P. Thompson	Civic Amenity Site

Public Information:

- Appointment of an Environmental Awareness Officer.
- School and community tours held on an ongoing basis.
- Seasonal public informational campaigns to encourage reusing, reduction and recycling.
- Deliver national waste programmes at local level e.g. Race Against Waste.
- Public Information File kept at Landfill Site Office for public viewing which contains Monitoring Results, Waste Licence, Complaints and Environmental Incidents.
- Regular Monitoring Committee Meetings with local residence.

Budget for 2009:

Reduction in Capital Balances	€340,000
Loan Charges/Transfer Capital	€254,000
Aftercare/reinstatement Fund	€15,000

28. Report on Training of Staff:

Details of training undertaken in 2008 are given in *Table 27.0*. All operatives hold Safepass cards.

Table 27.0 Training of Staff

Name	Grade	Course Description	Start	Finish
Brenda Cuddy	Executive Engineer	Scada System Training	Sep 08	Sep 08
Ken Farrell	Technician	Automated External Defibrillator Scada System Training C.C.T.V. Training	Mar 08 Sep 08 Nov 08	Mar 08 Sep 08 Nov 08
Edward Farrell	General Services Supervisor	First Aid Basic Computers Automated External Defibrillator	Apr 08 Aug 08 Mar 08	Apr 08 Sep 08 Mar 08
Liam Dunne	Ganger	Automated External Defibrillator	Mar 08	Mar 08
Michael Brennan	Light Equipment Operator	Landfill Compactor	Aug 08	Aug 08
Name	Grade	Course Description	Start	Finish
Patrick Thompson	General Operative	Landfill Compactor	Aug 08	Aug 08

Marc Chawke	Technician	FAS Waste Management Training Programme	Sep 08	Nov 08
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29. Certification:

The Annual Environmental Report for the monitoring period 2007 has been certified by the undersigned.

Mr. Kenneth Farrell
A/Landfill Manager

Mr. Marc Chawke
Monitoring Technician

Mr. Brendan Condron
S.E.E. - Waste Management

Appendix I:

Volumetric Survey

Appendix II

Monitoring Locations

Kyletalesha Landfill Site,			
Monitoring Point Co-ordinates. December, 2008.			
Monitoring Point and Location	Easting	Northing	Elevation
G001 Coillte Bog	245276.297	202051.548	83.160
G002 Bog Opposite M. Delaney	245493.769	202652.424	83.700
G008 Forestry on Kyle Road	245830.707	202293.324	82.600
G012 North of Cell 14	244914.829	203750.783	83.220
G013 C. Delaney Road	245143.274	203758.123	81.150
L002 Car Area	245349.146	202481.016	87.780
L003 West Cell 1/2	245224.700	202576.797	89.490
L004 East Cell1/2	245302.633	202656.523	87.770
L026 Cell 3	245164.459	202809.927	90.920
L025 Cell 1/2	245250.818	202820.125	90.280
L021 Cell 4			
L014 Cell 5	245374.306	202968.346	84.730
L016 Cell 12	245043.862	203352.234	80.440
L017 Lined Lagoon	244996.000	203758.000	N/A
L018 Cell 13	245088.552	203579.564	N/A
L019 Cell 14	245087.719	203699.593	N/A
LT50 Unlined Lagoon	245354.525	202706.213	N/A
L028 New Storage Tank	245407.940	202681.259	N/A
M001 East boundary at Entrance Gate	245285.054	202154.880	85.930
M002 East boundary at Civic Amenity Site	245344.234	202233.743	85.560
M003 East boundary opposite Inspection Area	245412.795	202311.501	84.270
M004 Old Treatment Plant	245431.280	202641.448	81.470
M005 West boundary opposite cell 1/2	245129.299	202613.733	87.780
M006 West boundary opposite cell 3	245115.839	202736.261	87.260
M007 South boundary at N80 junction	245173.954	202119.558	84.350
M008 West boundary along N80	245176.566	202332.268	84.670
M009 West boundary along N80	245191.119	202381.412	84.670
M012 North boundary opposite Cell 14	244914.829	203750.783	83.220
M013 North boundary on C. Delaney road	245143.274	203758.123	81.150
M014 West boundary opposite Cell 12	245096.519	203456.821	80.990
M015 Road to trial Cell	244871.945	203662.372	84.880
M016 Trial Cell car park.	244832.730	203772.661	84.330
M017 Delaneys' Road.	245119.237	203656.902	80.710
M018 (M007)	245175.707	202121.219	83.570
S001 Tip Stream inside Landfill	245453.400	202776.186	80.340
S002 Tip Stream inside Landfill	245488.317	202588.450	78.790
S003 Tip Stream at AES	245587.877	202468.201	78.000
S004 N80 Junction	245207.622	202057.848	81.970
S007 Tip Stream in Finns Field	246216.612	202046.316	77.280
S008 Triouge at leachate discharge point	246286.558	202035.313	76.250
S009 Triouge downstream of discharge point	246299.190	202084.446	75.580
S010	247830.300	197111.400	N/A
S011	246377.100	200609.100	N/A
S012	247471.400	204177.600	N/A
S025 Triouge upstream of discharge point	246270.206	201971.565	76.490

S030 North of Cell 14	245082.117	203791.502	78.780
V001	245565.937	202466.326	83.280
V002	245243.256	202069.332	85.190
V003	245188.327	202023.141	84.810
V004	245020.419	202752.557	86.300
V005	244997.180	202874.102	86.000
V006	244916.769	203234.828	87.090
V007	244864.027	203477.183	87.860
V008	244821.238	203668.547	87.590
BA1 Broughlone Stream			N/A
BA2 Kyle Bridge			N/A
BA3 Two-Mile Bridge			N/A
D1 Old Treatment Plant	245416.139	202706.222	N/A
D2 Beside Civic Amenity Site	245406.201	202305.031	N/A
D3 Beside N80 Opposite Cell5	245052.436	202704.550	N/A
D4 Bog between Cell5 and Cell 12	245091.845	203063.692	N/A
N1 Old Treatment Plant	245416.139	202706.222	N/A
N2 Beside Civic Amenity Site	245406.201	202305.031	N/A
N3 Beside N80 Opposite Cell 5	245052.436	202704.550	N/A
N4 Bog between Cell 5 and Cell 12	245091.845	203063.692	N/A

Appendix III

Integrity Tests

Appendix IV

Weather Data

Total rainfall in millimeters for Birr

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2008	134.9	31.5	95.2	30.7	19.1	86.8	91.8	181.5	84.1	121.1	77.0	63.7	1017.4
mean	76.0	53.9	60.7	52.8	61.2	55.6	58.7	78.0	70.6	84.1	74.2	78.3	804.2

Mean temperature in degrees C. for Birr

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2008	6.4	5.9	5.9	7.7	13.3	13.0	15.2	15.4	12.3	8.9	7.2	4.5	9.6
mean	4.6	4.8	6.1	7.9	10.4	13.2	14.9	14.6	12.6	10.1	6.4	5.4	9.3

Total rainfall in millimeters for Mullingar

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2008	134.7	54.4	91.6	59.1	19.4	84.7	98.6	154.5	104.7	124.0	75.6	61.3	1062.6
mean	92.4	66.3	72.6	59.0	70.9	67.0	61.2	82.9	85.1	94.1	87.9	92.2	931.5

Mean temperature in degrees C. for Mullingar

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2008	5.6	5.4	5.5	7.4	12.5	12.5	14.5	14.9	12.0	8.1	6.7	4.1	9.1
mean	4.0	4.2	5.7	7.6	10.1	13.0	14.7	14.2	12.3	9.7	5.9	4.8	8.8

Appendix V

Site Survey

Appendix VI

Pollutant Release & Transfer Register

Quarterly Monitoring Returns

Reference No QENV 41

**Laois County Council
Landfill Site
Waste Licence Register No. W026-02**

Quarterly Monitoring Returns

April 2008

APPENDIX I

Landfill Gas Monitoring

Location	Date	CH4 (%v/v)	CO2 (%v/v)	O2 (%v/v)	Barometric Pressure (mb)
TPITM001	29-Jan-08	0	1.8	17.7	1009
TPITM002	29-Jan-08	0	0.9	20.6	1009
TPITM003	29-Jan-08	0	0.7	20.4	1009
TPITM004	29-Jan-08	0	1.4	17.7	1010
TPITM005	29-Jan-08	0	0.1	20.9	1009
TPITM006	29-Jan-08	0	0.2	21	1009
TPITM008	29-Jan-08	0	0.4	20.9	1009
TPITM009	29-Jan-08	0	0.7	20.8	1009
TPITM007	29-Jan-08	0	0.9	20.6	1009
TPITM014	29-Jan-08	0.2	1.3	20.4	1010
TPITM015	29-Jan-08	0.2	3.7	19.2	1009
TPITM017	29-Jan-08	0	0.6	20.7	1010
TPITM018	29-Jan-08	0	1.1	20.9	1009
TPITM001	26-Feb-08	0	1.3	18.8	993
TPITM002	26-Feb-08	0	0.5	20.2	993
TPITM003	26-Feb-08	0	1.4	19.2	993
TPITM004	26-Feb-08	0.1	2	17.4	994
TPITM005	26-Feb-08	0	0.2	19.8	993
TPITM006	26-Feb-08	0	0.2	19.6	993
TPITM007	26-Feb-08	0	0.8	19.7	993
TPITM008	26-Feb-08	0	0.2	19.8	993
TPITM009	26-Feb-08	0	1.2	19.3	993
TPITM014	26-Feb-08	0	0.8	19.5	994
TPITM015	26-Feb08	0	3.1	18.4	993

TPITM016	26-Feb-08	0.4	5	16.2	994
TPITM017	26-Feb-08	0	0.6	19.8	995
TPITM018	26-Feb-08	0	1.4	19.8	993
M001	25-Mar-08	0	2.6	16	1001
M002	25-Mar-08	0	1.1	19.9	1001
M003	25-Mar-08	0	1.1	19.3	1001
M004	25-Mar-08	0	1.4	18.8	1002
M005	25-Mar-08	0	0.2	20.6	1002
M006	25-Mar-08	0	0.4	20.4	1002
M007	25-Mar-08	0	1.1	19.8	1001
M008	25-Mar-08	0	0.2	20.6	1002
M009	25-Mar-08	0	0.8	20.1	1001
M014	25-Mar-08	0	0.6	20.5	1004
M015	25-Mar-08	0	1	20.4	1003
M016	25-Mar-08	0.4	4.4	15.1	1004
M017	25-Mar-08	0	0.9	20.5	1004
M018	25-Mar-08	0	1	20.3	1001

Date	Landfill Office-Fire Exit CH4	Landfill Office-Fire Exit CO2	Landfill Office-Ken's Office CH4	Landfill Office-Ken's Office CO2	Weighbridge CH4	Weighbridge CO2	Civic Amenity Office CH4	Civic Amenity Office CO2
01/01/2008 Average	0.1218	0.0226	0.1566	0.0039	0.0391	-0.0326	0.1854	0.1016
02/01/2008 Average	0.0073	0.0122	0.0351	0.1655	-0.0580	0.0927	0.1333	0.2116
03/01/2008 Average	0.0086	0.0042	0.0291	0.1596	-0.0887	0.0929	0.1394	0.1802
04/01/2008 Average	-0.0035	0.0075	0.0277	0.1703	-0.0995	0.0817	0.1493	0.1690
05/01/2008 Average	-0.0072	0.0084	0.0271	0.1535	-0.0922	0.0843	0.1295	0.1745
06/01/2008 Average	-0.0017	0.0082	0.0270	0.1404	-0.0974	0.0829	0.1185	0.1635
07/01/2008 Average	0.0066	0.0082	0.0275	0.1627	-0.0845	0.0837	0.1331	0.1775
08/01/2008 Average	0.0088	0.0103	0.0280	0.1587	-0.0846	0.0850	0.1417	0.1742
09/01/2008 Average	0.0031	0.0117	0.0267	0.1540	-0.0965	0.0846	0.1351	0.1721
10/01/2008 Average	0.0018	0.0139	0.0291	0.1571	-0.0754	0.0926	0.1299	0.1756
11/01/2008 Average	0.0090	0.0098	0.0272	0.1561	-0.0915	0.0845	0.1295	0.1824
12/01/2008 Average	0.0166	0.0099	0.0268	0.1559	-0.0916	0.0838	0.1368	0.1729
13/01/2008 Average	0.0091	0.0139	0.0290	0.1506	-0.0676	0.0840	0.1221	0.1709
14/01/2008 Average	0.0010	0.0133	0.0280	0.1582	-0.0762	0.0894	0.1299	0.1797
15/01/2008 Average	-0.0017	0.0163	0.0286	0.1604	-0.0736	0.0882	0.1457	0.1783
16/01/2008 Average	-0.0033	0.0115	0.0281	0.1560	-0.0841	0.0845	0.1451	0.1781
17/01/2008 Average	-0.0039	0.0139	0.0281	0.1557	-0.0773	0.0863	0.1374	0.1819
18/01/2008 Average	0.0082	0.0206	0.0302	0.1509	-0.0629	0.0975	0.1539	0.1838
19/01/2008 Average	0.0026	0.0217	0.0317	0.1657	-0.0535	0.1014	0.1300	0.1834
26/01/2008 Average	0.0134	-0.0071	0.0012	0.0090	0.0154	0.0485	-0.0021	0.0879
27/01/2008 Average	-0.0056	-0.0190	-0.0013	0.0041	0.0062	0.0492	-0.0034	0.0330
28/01/2008 Average	-0.0087	-0.0177	-0.0016	0.0086	-0.0132	0.0489	-0.0022	0.0721
29/01/2008 Average	-0.0169	-0.0074	0.0007	0.0114	-0.0254	0.0541	-0.0015	0.0581
30/01/2008 Average	-0.0286	-0.0137	-0.0040	0.0042	-0.0454	0.0448	-0.0053	0.0391
31/01/2008 Average	-0.0333	-0.0117	-0.0111	0.0005	-0.0467	0.0450	-0.0103	0.0429
01/02/2008 Average	-0.0349	-0.0239	-0.0110	0.0021	-0.0363	0.0347	-0.0058	0.0902
02/02/2008 Average	-0.0346	-0.0246	-0.0120	-0.0060	-0.0410	0.0257	-0.0078	0.0312
03/02/2008 Average	-0.0343	-0.0236	-0.0132	-0.0065	-0.0504	0.0323	-0.0084	0.0169
04/02/2008 Average	-0.0343	-0.0240	-0.0132	-0.0018	-0.0482	0.0340	-0.0079	0.0420
05/02/2008 Average	-0.0328	-0.0209	-0.0102	0.0034	-0.0436	0.0453	-0.0076	0.0352
06/02/2008 Average	-0.0303	-0.0191	-0.0052	0.0093	-0.0339	0.0359	-0.0062	0.0285
07/02/2008 Average	-0.0072	-0.0148	0.0026	0.0133	-0.0260	0.0467	0.0018	0.0276
08/02/2008 Average	-0.0005	-0.0107	0.0023	0.0142	-0.0186	0.0469	0.0029	0.0268
09/02/2008 Average	-0.0007	-0.0120	0.0001	0.0109	-0.0156	0.0444	0.0017	0.0229
10/02/2008 Average	-0.0017	-0.0224	-0.0004	0.0084	-0.0042	0.0434	0.0013	0.0224
11/02/2008 Average	-0.0065	-0.0099	0.0005	0.0160	-0.0070	0.0459	0.0014	0.0362
12/02/2008 Average	-0.0085	-0.0103	0.0008	0.0241	-0.0214	0.0523	-0.0004	0.0360
13/02/2008 Average	-0.0091	-0.0101	-0.0019	0.0275	-0.0176	0.0603	-0.0015	0.0442
14/02/2008 Average	-0.0061	-0.0209	0.0000	0.0136	-0.0274	0.0529	0.0033	0.0491
15/02/2008 Average	-0.0085	-0.0132	-0.0023	0.0116	-0.0267	0.0578	0.0036	0.0420
16/02/2008 Average	-0.0140	-0.0119	-0.0043	0.0095	-0.0212	0.0462	0.0028	0.0386
17/02/2008 Average	-0.0106	-0.0337	-0.0093	0.0056	-0.0195	0.0406	-0.0002	0.0309
18/02/2008 Average	-0.0251	-0.0237	-0.0087	0.0074	-0.0197	0.0439	0.0010	0.0580
19/02/2008 Average	-0.0346	-0.0181	-0.0096	0.0143	-0.0306	0.0508	0.0019	0.0637
20/02/2008 Average	-0.0321	-0.0178	-0.0035	0.0177	-0.0086	0.0646	0.0016	0.0365
21/02/2008 Average	-0.0205	-0.0025	0.0019	0.0113	-0.0090	0.0511	0.0055	0.0263
22/02/2008 Average	-0.0002	0.0017	0.0025	0.0119	-0.0203	0.0552	0.0069	0.0581

23/02/2008 Average	-0.0016	-0.0018	0.0002	0.0058	-0.0340	0.0487	0.0051	0.0269
24/02/2008 Average	-0.0215	-0.0095	0.0024	0.0012	-0.0328	0.0465	0.0055	0.0207
25/02/2008 Average	-0.0265	-0.0071	-0.0008	0.0021	-0.0360	0.0402	0.0086	0.0413
26/02/2008 Average	-0.0282	-0.0026	-0.0002	0.0107	-0.0356	0.0443	0.0049	0.0514
27/02/2008 Average	-0.0279	-0.0106	-0.0015	0.0046	-0.0314	0.0424	0.0046	0.0447
28/02/2008 Average	-0.0247	-0.0128	-0.0012	0.0044	-0.0356	0.0493	0.0060	0.0426
01/03/2008 Average	-0.0253	-0.0015	-0.0015	-0.0004	-0.0389	0.0431	0.0055	0.0292
02/03/2008 Average	-0.0269	-0.0048	-0.0001	-0.0023	-0.0422	0.0475	0.0056	0.0144
03/03/2008 Average	-0.0324	-0.0119	-0.0059	-0.0089	-0.0458	0.0401	0.0028	0.0199
04/03/2008 Average	-0.0160	-0.0124	-0.0016	0.0010	-0.0446	0.0454	0.0060	0.0416
05/03/2008 Average	-0.0050	-0.0121	0.0015	0.0034	-0.0379	0.0531	0.0074	0.0319
06/03/2008 Average	-0.0154	-0.0022	-0.0015	0.0005	-0.0309	0.0481	0.0064	0.0209
07/03/2008 Average	-0.0285	-0.0013	-0.0055	-0.0045	-0.0313	0.0331	0.0034	0.0101
08/03/2008 Average	-0.0280	-0.0028	-0.0051	-0.0043	-0.0330	0.0367	0.0062	0.0141
09/03/2008 Average	-0.0338	-0.0132	-0.0082	-0.0095	-0.0350	0.0214	0.0011	0.0072
10/03/2008 Average	-0.0490	-0.0083	-0.0081	-0.0077	-0.0422	0.0301	0.0025	0.0356
11/03/2008 Average	-0.0324	-0.0001	-0.0059	-0.0048	-0.0536	0.0418	0.0039	0.0269
12/03/2008 Average	-0.0310	-0.0037	-0.0032	0.0020	-0.0525	0.0451	0.0060	0.0309
13/03/2008 Average	-0.0273	-0.0086	0.0014	0.0009	-0.0444	0.0491	0.0074	0.0314
14/03/2008 Average	-0.0298	-0.0130	0.0002	0.0014	-0.0353	0.0506	0.0068	0.0213
15/03/2008 Average	-0.0285	-0.0071	0.0022	0.0001	-0.0314	0.0408	0.0086	0.0227
16/03/2008 Average	-0.0244	-0.0147	-0.0002	-0.0030	-0.0345	0.0312	0.0063	0.0139
17/03/2008 Average	-0.0224	-0.0132	-0.0027	0.0013	-0.0378	0.0383	0.0039	0.0198
18/03/2008 Average	-0.0282	-0.0126	-0.0062	-0.0004	-0.0424	0.0380	0.0032	0.0289
19/03/2008 Average	-0.0263	-0.0083	-0.0008	0.0050	-0.0455	0.0469	0.0068	0.0384
20/03/2008 Average	-0.0262	0.0038	0.0009	-0.0007	-0.0417	0.0546	0.0092	0.0325
21/03/2008 Average	-0.0283	0.0001	-0.0029	-0.0001	-0.0441	0.0374	0.0043	0.0120
22/03/2008 Average	-0.0302	-0.0095	-0.0060	-0.0016	-0.0460	0.0263	0.0019	0.0114
23/03/2008 Average	-0.0328	-0.0037	-0.0040	-0.0041	-0.0487	0.0346	0.0041	0.0080
24/03/2008 Average	-0.0298	-0.0095	-0.0019	-0.0009	-0.0450	0.0393	0.0055	0.0113
25/03/2008 Average	-0.0298	-0.0035	-0.0020	0.0008	-0.0419	0.0430	0.0093	0.0370
26/03/2008 Average	-0.0297	-0.0010	-0.0030	0.0019	-0.0334	0.0322	0.0086	0.0148
27/03/2008 Average	-0.0307	-0.0064	-0.0061	0.0032	-0.0370	0.0336	0.0065	0.0141
28/03/2008 Average	-0.0283	0.0035	-0.0028	0.0003	-0.0348	0.0400	0.0096	0.0147
29/03/2008 Average	-0.0288	0.0091	-0.0028	-0.0016	-0.0335	0.0378	0.0106	0.0127
30/03/2008 Average	-0.0307	0.0021	-0.0017	-0.0060	-0.0350	0.0325	0.0116	0.0076
31/03/2008 Average	-0.0300	-0.0038	-0.0005	-0.0018	-0.0331	0.0380	0.0118	0.0148

APPENDIX II

Surface Water Monitoring

(Sampling and Analysis by Laois County Council)

ID	Date	NH3 - N	BOD	COD	Chloride	Cond	DO	NO3 -N	NO2 -N	pH	PO4-P	SS	Temp
		mg/l	mg/l	mg/l	mg/l	µS/cm	mg/l	mg/l	mg/l	pH units	mg/l	mg/l	°C
S001	30/01/08	1.55	2	85	16.4	271	6.15	0.27	BLD	7.23	0.02	27	3.9
S001	13/02/08	0.62	1	90	15.1	265	6.22	0.27	0.01	6.69	0.02	BLD	1.6
S001	07/03/08	2.28	1	81	NT	296	6.76	0.15	0.01	7.23	0.02	18	4.8
S002	30/01/08	21.3	3	95	47.9	690	3.79	0.53	0.02	7.49	0.11	20	3.6
S002	13/02/08	22.6	4	97	49.3	686	5.8	0.6	0.01	7.19	0.08	30	1.7
S002	07/03/08	22.1	2	85	NT	710	5.23	0.78	0.02	7.60	0.04	2	5.2
S003	30/01/08	42.3	4	108	88.0	1137	2.52	0.34	0.05	7.55	0.13	34	4.0
S003	13/02/08	50.0	RNV	ALD	97.2	1323	1.00	0.39	0.05	7.37	0.07	125	2.9
S003	13/03/08	31.9	9	99	87.8	980	4.13	0.92	0.05	7.57	0.04	25	5.1
S004	30/01/08	1.12	2	84	80.4	1268	9.71	6.69	0.08	7.84	0.09	40	3.9
S004	13/02/08	1.18	2	92	87.7	1296	11.3	7.43	0.05	7.68	0.08	35	1.7
S004	07/03/08	0.99	4	74	NT	1209	10.1	6.49	0.04	7.81	0.06	5	5.2
S007	23/01/08	12.0	2	122	45.4	684	5.2	2.64	0.09	7.49	0.08	10	8.8
S007	14/02/08	26.5	6	112	72.9	1020	7.19	1.47	0.04	7.76	0.12	7	3.6
S007	12/03/08	21.7	RNV	111	78.4	891	7.75	1.7	0.04	7.66	0.03	19	4.2
S008	23/01/08	0.38	3	35	24.5	641	8.7	3.8	0.07	7.93	0.07	38	9.2
S008	14/02/08	1.21	6	37	50.2	808	9.95	4.75	0.12	7.92	0.23	17	6.2
S008	12/03/08	1.76	3	38	53.6	730	10.3	3.26	0.05	7.98	0.1	50	5.6
S009	23/01/08	0.84	3	52	25.5	640	8.85	3.8	0.07	7.95	0.09	26	9.2
S009	14/02/08	2.23	7	44	51.9	815	8.85	4.74	0.14	7.95	0.18	26	6.1
S009	12/03/08	1.53	2	34	52.2	733	10.2	3.29	0.05	7.95	0.08	77	5.4
S010	30/01/08	0.16	2	30	18.0	625	11.7	4	0.02	7.99	0.03	28	4.0
S010	14/02/08	0.11	2	32	18.7	666	11.4	4.03	0.02	8.02	0.02	16	6.0
S010	12/03/08	0.13	2	39	27.4	615	11.8	2.55	0.01	8.00	0.04	18	5.8
S011	23/01/08	0.48	3	17	25.9	648	9.32	4.11	0.07	7.97	0.09	22	9.3
S011	14/02/08	2.00	9	42	52.0	814	10	4.74	0.11	7.98	0.37	16	6.5
S011	12/03/08	1.64	3	33	59.0	760	9.37	3.47	0.07	7.97	0.18	96	6.3
S012	23/01/08	0.3	2	28	25.0	666	8.8	4.33	0.06	7.97	0.07	23	9.1
S012	13/02/08	0.38	2	16	30.3	744	1030	5.57	0.07	7.90	0.09	16	5.1
S012	12/03/08	0.34	2	23	46.2	736	10.4	3.46	0.04	7.97	0.08	20	5.0
S025	23/01/08	0.34	2	27	23.8	636	8.75	3.81	0.06	7.99	0.08	23	9.2
S025	14/02/08	1.22	5	35	50.4	803	9.43	4.51	0.12	8.00	0.24	15	6.2
S025	12/03/08	0.63	4	27	52.1	730	10.3	3.17	0.05	8.00	0.11	53	5.6
S030	07/02/08	1.70	2	64	32.5	463	7.91	0.56	0.02	7.90	0.03	88	9.0
S030	13/02/08	2.83	2	49	34.8	485	9.98	0.38	0.01	7.66	0.01	14	1.8
S030	13/03/08	5.70	2	27	36.5	746	7.75	0.98	0.01	7.42	0.02	49	6.9

APPENDIX III

Groundwater Monitoring

(Sampling and Analysis by Laois County Council)

(TOC analysis- Independent Laboratory)

ID	Date	NH3 - N	Chloride	Colour	Cond	Depth	DO	NO3-N	NO2-N	pH	PO4-P	Temp	TOC
		mg/l	mg/l	Hazen	µS/cm	m	mg/l	mg/l	mg/l	pH	mg/l	°C	mg/l
G001	31/01/08	0.44	17.3	14.5	776	17.54	2.65	0.13	0.01	7.8	0.01	9.4	NT
G001	20/02/08	1.07	22.3	12.3	936	17.70	NT	BLD	0.03	7.7	BLD	11.0	NT
G001	26/03/08	0.44	16.8	12.3	766	17.69	0.88	BLD	BLD	7.8	0.02	11.4	3.73
G002	31/01/08	0.12	5.3	19.8	500	24.27	1.98	0.17	BLD	8.0	BLD	9.2	NT
G002	20/02/08	0.18	6.2	12.7	487	24.40	NT	BLD	0.02	8.1	0.01	10.4	NT
G002	26/03/08	0.19	4.2	9.8	476	24.32	2.65	0.2	BLD	8.0	0.02	10.8	1.85
G008	31/01/08	2.45	7.5	8.6	436	14.21	3.06	0.05	BLD	8.0	BLD	9.4	NT
G008	20/02/08	2.80	8.8	2.8	430	14.00	NT	BLD	BLD	8.0	BLD	11.0	NT
G008	26/03/08	2.66	6.5	11.6	420	14.04	1.72	BLD	0.01	8.0	0.01	11.8	3.85
G013	31/01/08	3.28	5.6	54.2	641	8.39	0.98	0.04	BLD	7.5	BLD	9.8	NT
G013	20/02/08	3.66	6.0	15.9	637	8.40	NT	BLD	BLD	7.6	BLD	10.8	NT

APPENDIX IV

Monthly Leachate Monitoring

**(Laois County Council Monitoring, Sampling and
Analysis)**

ID	Date	NH3 - N	BOD	COD	Chloride	Cond	NO3 -N	NO2-N	pH	PO4 -P	SS	Temp	TON
		mg/l	mg/l	mg/l	mg/l	µS/cm	mg/l	mg/l		mg/l	mg/l	°C	mg/l
LT50	03/01/08	222	93	405	294	3720	BLD	BLD	7.88	0.82	137	5.6	BLD
LT50	18/01/08	210	108	501	341	4060	BLD	0.01	7.75	0.79	28	6.9	BLD
LT50	30/01/08	202	185	315	274	3330	BLD	BLD	7.96	0.54	56	6.7	BLD
LT50	07/02/08	199	RNV	259	255	316	0.04	BLD	7.94	0.21	38	9.7	0.05
LT50	20/02/08	179	RNV	240	262	3090	BLD	BLD	8.10	0.17	43	4.6	BLD
LT50	05/03/08	195	27	206	266	3180	0.13	0.02	7.95	0.12	43	5.9	0.15
LT50	13/03/08	196	6	199	251	3140	0.24	0.04	8.05	0.06	28	6.6	0.27
L017	03/01/08	498	640	1854	613	7130	BLD	BLD	7.68	1.22	123	5.4	BLD
L017	31/01/08	523	1539	2062	680	7250	0.06	BLD	7.92	1.17	NT	6.7	0.05
L017	07/02/08	508	849	1868	664	712	0.06	BLD	8.01	0.8	103	7.8	0.07
L017	20/02/08	354	2745	1644	540	5920	BLD	0.01	7.80	0.25	137	4.6	0.01
L017	13/03/08	449	942	1670	568	6450	0.1	BLD	7.98	0.41	106	10.9	0.1
L018	31/01/08	852	219	1238	928	10110	0.1	BLD	7.44	2.51	NT	6.6	0.09
L018	20/02/08	867	106	991	955	10360	BLD	BLD	7.50	2.35	103	5.5	BLD
L018	13/03/08	820	45	1092	812	9440	0.14	BLD	7.50	3.01	65	6.3	0.12

APPENDIX V

Leachate Levels in Waste

Kyletalesha Landfill Site

Leachate Levels in Waste

Site Name Kyletalesha
Landfill
Site Address Kyletalesha, Portlaoise, Co. Laois
245273
N.G.R. .8 East
202141
.3 North
Site Status W026-
02
Operator Laois Co Co
Monitoring Personnel Laois Co Co - MC/KF

Date	L002	L003	L004	L020 Cell 3	L021 Cell 4	L025 Cell 1/2	L026 Cell 3	L016 Cell 12	L018 Cell 13
29/01/2008	3.48 m	1.75 m	3.65 m	-	-	-	-	*	*
26/022008	3.57m	1.70 m	3.52m	-	-	-	-	*	*
25/03/2008	3.64 m	1.74 m	3.52 m	2.12 m	5.17 m	4.82 m	4.26 m	*	*

*awaiting completion Of SCADA system

APPENDIX VI

Unlined Site Lagoon Levels

Kyletalesha Landfill Site Lagoon Levels
Un-Lined Lagoon

Site Name Kyletalesha, Co. Laois
 Site Address Kyletalesha, Portlaoise ,Co. Laois
 N.G.R. 245273.997EAST
 202141.308NORTH
 Operator Laois County Council
 Site Status Licence No. W026-02
 Monitoring Personnel Laois CC - JMcC/BC/DOR

Date	Day	Lagoon Staff Reading (m)	Action	Reduced Water level	Freeboard (m)	Lagoon Integrity
1-Jan-08	Tuesday	0.7		82.271	0.80	Good
2-Jan-08	Wednesday					
3-Jan-08	Thursday					
4-Jan-08	Friday					
5-Jan-08	Saturday					
6-Jan-08	Sunday					
7-Jan-08	Monday	0.72		82.291	0.78	Good
8-Jan-08	Tuesday	0.73		82.301	0.77	Good
9-Jan-08	Wednesday					
10-Jan-08	Thursday					
11-Jan-08	Friday	0.74		82.311	0.76	Good
12-Jan-08	Saturday	0.74		82.311	0.76	Good
13-Jan-08	Sunday					
14-Jan-08	Monday					
15-Jan-	Tuesday					

08	y					
16-Jan-08	Wednesday	0.7		82.271	0.80	Good
17-Jan-08	Thursday	0.7		82.271	0.80	Good
18-Jan-08	Friday	0.71		82.281	0.79	Good
19-Jan-08	Saturday					
20-Jan-08	Sunday					
21-Jan-08	Monday					
22-Jan-08	Tuesday	0.73		82.301	0.77	Good
23-Jan-08	Wednesday					
24-Jan-08	Thursday	0.73		82.301	0.77	Good
25-Jan-08	Friday	0.73		82.301	0.77	Good
26-Jan-08	Saturday					
27-Jan-08	Sunday					
28-Jan-08	Monday					
29-Jan-08	Tuesday	0.73		82.301	0.77	Good
30-Jan-08	Wednesday	0.71		82.281	0.79	Good
31-Jan-08	Thursday	0.7		82.271	0.80	Good
1-Feb-08	Friday					Good
2-Feb-08	Saturday					
3-Feb-08	Sunday					
4-Feb-08	Monday					
5-Feb-08	Tuesday	0.73		82.301	0.77	Good
6-Feb-08	Wednesday	0.73		82.301	0.77	Good
7-Feb-08	Thursday					
8-Feb-	Friday	0.72		82.291	0.78	Good

08					
9-Feb-08	Saturday				Good
10-Feb-08	Sunday				
11-Feb-08	Monday	0.71	82.281	0.79	
12-Feb-08	Tuesday				
13-Feb-08	Wednesday	0.7	82.271	0.80	Good
14-Feb-08	Thursday				Good
15-Feb-08	Friday	0.7	82.271	0.80	Good
16-Feb-08	Saturday				
17-Feb-08	Sunday				
18-Feb-08	Monday	0.69	82.261	0.81	
19-Feb-08	Tuesday	0.7	82.271	0.80	Good
20-Feb-08	Wednesday				
21-Feb-08	Thursday	0.71	82.281	0.79	Good
22-Feb-08	Friday	0.71	82.281	0.79	Good
23-Feb-08	Saturday				Good
24-Feb-08	Sunday				
25-Feb-08	Monday				
26-Feb-08	Tuesday				
27-Feb-08	Wednesday				
28-Feb-08	Thursday				
29-Feb-08	Friday	0.73	82.301	0.77	Good
1-Mar-08	Saturday				
2-Mar-08	Sunday				
3-Mar-	Monday	0.74	82.311	0.76	

08						
4-Mar-08	Tuesday	0.73		82.301	0.77	
5-Mar-08	Wednesday	0.73		82.301	0.77	Good
6-Mar-08	Thursday	0.72		82.291	0.78	Good
7-Mar-08	Friday					Good
8-Mar-08	Saturday					
9-Mar-08	Sunday					
10-Mar-08	Monday	0.73		82.301	0.77	
11-Mar-08	Tuesday					
12-Mar-08	Wednesday	0.74		82.311	0.76	Good
13-Mar-08	Thursday					
14-Mar-08	Friday	0.72		82.291	0.78	
15-Mar-08	Saturday					
16-Mar-08	Sunday					
17-Mar-08	Monday	0.73		82.301	0.77	
18-Mar-08	Tuesday					
19-Mar-08	Wednesday					
20-Mar-08	Thursday	0.71		82.281	0.79	Good
21-Mar-08	Friday					
22-Mar-08	Saturday					Good
23-Mar-08	Sunday					
24-Mar-08	Monday					
25-Mar-08	Tuesday	0.72		82.291	0.78	
26-Mar-08	Wednesday					
27-Mar-08	Thursday	0.71		82.281	0.79	

Mar-08	y					
28- Mar-08	Friday					
29- Mar-08	Saturda y					
30- Mar-08	Sunday					
31- Mar-08	Monday	0.73				

APPENDIX VII

Lined Site Lagoon Levels

Date	Day	Telemetry Reading (m)	Lagoon Staff Reading (m)	Action	Freeboard	Lagoon Integrity
1-Jan-08	Tuesday	3.65	0.38		0.62	
2-Jan-08	Wednesday	3.67	0.40	Tankering	0.60	Good
3-Jan-08	Thursday	3.81	0.54	Tankering	0.46	Good
4-Jan-08	Friday	3.96	0.69	Tankering	0.31	Good
5-Jan-08	Saturday	4.05	0.78	Tankering	0.22	Good
6-Jan-08	Sunday	4.05	0.78		0.22	
7-Jan-08	Monday	3.96	0.69	Tankering	0.31	Good
8-Jan-08	Tuesday	3.75	0.48	Tankering	0.52	Good
9-Jan-08	Wednesday	3.59	0.32	Tankering	0.68	Good
10-Jan-08	Thursday	3.53	0.26	Tankering	0.74	Good
11-Jan-08	Friday	3.7	0.43	Tankering	0.57	Good
12-Jan-08	Saturday	3.92	0.65		0.35	
13-Jan-08	Sunday	4.17	0.90		0.10	
14-Jan-08	Monday	4.26				Incident report submitted
15-Jan-08	Tuesday	4.14	0.99	Tankering	0.01	
16-Jan-08	Wednesday	4.01	0.87	Tankering	0.13	Moderate
17-Jan-08	Thursday	4.01	0.74	Tankering	0.26	Moderate
18-Jan-08	Friday	3.86	0.59	Tankering	0.41	Moderate
19-Jan-08	Saturday	3.86	0.59	Tankering	0.41	Moderate
20-Jan-08	Sunday	3.88	0.61		0.39	Moderate
21-Jan-08	Monday	3.9	0.63		0.37	
22-Jan-08	Tuesday	3.88	0.61	Tankering	0.39	Good
23-Jan-08	Wednesday	3.81	0.54	Tankering	0.46	Good
24-Jan-08	Thursday	3.72	0.45	Tankering	0.55	Good
25-Jan-08	Friday	3.6	0.33	Tankering	0.67	Good
26-Jan-08	Saturday	3.58	0.31	Tankering	0.69	Good
27-Jan-08	Sunday	3.74	0.47		0.53	
		3.94	0.67		0.33	

28-Jan-08	Monday	4.07	0.80	Tankering	0.20	Good
29-Jan-08	Tuesday	3.9	0.63	Tankering	0.37	Good
30-Jan-08	Wednesday	3.67	0.40	Tankering	0.60	Good
31-Jan-08	Thursday	3.58	0.31	Tankering	0.69	Good
1-Feb-08	Friday	3.46	0.19	Tankering	0.81	Good
2-Feb-08	Saturday	3.36	0.09	Tankering	0.91	Good
3-Feb-08	Sunday	3.34	0.07		0.93	
4-Feb-08	Monday	3.3	0.03	Tankering	0.97	Good
5-Feb-08	Tuesday	3.2	-0.07	Tankering	1.07	Good
6-Feb-08	Wednesday	3.09	-0.18	Tankering	1.18	Good
7-Feb-08	Thursday	2.97	-0.30	Tankering	1.30	Good
8-Feb-08	Friday	3.07	-0.20	Tankering	1.20	Good
9-Feb-08	Saturday	3.26	-0.01	Tankering	1.01	
10-Feb-08	Sunday	3.44	0.17		0.83	
11-Feb-08	Monday	3.48	0.21	Tankering	0.79	Good
12-Feb-08	Tuesday	3.45	0.18	Tankering	0.82	Good
13-Feb-08	Wednesday	3.42	0.15		0.85	Good
14-Feb-08	Thursday	3.43	0.16	Tankering	0.84	Good
15-Feb-08	Friday	3.41	0.14	Tankering	0.86	Good
16-Feb-08	Saturday	3.36	0.09	Tankering	0.91	
17-Feb-08	Sunday	3.32	0.05		0.95	
18-Feb-08	Monday	3.32	0.05		0.95	
19-Feb-08	Tuesday	3.26	-0.01	Tankering	1.01	Good
20-Feb-08	Wednesday	3.17	-0.10	Tankering	1.10	Good
21-Feb-08	Thursday	3.15	-0.12	Tankering	1.12	Good
22-Feb-08	Friday	3.15	-0.12	Tankering	1.12	Good
23-Feb-08	Saturday	3.15	-0.12	Tankering	1.12	Good
24-Feb-08	Sunday	3.15	-0.12		1.12	
25-Feb-08	Monday	3.15	-0.12	Tankering	1.12	Good
26-Feb-08	Tuesday	3.15	-0.12	Tankering	1.12	Good
27-Feb-08	Wednesday	3.11	-0.16	Tankering	1.16	Good
28-Feb-08	Thursday	3.03	-0.24	Tankering	1.24	Good
29-Feb-08	Friday	3.02	-0.25		1.25	Good
1-Mar-08	Saturday	3.22	-0.05	Tankering	1.05	
2-Mar-08	Sunday	3.3	0.03		0.97	
3-Mar-08	Monday	3.29	0.02	Tankering	0.98	Good
4-Mar-08	Tuesday	3.25	-0.02	Tankering	1.02	Good
5-Mar-08	Wednesday	3.21	-0.06	Tankering	1.06	Good
6-Mar-08	Thursday	3.37	0.10	Tankering	0.90	Good

7-Mar-08	Friday	3.52	0.25	Tankering	0.75	Good
8-Mar-08	Saturday	3.48	0.21		0.79	
9-Mar-08	Sunday	3.49	0.22		0.78	
10-Mar-08	Monday	3.49	0.22	Tankering	0.78	Good
11-Mar-08	Tuesday	3.42	0.15	Tankering	0.85	Good
12-Mar-08	Wednesday	3.34	0.07	Tankering	0.93	Good
13-Mar-08	Thursday	3.32	0.05	Tankering	0.95	Good
14-Mar-08	Friday	3.4	0.13	Tankering	0.87	Good
15-Mar-08	Saturday	3.37	0.10	Tankering	0.90	
16-Mar-08	Sunday	3.37	0.10		0.90	
17-Mar-08	Monday	3.37	0.10		0.90	Good
18-Mar-08	Tuesday	3.35	0.08	Tankering	0.92	Good
19-Mar-08	Wednesday	3.32	0.05	Tankering	0.95	Good
20-Mar-08	Thursday	3.24	-0.03	Tankering	1.03	Good
21-Mar-08	Friday	3.17	-0.10	Tankering	1.10	Good
22-Mar-08	Saturday	3.11	-0.16	Tankering	1.16	
23-Mar-08	Sunday	3.07	-0.20		1.20	
24-Mar-08	Monday	3.07	-0.20		1.20	Good
25-Mar-08	Tuesday	3.06	-0.21	Tankering	1.21	Good
26-Mar-08	Wednesday	3.27	0.00	Tankering		Good
27-Mar-08	Thursday	3.46	0.19	Tankering	0.81	Good
28-Mar-08	Friday	3.47	0.20	Tankering	0.80	Good
29-Mar-08	Saturday	3.47	0.20	Tankering	0.80	
30-Mar-08	Sunday	3.49	0.22		0.78	
31-Mar-08	Monday	3.52	0.25		0.75	

APPENDIX VIII

Meteorological Data

Date	Day	Temperature (°C)	Humidity (%RH)	Wind Speed (m/s)	Wind Direction	Barometric Pressure (mb)	Measured Rainfall (mm)
1-Jan-08	Tuesday	11.5	89.0	1.9	S	1005	0.4
2-Jan-08	Wednesday	13.7	91.8	3.3	SE	997	0.0
3-Jan-08	Thursday	13.4	86.4	3.3	ENE	991	0.0
4-Jan-08	Friday	10.6	84.7	1.9	SW	991	10.2
5-Jan-08	Saturday	11.2	87.3	5.0	WSW	994	6.6
6-Jan-08	Sunday	11.8	91.2	1.9	WSW	991	4.6
7-Jan-08	Monday	10.2	90.7	5.0	WSW	994	6.6
8-Jan-08	Tuesday	12.9	91.9	3.8	SW	987	19.0
9-Jan-08	Wednesday	14.0	89.9	3.4	SW	988	12.4
10-Jan-08	Thursday	11.7	88.7	1.7	WSW	982	9.2
11-Jan-08	Friday	15.2	89.8	1.1	NW	986	0.2
12-Jan-08	Saturday	14.7	87.2	2.2	SW	989	4.6
13-Jan-08	Sunday	13.8	81.6	2.9	SW	977	4.0
14-Jan-08	Monday	12.4	87.5	3.5	SW	975	4.0
15-Jan-08	Tuesday	12.9	85.1	1.6	SW	967	2.0
16-Jan-08	Wednesday	11.1	84.5	1.3	NNW	980	0.2
17-Jan-08	Thursday	9.6	81.8	4.8	WSW	982	9.4
18-Jan-08	Friday	8.3	86.8	4.8	WSW	990	16.0
19-Jan-08	Saturday	11.1	83.7	2.0	SW	1002	10.0
20-Jan-08	Sunday	11.0	82.3	3.1	WSW	1004	5.4
21-Jan-08	Monday	12.1	82.1	4.1	WSW	998	3.8
22-Jan-08	Tuesday	13.1	89.2	1.9	SW	1008	2.0
23-Jan-08	Wednesday	11.7	83.5	4.6	SW	1004	4.0
24-Jan-08	Thursday	5.2	87.7	4.0	WSW	1014	1.2
25-Jan-08	Friday	5.0	85.6	5.4	WSW	1019	0.0
26-Jan-08	Saturday	9.8	92.6	3.9	WSW	1020	0.0
27-Jan-08	Sunday	12.2	92.2	1.8	SW	1021	0.0
28-Jan-08	Monday	10.8	87.5	1.7	SW	1018	0.4
29-Jan-08	Tuesday	8.1	86.3	3.2	WNW	1012	4.4
30-Jan-08	Wednesday	12.0	87.7	3.7	SW	1015	0.8
31-Jan-08	Thursday	13.3	86.4	7.1	W	988	7.4
1-Feb-08	Friday	13.2	87.8	3.0	WNW	994	0.8
2-Feb-08	Saturday	10.8	90.8	4.1	SW	995	0.2
3-Feb-08	Sunday	11.3	90.3	4.6	SW	975	9.2

4-Feb-08	Monday	10.8	90.9	3.2	SW	979	7.4
5-Feb-08	Tuesday	10.6	84.9	3.7	SW	979	6.6
6-Feb-08	Wednesday	9.6	77.8	2.9	SW	1010	1.4
7-Feb-08	Thursday	11.4	83.1	4.2	SW	1011	0.8
8-Feb-08	Friday	10.3	81.3	4.2	SW	1010	0.0
9-Feb-08	Saturday	9.0	71.7	3.1	SW	1013	0.2
10-Feb-08	Sunday	11.2	80.4	0.9	S	1020	0.0
11-Feb-08	Monday	9.5	81.3	1.2	SW	1018	0.0
12-Feb-08	Tuesday	3.9	82.8	0.3	W	1022	0.2
13-Feb-08	Wednesday	9.8	82.5	0.4	NE	1025	0.2
14-Feb-08	Thursday	10.9	90.9	0.8	NE	1026	0.4
15-Feb-08	Friday	9.3	88.9	0.3	SE	1027	0.0
16-Feb-08	Saturday	8.8	87.8	0.7	SE	1030	0.0
17-Feb-08	Sunday	9.5	85.9	0.2	NE	1028	0.2
18-Feb-08	Monday	6.8	93.2	0.3	NE	1021	0.4
19-Feb-08	Tuesday	6.3	90.9	0.5	S	1011	0.2
20-Feb-08	Wednesday	7.0	92.2	1.5	SW	1006	0.0
21-Feb-08	Thursday	6.9	88.6	5.5	WSW	1005	0.2
22-Feb-08	Friday	6.3	84.5	5.2	W	1008	1.2
23-Feb-08	Saturday	1.5	83.0	4.4	SW	1006	0.0
24-Feb-08	Sunday	7.2	86.4	3.3	W	1004	0.6
25-Feb-08	Monday	10.7	85.5	4.6	SW	996	1.4
26-Feb-08	Tuesday	11.0	92.3	4.9	WNW	994	0.2
27-Feb-08	Wednesday	9.5	92.6	1.7	W	1006	0.0
28-Feb-08	Thursday	10.1	88.9	1.8	W	1008	0.0
29-Feb-08	Friday	7.1	88.5	6.5	W	995	6.2
1-Mar-08	Saturday	9.9	91.2	5.8	SW	998	1.6
2-Mar-08	Sunday	5.8	88.7	4.3	W	1000	1.0
3-Mar-08	Monday	8.0	86.2	3.4	NW	1000	5.8
4-Mar-08	Tuesday	7.8	83.6	2.8	WSW	1021	0.6
5-Mar-08	Wednesday	10.3	90.1	3.1	NW	1022	0.2
6-Mar-08	Thursday	12.0	88.0	4.8	WSW	1008	2.4
7-Mar-08	Friday	10.3	83.9	3.6	WSW	997	1.4
8-Mar-08	Saturday	11.2	89.7	5.4	WSW	984	3.8
9-Mar-08	Sunday	6.2	83.7	3.7	NW	979	3.0
10-Mar-08	Monday	7.1	87.9	5.2	W	954	10.6
11-Mar-08	Tuesday	6.6	88.2	5.9	W	971	4.2
12-Mar-08	Wednesday	4.9	84.1	7.5	SW	989	4.8
13-Mar-08	Thursday	10.4	86.0	2.4	S	997	0.2

14-Mar-08	Friday	9.5	78.1	0.8	S	998	0.0
15-Mar-08	Saturday	8.3	81.7	1.9	ESE	990	2.4
16-Mar-08	Sunday	6.4	81.0	3.0	ENE	1000	5.6
17-Mar-08	Monday	5.4	79.9	1.8	E	1010	0.2
18-Mar-08	Tuesday	4.0	82.5	1.1	NE	1014	0.0
19-Mar-08	Wednesday	3.8	83.2	1.6	NW	1017	0.2
20-Mar-08	Thursday	0.3	91.9	5.1	W	1005	0.6
21-Mar-08	Friday	4.2	82.8	6.4	NW	991	1.8
22-Mar-08	Saturday	1.8	91.9	4.7	N	1002	0.0
23-Mar-08	Sunday	6.1	89.0	4.3	NW	996	1.0
24-Mar-08	Monday	4.8	86.2	2.0	N	995	3.8
25-Mar-08	Tuesday	6.4	92.5	2.0	SW	998	0.4
26-Mar-08	Wednesday	2.4	92.3	2.5	W	989	1.6
27-Mar-08	Thursday	7.5	89.6	2.0	SW	989	1.2
28-Mar-08	Friday	11.0	90.3	5.3	W	981	4.6
29-Mar-08	Saturday	9.9	87.9	3.6	SW	982	4.8
30-Mar-08	Sunday	6.1	87.1	2.7	SW	985	24.0
31-Mar-08	Monday	7.7	89.0	2.8	SW	999	6.0

APPENDIX IX

Landfill Gas Flare data

Date	Carbon Monoxide ppm	Methane % v/v	Oxygen % v/v	Carbon Dioxide %	Barometric pressure mBar	Temperature oC	Flow rate Nm3/hr
01/01/2008 Average	-0.96	53.17	1.49	33.33	73.26	1019.86	379.44
02/01/2008 Average	-0.84	53.08	1.51	32.57	72.09	1020.20	376.91
03/01/2008 Average	-0.78	52.71	1.33	32.30	73.42	1020.49	380.46
04/01/2008 Average	-0.71	55.19	0.60	33.11	71.52	1020.03	375.36
05/01/2008 Average	-0.82	53.49	0.67	32.99	71.52	1020.41	373.70
06/01/2008 Average	-0.78	53.71	0.64	32.74	70.16	1018.57	370.36
07/01/2008 Average	-0.83	51.76	1.38	31.74	69.46	1019.76	366.85
08/01/2008 Average	-0.78	54.07	0.52	32.63	63.10	995.48	346.31
09/01/2008 Average	-0.69	54.86	0.66	33.16	64.29	1029.94	359.27
10/01/2008 Average	-0.68	52.32	1.12	32.84	66.50	1022.36	364.97
11/01/2008 Average	-0.62	50.68	1.75	31.21	64.49	1020.53	358.49
12/01/2008 Average	-0.63	54.35	0.68	33.44	66.32	1020.55	363.71
13/01/2008 Average	-0.78	54.84	0.38	34.40	64.95	1019.72	359.00
14/01/2008 Average	-0.76	54.86	0.33	33.62	55.82	1018.34	329.79
15/01/2008 Average	-0.74	53.17	0.43	32.61	46.91	1019.73	301.78
16/01/2008 Average	-0.70	52.72	0.82	32.27	52.09	1020.56	317.87
17/01/2008 Average	-0.77	52.01	1.17	33.00	66.53	1019.51	361.07
18/01/2008 Average	-0.76	52.64	1.13	33.33	66.59	1019.00	361.00
19/01/2008 Average	-0.72	52.50	1.29	33.40	67.35	1015.60	363.28
20/01/2008 Average	-0.86	53.80	1.14	34.12	66.96	1020.45	362.60
21/01/2008 Average	-0.87	54.04	1.05	33.53	63.48	1020.37	354.06
22/01/2008 Average	-0.70	52.07	1.13	35.55	70.22	1020.85	374.27
23/01/2008 Average	-0.85	50.41	1.61	35.25	70.77	1043.01	372.14
24/01/2008 Average	-0.75	46.70	3.47	29.44	67.16	1090.22	354.43
25/01/2008 Average	-0.70	50.49	2.61	31.96	70.22	1028.74	372.92
26/01/2008 Average	-0.72	53.57	1.17	34.64	68.73	1022.14	368.60
27/01/2008 Average	-0.72	53.19	1.22	34.44	68.58	1019.85	368.38
28/01/2008 Average	-0.63	54.00	1.07	34.49	67.65	1020.07	365.08
29/01/2008 Average	-0.81	53.47	1.09	34.18	67.36	1020.81	363.56
30/01/2008 Average	-0.74	55.48	0.93	33.91	62.85	1044.56	339.75
31/01/2008 Average	-0.73	54.65	0.98	33.43	66.95	1020.13	361.34
01/02/2008 Average	-0.69	51.80	1.64	31.72	64.75	977.05	354.28
02/02/2008 Average	-0.66	54.70	0.68	32.63	50.61	962.83	306.24
03/02/2008 Average	-0.74	54.70	0.55	33.84	64.49	1019.25	353.73
04/02/2008 Average	-0.69	50.85	1.65	31.44	62.69	1019.31	347.53
05/02/2008 Average	-0.72	52.29	1.34	32.59	58.88	1015.34	326.32
06/02/2008 Average	-0.74	53.20	1.77	32.42	42.21	592.83	230.05
07/02/2008 Average	-0.76	53.77	0.97	33.15	57.27	161.41	311.48
08/02/2008 Average	-0.78	56.41	0.54	35.54	66.57	1046.93	357.98
09/02/2008 Average	-0.84	54.33	0.81	34.95	68.07	1020.07	363.14
10/02/2008 Average	-0.79	53.32	0.88	34.58	70.55	1019.78	370.45
11/02/2008 Average	-0.55	53.82	1.04	34.47	66.08	1042.03	344.15
12/02/2008 Average	-0.41	52.11	1.81	33.28	72.28	1021.30	372.79
13/02/2008 Average	-0.38	52.44	1.57	34.11	74.83	1022.34	378.95
14/02/2008 Average	-0.49	51.86	1.44	33.48	78.89	1019.31	390.39
15/02/2008 Average	-0.58	52.53	1.24	33.15	75.14	1019.89	383.31
16/02/2008 Average	-0.69	51.41	1.33	33.40	76.88	1020.16	387.02
17/02/2008 Average	-0.39	52.18	1.35	32.59	76.08	1019.01	387.35
18/02/2008 Average	-0.50	52.99	1.25	33.15	75.19	1020.97	384.95
19/02/2008 Average	-0.21	52.72	1.26	32.62	75.50	1020.53	384.81
20/02/2008 Average	-0.60	51.09	1.31	32.03	72.22	1016.10	366.28

21/02/2008 Average	-0.91	51.57	1.33	33.16	74.71	1022.20	382.28
22/02/2008 Average	-0.95	50.39	1.40	33.31	74.99	1020.39	381.29
23/02/2008 Average	-0.95	50.98	1.38	33.12	75.18	1019.98	381.12
24/02/2008 Average	-0.96	50.08	1.57	32.60	75.50	1020.49	382.02
25/02/2008 Average	-0.86	51.68	1.27	32.63	75.26	1019.72	381.48
26/02/2008 Average	-0.92	49.31	1.59	32.49	71.14	1018.50	368.43
27/02/2008 Average	-0.88	52.47	1.54	33.39	63.33	931.84	327.91
28/02/2008 Average	-0.89	50.27	1.65	32.61	77.25	1020.26	385.04
29/02/2008 Average	-0.89	51.85	1.13	33.19	75.19	1020.97	379.57
01/03/2008 Average	-0.92	48.77	1.49	32.51	76.41	1019.57	381.43
02/03/2008 Average	-0.94	48.29	1.55	31.78	72.25	1089.02	371.67
04/03/2008 Average	-0.85	47.92	2.18	31.76	72.65	1019.99	377.09
05/03/2008 Average	-0.88	52.24	1.35	32.50	64.10	1020.26	352.35
06/03/2008 Average	-0.89	53.04	0.94	32.63	55.31	1019.96	324.16
07/03/2008 Average	-0.88	52.34	0.76	32.04	48.72	1014.35	303.92
08/03/2008 Average	-0.89	52.20	1.09	32.89	61.77	1019.81	342.46
09/03/2008 Average	-0.88	51.12	1.52	32.50	69.26	1021.54	364.93
10/03/2008 Average	-0.87	50.66	0.77	32.83	67.77	1019.26	359.85
11/03/2008 Average	-0.87	46.84	1.63	31.06	73.08	1021.17	374.90
12/03/2008 Average	-0.85	42.55	3.80	28.25	51.10	719.75	266.36
13/03/2008 Average	-0.87	50.78	0.75	33.56	70.87	1019.59	368.71
14/03/2008 Average	-0.90	51.34	0.60	33.91	68.00	1026.27	364.29
15/03/2008 Average	-0.94	51.60	0.43	34.67	67.66	1117.43	363.75
16/03/2008 Average	-0.92	50.69	0.45	32.81	56.89	1096.81	322.68
17/03/2008 Average	-0.54	52.62	0.63	33.94	55.06	517.37	323.66
18/03/2008 Average	-0.51	51.55	0.70	34.05	62.85	699.71	345.77
19/03/2008 Average	-0.86	52.98	0.83	34.28	63.68	978.11	338.40
20/03/2008 Average	-0.86	51.98	0.80	33.71	71.55	1041.15	374.70
21/03/2008 Average	-0.88	48.41	1.54	31.72	71.19	1018.89	374.59
22/03/2008 Average	-0.81	47.38	1.78	31.39	72.23	1020.56	378.66
23/03/2008 Average	-0.83	52.13	0.75	33.13	62.88	1024.84	350.48
24/03/2008 Average	-0.89	50.58	1.15	32.89	65.58	1042.10	359.19
25/03/2008 Average	-0.88	49.63	1.29	32.92	71.70	1052.86	376.40
26/03/2008 Average	-0.91	49.41	1.27	32.94	70.85	1042.64	374.54
27/03/2008 Average	-0.86	50.43	1.11	33.27	69.90	1075.28	371.05
28/03/2008 Average	-0.91	49.91	0.89	32.64	67.28	1048.72	363.48
29/03/2008 Average	-0.86	49.69	0.89	32.51	69.30	1069.32	370.15
30/03/2008 Average	-0.88	48.69	1.06	32.28	68.49	1058.77	368.19
31/03/2008 Average	-0.89	48.72	1.03	32.72	67.84	1049.77	365.75

**Laois County Council
Landfill Site
Waste Licence Register No. W026-02**

**Quarterly Monitoring Returns
Q2 of 2008**

June 2008

APPENDIX I

Landfill Gas Monitoring

Location	Date	CH4 (%v/v)	CO2 (%v/v)	O2 (%v/v)	Barometric Pressure (mb)
TPITM015	29-Apr-08	0.1	0.8	19.7	985
TPITM016	29-Apr-08	0	5.8	11.8	985
TPITM014	29-Apr-08	0.1	0.4	19.9	986
TPITM017	29-Apr-08	0.2	0.6	19.8	985
TPITM006	29-Apr-08	0.1	0.6	19.8	985
TPITM005	29-Apr-08	0.2	0.1	20.1	984
TPITM007	29-Apr-08	0.2	0.7	19.7	985
TPITM018	29-Apr-08	0.2	0.2	20.5	985
TPITM001	29-Apr-08	0.2	5.8	11.3	984
TPITM002	29-Apr-08	0.1	2.6	16.9	984
TPITM004	29-Apr-08	0.3	2.4	17.2	984
TPITM008	29-Apr-08	0.2	0	20.7	984
TPITM009	29-Apr-08	0.1	0	20.7	984
TPITM003	29-Apr-08	0.3	2.4	17.4	984
TPITM015	27-May-08	0.3	0.3	20.3	1004
TPITM016	27-May-08	0.2	6.3	12.6	1004
TPITM014	27-May-08	0.2	0.1	20.3	1005
TPITM017	27-May-08	0.2	0	20.5	1005
TPITM006	27-May-08	0.2	2.1	19	1003
TPITM005	27-May-08	0.2	0.4	20.2	1003
TPITM004	27-May-08	0.2	7.8	14.4	1004
TPITM008	27-May-08	0.2	0	20.5	1004
TPITM009	27-May-08	0.2	0	20.5	1004
TPITM003	27-May-08	0.3	4.8	15.5	1004
TPITM018	27-May-08	0.2	0	20.5	1004
TPITM007	27-May-08	0.2	0.2	20.3	1003
TPITM001	27-May-08	0.2	5.3	15.8	1003
TPITM002	27-May-08	0.2	2.9	17.6	1003
TPITM016	17-Jun-08	0.2	3.8	14.9	994
TPITM015	17-Jun-08	0.9	7.3	5.3	994
TPITM014	17-Jun-08	0.1	0	20	994
TPITM017	17-Jun-08	0.1	0	20.1	994
TPITM006	17-Jun-08	0.2	1.2	19.6	994
TPITM005	17-Jun-08	0.2	0.8	19.7	994
TPITM004	17-Jun-08	0.2	11.1	13.9	994
TPITM008	17-Jun-08	0.1	0.6	19.9	994
TPITM009	17-Jun-08	0.2	1.5	19.1	994

TPITM003	17-Jun-08	0.1	3.7	16.8	994
TPITM007	17-Jun-08	0.2	0.1	20.1	994
TPITM018	17-Jun-08	0.1	0	20.2	993
TPITM001	17-Jun-08	0.1	4.8	14.7	993
TPITM002	17-Jun-08	0.1	3.4	16.6	993

Date	Landfill Office- Fire Exit CH4	Landfill Office- Fire Exit CO2	Landfill Office- Ken's Office CH4	Landfill Office- Ken's Office CO2	Weighbridge CH4	Weighbridge CO2	Civic Amenity Office CH4	Civic Amenity Office CO2
01/04/2008 Average	-0.0262	0.0127	0.0033	0.0051	-0.0309	0.0568	0.0138	0.0188
02/04/2008 Average	0.0135	0.0179	0.0106	0.0089	-0.0249	0.0600	0.0188	0.0281
03/04/2008 Average	0.0251	0.0114	0.0096	0.0118	-0.0192	0.0603	0.0160	0.0220
04/04/2008 Average	0.0138	0.0295	0.0072	0.0154	-0.0154	0.0574	0.0099	0.0248
05/04/2008 Average	-0.0234	0.0058	-0.0007	-0.0021	-0.0179	0.0328	0.0103	0.0101
06/04/2008 Average	-0.0342	-0.0057	-0.0063	-0.0095	-0.0220	0.0220	0.0064	0.0051
07/04/2008 Average	-0.0329	-0.0034	-0.0073	-0.0038	-0.0047	0.0278	0.0066	0.0188
08/04/2008 Average	-0.0320	0.0032	-0.0071	-0.0054	-0.0006	0.0374	0.0076	0.0164
09/04/2008 Average	-0.0321	0.0076	-0.0031	0.0014	-0.0042	0.0413	0.0091	0.0287
10/04/2008 Average	-0.0312	0.0126	-0.0035	-0.0034	-0.0082	0.0309	0.0098	0.0252
11/04/2008 Average	-0.0291	0.0199	-0.0016	-0.0071	-0.0091	0.0349	0.0094	0.0308
12/04/2008 Average	-0.0293	0.0163	0.0004	-0.0095	-0.0127	0.0369	0.0121	0.0420
13/04/2008 Average	-0.0256	0.0054	0.0007	-0.0059	-0.0130	0.0351	0.0119	0.0164
14/04/2008 Average	-0.0280	0.0062	0.0004	-0.0030	-0.0171	0.0403	0.0102	0.0230
15/04/2008 Average	-0.0279	0.0116	-0.0029	0.0016	-0.0195	0.0560	0.0079	0.0173
16/04/2008 Average	-0.0259	0.0250	-0.0043	-0.0050	-0.0227	0.0457	0.0098	0.0134
17/04/2008 Average	-0.0279	0.0088	-0.0078	-0.0157	-0.0298	0.0361	0.0089	0.0125
18/04/2008 Average	-0.0284	-0.0037	-0.0095	-0.0165	-0.0347	0.0342	0.0071	0.0172
19/04/2008 Average	-0.0285	-0.0033	-0.0064	-0.0144	-0.0412	0.0346	0.0085	0.0039
20/04/2008 Average	-0.0307	-0.0070	0.0012	-0.0128	-0.0435	0.0420	0.0093	0.0065
21/04/2008 Average	-0.0288	-0.0016	0.0060	-0.0050	-0.0328	0.0491	0.0090	0.0176
22/04/2008 Average	-0.0260	0.0177	0.0053	-0.0040	-0.0247	0.0544	0.0100	0.0251
23/04/2008 Average	-0.0170	0.0143	0.0049	-0.0137	-0.0220	0.0565	0.0123	0.0192
24/04/2008 Average	-0.0201	0.0199	0.0052	-0.0187	-0.0241	0.0456	0.0113	0.0172
25/04/2008 Average	0.0142	0.0189	0.0075	-0.0323	-0.0201	0.0575	0.0156	0.0152
26/04/2008 Average	0.0200	0.0342	0.0099	-0.0539	-0.0216	0.0626	0.0143	0.0177
27/04/2008 Average	-0.0047	0.0528	0.0087	-0.0124	-0.0239	0.0589	0.0105	0.0222
28/04/2008 Average	-0.0252	0.0352	0.0084	-0.0126	-0.0208	0.0577	0.0116	0.0164
29/04/2008 Average	-0.0269	0.0141	0.0012	0.0093	-0.0259	0.0422	0.0101	0.0143
30/04/2008 Average	-0.0276	0.0098	0.0003	0.0093	-0.0296	0.0448	0.0111	0.0303
01/05/2008 Average	-0.0255	0.0245	0.0013	0.0109	-0.0340	0.0528	0.0107	0.0182

02/05/2008 Average	-0.0077	0.0403	0.0039	0.0130	-0.0304	0.0564	0.0140	0.0182
03/05/2008 Average	0.0142	0.0557	0.0088	0.0137	-0.0301	0.0510	0.0176	0.0149
04/05/2008 Average	0.0223	0.0615	0.0122	0.0151	-0.0317	0.0553	0.0195	0.0102
05/05/2008 Average	0.0288	0.0618	0.0145	0.0245	-0.0289	0.0597	0.0195	0.0165
06/05/2008 Average	0.0298	0.0633	0.0112	0.0281	-0.0293	0.0720	0.0170	0.0248
07/05/2008 Average	0.0285	0.0677	0.0144	0.0362	-0.0311	0.0824	0.0170	0.0284
08/05/2008 Average	0.0308	0.0847	0.0133	0.0289	-0.0305	0.0762	0.0181	0.0193
09/05/2008 Average	0.0304	0.0370	0.0154	0.0126	-0.0250	0.0683	0.0228	0.0094
10/05/2008 Average	0.0282	0.0203	0.0169	0.0103	-0.0216	0.0644	0.0281	0.0373
11/05/2008 Average	0.0311	0.0141	0.0184	0.0067	-0.0229	0.0692	0.0255	0.0224
12/05/2008 Average	0.0377	0.0538	0.0174	0.0119	-0.0244	0.0823	0.0217	0.0313
13/05/2008 Average	0.0321	0.0344	0.0142	-0.0005	-0.0270	0.0670	0.0197	0.0123
14/05/2008 Average	0.0303	0.0177	0.0125	-0.0169	-0.0291	0.0553	0.0194	0.0068
15/05/2008 Average	0.0271	0.0200	0.0086	-0.0396	-0.0294	0.0567	0.0167	0.0172
16/05/2008 Average	0.0260	0.0451	0.0101	-0.0199	-0.0267	0.0663	0.0163	0.0280
17/05/2008 Average	0.0265	0.0529	0.0105	0.0248	-0.0248	0.0700	0.0178	0.0196
18/05/2008 Average	0.0251	0.0839	0.0111	0.0089	-0.0263	0.0561	0.0206	0.0118
19/05/2008 Average	0.0232	0.0825	0.0090	0.0040	-0.0289	0.0634	0.0170	0.0140
20/05/2008 Average	0.0229	0.1150	0.0057	-0.0120	-0.0293	0.0623	0.0167	0.0079
21/05/2008 Average	0.0246	0.1570	0.0046	-0.0595	-0.0314	0.0584	0.0173	0.0029
22/05/2008 Average	0.0259	0.1200	0.0093	-0.0478	-0.0216	0.0590	0.0221	0.0138
23/05/2008 Average	0.0274	0.0621	0.0103	-0.0234	-0.0219	0.0607	0.0230	0.0242
24/05/2008 Average	0.0298	0.0154	0.0067	-0.0004	-0.0291	0.0536	0.0198	0.0190
25/05/2008 Average	0.0280	0.0127	0.0032	-0.0012	-0.0301	0.0463	0.0157	0.0051
26/05/2008 Average	0.0240	0.0143	0.0024	-0.0013	-0.0332	0.0497	0.0164	0.0208
27/05/2008 Average	0.0234	0.0118	0.0057	-0.0052	-0.0307	0.0479	0.0198	0.0263
28/05/2008 Average	0.0255	0.0182	0.0094	0.0089	-0.0309	0.0552	0.0218	0.0313
29/05/2008 Average	0.0276	0.0695	0.0101	0.0118	-0.0306	0.0716	0.0199	0.0146
30/05/2008 Average	0.0299	0.0589	0.0147	0.0184	-0.0249	0.0785	0.0212	0.0213
31/05/2008 Average	0.0346	0.0697	0.0166	0.0232	-0.0260	0.0797	0.0204	0.0231
01/06/2008 Average	0.0323	0.0624	0.0130	0.0213	-0.0267	0.0826	0.0193	0.0213
02/06/2008 Average	0.0338	0.0666	0.0137	0.0007	-0.0256	0.0743	0.0192	0.0124
03/06/2008 Average	0.0247	0.0743	0.0110	-0.0282	-0.0291	0.0649	0.0165	0.0097
04/06/2008 Average	0.0299	0.0825	0.0101	-0.0156	-0.0231	0.0567	0.0204	0.0017
05/06/2008 Average	0.0255	0.0707	0.0097	0.0052	-0.0240	0.0600	0.0178	0.0076
06/06/2008 Average	0.0266	0.0643	0.0136	0.0093	-0.0243	0.0585	0.0186	0.0098
07/06/2008 Average	0.0299	0.0705	0.0154	0.0213	-0.0312	0.0726	0.0200	0.0193
08/06/2008 Average	0.0311	0.0610	0.0198	0.0202	-0.0278	0.0707	0.0234	0.0114
09/06/2008 Average	0.0411	0.0659	0.0259	0.0258	-0.0248	0.0765	0.0254	0.0137
10/06/2008 Average	0.0344	0.0404	0.0185	0.0255	-0.0266	0.0713	0.0218	0.0069
11/06/2008 Average	0.0305	0.0388	0.0182	0.0157	-0.0205	0.0636	0.0265	0.0049
12/06/2008 Average	0.0275	0.0240	0.0131	0.0115	-0.0232	0.0520	0.0219	0.0041

13/06/2008 Average	0.0279	0.0330	0.0124	0.0338	-0.0270	0.0572	0.0172	0.0105
14/06/2008 Average	0.0272	0.0454	0.0118	0.0345	-0.0277	0.0596	0.0152	0.0126
15/06/2008 Average	0.0253	0.0414	0.0103	0.0266	-0.0292	0.0583	0.0171	0.0027
16/06/2008 Average	0.0091	0.0472	0.0121	0.0307	-0.0288	0.0573	0.0164	0.0112
17/06/2008 Average	0.0242	0.0552	0.0114	0.0300	-0.0335	0.0628	0.0182	0.0127
18/06/2008 Average	0.0270	0.0705	0.0143	0.0244	-0.0273	0.0550	0.0214	0.0099
19/06/2008 Average	0.0279	0.0531	0.0134	0.0324	-0.0301	0.0648	0.0190	0.0071
20/06/2008 Average	0.0220	0.0629	0.0119	0.0364	-0.0333	0.0651	0.0154	0.0178
21/06/2008 Average	0.0279	0.0644	0.0120	0.0264	-0.0225	0.0658	0.0212	0.0139
22/06/2008 Average	0.0268	0.0329	0.0099	0.0155	-0.0280	0.0508	0.0219	-0.0040
23/06/2008 Average	0.0266	0.0612	0.0118	0.0266	-0.0217	0.0545	0.0231	0.0181

APPENDIX II

Surface Water Monitoring

(Sampling and Analysis by Laois County Council)

ID	Date	NH3 - N	BOD	COD	Chloride	Cond	DO	NO3- N	NO2- N	pH	PO4- P	Suspended Solids	Temp	TON
		mg/l	mg/l	mg/l	mg/l	µS/cm	mg/l	mg/l	mg/l	pH units	mg/l	mg/l	°C	mg/l
S001	23/04/2008	2.11	1	119	19.11	352	7.23	0.39	0.02	7.312	0.01	4	9.4	0.41
S001	28/05/2008	2.33	1	51	11.47	448	6	0.31	0.03	7.293	0.01	RNV	NT	0.34
S001	11/06/2008	1.46	2	62	14.05	444	3.02	0.34	0.03	7.862	0.02	3	15.3	0.37

S002	23/04/2008	17.7	2	116	50	698	4.47	0.87	0.04	7.435	0.01	8	10.6	0.91
S002	28/05/2008	11.56	2	72	36.66	664	5.25	0.11	BLD	7.294	0.07	13	NT	0.12
S002	11/06/2008	19.66	4	97	63.87	911	2.14	0.09	0.02	7.691	0.09	48	15.4	0.11
S003	23/04/2008	40.46	4	145	93	1195	4.73	0.34	0.04	7.46	0.04	13	11.6	0.38
S003	28/05/2008	46.05	RNV	447	131	1587	4.75	0.09	0.01	7.621	0.1	441	NT	0.09
S003	11/06/2008	87.83	19	129	224	2350	2.94	0.19	0.1	7.915	0.22	69	15.7	0.29
S004	23/04/2008	1.06	2	130	94	1271	10.31	6.29	0.05	7.708	0.03	12	11.1	6.34
S007	16/04/2008	28.13	RNV	82	80.96	1133	7.27	2.28	0.13	7.811	0.09	10	8.4	2.41
S007	08/05/2008	36.99	5	104	322	2030	4.14	1.44	0.31	7.73	0.08	45	13.5	1.75
S007	04/06/2008	34.33	3	90	118	1430	4.04	2.47	0.59	7.732	0.13	11	13.6	3.06
S008	16/04/2008	0.54	2	14	50.85	796	12.05	4.68	0.2	8.1	0.2	14	8.1	4.89
S008	08/05/2008	3.9	3	22	65.7	875	11.39	3.77	0.34	8	0.23	16	14.4	4.12
S008	04/06/2008	6.6	2	20	86.97	987	3.91	2.7	0.43	7.766	0.07	11	14.7	3.13
S009	16/04/2008	1.25	2	20	47.95	789	11.68	4.27	0.18	8.104	0.19	8	7.8	4.45
S009	08/05/2008	4.66	3	29	71.5	898	10.32	3.69	0.33	8.01	0.25	29	14.5	4.02
S010	24/04/2008	0.05	1	33	27.19	686	10.96	3.98	0.01	7.874	0.04	11	9.7	3.99
S010	08/05/2008	0.06	0	15	20.5	681	11.14	4.28	0.02	8.08	0.02	21	14.3	4.29
S010	04/06/2008	0.11	4	20	23.23	725	9.45	4.43	0.03	7.908	0.01	8	14.6	4.46
S011	16/04/2008	0.46	RNV	12	59.42	833	12.58	5.32	0.25	8.008	0.23	14	8	5.57
S011	08/05/2008	6.17	3	23	71.8	910	10.05	3.03	0.18	7.96	0.21	20	13.7	3.21
S011	04/06/2008	6.77	9	53	95.94	978	4.65	2.39	0.2	7.739	0.04	46	13.7	2.59
S012	16/04/2008	0.62	2	14	43.4	778	9.72	4.78	0.13	8.047	0.16	16	7.9	4.91
S012	08/05/2008	2.44	2	14	54.5	830	8.77	4.48	0.23	7.97	0.26	17	14.7	4.71
S012	04/06/2008	2.51	1	11	77.9	938	6.33	3.75	0.3	7.775	0.06	13	14.1	4.04
S025	16/04/2008	0.48	2	11	51	794	12.5	4.64	0.2	8.118	0.19	12	8	4.84
S025	08/05/2008	3.84	2	16	64.9	869	11.14	3.8	0.34	8.04	0.23	16	14.5	4.13
S025	04/06/2008	5.94	2	31	90.18	985	3.85	2.65	0.44	7.761	0.06	10	14.5	3.09
S030	23/04/2008	1.95	2	103	28.6	425	11.96	0.23	0.02	7.969	BLD	19	11.6	0.25
S030	28/05/2008	1.6	2	45	8.91	335	9.37	0.45	0.02	7.87	BLD	21	NT	0.47

APPENDIX III

Groundwater Monitoring

(Sampling and Analysis by Laois County Council)

(TOC analysis- Independent Laboratory)

ID	Date	NH3 - N	Chl orid e	Col our	Cond	Dept h	pH	PO4- P	Temp	TOC
		mg/l	mg/l	Haz en	µS/c m	m	pH units	mg/l	°C	mg/l
G001	14/05/0 8	0.27	21. 19	8.92	887	17.4 8	7.483	0.01	NT	5
G002	14/05/0 8	0.03	4.6 6	1.32	529	24.2 7	7.759	BLD	NT	2.5
G008	14/05/0 8	2.84	6.9 6	2.65	505	14.0 4	8.221	BLD	NT	BLD
G013	14/05/0 8	3.61	4.8 1	21.4	668	8.42	7.394	BLD	NT	11.8

APPENDIX IV

Monthly Leachate Monitoring

(Sampling and Analysis by Laois County Council)

ID	Sample Date	NH3 - N	BOD	COD	Chloride	Cond	pH	PO4-P	TON
		mg/l	mg/l	mg/l	mg/l	µS/cm	pH units	mg/l	mg/l
L016	24/04/08	1244	529	967	1278	13160	7.455	0.36	0.23
L016	09/05/08	1091	29	1014	1299	13680	7.61	0.17	0.17
L017	03/04/08	487	650	1490	595	6740	7.926	1.1	0.09
L018	24/04/08	1011	119	1607	1015	11760	7.416	3.96	0.16
L018	09/05/08	1183	115	2250	1206	13480	7.92	4.09	0.36
LT50	03/04/08	230	5	628	170	2900	8.194	BLD	0.56
LT50	23/04/08	182	11	216	239	2980	8.126	0.003	1.49
LT50	09/05/08	131	42	288	255	2600	8.34	0.01	5.75
LT50	11/06/08	101	25	258	282	2640	8.373	BLD	5.14

APPENDIX V

Dust Deposition Monitoring

Dust Deposition Monitoring: April to June 2008

Station Name	Sample Date	Dust Deposition (mg/m ² /day)
D1	06/05/08- 06/06/08	BLD
D2	06/05/08- 06/06/08	BLD
D3	06/05/08- 06/06/08	20
D4	06/05/08- 06/06/08	30

BLD= below limit of
detection

APPENDIX VI

Leachate Depths

Kyletalesha Landfill Site

Leachate Levels in Waste

Site Name Kyletalesha
Landfill
Site Address Kyletalesha, Portlaoise, Co. Laois
245273
N.G.R. .8 East
202141
.3 North
Site Status W026-
02
Operator Laois Co Co
Monitoring Personnel Laois Co Co - JMcC/KF

Date	L002	L003	L004	L020 Cell 3	L021 Cell 4	L025 Cell 1/2	L026 Cell 3	L016 Cell 12	L018 Cell 13
24/06/2008	3.64 m	1.74 m	3.52 m	2.07 m	5.17 m	4.79m	4.26 m	*	*

*awaiting completion Of SCADA system

APPENDIX VII

Unlined Site Lagoon Levels

Date	Day	Lagoon Staff Reading (m)	Action	Reduced Water level	Freeboard (m)	Lagoon Integrity
1-Apr-08	Tuesday	0.68		82.251	0.82	Good
2-Apr-08	Wednesday					
3-Apr-08	Thursday					
4-Apr-08	Friday					
5-Apr-08	Saturday					
6-Apr-08	Sunday					
7-Apr-08	Monday	0.69		82.261	0.81	Good
8-Apr-08	Tuesday	0.69		82.261	0.81	Good
9-Apr-08	Wednesday					
10-Apr-08	Thursday					
11-Apr-08	Friday					
12-Apr-08	Saturday	0.7		82.271	0.80	Good
13-Apr-08	Sunday					
14-Apr-08	Monday					

15-Apr-08	Tuesday					
16-Apr-08	Wednesday	0.7		82.271	0.80	Good
17-Apr-08	Thursday	0.7		82.271	0.80	Good
18-Apr-08	Friday					Good
19-Apr-08	Saturday					
20-Apr-08	Sunday					
21-Apr-08	Monday					
22-Apr-08	Tuesday	0.7		82.271	0.80	Good
23-Apr-08	Wednesday					
24-Apr-08	Thursday					Good
25-Apr-08	Friday	0.69		82.261	0.81	Good
26-Apr-08	Saturday					
27-Apr-08	Sunday					
28-Apr-08	Monday					
29-Apr-08	Tuesday	0.69		82.261	0.81	Good
30-Apr-08	Wednesday	0.69		82.261	0.81	Good
1-May-08	Thursday					Good
2-May-08	Friday	0.68		82.251	0.82	Good
3-May-08	Saturday					
4-May-08	Sunday					
5-May-08	Monday					
6-May-08	Tuesday	0.68		82.251	0.82	Good

7-May-08	Wednesday	0.69		82.261	0.81	Good
8-May-08	Thursday					
9-May-08	Friday	0.68		82.251	0.82	Good
10-May-08	Saturday					Good
11-May-08	Sunday					
12-May-08	Monday	0.67		82.241	0.83	
13-May-08	Tuesday					
14-May-08	Wednesday	0.67		82.241	0.83	Good
15-May-08	Thursday					Good
16-May-08	Friday	0.68		82.251	0.82	Good
17-May-08	Saturday					
18-May-08	Sunday					
19-May-08	Monday	0.67		82.241	0.83	
20-May-08	Tuesday	0.67		82.241	0.83	Good
21-May-08	Wednesday					
22-May-08	Thursday	0.7		82.271	0.80	Good
23-May-08	Friday	0.71		82.281	0.79	Good
24-May-08	Saturday					Good
25-May-08	Sunday					
26-May-08	Monday					
27-May-08	Tuesday					
28-May-08	Wednesday					

29-May-08	Thursday	0.7		82.271	0.80	
30-May-08	Friday					Good
31-May-08	Saturday					
1-Jun-08	Sunday					
2-Jun-08	Monday					
3-Jun-08	Tuesday	0.69		82.261	0.81	
4-Jun-08	Wednesday	0.69		82.261	0.81	Good
5-Jun-08	Thursday					Good
6-Jun-08	Friday					Good
7-Jun-08	Saturday					
8-Jun-08	Sunday					
9-Jun-08	Monday	0.7		82.271	0.80	
10-Jun-08	Tuesday					
11-Jun-08	Wednesday	0.7		82.271	0.80	Good
12-Jun-08	Thursday					
13-Jun-08	Friday	0.69		82.261	0.81	
14-Jun-08	Saturday					
15-Jun-08	Sunday					
16-Jun-08	Monday	0.7		82.271	0.80	
17-Jun-08	Tuesday					
18-Jun-08	Wednesday					
19-Jun-08	Thursday	0.71		82.281	0.79	Good

20-Jun-08	Friday					
21-Jun-08	Saturday					Good
22-Jun-08	Sunday					
30-Jun-08	Monday					

APPENDIX VIII

Lined Site Lagoon Levels

Date	Day	Telemetry Reading (m)	Lagoon Staff Reading (m)	Action	Freeboard	Lagoon Integrity
1-Apr-08	Tuesday	3.48	0.21	Tankering	0.79	
2-Apr-08	Wednesday	3.42	0.15	Tankering	0.85	Good
3-Apr-08	Thursday	3.37	0.15	Tankering	0.85	Good
4-Apr-08	Friday	1.04	-2.23		3.23	Good
5-Apr-08	Saturday	Note 1				Good
6-Apr-08	Sunday	Note 1				
7-Apr-08	Monday	Note 1		Tankering		Good
8-Apr-08	Tuesday	Note 1				Good
9-Apr-08	Wednesday	Note 1				Good
10-Apr-08	Thursday	Note 1				Good
11-Apr-08	Friday	Note 1				Good
12-Apr-08	Saturday	1.7	-1.57		2.57	
13-Apr-08	Sunday	1.67	-1.60		2.60	
14-Apr-08	Monday	1.65	-1.62		2.62	Incident report submitted
15-Apr-08	Tuesday	1.67	-1.60		2.60	Moderate
16-Apr-08	Wednesday	1.69	-1.58		2.58	Moderate
17-Apr-08	Thursday	1.71	-1.56	Tankering	2.56	Moderate
18-Apr-08	Friday	1.68	-1.59	Tankering	2.59	Moderate
19-Apr-08	Saturday	1.65	-1.62	Tankering	2.62	Moderate
20-Apr-08	Sunday	1.64	-1.63		2.63	
21-Apr-08	Monday	1.61	-1.66	Tankering	2.66	Good
22-Apr-08	Tuesday	1.57	-1.70	Tankering	2.70	Good
23-Apr-08	Wednesday	1.53	-1.74		2.74	Good
24-Apr-08	Thursday	1.56	-1.71		2.71	Good
25-Apr-08	Friday	1.69	-1.58		2.58	Good

26-Apr-08	Saturday	1.78	-1.49		2.49	
27-Apr-08	Sunday	1.78	-1.49		2.49	
28-Apr-08	Monday	1.81	-1.46	Tankering	2.46	Good
29-Apr-08	Tuesday	1.84	-1.43		2.43	Good
30-Apr-08	Wednesday	1.86	-1.41		2.41	Good
1-May-08	Thursday	1.86	-1.41		2.41	Good
2-May-08	Friday	1.86	-1.41		2.41	Good
3-May-08	Saturday	1.86	-1.41		2.41	Good
4-May-08	Sunday	1.86	-1.41		2.41	
5-May-08	Monday	1.86	-1.41		2.41	Good
6-May-08	Tuesday	1.86	-1.41		2.41	Good
7-May-08	Wednesday	1.88	-1.39		2.39	Good
8-May-08	Thursday	1.87	-1.40	Tankering	2.40	Good
9-May-08	Friday	1.86	-1.41		2.41	Good
10-May-08	Saturday	1.84	-1.43	Tankering	2.43	
11-May-08	Sunday	1.8	-1.47		2.47	
12-May-08	Monday	1.76	-1.51	Tankering	2.51	Good
13-May-08	Tuesday	1.69	-1.58	Tankering	2.58	Good
14-May-08	Wednesday	1.6	-1.67	Tankering	2.67	Good
15-May-08	Thursday	1.56	-1.71	Tankering	2.71	Good
16-May-08	Friday	1.5	-1.77	Tankering	2.77	Good
17-May-08	Saturday	1.48	-1.79		2.79	
18-May-08	Sunday	1.48	-1.79		2.79	
19-May-08	Monday	1.42	-1.85	Tankering	2.85	
20-May-08	Tuesday	1.32	-1.95	Tankering	2.95	Good
21-May-08	Wednesday	1.29	-1.98	Tankering	2.98	Good
22-May-08	Thursday	1.22	-2.05	Tankering	3.05	Good
23-May-08	Friday	1.16	-2.11	Tankering	3.11	Good
24-May-08	Saturday	1.14	-2.13		3.13	Good
25-May-08	Sunday	1.16	-2.11		3.11	
26-May-08	Monday	1.19	-2.08	Tankering	3.08	Good
27-May-08	Tuesday	1.25	-2.02		3.02	Good
28-May-08	Wednesday	1.33	-1.94		2.94	Good

29-May-08	Thursday	1.35	-1.92		2.92	Good
30-May-08	Friday	1.35	-1.92		2.92	Good
31-May-08	Saturday	1.35	-1.92		2.92	
1-Jun-08	Sunday	1.36	-1.91		2.91	
2-Jun-08	Monday	1.37	-1.90		2.90	Good
3-Jun-08	Tuesday	1.34	-1.93	Tankering	2.93	Good
4-Jun-08	Wednesday	1.31	-1.96	Tankering	2.96	Good
5-Jun-08	Thursday	1.32	-1.95	Tankering	2.95	Good
6-Jun-08	Friday	1.31	-1.96		2.96	Good
7-Jun-08	Saturday	1.27	-2.00	Tankering	3.00	
8-Jun-08	Sunday	1.24	-2.03		3.03	
9-Jun-08	Monday	1.24	-2.03	Tankering	3.03	Good
10-Jun-08	Tuesday	1.25	-2.02	Tankering	3.02	Good
11-Jun-08	Wednesday	1.25	-2.02	Tankering	3.02	Good
12-Jun-08	Thursday	1.26	-2.01	Tankering	3.01	Good
13-Jun-08	Friday	1.27	-2.00		3.00	Good
14-Jun-08	Saturday	1.31	-1.96	Tankering	2.96	
15-Jun-08	Sunday	1.35	-1.92		2.92	
16-Jun-08	Monday	1.36	-1.91		2.91	Good
17-Jun-08	Tuesday	1.33	-1.94	Tankering	2.94	Good
18-Jun-08	Wednesday	1.24	-2.03	Tankering	3.03	Good
19-Jun-08	Thursday	1.19	-2.08	Tankering	3.08	Good
20-Jun-08	Friday	1.19	-2.08	Tankering	3.08	Good
21-Jun-08	Saturday	1.23	-2.04	Tankering	3.04	
22-Jun-08	Sunday	1.28	-1.99		2.99	

APPENDIX IX

Meteorological Data

Date	Day	Temperature (°C)	Humidity (%RH)	Wind Speed (m/s)	Wind Direction	Barometric Pressure (mb)	Measured Rainfall (mm)
1-Apr-08	Tuesday	10.7	69.0	6.6	W	1004	0.2
2-Apr-08	Wednesday	12.1	83.9	3.5	W	1015	0.2
3-Apr-08	Thursday	12.4	77.3	1.1	NW	1020	0.0
4-Apr-08	Friday	10.4	77.0	2.3	W	1017	0.8
5-Apr-08	Saturday	6.5	72.2	4.4	NW	1011	0.0
6-Apr-08	Sunday	3.5	72.4	4.4	NW	1003	0.0
7-Apr-08	Monday	4.1	79.2	3.2	NW	995	0.6
8-Apr-08	Tuesday	4.5	81.3	0.8	SW	992	0.0
9-Apr-08	Wednesday	6.5	75.6	1.1	NW	989	0.0
10-Apr-08	Thursday	5.7	79.1	2.6	SW	984	1.0
11-Apr-08	Friday	5.7	82.6	3.3	W	982	2.0
12-Apr-08	Saturday	5.7	85.1	2.6	N	990	1.6
13-Apr-08	Sunday	7.2	79.1	2.3	N	999	2.2
14-Apr-08	Monday	7.6	70.0	2.1	N	1010	0.0
15-Apr-08	Tuesday	7.4	67.0	0.9	SE	1011	0.0
16-Apr-08	Wednesday	6.8	72.7	2.2	E	1006	0.0
17-Apr-08	Thursday	6.5	73.0	3.3	NE	997	0.6
18-Apr-08	Friday	6.7	75.8	4.2	NE	990	0.0
19-Apr-08	Saturday	7.6	74.5	4.7	NE	990	0.0
20-Apr-08	Sunday	7.7	86.2	2.9	NE	995	0.8
21-Apr-08	Monday	9.3	80.0	2.0	SE	998	0.0
22-Apr-08	Tuesday	8.6	82.8	1.7	NW	997	3.8
23-Apr-08	Wednesday	10.2	81.7	2.5	SW	1001	0.2
24-Apr-08	Thursday	10.4	78.0	3.4	SW	1003	1.6
25-Apr-08	Friday	11.1	86.8	2.9	W	1008	0.8
26-Apr-08	Saturday	13.2	75.2	3.0	SW	1005	0.2
27-Apr-08	Sunday	9.7	78.4	1.1	W	1000	2.6
28-Apr-08	Monday	8.4	86.1	1.8	NW	990	5.0

29-Apr-08	Tuesday	7.6	76.0	1.8	NW	984	0.6
30-Apr-08	Wednesday	8.6	77.4	3.7	SW	983	0.2
1-May-08	Thursday	8.6	75.1	2.6	SW	992	0.2
2-May-08	Friday	9.6	80.5	1.8	SW	1003	2.8
3-May-08	Saturday	13.8	77.3	3.8	S	1003	2.2
4-May-08	Sunday	14.6	73.5	3.0	SW	1004	2.6
5-May-08	Monday	13.2	74.4	1.3	SW	1013	0.0
6-May-08	Tuesday	14.8	68.7	1.3	SE	1010	0.0
7-May-08	Wednesday	15.6	70.9	1.3	SE	1006	0.0
8-May-08	Thursday	16.0	71.5	1.9	SE	1000	0.0
9-May-08	Friday	14.0	85.2	1.1	NE	1001	1.2
10-May-08	Saturday	14.1	88.3	1.4	SE	1007	0.0
11-May-08	Sunday	16.6	78.3	0.9	NE	1009	0.0
12-May-08	Monday	17.3	72.6	1.2	E	1008	0.0
13-May-08	Tuesday	14.0	74.6	2.1	NE	1009	0.0
14-May-08	Wednesday	12.8	73.0	2.5	NE	1006	0.0
15-May-08	Thursday	11.3	73.7	2.0	NE	1002	0.0
16-May-08	Friday	10.9	80.2	0.6	NE	999	0
17-May-08	Saturday	9.9	83.5	0.9	SE	999	0.0
18-May-08	Sunday	10.3	81.2	0.9	S	1005	0.2
19-May-08	Monday	10.2	70.6	1.2	SE	1006	0.0
20-May-08	Tuesday	9.2	71.8	1.6	SE	1006	0.0
21-May-08	Wednesday	12.0	72.5	2.9	SE	1001	0.8
22-May-08	Thursday	11.9	89.3	2.0	SE	999	3.2
23-May-08	Friday	13.5	80.9	1.4	NE	1000	0.2
24-May-08	Saturday	13.7	73.5	3.5	NE	1004	0.0
25-May-08	Sunday	12.5	70.3	4.2	NE	1007	0.0
26-May-08	Monday	13.0	67.1	4.7	NE	1007	1.2
27-May-08	Tuesday	10.6	83.0	3.6	NE	1003	0.4
28-May-08	Wednesday	12.5	83.2	0.8	NE	996	0.0
29-May-08	Thursday	14.2	78.7	0.8	SW	1001	0.0
30-May-08	Friday	15.5	78.2	0.4	NE	1004	0.0
31-May-08	Saturday	16.6	77.3	0.8	NE	1006	0.4
1-Jun-08	Sunday	15.0	75.7	1.2	ENE	1005	0.2
2-Jun-08	Monday	13.8	81.9	0.9	SW	1002	2.8
3-Jun-08	Tuesday	13.5	69.8	1.7	W	1003	0.2

4-Jun-08	Wednesday	11.8	83.0	1.8	NNW	1002	3.6
5-Jun-08	Thursday	11.9	75.5	0.8	E	1005	0.6
6-Jun-08	Friday	11.3	79.8	0.9	W	1009	1.0
7-Jun-08	Saturday	14.0	70.9	0.9	SW	1010	0.0
8-Jun-08	Sunday	16.0	77.9	1.0	WSW	1014	0.0
9-Jun-08	Monday	17.6	78.5	2.2	W	1016	0.0
10-Jun-08	Tuesday	16.1	71.3	2.6	NW	1017	0
11-Jun-08	Wednesday	13.4	89.3	1.6	N	1014	5.0
12-Jun-08	Thursday	11.9	77.8	2.3	N	1012	0.2
13-Jun-08	Friday	12.6	70.9	2.2	NNW	1009	0.0
14-Jun-08	Saturday	12.7	70.8	1.7	NNW	1006	0.0
15-Jun-08	Sunday	11.2	75.2	1.4	WNW	1003	1.0
16-Jun-08	Monday	11.9	70.4	1.4	NW	1002	0.0
17-Jun-08	Tuesday	13.1	76.0	2.7	W	996	2.2
18-Jun-08	Wednesday	12.4	89.1	1.9	SW	991	17.6
19-Jun-08	Thursday	12.5	80.7	3.3	W	994	0.2

APPENDIX X

Landfill Gas Flare data

Date	Carbon Monoxide ppm	Methane % v/v	Oxygen % v/v	Carbon Dioxide %	Barometric pressure mBar	Temperature oC	Flow rate Nm3/hr
01/04/2008 Average	-0.92	46.45	1.36	32.03	70.57	1028	372.87
02/04/2008 Average	-0.95	47.91	1.01	33.60	70.89	1028	373.07
03/04/2008 Average	-0.80	49.86	1.11	34.36	60.85	902	319.36
04/04/2008 Average	-1.02	47.36	3.04	29.48	45.16	661	234.34
05/04/2008 Average	-0.98	52.01	0.96	34.06	69.88	1027	371.43
06/04/2008 Average	-0.85	47.19	2.91	28.88	61.29	1020	347.22
07/04/2008 Average	-0.86	49.38	2.11	31.08	64.42	1025	355.18
08/04/2008 Average	-0.89	50.38	1.47	32.74	68.90	1060	367.99
09/04/2008 Average	-0.95	50.01	1.54	32.47	62.86	1043	349.67
10/04/2008 Average	-0.95	49.02	1.73	30.83	55.99	1048	330.30
11/04/2008 Average	-0.93	50.51	1.23	32.74	62.59	1040	349.51
12/04/2008 Average	-0.91	49.66	0.78	33.79	68.83	1040	369.37
13/04/2008 Average	-0.91	48.17	0.83	34.26	68.96	1024	368.86
14/04/2008 Average	-0.98	48.41	0.83	34.09	66.66	1024	362.51
15/04/2008 Average	-0.90	48.99	0.79	34.37	69.20	1032	369.11
16/04/2008 Average	-0.99	49.90	0.86	33.61	67.91	1052	366.10
17/04/2008 Average	-0.93	49.93	0.89	33.16	67.82	1058	366.40
18/04/2008 Average	-0.87	49.49	0.85	33.08	67.12	1056	363.89
19/04/2008 Average	-0.88	48.52	0.83	32.90	66.38	1049	361.92
20/04/2008 Average	-0.88	49.74	0.68	32.95	57.97	1045	336.74
21/04/2008 Average	-0.88	50.54	0.68	34.21	61.04	1054	345.02
22/04/2008 Average	-0.91	49.69	0.75	33.96	66.06	1052	359.77
23/04/2008 Average	-0.98	48.76	0.81	33.87	66.82	1049	360.68
24/04/2008 Average	-1.03	48.89	0.81	33.95	67.59	1045	363.92
25/04/2008 Average	-1.01	48.22	0.87	33.41	67.56	1043	363.78
26/04/2008 Average	-0.95	48.94	0.75	34.48	66.80	1043	360.05
27/04/2008 Average	-0.87	49.61	0.71	34.37	65.73	1049	358.42
28/04/2008 Average	-1.04	50.24	0.63	34.10	65.02	1038	356.44
29/04/2008 Average	-0.98	49.48	0.69	34.32	65.05	1053	355.97
30/04/2008 Average	-1.02	48.46	0.76	33.51	66.16	1021	359.63
01/05/2008 Average	-1.02	47.01	1.00	32.84	66.53	1035	360.43
02/05/2008 Average	-0.98	46.66	0.97	33.11	66.03	1028	359.58
03/05/2008 Average	-0.88	47.54	0.90	33.64	65.87	1042	358.09
05/04/2008 Average	-0.94	47.59	0.87	34.25	66.69	1038	358.57
05/05/2008 Average	-0.74	47.81	0.91	34.41	65.37	1030	355.34
05/06/2008 Average	-1.02	48.81	0.92	33.46	65.65	1035	356.60

06/05/2008 Average	-0.67	49.55	0.77	35.13	64.90	1045	352.63
07/05/2008 Average	-0.54	48.18	0.96	35.30	66.44	1038	358.47
08/05/2008 Average	-0.84	48.52	1.27	34.42	66.79	1049	358.62
09/05/2008 Average	-1.01	48.71	1.13	34.43	66.31	1035	357.20
10/05/2008 Average	-0.90	47.88	1.28	34.26	66.69	1028	359.78
11/05/2008 Average	-0.64	48.37	1.13	35.59	66.14	1036	356.26
12/05/2008 Average	-0.76	47.62	1.43	35.28	66.16	1041	356.77
13/05/2008 Average	-0.93	45.07	2.82	32.32	66.96	1046	359.89
14/05/2008 Average	-1.02	49.80	1.07	35.50	65.31	1056	355.73
15/05/2008 Average	9.93	48.45	1.15	35.19	55.10	909	301.33
16/05/2008 Average	16.79	48.92	1.68	33.73	65.21	1045	354.36
17/05/2008 Average	15.62	48.42	1.71	33.27	64.88	1041	354.24
18/05/2008 Average	16.31	48.10	1.44	33.63	64.53	1038	353.55
19/05/2008 Average	14.95	48.24	1.47	33.54	65.37	1039	354.79
20/05/2008 Average	56.56	46.20	2.47	31.29	65.03	1038	355.86
21/05/2008 Average	12.95	48.51	1.43	33.37	63.74	1045	350.29
22/05/2008 Average	0.48	48.40	1.37	33.34	63.21	1038	349.87
23/05/2008 Average	0.18	41.09	1.66	33.73	51.96	858	284.47
24/05/2008 Average	2.80	46.57	1.26	34.64	63.00	1044	348.74
25/05/2008 Average	7.94	45.91	1.29	33.99	63.42	1028	349.01
26/05/2008 Average	6.78	45.67	1.22	33.98	63.19	1033	348.33
27/05/2008 Average	2.79	45.62	1.39	33.01	62.76	1030	348.81
28/05/2008 Average	7.16	45.94	1.30	33.86	61.85	1025	344.24
29/05/2008 Average	10.54	46.07	1.19	34.38	60.82	1029	339.61
30/05/2008 Average	9.98	45.32	1.08	35.02	61.45	1023	341.62
31/05/2008 Average	11.90	44.36	1.31	34.87	61.78	1020	343.00
01/06/2008 Average	6.66	45.29	1.31	34.90	61.73	1024	342.78
02/06/2008 Average	2.85	44.57	1.83	33.19	61.34	1024	342.93
03/06/2008 Average	34.70	40.10	3.71	29.77	62.53	1027	344.71
04/06/2008 Average	1.77	48.68	0.97	34.47	59.65	1044	338.46
05/06/2008 Average	3.45	46.84	0.99	34.74	59.84	1025	337.02
06/06/2008 Average	16.15	47.10	0.76	34.38	57.69	995	326.45
07/06/2008 Average	15.23	45.52	1.16	34.56	59.37	1020	334.46
08/06/2008 Average	13.21	44.01	1.77	33.57	61.12	1020	340.32
09/06/2008 Average	10.61	43.40	2.04	33.37	60.98	1020	339.16
10/06/2008 Average	9.51	43.77	1.96	33.71	60.69	1020	337.82
11/06/2008 Average	7.62	46.50	1.46	34.16	59.73	1020	338.38
12/06/2008 Average	1.06	47.16	1.19	34.55	58.91	1020	336.17
13/06/2008 Average	0.19	46.26	1.61	34.13	59.07	1020	335.67
14/06/2008 Average	5.28	46.22	1.64	34.12	59.26	1021	335.82
15/06/2008 Average	0.89	45.30	1.95	33.32	59.48	1021	337.21
16/06/2008 Average	15.87	40.33	3.74	29.74	60.56	1022	340.06

17/06/2008 Average	2.91	46.23	1.61	33.74	59.20	1042	336.67
18/06/2008 Average	4.31	44.96	1.35	32.29	56.52	1010	324.38
19/06/2008 Average	0.08	44.49	1.61	33.37	58.34	1013	330.62
20/06/2008 Average	4.30	44.20	1.84	33.85	59.10	1021	335.46
21/06/2008 Average	3.71	45.88	1.67	33.48	57.58	1032	332.47
22/06/2008 Average	2.13	44.09	2.05	32.68	57.05	1029	329.31

**Laois County Council
Landfill Site
Waste Licence Register No. W026-02**

**Quarterly Monitoring Returns
Q3 of 2008**

APPENDIX I

Landfill Gas Monitoring

Gas well	Date	% CH ₄	% CO ₂	% O ₂	Atmospheric pressure (mb)
M001	25/07/2008	0.1	6.6	12.3	1001
M001	22/08/2008	0	4.4	13.7	998
M001	09/09/2008	0.1	3.1	17	984
M002	25/07/2008	0	2.1	18.9	997
M002	22/08/2008	0	0.6	20.3	998
M002	09/09/2008	0.1	2.1	18.1	984
M003	25/07/2008	0	4.1	16.1	997
M003	22/08/2008	0	1.7	18.3	999
M003	09/09/2008	0.1	2.1	17.4	984
M004	25/07/2008	0.2	5.5	14.1	997
M004	22/08/2008	0	2	17.3	999
M004	09/09/2008	0.2	3.5	15.8	984
M005	25/07/2008	0	0.3	20.3	1001
M005	22/08/2008	0	0.1	20.5	999
M005	09/09/2008	0.1	0.1	19.8	984
M006	25/07/2008	0.1	1.1	19.1	1001
M006	22/08/2008	0	0.1	20.5	999
M006	09/09/2008	0	0.1	20	984
M007	25/07/2008	0.1	0.4	19.6	1001
M007	22/08/2008	0	0.8	20	998
M007	09/09/2008	0.1	1.1	19.4	984
M008	25/07/2008	0.1	0.1	19.6	1001
M008	22/08/2008	0	0.7	20.1	999
M008	09/09/2008	0.1	0.1	19.9	984
M009	25/07/2008	0.1	0	19.7	1001
M009	22/08/2008	0	0.6	20.2	998
M009	09/09/2008	0.1	0	20	984
M014	25/07/2008	0	0	20.3	1002
M014	22/08/2008	0	0	20.7	1001
M014	09/09/2008	0	0	20.2	984
M015	25/07/2008	0	0	20.3	1001
M015	22/08/2008	0	0.3	20.6	1000
M015	09/09/2008	0	1.1	18.5	984
M016	25/07/2008	0	0	20.5	1002
M016	22/08/2008	0	4.1	12.3	1000
M016	09/09/2008	0.1	4.1	10.1	984
M017	25/07/2008	0	0.1	20.5	1002
M017	22/09/2008	0	0	20.8	1001
M017	09/09/2008	0	0	19.8	984
M018	25/07/2008	0.1	0	20	1001
M018	22/08/2008	0	0	20.5	996
M018	09/09/2008	0.1	0	20.1	984

APPENDIX II

Surface Water Monitoring

Surface Water Monitoring; July-September 2008

Station Name	Sample Date	NH3 - N	BOD	COD	Chloride	Cond @25°C	DO	DO	pH	Suspended Solids
		mg/l	mg/l	mg/l	mg/l	µS/cm	% Sat	mg/l	pH units	mg/l
S001	24/07/2008	2.42	<2	77	20.16	357	27	2.6	7.6	12
S001	07/08/2008	2.7	<2	93	23.89	265	40	4.85	7.1	<3
S001	09/09/2008	2.59	<2	76	22.02	287	44.7	4.36	7.2	3
S002	24/07/2008	8.74	7	83	40.77	617	18	1.6	7.4	22
S002	07/08/2008	6.52	<2	101	38.3	450	31	3	7.1	3
S002	09/09/2008	6.61	<2	86	41.56	540	30.7	3.03	7.2	7
S003	24/07/2008	45.06	8	92	229.73	1893	13	1.2	7.6	99
S003	07/08/2008	8.93	<2	94	47.74	542	30	2.9	7.2	3
S003	09/09/2008	19.03	35	368	74.38	926	22.3	2.24	7.3	298
S004	24/07/2008	0.3	4	78	85.96	1339	31	3.2	7.7	48
S004	07/08/2008	0.24	<2	87	79.79	901	60	5.97	7.9	9
S004	09/09/2008	0.31	<2	83	75.45	1086	50.8	5.06	7.6	12
S007	24/07/2008	22.59	23	82	158.22	1432	8	0.8	7.5	43
S007	07/08/2008	6.02	<2	102	41.98	570	36.7	3.52	7.3	36
S007	09/09/2008	9.36	<2	94	48.67	753	36.1	3.54	7.4	9
S008	24/07/2008	0.09	<2	16	51.19	803	37	3.5	7.8	13
S008	07/08/2008	0.34	<2	40	29.76	577	44	4.3	7.6	15
S008	09/09/2008	<0.06	<2	22	36.09	688	20.8	2.13	7.7	24
S009	24/07/2008	1.71	<2	16	53.74	816	38	3.6	7.9	16
S009	07/08/2008	0.54	<2	49	29.8	577	45	4.4	7.5	26
S009	09/09/2008	<0.06	<2	31	37.03	694	54.5	5.45	7.7	11
S010	24/07/2008	NT	NT	NT	NT	NT	NT	NT	NT	NT
S010	07/08/2008	0.18	<2	41	27.02	550	37	3.6	7.7	41
S010	09/09/2008	<0.06	<2	26	29.9	687	58.7	5.89	7.8	12
S011	24/07/2008	0.8	2	10	55.63	822	41	3.9	7.6	12
S011	07/08/2008	0.63	<2	25	3705	643	39	3.8	7.7	48
S011	09/09/2008	<0.06	<2	24	37.33	681	56.6	5.58	7.7	47
S012	24/07/2008	<0.09	<2	13	24.46	660	48	4.8	8	14
S012	07/08/2008	<0.09	<2	37	25.38	549	54	5.3	7.4	20
S012	09/09/2008	0.1	<2	26	21.59	569	77.5	7.14	7.8	4
S025	24/07/2008	0.3	<2	12	52.67	796	38	3.6	7.8	13
S025	07/08/2008	0.35	<2	42	28.81	580	46	4.4	7.6	24

S025	09/09/2008	0.59	<2	22	34.69	697	55.7	5.55	7.7	22
S030	24/07/2008	1.29	<2	44	18.91	362	66	5.8	8.1	17
S030	07/08/2008	1.45	<2	50	31.86	542	35	3.4	7.7	28
S030	09/09/2008	1.63	<2	48	31.54	493	64	6.14	7.6	17

APPENDIX III

Groundwater Monitoring

Groundwater Monitoring: July-September 2008

Location	Date	NH3-N (mg/l)	Chloride (mg/l)	Colour (Hazen)	Cond (µS/cm)	G/W Level (m)	DO (mg/l)	pH (pH units)	Temp (°C)	TOC (mg/l)
G001	25/07/08	0.37	22.31	362.4	711	2	0.87	7.5	122.7	2.52
G001	07/08/08	0.51	26.19	138.9	838	2.5	0.8	7.2	12.2	5.89
G001	09/09/08	<0.06	13.88	234	743	2.6	0.82	7.4	12.7	1.58
G002	25/07/08	0.21	10.06	9	486	1.8	2.07	7.7	12.7	2.79
G002	07/08/08	0.34	11.14	83.5	471	1.6	4.16	7.8	12.3	1.99
G002	09/09/08	<0.06	10.66	16	494	1.1	3.23	7.5	12.1	1.99
G008	25/07/08	NT	NT	NT	NT	NT	NT	NT	NT	NT
G008	07/08/08	2.57	12.71	17.3	433	0.9	2.8	7.6	13.4	3.84
G008	09/09/08	1.8	13.54	14	424	0.74	3.2	7.6	12.7	5.12
G013	25/07/08	3.6	9.61	808.8	620	1.2	0.66	7.2	12.4	11.5
G013	07/08/08	3.11	13.55	474	605	2.48	1.57	7.1	13.1	7.78
G013	09/09/08	0.64	11.97	164	607	1.17	1.2	7.1	14.5	6.81

APPENDIX IV

Monthly Leachate Monitoring

Monthly Leachate Monitoring: July-September

Station Name	Sample Date	Ammonia	BOD	Chloride	COD	Cond @25°C	pH	Temp
		mg/l	mg/l	mg/l	mg/l	µS/cm	pH units	°C
LT50	25/07/2008	44.78	22	215.41	150	1904	7.7	19.5
LT50	07/08/2008	45.12	<2	200.83	138	1894.0	8.0	18.3
LT50	10/09/2008	72.60	<2	175.28	113	2090.0	7.6	14.0
L017	25/07/2008	<0.09	57	42.31	410	331	7.2	25
L017	07/08/2008	1.66	4	18.06	25	297.0	8.1	17.6
L017	10/09/2008	1.50	3	6.29	22	149.0	8.8	14.9
L016	25/07/2008	--	--	--	--	--	--	--
L016	07/08/2008	<0.09	145	1247.17	677	12090.0	7.3	19.6
L016	10/09/2008	949.00	60	1366.33	745	12970.0	7.2	19.0
L018	25/07/2008	--	--	--	--	--	--	--
L018	07/08/2008	972.01	375	1253.33	1740	13160.0	7.4	35.2
L018	10/09/2008	726.84	90	931.09	1358	10250.0	7.2	17.3
Cell 14	25/07/2008	14.38	50	90.56	102	1170	7.4	19.8
Cell 14	07/08/2008	35.70	75	77.31	155	1248.0	7.5	17.3
Cell 14	10/09/2008	23.35	<2	89.95	45	1057.0	7.8	14.0
L020	25/07/2008	111.78	110	148.4	154	25600	6.6	14.5
L020	07/08/2008	9.72	<2	20.17	106	1025.0	6.4	16.3
L020	10/09/2008	16.98	70	19.52	232	974.0	6.3	14.7
L021	25/07/2008	0.9	26	465.75	198	5600	7.2	16.1
L021	07/08/2008	351.80	9	439.39	259	5250.0	7.4	16.1
L021	10/09/2008	341.03	<2	424.05	237	5020.0	7.2	15.1
L023	25/07/2008	10.05	16	1819.24	37	1261	6.5	15.6
L023	07/08/2008	8.23	<2	24.71	52	1288.0	6.5	16.1
L023	10/09/2008	7.36	<2	13.87	57	1103.0	6.5	15.4
L024	25/07/2008	<0.09	19	27.31	504	15800	7.5	16.6
L024	07/08/2008	<0.09	<2	1847.21	731	15860.0	7.5	16.8
L024	10/09/2008	961.50	<2	1827.87	168	15860.0	7.3	16.1
L025	25/07/2008	0.64	12	870.98	259	73500	7.4	18.3
L025	07/08/2008	247.18	<2	716.06	335	5600.0	7.4	16.9
L025	10/09/2008	282.30	33	808.43	327	6150.0	7.3	17.1
L026	25/07/2008	0.74	25	1342.66	225	85200	7.6	15.1
L026	07/08/2008	0.90	9	1325.31	163	8340.0	7.6	15.6
L026	10/09/2008	563.38	18	1483.43	498	10050.0	7.4	14.7

APPENDIX V

Dust Monitoring

Dust monitoring: 25th July – 22nd August

Location	Mass (g)	Surface Area (m²)	Duration (days)	Dustfall (g m⁻² d⁻¹)	Dustfall (mg m⁻² d⁻¹)
DN1	0.0356	0.00607	29	0.20224	202.24
DN2	0.0728	0.00607	29	0.41357	413.57
DN3	0.0232	0.00607	29	0.13180	131.80
DN4	0.0466	0.00607	29	0.26473	264.73

APPENDIX VI

Flare data

Date	CO (ppm)	CH ₄ % v/v	O ₂ % v/v	Pressure mB	Temp °C	Flow Nm ³ hr	CO ₂ % v/v
1/7/2008 Average	3.42978425	53.37256011	1.40369522	56.60915562	1038.94104975	326.98651007	33.52427520
2/7/2008 Average	4.52682178	52.76826779	1.57747484	56.64919789	1028.03798921	327.88766902	33.13408178
3/7/2008 Average	7.24680961	53.18647263	1.46136419	56.42499483	1020.58291721	327.22539174	33.34923427
4/7/2008 Average	40.48803105	50.48896613	1.37661578	60.84909855	1019.89119438	338.92952794	36.42134128
5/7/2008 Average	12.05109945	52.76214160	1.09020444	59.48504352	1020.55138484	337.62025658	37.03735936
6/7/2008 Average	7.92451961	54.67744583	1.04178371	59.54575144	1016.83294984	332.30478492	35.91114610
7/7/2008 Average	7.01606441	53.41706547	1.22007830	60.47468515	1020.46039114	337.54042101	35.33894013
8/7/2008 Average	2.62291071	52.40450605	1.42287085	62.25011878	1019.73713742	343.92191544	35.03576151
9/7/2008 Average	9.05748285	53.52913917	1.23570572	61.24461420	1026.01363407	342.23914472	35.26573040
10/7/2008 Average	6.86552842	53.33219918	1.25928890	60.57341852	1021.45374253	340.44420964	35.03840873
11/7/2008 Average	12.24123449	52.81548112	1.06438245	59.34339303	1019.88230705	336.54200141	35.57818294
12/7/2008 Average	7.77321547	51.71882076	1.02921864	58.79694062	1020.57950189	334.16012552	35.54697262
13/7/2008 Average	6.66869921	51.52094376	1.04051550	57.81574453	1020.15263879	331.24427009	35.45765303
14/7/2008 Average	38.08610755	51.22100825	1.03437195	58.11604040	1019.82993219	330.62534192	35.71922330
15/7/2008 Average	18.80552410	52.23786442	0.86973662	58.65719261	1020.02813488	333.43671647	36.21130330
16/7/2008 Average	6.85251367	52.70538393	0.88932807	58.54294964	1018.94487195	333.09793767	35.37433921
17/7/2008 Average	6.07929278	53.43811908	0.96576033	57.13673171	1020.12651300	329.24465383	35.39392378
18/7/2008 Average	9.78934483	53.79039078	0.84794487	56.11638286	1020.27534543	325.61393088	35.76927272
19/7/2008 Average	12.30628004	52.08303174	1.01983603	56.44075396	1019.51064821	326.24585394	35.53421700
20/7/2008 Average	3.74351065	51.68425888	1.01396622	57.85146237	1020.44399824	329.95090144	35.32487205
21/7/2008 Average	5.59644377	52.37434621	0.95664376	58.12013627	1019.54686381	331.14364487	35.45888667
22/7/2008 Average	14.25950596	53.41814646	0.90969915	56.93151015	1019.85858197	329.00327774	36.19684713
23/7/2008 Average	13.21807567	54.56474830	0.75852557	56.27958712	1019.88759077	326.40334038	36.68607177
24/7/2008 Average	19.30134620	54.88598696	0.72194148	55.88835435	1016.63457048	321.93393501	36.80798644
25/7/2008 Average	9.96344322	54.42144731	0.75263497	56.85801632	1020.00074657	326.13961465	36.39951142
26/7/2008 Average	13.16368814	53.01960933	0.83065423	56.55212782	1019.70921204	325.06964016	36.32874113
27/7/2008 Average	14.19727354	53.91055908	0.74634589	56.48264643	1020.49480610	325.46611155	36.62422742
28/7/2008 Average	12.06642883	54.77851465	0.75795037	56.55115067	1019.77695769	325.58347318	36.78470123
29/7/2008 Average	11.93446553	55.71970765	0.59933385	55.39071639	1017.58268722	320.75907127	36.57717203
30/7/2008 Average	4.46830389	53.59407438	0.89169470	57.72696985	1019.86020394	330.47845765	35.58781442
31/7/2008 Average	9.37266462	54.62734098	0.93458173	56.56871851	1019.78002043	327.12985969	35.65945800
1/8/2008 Average	8.09005241	53.98200852	1.14401680	56.75425159	1019.75353582	325.97110904	35.03136766
2/8/2008 Average	7.72145330	54.30417580	1.16997356	56.45306184	1019.99065423	325.34375898	35.15893728
3/8/2008 Average	11.33499657	55.58436245	1.06182215	56.26199860	1019.52236273	324.97296364	35.63100297

4/8/2008 Average	12.70788047	55.84622382	0.99229575	55.64918192	1020.58525851	321.95274897	35.95511073
5/8/2008 Average	6.44233386	57.12875302	0.91717674	53.79551424	1025.35812684	318.62078340	36.26460985
6/8/2008 Average	14.78984012	56.78565665	1.02653399	57.26829310	1024.77469727	327.07746819	35.82302270
7/8/2008 Average	6.02476659	54.88744218	1.17245107	58.02664196	1020.53787369	329.80838562	34.85358260
8/8/2008 Average	12.46994187	55.06335635	1.20841838	59.20121373	1021.13481863	334.66792113	35.15759298
9/8/2008 Average	6.79769641	57.82392681	0.97691088	64.96623292	994.85818258	276.64984303	35.78894036
10/8/2008 Average	13.51274423	63.16062987	0.36439249	77.25362184	811.91779219	194.84292354	37.21626740
11/8/2008 Average	5.70882258	57.54981310	0.93888187	57.62401601	1042.45083185	327.87737636	35.26395630
12/8/2008 Average	9.73666205	55.97723082	1.18147408	57.02668836	1024.07288210	327.54961778	34.24708625
13/8/2008 Average	7.33443459	53.65970465	1.62478852	58.10599417	1020.17503802	329.88163556	33.17705770
14/8/2008 Average	5.53065936	53.25894921	1.31613420	56.83010371	992.43319612	321.38317486	33.76054113
15/8/2008 Average	4.05914471	55.74185698	1.34457200	57.88522528	1026.03923508	330.84792049	33.93589505
16/8/2008 Average	7.64044631	57.59963718	0.87841725	56.36307474	1035.30456458	326.27064196	34.97689679
17/8/2008 Average	0.38542539	56.50889554	0.94188607	56.52626463	1028.89061951	326.67642170	34.61587948
18/8/2008 Average	6.90199469	56.41234529	1.02861302	55.32002908	1029.08196831	322.02988252	34.87584212
19/8/2008 Average	10.17849861	53.68101966	1.28301416	57.28916665	1019.75948178	327.33984280	34.03147648
20/8/2008 Average	11.14875654	54.04209257	1.23256637	55.43186053	1003.66877419	319.09636326	34.57985671
21/8/2008 Average	16.74400840	55.08829082	1.35906180	56.82782865	1019.73407532	327.00158343	34.92471320
22/8/2008 Average	5.10935357	54.43982591	1.76353808	57.82925826	1020.21696815	330.40132558	33.89934698
23/8/2008 Average	66.86077154	51.32853604	2.73614190	60.90664635	1020.09083446	340.66926485	32.64794798
24/8/2008 Average	9.16908547	52.33721453	2.60432414	59.75708524	1020.35444953	336.74092783	33.44498082
25/8/2008 Average	6.77014225	51.93986949	3.16345639	60.15370289	1020.46075249	337.27659148	32.41387640
26/8/2008 Average	6.26319035	51.86699221	3.62386911	60.61562304	1019.89875978	339.61581738	32.52740543
27/8/2008 Average	8.48864500	52.56108502	4.14311507	60.03613341	1020.85697457	336.52408439	32.87610127
28/8/2008 Average	7.67270688	54.74512533	4.24191428	58.42851953	1024.59180997	331.72899757	34.04724937
29/8/2008 Average	13.61996698	54.76953319	4.59877026	58.39149177	1029.04719411	331.23096485	33.92618028
30/8/2008 Average	10.64636468	54.80903483	4.56045018	57.30334549	1038.33419219	328.98768526	33.58524627
31/8/2008 Average	10.88654867	54.87306917	4.67214288	57.24985199	1027.87222322	327.17351999	33.99182241
1/9/2008 Average	3.52910671	54.33846605	4.94167246	57.35918852	1033.60474604	328.67447839	33.32840240
2/9/2008 Average	6.10184335	53.81693310	3.12770045	58.00662074	1025.05614157	329.31035247	35.07878376
3/9/2008 Average	12.07929114	17.14151992	0.10124558	18.52865284	538.19829551	130.48170865	10.73746820
4/9/2008 Average	1.61601602	15.92372740	0.46680935	24.45752309	554.26169440	147.74597844	11.21294419
5/9/2008 Average	-0.68938033	47.66372388	2.66554133	80.80527926	833.89381900	215.88328046	30.29427229
6/9/2008 Average	0.17673186	48.39095636	2.55084444	79.08903579	838.30650319	226.09882901	30.70116722
7/9/2008 Average	-0.37789928	45.99055786	3.07167046	72.09786410	1020.59300871	376.69946490	31.28182779
8/9/2008 Average	-0.93416593	52.84757606	1.02694980	69.74745243	1018.66955355	369.06857522	36.37209595
9/9/2008 Average	0.66850681	43.94290238	1.54865594	73.59383386	1019.93894267	377.43149342	32.18131544
10/9/2008 Average	3.35317874	45.15787653	1.95115715	79.15810117	1020.47552680	392.45896790	31.35990253
11/9/2008 Average	2.45258232	43.73370972	2.19175348	82.41407815	1019.90849246	399.48153486	30.96442856
12/9/2008 Average	-0.63708567	45.29814226	1.73198873	83.27093192	1020.48705865	403.00009324	32.64236242

13/9/2008								
Average	-0.22716924	46.09958245	1.55204477	83.82842505	1019.93876463	402.36411737	33.06163441	
14/9/2008								
Average	-0.93273832	47.43612476	1.13359737	83.43338797	1020.27516676	402.82711855	33.57647283	
15/9/2008								
Average	-0.67442514	47.85094762	1.50034610	81.65849471	1019.88416879	400.04443349	33.51109395	
16/9/2008								
Average	0.95949603	47.79987612	1.58809132	81.25231550	1019.76134215	399.94921059	33.16780837	
17/9/2008								
Average	-0.11182321	46.89513718	2.00690681	80.66647477	1021.74662293	396.24058183	32.87154656	
18/9/2008								
Average	-0.69714206	45.01788822	2.32127044	81.55930394	1020.90418705	397.81113283	31.21833406	
19/9/2008								
Average	-0.27457124	39.51852160	3.65062284	72.35734841	886.28924601	346.16758514	28.52623314	
20/9/2008								
Average	-0.24574195	45.19790502	2.37249094	83.95077655	1021.13626194	402.91901089	31.76776771	
21/9/2008								
Average	0.03635540	45.53681546	2.50863309	83.76345559	1020.93067061	403.61143351	31.52781927	
22/9/2008								
Average	0.71525739	46.69108188	2.33543560	83.97645263	1021.36797758	405.78839080	31.76062961	
23/9/2008								
Average	-0.88051296	46.23927988	2.35343659	85.19776125	1020.40075578	407.53935564	31.56980189	
24/9/2008								
Average	-0.73994246	46.66726984	1.88905290	85.16171067	1021.60815915	406.94870185	32.33390281	
25/9/2008								
Average	-0.21957383	46.38474295	1.61839371	85.68797661	1021.38635275	407.92117024	33.08019321	
26/9/2008								
Average	-0.61215110	45.80961251	1.74246013	86.34281016	1020.07948615	409.54604078	32.61332517	
27/9/2008								
Average	-0.55026516	46.07100280	1.79516367	86.06473950	1018.36612477	409.07784115	32.45297606	
28/9/2008								
Average	-0.88037435	45.86706317	1.96820178	85.53117590	1018.51873948	409.20767814	32.09697592	
29/9/2008								
Average	-0.97305774	46.20749823	1.92055375	85.89604644	1020.40615813	409.23397605	32.02379393	
30/9/2008								
Average	-0.82192575	46.34533830	1.80016722	84.20882630	1018.53333322	405.48630701	32.18734460	

APPENDIX VII

Weather Data

Weather data: July-Sept 2008

Date	Temp (°C)	Humidity (% RH)	Wind Speed (m/s)	Wind Direction	Pressure (mb)	Rainfall (mm)
01/07/2008 Average	15.85	73.50	3.50	S	990.57	0

02/07/2008 Average	14.17	85.33	1.92	SW	991.04	0.37
03/07/2008 Average	12.45	90.17	0.70	WSW	996.45	0.79
04/07/2008 Average	12.64	82.67	1.68	E	999.77	0.13
05/07/2008 Average	14.09	86.38	2.90	ENE	989.46	0.03
06/07/2008 Average	13.86	90.92	2.44	NNW	986	0.02
07/07/2008 Average	14.14	81.83	2.93	NNW	988.48	0.01
08/07/2008 Average	13.87	72.50	2.18	W	995.7	0.01
09/07/2008 Average	14.67	89.63	1.64	ESE	992.58	0.01
10/07/2008 Average	14.06	90.58	2.17	SW	989.82	0
11/07/2008 Average	13.29	80.83	2.88	NNW	996.1	0.01
12/07/2008 Average	13.37	76.42	2.08	WNW	100.67	0
13/07/2008 Average	14.10	80.08	1.32	SW	1003.03	0
14/07/2008 Average	17.58	86.79	1.77	W	1009.05	0.01
15/07/2008 Average	16.92	78.54	3.54	W	1013.59	0
16/07/2008 Average	14.30	78.08	2.88	W	1012.68	0
17/07/2008 Average	15.18	82.25	2.64	W	1003.61	0
18/07/2008 Average	15.67	89.00	2.55	WSW	997.9	0.08
19/07/2008 Average	15.14	72.29	3.82	NNW	1000.07	0.21
20/07/2008 Average	13.95	73.00	2.28	NNW	1011.13	0.08
21/07/2008 Average	14.08	79.58	1.45	W	1015.57	0.031
22/07/2008 Average	17.44	82.17	1.66	WSW	1014.51	0.031
23/07/2008 Average	17.04	83.88	1.00	W	1010.73	0.02
24/07/2008 Average	18.60	80.83	1.55	ESE	1003.15	0.01
25/07/2008 Average	17.45	83.33	0.44	ESE	997.43	0
26/07/2008 Average	17.16	76.42	0.82	SW	1004.2	0
27/07/2008 Average	17.47	77.04	0.83	SW	1006.15	0.01
28/07/2008 Average	17.77	81.12	0.79	ENE	1002.53	0
29/07/2008 Average	17.24	84.50	1.91	S	995.1	0
30/07/2008 Average	16.85	82.83	2.08	S	996.61	0
31/07/2008 Average	15.89	91.83	1.27	ESE	994.23	0.01
01/08/2008 Average	15.73	83.67	2.17	WSW	993.05	0
02/08/2008 Average	15.56	83.04	1.94	WSW	997.56	0.01
03/08/2008 Average	15.59	79.88	2.19	WSW	999.64	0
04/08/2008 Average	16.33	81.25	1.24	N	998.43	0
05/08/2008 Average	16.30	90.38	1.48	E	995.98	0
06/08/2008 Average	16.62	91.71	0.91	SW	994.28	0

07/08/2008 Average	15.58	88.96	2.21	N	995.38	0.01
08/08/2008 Average	15.10	76.79	1.31	NNW	1002.93	0
09/08/2008 Average	17.04	89.88	2.58	SW	991.48	0
10/08/2008 Average	14.84	86.38	3.19	WSW	987	0
11/08/2008 Average	14.52	86.96	2.34	SW	984.54	0
12/08/2008 Average	12.11	92.25	1.21	WSW	976.54	0.07
13/08/2008 Average	12.75	90.42	2.00	W	986.1	0.18
14/08/2008 Average	13.63	79.04	1.78	SW	998.39	0.01
15/08/2008 Average	13.90	85.00	1.86	SW	999.83	0.01
16/08/2008 Average	14.53	88.79	2.75	W	986.76	2.19
17/08/2008 Average	14.15	87.50	2.45	SW	987.35	0.07
18/08/2008 Average	15.22	88.50	1.83	SSE	980.59	0.16
19/08/2008 Average	15.73	86.71	2.41	W	990.61	0.05
20/08/2008 Average	14.81	89.00	1.18	SW	996.27	0.08
21/08/2008 Average	15.34	82.96	1.35	NNW	1002.04	0.06
22/08/2008 Average	13.94	80.42	1.53	NW	1007.13	0
23/08/2008 Average	13.51	91.08	1.88	S	999.29	0.29
24/08/2008 Average	15.35	84.17	2.21	SW	993.91	0.01
25/08/2008 Average	15.95	88.63	3.07	SW	996.16	0.01
26/08/2008 Average	16.71	89.46	2.41	SW	1004.48	0.03
27/08/2008 Average	16.38	87.29	2.03	WSW	1008.51	0
28/08/2008 Average	17.02	88.33	2.07	WSW	1009.66	0
29/08/2008 Average	16.78	89.79	0.72	SW	1007.51	0
30/08/2008 Average	16.18	88.33	1.21	S	1002.23	0.01
31/08/2008 Average	14.92	78.88	1.07	SW	999.72	0
01/09/2008 Average	13.26	83.00	1.88	SW	994.33	0.15
02/09/2008 Average	11.70	87.13	2.06	SW	986.68	0.24
03/09/2008 Average	11.46	87.21	2.82	W	983.91	0.5
04/09/2008 Average	12.64	84.13	0.90	SW	984.21	0.02
05/09/2008 Average	11.95	93.04	2.90	NE	978.35	1.93
06/09/2008 Average	13.46	81.63	4.60	N	988.86	0.37
07/09/2008 Average	12.78	78.50	2.04	NNW	998.81	0
08/09/2008 Average	12.87	83.83	1.07	S	999.23	0.03
09/09/2008 Average	13.60	89.92	3.38	ESE	988.97	0.47
10/09/2008 Average	12.51	90.58	2.66	S	988.69	0.19
11/09/2008 Average	13.99	85.92	3.28	SW	986.22	0.01

12/09/2008 Average	12.83	89.00	1.34	WNW	1002.53	0.08
13/09/2008 Average	12.75	84.83	0.90	SW	1007.44	0.00
14/09/2008 Average	14.12	91.63	1.03	SSE	1010.13	0.76
15/09/2008 Average	13.72	89.25	1.37	NNW	1011.36	0.07
16/09/2008 Average	12.90	88.38	2.21	N	1012.70	0.00
17/09/2008 Average	12.03	82.96	0.72	NNW	1011.92	0.00
18/09/2008 Average	11.68	87.46	1.18	SW	1011.26	0.02
19/09/2008 Average	14.03	88.21	0.98	SW	1015.19	0.01
20/09/2008 Average	14.62	83.25	1.20	SW	1017.17	0.00
21/09/2008 Average	13.53	84.38	1.00	N	1015.53	0.00
22/09/2008 Average	11.93	79.46	2.37	NE	1019.42	0.00
23/09/2008 Average	10.22	82.33	1.02	NE	1018.97	0.00
24/09/2008 Average	9.87	86.38	0.44	WNW	1018.55	0.01
25/09/2008 Average	12.08	85.71	0.29	NW	1022.19	0.01
26/09/2008 Average	12.34	87.29	0.61	S	1022.98	0.00
27/09/2008 Average	11.83	87.25	0.83	SW	1019.46	0.02
28/09/2008 Average	11.92	80.42	1.27	N	1017.23	0.02
29/09/2008 Average	11.09	86.13	2.57	W	1009.07	0.02
30/09/2008 Average	12.88	89.17	3.58	W	995.02	0.32

**Laois County Council
Landfill Site
Waste Licence Register No. W026-02**

**Quarterly Monitoring Returns
Q4 of 2008**

APPENDIX I

Landfill Gas Monitoring

Device ID	Date/Time	CH4 (%)	CO2 (%)	O2 (%)	Pres (mB)	Balance
TPITM015	10/13/08	0.1	0.8	19.4	1003	79.7
TPITM006	10/13/08	0.1	0.1	19.8	1003	80
TPITM005	10/13/08	0.1	0.1	19.8	1003	80
TPITM004	10/13/08	0.1	3.5	14.7	1004	81.7
TPITM007	10/13/08	0.1	1.1	19.2	1004	79.6
TPITM001	10/13/08	0.1	3.4	15.5	1003	81
TPITM002	10/13/08	0.1	2.2	19.1	1003	78.6
TPITM003	10/13/08	0.1	2.1	18.3	1003	79.5
TPITM008	10/13/08	0.1	0.7	19.3	1003	79.9
TPITM009	10/13/08	0.1	1.2	19.2	1003	79.5
TPITM017	10/13/08	0.2	0.2	19.5	1005	80.1
TPITM014	10/13/08	0.2	0	19.7	1005	80.1
TPITM016	10/13/08	0.2	0	19.7	1005	80.1
TPITM017	19/11/08	0.1	0.6	19.5	1017	79.8
TPITM014	19/11/08	0.1	0.2	19.7	1016	80
TPITM016	19/11/08	0.1	0.2	19.7	1016	80
TPITM015	19/11/08	0	0.1	19	1016	80.9
TPITM006	19/11/08	0	0.4	19.7	1016	79.9
TPITM005	19/11/08	0	0.1	19.8	1015	80.1
TPITM004	19/11/08	0.1	3	11.5	1016	85.4
TPITM007	19/11/08	0.1	1.2	18.9	1016	79.8
TPITM001	19/11/08	0.1	4.1	14.9	1015	80.9
TPITM002	19/11/08	0	1.2	19.2	1016	79.6
TPITM008	19/11/08	0	0.2	19.9	1015	79.9
TPITM009	19/11/08	0	0.9	19.5	1015	79.6
TPITM003	19/11/08	0	1.4	16.8	1015	81.8
TPITM017	16/12/08	0.3	1	18.6	998	80.1
TPITM014	16/12/08	0.3	0.2	19.1	998	80.4
TPITM015	16/12/08	0.2	1.4	18.8	998	79.6
TPITM016	16/12/08	0.2	0.6	17.7	998	81.5
TPITM006	16/12/08	0.1	0.1	20	998	79.8
TPITM005	16/12/08	0.1	0	20.2	998	79.7
TPITM004	16/12/08	0.1	0.2	20.1	999	79.6
TPITM007	16/12/08	0.1	0.8	19.8	998	79.3
TPITM001	16/12/08	0.2	1.4	18.4	998	79.9
TPITM002	16/12/08	0	1	20	998	79
TPITM003	16/12/08	0	0.3	19.9	998	79.8
TPITM008	16/12/08	0.1	0.1	20.4	998	79.4
TPITM009	16/12/08	0.1	0.8	20	998	79.1

APPENDIX II

Surface Water Monitoring

Sample Purpose: Surface Water

Sampled By: Marc Chawke

Analyst: Marc Chawke

BLD = below limit of detection

NT = not tested

Lab No.	Sample Location	Date	DO mgl ⁻¹	Temp °C	pH pH units	Cond μScm ⁻¹	Cl ⁻ mgl ⁻¹	NO ₃ ⁻ N mgl ⁻¹	NO ₂ ⁻ N mgl ⁻¹	TON mgl ⁻¹	NH ₃ -N mgl ⁻¹	OPO ₄ ⁻ P mgl ⁻¹	BOD mgO ₂ ⁻¹
2197	S010	27/11/08	10.18	8.9	7.65	661	30.80	3.651	0.03	3.681	0.235	0.073	1
2198	S003	27/11/08	0.45	11.2	7.61	869	85.44	0.142	0.026	0.168	29.928	0.094	4
2199	S004	27/11/08	8.40	9.1	7.62	1020	86.28	4.179	0.047	4.226	0.979	0.107	2
2200	S030	27/11/08	10.52	8.7	7.58	549	24.10	BLD	BLD	BLD	1.774	0.006	2
2201	S001	27/11/08	10.24	9.4	7.63	258	17.7	BLD	0.001	BLD	2.159	0.011	2
2202	S002	27/11/08	10.13	9.2	7.55	492	38.63	0.4	0.009	0.409	13.748	0.031	2
2226	S007	03/12/08	10.98	9.4	7.23	791	NT	0.379	0.02	0.402	16.314	0.066	4
2227	S008	03/12/08	10.85	9.4	7.93	609	NT	4.954	0.023	4.974	0.18	0.127	2
2228	S009	03/12/08	10.53	10.1	8.02	624	NT	4.453	0.023	4.475	2.359	0.116	6
2229	S011	03/12/08	10.69	9.8	8.13	619	NT	5.44	0.019	5.459	0.092	0.137	2
2230	S012	03/12/08	10.88	9.5	8.20	513	NT	2.802	0.014	2.816	0.079	0.02	2
2231	S025	03/12/08	8.23	8.4	8.26	604	NT	4.746	0.021	4.767	0.106	0.119	2

Signed; _____ (Landfill Manager) Date;

APPENDIX III

Groundwater Monitoring

(Sampling & analysis conducted by Euro Environmental Services).

Location	Date	NH3-N (mg/l)	Chloride (mg/l)	Colour (Hazen)	Cond (µS/cm)	G/W Level (m)	DO (mg/l)	pH (pH units)	Temp (°C)	TOC (mg/l)
G001	19/12/08	BLD	27.76	100.3	855	16.1	0.74	7.3	6.84	7.85
G002	19/12/08	0.12	10.35	76.3	476	22.9	3.21	7.7	10.2	1.96
G008	19/12/08	2.11	12.57	24.1	426	13.3	2.0	7.6	10.6	3.69
G013	19/12/08	2.93	12.26	9	629	7.1	2.51	7.1	10.3	7.82

Signed; _____

Date:

Landfill Manager

APPENDIX IV

Leachate Analysis

Sample Purpose: Leachate

Sampled By: Marc Chawke

Analyst: Marc Chawke

BLD = below limit of detection

NT = not tested

Lab No.	Sample Name	Date	pH	Cond $\mu\text{Sc m}^{-1}$	Cl ⁻ mg l^{-1}	SS mg l^{-1}	NH ₃ -N mg l^{-1}	OP O ₄ -P mg l^{-1}	CO D $\text{mg O}_2\text{l}^{-1}$	BO D ₅ $\text{mg O}_2\text{l}^{-1}$	NO ₃ -N mg l^{-1}	NO ₂ -N mg l^{-1}	TO N mg l^{-1}
20	L02	14/11	8.	674	603.7	92		0.26	670	88	0.08	BL	0.08
21	L01	19/11	7.	492	360.0	69	334.	1.92	992	533	BL	BL	BL
21	L01	19/11	7.	921	105.8	27	182.	0.00	160	68	0.01	0.00	0.01
21	L01	19/11	8.	466	275.8	92	475.	0.83	480	68	BL	BL	BL
21	LT5	19/11	7.	201	177.5	49	185.	0.40	100	8	BL	0.01	0.01
21	L01	21/11	7.	124	1674.	22	187.	6.40	152	143	0.13	BL	0.13
21	L02	21/11	7.	645	112.0	12		1.02	634	135	0.27	BL	BL
22	L02	10/12	7.	209	NT	37	202.	0.39	104	328	66.4	13.7	80.0
22	L02	10/12	8.	523	NT	41	270.	0.04	285	83	BL	BL	BL
23	L00	23/12	7.	207	112.8	N	89.4	0.06	811	57	BL	BL	BL
23	L00	23/12	7.	451	346.9	N	154	1.40	802	145	BL	BL	BL
23	L00	23/12	7.	135	1770.	N	260.	6.94	123	136	BL	BL	BL
23	L01	23/12	7.	499	453.8	N	354.	1.03	306	39	BL	BL	BL
23	L02	23/12	7.	788	1515.	N	329.	1.00	588	178	54.2	6.24	61.1

APPENDIX V

Leachate depths

Kyletalesha Landfill Site

Leachate Levels in Waste

Site Name Kyletalesha Landfill
 Site Address Kyletalesha, Portlaoise, Co. Laois
 245273
 N.G.R. .8 East
 202141
 .3 North
 Site Status W026-02
 Operator Laois Co Co
 Monitoring Personnel Laois Co Co - MC/KF

Date	L002	L003	L004	L014 Cell 5	L021 Cell 4	L025 Cell 1/2	L026 Cell 3	L01 6 Cell 12	L01 8 Cell 13	L01 9 Cell 14
10/10/20 08	3.72 m	1.74 m	3.56 m	0.46 m	5.14 m	4.72 m	4.85 m	*	*	*
24/11/20 08	3.70 m	1.70 m	3.56 m	0.40 m	5.10 m	4.80 m	4.79 m	*	*	*
10/12/20 08	3.66 m	1.73 m	3.62 m	0.45 m	5.23 m	4.83 m	4.83 m	*	*	*

- Awaiting completion of the SCADA reporting for the retrieval of these leachate levels
- All levels are in compliance from visual monitoring of SCADA.

APPENDIX VI

Flare data

Date	CO (ppm)	CH ₄ (%)	O ₂ (%)	Temp (°C)	Flow (m ³ /hr)	CO ₂ (%)
01/10/2008						
Average	-0.88	47.26	2.57	924.01	335.59	32.42
02/10/2008						
Average	-0.64	42.62	2.38	960.34	385.85	28.87
03/10/2008						
Average	-0.59	44.87	2.23	1020.00	412.22	31.07
04/10/2008						
Average	-0.07	45.08	2.14	1019.52	405.79	31.03
05/10/2008						
Average	-0.14	42.72	2.64	1020.68	408.74	29.46
06/10/2008						
Average	-0.60	47.00	2.41	1021.97	391.41	31.30
07/10/2008						
Average	-0.60	41.70	1.64	1019.62	371.40	30.91
08/10/2008						
Average	0.00	38.68	1.66	1007.82	310.38	29.23
09/10/2008						
Average	-0.73	47.10	0.72	1020.27	273.75	31.65
10/10/2008						
Average	-0.34	48.95	0.61	1020.35	238.23	32.78
11/10/2008						
Average	-0.11	50.16	0.52	1020.15	193.91	33.77
12/10/2008						
Average	-0.59	50.66	0.50	1019.23	204.54	33.47
13/10/2008						
Average	-0.06	41.02	1.72	931.66	286.92	29.79
14/10/2008						
Average	0.12	44.73	0.70	1019.92	341.19	31.77
15/10/2008						
Average	-0.27	48.03	1.03	1009.95	233.37	32.25
16/10/2008						
Average	-0.73	44.80	1.34	1020.72	254.87	31.93
13/11/2008						
Average	-0.51	44.39	1.24	1021.14	235.61	30.18
14/11/2008						
Average	-0.55	44.64	1.22	1020.22	237.13	30.26
15/11/2008						
Average	-0.49	44.73	1.19	1020.06	240.84	30.42
16/11/2008						
Average	-0.66	45.04	1.24	1019.76	241.14	30.13
17/11/2008						
Average	-0.56	46.36	1.24	1020.18	230.21	30.49

18/11/2008						
Average	-0.48	44.99	1.26	1020.50	240.77	30.10
19/11/2008						
Average	-0.60	44.96	1.23	1019.78	241.37	15.46
20/11/2008						
Average	-0.63	45.79	1.18	1019.23	238.67	15.21
21/11/2008						
Average	-0.49	45.83	1.33	1019.80	239.99	30.05
22/11/2008						
Average	-0.60	46.18	1.27	1020.07	241.24	30.23
23/11/2008						
Average	-0.65	47.29	1.18	1019.63	236.68	30.10
24/11/2008						
Average	-0.59	45.51	1.80	1019.96	227.20	28.98
25/11/2008						
Average	-0.54	43.38	1.71	1020.07	241.58	29.11
26/11/2008						
Average	-0.32	39.60	1.67	938.04	191.18	25.88
04/12/2008						
Average	-0.61	46.65	1.05	1022.56	236.88	29.88
05/12/2008						
Average	-0.50	45.00	1.22	1019.66	237.98	29.57
06/12/2008						
Average	-0.34	43.59	1.51	1019.46	234.58	29.43
07/12/2008						
Average	-0.21	43.99	1.55	1019.75	237.99	29.28
08/12/2008						
Average	-0.64	45.31	1.59	1018.71	229.44	29.67
09/12/2008						
Average	-0.69	44.08	1.39	1008.91	266.64	29.07
10/12/2008						
Average	-0.55	44.27	1.18	1019.97	300.79	29.38
11/12/2008						
Average	-0.56	45.41	1.05	1019.19	286.04	29.73
12/12/2008						
Average	-0.67	46.45	1.07	1021.14	256.06	29.58
13/12/2008						
Average	-0.67	46.01	1.12	1019.82	242.75	29.62
14/12/2008						
Average	-0.69	43.13	1.26	1019.98	240.54	28.57
15/12/2008						
Average	-0.59	42.03	1.26	991.81	244.73	28.31
16/12/2008						
Average	-0.63	41.66	1.12	1019.54	287.10	28.66
17/12/2008						
Average	9.03	42.38	1.12	1019.78	292.10	28.86
18/12/2008	17.26	47.20	0.73	1016.97	288.51	30.90

Average 19/12/2008						
Average 20/12/2008	1.62	46.02	1.66	1019.99	309.67	29.26
Average 21/12/2008	20.81	52.08	0.64	1019.78	290.84	32.70
Average 22/12/2008	9.85	52.49	0.58	1019.99	290.19	33.08
Average 23/12/2008	2.51	52.59	0.66	1020.19	292.33	32.95
Average 24/12/2008	3.31	52.40	0.73	1019.35	293.68	32.72
Average 25/12/2008	1.94	51.93	0.78	1019.73	303.15	32.83
Average 26/12/2008	1.48	51.30	0.84	1020.10	311.90	32.47
Average 27/12/2008	2.97	50.99	0.90	1019.63	310.69	31.88
Average 28/12/2008	2.02	50.16	1.10	1020.07	314.33	31.21
Average 29/12/2008	0.60	50.37	1.19	1019.91	313.95	31.11
Average 30/12/2008	2.50	50.45	1.20	1019.91	308.33	30.44
Average 31/12/2008	0.63	50.29	1.14	1019.39	312.15	30.78
Average	0.54	49.52	1.17	1019.57	312.34	30.87

APPENDIX VII

Meteorological Data

Date	Temp (°C)	Wind Speed (m/s)	Wind Dir	Pres (mB)	Rainfall (mm)
01/11/2008					
Average	4.95	2.81	N	1005.41	0.00
02/11/2008					
Average	7.23	1.82	N	1010.54	0.00
03/11/2008					
Average	6.55	1.77	N	1009.89	0.01
04/11/2008					
Average	7.32	1.14	NNE	1009.69	0.00
05/11/2008					
Average	9.12	0.08	N	1010.05	0.00
06/11/2008					
Average	8.93	1.28	SE	997.75	0.16
07/11/2008					
Average	8.01	4.07	SW	985.29	0.14
08/11/2008					
Average	8.49	2.75	SW	984.15	0.62
09/11/2008					
Average	4.39	3.95	SW	986.12	0.38
10/11/2008					
Average	6.59	4.80	SW	983.87	0.28
11/11/2008					
Average	7.58	3.62	W	995.27	0.05
12/11/2008					
Average	7.70	1.86	NW	1008.03	0.00
13/11/2008					
Average	11.06	3.07	W	1008.34	0.18
14/11/2008					
Average	12.31	2.94	WSW	1010.58	0.00
15/11/2008					
Average	11.31	1.25	WSW	1013.56	0.13
16/11/2008					
Average	9.32	0.77	ENE	1020.19	0.21
17/11/2008					
Average	10.22	3.14	SW	1011.88	0.11
18/11/2008					
Average	9.70	2.75	NW	1012.41	0.00
19/11/2008					
Average	9.94	2.56	WNW	1014.52	0.00
20/11/2008					
Average	11.96	3.68	WNW	1011.03	0.01
21/11/2008					
Average	9.22	3.84	NNW	1011.77	0.00
22/11/2008					
Average	8.58	2.39	NNW	1010.81	0.11

Average 23/11/2008					
Average 24/11/2008	6.97	5.36	NW	991.69	0.48
Average 25/11/2008	6.17	5.07	N	998.98	0.16
Average 26/11/2008	6.23	2.29	NNW	1017.29	0.01
Average 27/11/2008	9.85	2.45	WSW	1014.73	0.03
Average 28/11/2008	6.35	3.12	SW	996.00	0.05
Average 29/11/2008	1.10	0.89	SW	985.97	0.01
Average 30/11/2008	-0.55	0.39	SW	986.22	0.02
Average 01/12/2008	1.52	1.58	NW	992.10	0.02
Average 02/12/2008	2.66	1.88	N	1000.55	0.01
Average 03/12/2008	3.49	1.53	SW	994.06	0.03
Average 04/12/2008	1.05	2.00	SW	988.68	0.31
Average 05/12/2008	5.67	3.31	SW	967.05	0.60
Average 06/12/2008	5.95	3.31	NNW	981.91	0.12
Average 07/12/2008	1.25	0.21	NE	1005.47	0.01
Average 08/12/2008	1.31	0.51	SW	1013.40	0.01
Average 09/12/2008	5.51	1.98	NW	1009.72	0.20
Average 10/12/2008	4.75	2.99	NW	1015.64	0.02
Average 11/12/2008	3.47	0.54	NW	1011.31	0.02
Average 12/12/2008	4.67	0.83	SW	1000.38	0.15
Average 13/12/2008	6.09	3.01	SSW	987.20	0.70
Average 14/12/2008	3.14	1.44	WSW	976.88	0.01
Average 15/12/2008	2.92	2.31	NNW	993.13	0.01
Average	2.82	1.45	SW	1006.46	0.00

16/12/2008					
Average	8.35	2.88	SW	998.22	0.13
17/12/2008					
Average	6.18	2.99	SW	1001.63	0.04
18/12/2008					
Average	8.94	3.97	WSW	1002.74	0.10
19/12/2008					
Average	7.73	4.19	WSW	1006.50	0.08
20/12/2008					
Average	11.24	3.67	WSW	1011.27	0.16
21/12/2008					
Average	11.55	3.52	SW	1015.18	0.05
22/12/2008					
Average	9.74	2.76	SW	1020.57	0.01
23/12/2008					
Average	7.72	1.47	SW	1022.10	0.00
24/12/2008					
Average	6.96	0.58	SW	1022.62	0.00
25/12/2008					
Average	7.14	0.34	SE	1023.21	0.00
26/12/2008					
Average	4.93	0.66	E	1025.77	0.00
27/12/2008					
Average	0.50	0.56	N	1024.43	0.01
28/12/2008					
Average	1.53	0.43	N	1017.62	0.02
29/12/2008					
Average	0.03	0.93	SE	1015.12	0.01
30/12/2008					
Average	3.73	1.86	ESE	1015.29	0.00
31/12/2008					
Average	3.63	1.20	SE	1014.95	0.00