

**Annual Environmental Report, 2010 for
Marrakesh Ltd., Kilmurry South Landfill,
Waste Licence W0048-01**

April 2011

Marrakesh Ltd.
Kilmurry,
Kilmacanogue,
Co. Wicklow.

MA0105/AER2010



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Executive Summary

1. In accordance with Waste Licence Register No. W0048-01, Marrakesh Ltd. is required to submit an AER (Annual Environmental Report) to the EPA (Environmental Protection Agency) for their facility at Kilmurry South, Kilmacanogue, Co. Wicklow. Patel Tonra Ltd. was commissioned to prepare the report on behalf of Marrakesh Ltd.
2. Marrakesh Ltd. aims to provide a recovery and recycling option for the Construction/Demolition sector, whilst conserving landfill void space for those inert materials that are difficult or impractical to recycle.
3. 64,857 tonnes of inert material was accepted at the facility during 2010.
4. There was no deposition of materials on land at the site during 2010. All materials accepted at the site were subsequently sold/removed for off-site use, with the exception of a quantity of materials stored on-site from year-to-year, pending sale.
5. Materials accepted at the facility are restricted to Construction & Demolition-type wastes. Materials are subject to screening, sorting and grading at the Marrakesh facility, as appropriate.
6. This report includes an overview of the environmental monitoring carried out throughout 2010. The results of sampling show that Marrakesh Ltd. are, in the main, in compliance with limits for groundwater, surface water, landfill gas, noise and dust. Any instance of non-conformance is detailed and explained in Chapter 3.

1.0 Introduction

The Annual Environmental Report (AER) for Kilmurry South landfill includes the information specified in Schedule A of Waste Licence W0048-01 - *Content of Annual Environmental Report* and in accordance with the EPA publication *Integrated Pollution Control Licensing – Guidance Note for: Annual Environmental Report*.

1.1 Waste Licence Register Number

The Waste Licence register number is W0048-01.

1.2 Name of Operator, Name and Address of Facility

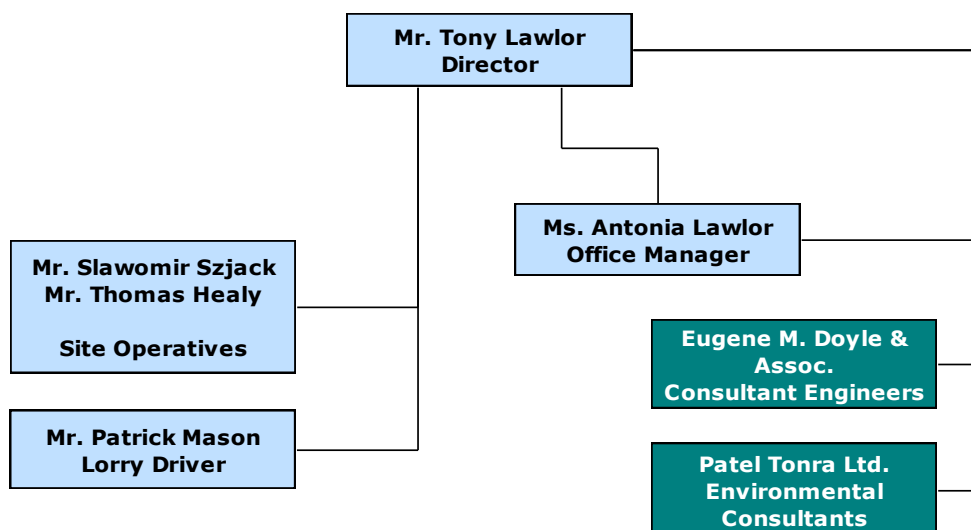
Marrakesh Ltd.,
Kilmurry South Landfill,
Kilmurry,
Kilmacanogue,
Bray,
Co. Wicklow.

1.3 Reporting Period

1st January, 2010 to 31st December, 2010.

1.4 Management Structure

The following is the Management Structure for Marrakesh Ltd. during 2010.



2.0 Site Description

2.1 Waste Activities carried out at the Facility

In accordance with Waste Licence W0048-01 and the Third Schedule of the Waste Management Act, 1996, the following waste activities are licensed at Kilmurry South Landfill:

Class 1: Deposit on, in or under land (including landfill);

Class 13: Storage prior to submission to any activity referred to in a preceding paragraph of the Schedule, other than temporary storage, pending collection, on the premises where the waste concerned is produced;

In accordance with Waste Licence W0048-01 and the Fourth Schedule of the Waste Management Act, 1996, the following waste recovery activities are licensed at Kilmurry South Landfill:

Class 2: Recycling and reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes).

Class 4: Recycling or reclamation of other inorganic materials.

Class 13: Storage of waste intended for submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where such a waste is produced.

2.2 Total Quantities of Waste Accepted and Recovered

The tonnage of materials received at the site between January 2010 and December 2010 is calculated from weighbridge records to have been 64,857 tonnes. The tonnage of waste recovered and removed off-site for the year was 46,690 tonnes, which represents a recycling rate of 72%. Please see **Tables 2.1 to 2.3** overleaf.

2.3 Composition of Wastes Entering and Exiting the Site

The composition of materials received at the Kilmurry South Landfill is restricted to those inert materials set out in Schedule F of Waste Licence W0048-01. The tonnages for each material type entering and exiting the site are shown in **Tables 2.1 and 2.2**. A summary of each material type entering the site annually between 2002 and 2010 is shown in **Table 2.3**.

Table 2.1: Material Types and Volumes Entering the Site, 2010

Material Type	EWC Code	Tonnes Accepted, 2010
Soil & Stones	17 05 04	32,462
Concrete	17 01 01	27,314
Bituminous Mixtures	17 03 02	4,325
Mixed C&D Waste	17 09 04	757
TOTAL:		64,858

Table 2.2: Material Types and Volumes Exiting the Site, 2010

Material Type	Tonnes Removed Off-site, 2010
Concrete	23,499
Stone	13,180
Soil	10,011
TOTAL:	46,690

Table 2.3: Material Types and Volumes Accepted at the Site, 2002-2010

Material Type	EWC Code	Tonnes 2002	Tonnes 2003	Tonnes 2004 ¹	Tonnes 2005	Tonnes 2006	Tonnes 2007	Tonnes 2008	Tonnes 2009	Tonnes 2010
Soil & Stones	17 05 04	12,864	7,477	29,173	27,521	40,964	31,189	24,130	13,254	32,462
Concrete	17 01 01	6,077	13,125	34,598	41,909	49,635	44,421	45,479	27,933	27,314
Bituminous Mixtures	17 03 02	0	1,377	3,426	5,151	5,286	1,992	8,445	4,446	4,325
Stone	17 05 04	0	275	-	1,913	3,527	-	-	-	-
Sand	01 01 02	0	0	52	99	0	-	187	-	-
Tiles and Ceramics	17 01 03	0	0	0.4	58	0	-	0	-	-
Mixed C&D Waste	17 09 04	-	-	-	-	-	4,062	3,544	1,313	757
Total Tonnage of Inert Material Entering Marrakesh site per year		18,941	22,254	67,249	76,651	99,412	81,664	81,785	46,946	64,858

Note: All tonnages have been obtained from Marrakesh weighbridge records

¹ Waste Data for 2004 contains data from November 2003 – December 2004

2.4 Composition of Wastes Removed Off-site

General waste and scrap metal is removed off-site by permitted waste collectors to approved waste facilities. The quantity of waste removed during 2010 was 128.73 tonnes; this is outlined in **Table 2.4** below.

Table 2.4: Composition of Wastes Removed off Site, Jan – Dec 2010

Waste Type	Weight (tonnes)
General Waste	66.01
Scrap Metal	62.72
Total	128.73

2.5 Calculated Remaining Void Capacity of the Site

Year in which final capacity is expected to be reached; Site Survey Showing Existing Levels at End of Reporting Period

Of the 64,857 tonnes total material entering the site in 2010, 72% was recycled, sold and removed off-site. The remaining material is being retained on site for processing and sale in 2011 (18,168 tonnes). No landfilling was conducted during 2010; therefore site levels were expected to remain the same as those measured previously. Thus it was considered unnecessary to carry out a topographical survey at the site.

Marrakesh Ltd. intends to continue to maximise recycling insofar as possible, thereby minimising landfilling in line with national legislation, policy and targets.

2.6 Methods of Deposition of Waste

The facility accepts only clean and inert construction/ demolition waste. Inert waste material is brought to the site in trucks from construction/demolition sites or soil removal operations. The trucks deposit the material. A range of sorting, segregation and screening techniques are employed for material recovery.

The company targets 100% recovery. In 2010, a 72% recycling rate was achieved based on tonnages of materials received and materials recycled and reused. The balance of the material accepted in 2010 (currently stockpiled) will be sold for reuse in 2011, as market conditions improve. No material accepted during 2010 will be disposed of.

3.0 Emissions & Environmental Monitoring

3.1 Summary Report on Emissions & Results of Environmental Monitoring

<i>Landfill Gas</i>	Methane, carbon dioxide, oxygen, atmospheric pressure and temperature were monitored once during 2010 in boreholes and site buildings (Schedule D.1). As per Schedule E.2, the limits for methane and carbon dioxide outside the body of waste are 1% v/v and 1.5% v/v , respectively.
<i>Surface Water</i>	Surface water monitoring was carried out once during 2010 for the parameters set out in Schedule D of the licence.
<i>Groundwater</i>	Groundwater analysis was carried out once in 2010 in 6 borehole locations and 2 private wells as set out in Table D.4.2 of the licence.
<i>Dust</i>	The level of environmental dust deposition was monitored once during 2010 at two pre-determined locations and compared against the limit in Schedule E.3 of 350 mg/m ² /day.
<i>Noise</i>	In accordance with Schedule D.3, noise levels were monitored on an annual basis at 3 locations and compared against the daytime limits outlined in Schedule E.1 of the Waste Licence.

The EPA was contacted in writing on the 10th of February 2004 (REF 48-1/JR/100204), 10th February 2005 (REF 48-1/VSP/100205) and 1st November 2005 (REF MA0105/LOD 01.11.05) regarding a proposed reduction in the monitoring programme. When a response to this submission was not received during Quarter 3, 2004, the EPA were contacted, they verbally instructed Marrakesh Ltd to cease monitoring until they received further notification from them. In the absence of any formal written correspondence from the Agency to date, monitoring has been conducted on an annual basis from 2005-2010.

The locations of all monitoring points at Kilmurry South Landfill are shown in **Figure 1**, appended to this document. Landfill gas results, surface water, groundwater and drinking water analysis are discussed in the following sections. Results were submitted to the EPA in September 2010.

3.2 Landfill Gas Monitoring

Landfill gas is one of the main potential hazards from the landfilling of waste materials. It is produced by the microbial decomposition of organic material (a naturally-occurring phenomenon which ensures the breakdown of organic matter) within the landfill. The two main gases that are sampled at the Marrakesh site are methane (CH₄) and carbon dioxide (CO₂). Methane is a gas that has a flammable range of 5-15% by volume in air, which is sometimes referred to as the Lower Explosive Level (LEL).

The risk of landfill gas production at the Marrakesh facility is minimal due to the inert nature of the waste materials accepted at the site.

Landfill Gas Monitoring Locations

Ten locations (boreholes/buildings) were monitored in July 2010 for landfill gas, as prescribed under Schedule D.1 of the Waste Licence. Gas monitoring locations are listed in **Table 3.1**.

Table 3.1: Landfill Gas Monitoring Locations

Monitoring Location	Location	Grid Ref
BH-1	West of site up-slope from landfill	E324788, N212771
BH-2	Eastern area of site down-slope from landfill	E325058, N212630
BH-3	Eastern area of site down-slope from landfill	E325075, N212737
BH-5	Located on phase 2 of the landfill (Leachate borehole)	E324975, N212629
BH-7	Adjacent to BH-03 – down-slope	E325051, N212638
BH-8	Adjacent to BH-02 – down-slope	E325067, N212744
BH-9	Adjacent to house – north of landfill	E324913, N212914
Workshop	North of landfill	E324865, N212830
Site Office	North of landfill	E324861, N212875

Landfill Gas in Boreholes

The measurements of landfill gas monitored in the boreholes were within licence limits for methane (CH₄); see **Table 3.2** below.

Table 3.2: Methane Results for Boreholes, 2004-2010

Borehole	CH ₄ Level (% v/v)							EPA Limit
	Q3, 2010	Q2, 2009	Q4, 2008	Q3, 2007	Q2, 2006	Q2, 2005	Q2, 2004	
BH-1	0	0	0	0	0	0	0	1.0
BH-2	0	0	0	0	0	0	0	1.0
BH-3	0	0	0	0	0	0	0	1.0
BH-5	0	0	0.4	0	0	0	0	1.0
BH-7	0.1	0	0	0	0	0	0	1.0
BH-8	0	0	0	0	0	0	0	1.0
BH-9	0	0	0	0	0	0	0	1.0

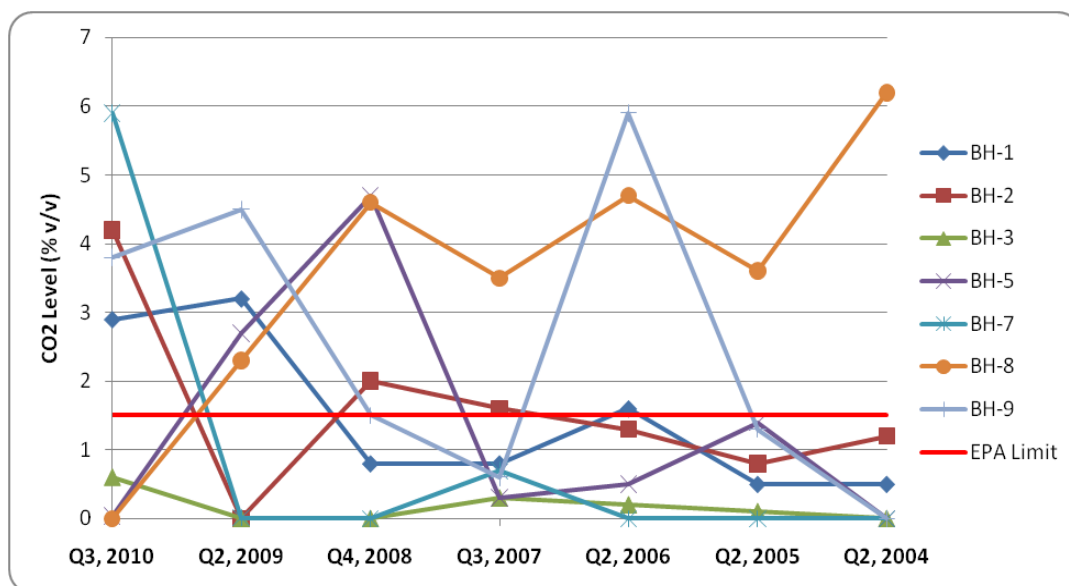
The levels of CO₂ measured in site boreholes at Kilmurry Landfill are presented in **Table 3.3**, and are graphically represented in **Figure 3.1** for the period 2004 to 2010. Carbon dioxide levels exceeded the licence limits during gas monitoring carried out in July 2010 at BH-1, BH-2, BH-7 and BH-9. This is broadly in line with previous monitoring results for CO₂ as shown in **Table 3.3**.

The CO₂ measurements in excess of the limits were found in the absence of CH₄ and are therefore thought to be attributable to aerobic microbial activity in the boreholes, which produce CO₂ as a by-product of respiration.

Table 3.3: Carbon Dioxide Results for Boreholes, 2004-2010

Borehole	CO ₂ Level (% v/v)							EPA Limit
	Q3, 2010	Q2, 2009	Q4, 2008	Q3, 2007	Q2, 2006	Q2, 2005	Q2, 2004	
BH-1	2.9	3.2	0.8	0.8	1.6	0.5	0.5	1.5
BH-2	4.2	0	2.0	1.6	1.3	0.8	1.2	1.5
BH-3	0.6	0	0.0	0.3	0.2	0.1	0	1.5
BH-5	0.04	2.7	4.7	0.3	0.5	1.4	0	1.5
BH-7	5.9	0.01	0.0	0.7	0.0	0.0	0	1.5
BH-8	0	2.3	4.6	3.5	4.7	3.6	6.2	1.5
BH-9	3.8	4.5	1.5	0.6	5.9	1.3	0	1.5

Figure 3.1: Carbon Dioxide Levels Measured in Site Boreholes, 2004-2010



Landfill Gas Monitoring in Buildings

Landfill gas was monitored in on-site buildings during July 2010. The buildings in which landfill gas was measured are listed in **Table 3.4**. All CH₄ and CO₂ readings were 0% v/v, thus were in compliance with licence requirements.

Table 3.4: Methane and CO₂ Monitoring Results for Site Office Buildings, Quarter 3, 2010

Parameter	Workshop	Site Office	Drain	EPA Limit
Methane, % v/v	0	0	0	1.0%
Carbon Dioxide, % v/v	0	0	0	1.5%

3.3 Surface Water Monitoring

Surface water is monitored on an annual basis for a range of parameters according to Waste Licence W0048-01, Table D.4.4. Surface water monitoring was carried out during Quarter 3, 2010.

Surface Water Monitoring Locations

Surface water monitoring locations are listed in **Table 3.5** below.

Table 3.5: Surface Water Monitoring Locations

Surface Water Monitoring Ref.	Location
SW-1	North of landfill, adjacent to house, ca. 100m upstream from site entrance
SW-2	West of landfill, down-slope
SW-3	Surface water channel – eastern area of site down-slope from landfill

Surface Water Chemical Analysis

Surface water analytical results were compared against the Salmonid Water Regulations, S.I. No. 293 of 1988 – The European Communities (Quality of Salmonid Waters) Regulations and the Surface Water Regulations, S.I. No. 294 of 1989 – The European Communities (Quality of Surface Water Intended for the Abstraction of Drinking Water) Regulations. Results of surface water monitoring conducted during Q3, 2010 are presented in **Table 3.6**. SW-1 and SW-3 were found to be dry at the time of sampling.

Table 3.6: Surface Water Monitoring Results SW-2

Parameter	Surface Water Regs (A1)	Surface Water Regs (A3)	Salmonid Water Regs	2010 SW2	2009 SW2	2008 SW2	2007 SW2	2006 SW2
BOD ¹ (mg/l O ₂)	5	7	≤5	1.29	<1.0	<2	<2	<2
COD ² (mg/l O ₂)	-	40	-	<7	<7.0	<15	<15	<15
Chloride (mg/l)	250	250	-	10.4	11.4	12	9	11
DO ³ (mg/l)	5.52	-	≥9	7.6	7.8	6.89	5.4	6.1
Conductivity (mS/cm)	1.0	1.0	-	0.10	0.82	0.81	0.074	0.599
pH	5.5 – 8.5	5.5 – 9.0	6 – 9	8.3	9.24	9.57	7.08	6.2
TSS ⁴ (mg/l)	50	-	25	6.5	4	<10	<10	<10
Calcium (mg/l)	-	-	-	3.59	1.64	2.55	100.1	4.1
Sulphate (mg/l)	200	200	-	4.7	4.5	9	6	5
Sodium (mg/l)	-	-	-	7.2	7.72	6.6	7.5	7.5

¹ BOD = Biological Oxygen Demand

² COD = Chemical Oxygen Demand

³ DO = Dissolved Oxygen

⁴ TSS = Total Suspended Solids

3.4 Groundwater Monitoring

Groundwater levels and analysis for the parameters outlined in Table D.4.4 of the Waste Licence are monitored on an annual basis. Groundwater monitoring was carried out during Quarter 3, 2010.

Groundwater Monitoring Locations

Table 3.7 indicates the location of groundwater monitoring boreholes and private wells.

Table 3.7: Groundwater Monitoring Locations

Borehole/ Well ID	Location	Grid Ref
BH-1*	West of site up-slope from landfill	E324788, N212771
BH-2	Eastern area of site down-slope from landfill	E325058, N212630
BH-3	Eastern area of site down-slope from landfill	E325075, N212737
BH-5*	Located on phase 2 of the landfill (Leachate borehole)	E324975, N212629
BH-6	West of site up-gradient from landfill	E324597, N212619
BH-7	Eastern area of site down-slope from landfill (adjacent to BH-3)	E325051, N212638
BH-8	Eastern area of site down-slope from landfill (adjacent to BH-2)	E325067, N212744
PW-2	Jones Water Supply (East of Site)	E325376, N212938
PW-3	Murphy Water Supply (East of Site)	E325246, N212792
PW-4**	Hollingsworth Water Supply (East of Site)	E325117, N213066

* BH-1 & BH-5 were found to be dry and no sample was obtainable

**Please note that PW-4 (Hollingsworth Water Supply, east of the site) was removed from the sampling round in 2008 as this household is connected to the mains drinking water supply.

Groundwater Chemical Analysis

The analysis of all groundwater samples taken as part of the Kilmurry South Landfill waste licence compliance have been assessed in relation to the EC Drinking Water Directive 98/83/EC. Results are presented in **Tables 3.8 to 3.15**; non-conformances are highlighted in red.

Groundwater 'Incidents' 2010

An incident report was submitted to the EPA by fax on 15th September 2010 in relation to PAHs, Total coliforms and Faecal coliforms. Details of the non-conformances are given in **Table 5.1**.

Table 3.8: Groundwater Monitoring Results at BH-1 during Q3, 2010 (Dry)

Parameter	Units	Drinking Water Limit	Q3, 2010	Q2, 2009	Q3, 2008	Q3, 2007	Q2, 2006
Potassium	mg/l	N/A	Dry	Dry	Dry	Dry	Dry
Sodium	mg/l	200	Dry	Dry	Dry	Dry	Dry
Calcium	mg/l	N/A	Dry	Dry	Dry	Dry	Dry
Chloride	mg/l	250	Dry	Dry	Dry	Dry	Dry
Sulphate	mg/l	250	Dry	Dry	Dry	Dry	Dry
Total Oxidised Nitrogen	mg/l	N/A	Dry	Dry	Dry	Dry	Dry
Conductivity	mS/cm	2.5	Dry	Dry	Dry	Dry	Dry
pH	pH units	6.5 – 9.5	Dry	Dry	Dry	Dry	Dry
Ammoniacal Nitrogen	mg/l	0.39	Dry	Dry	Dry	Dry	Dry
Faecal Coliforms	cfus/100ml	0	Dry	Dry	Dry	Dry	Dry
Total Coliforms	cfus/100ml	0	Dry	Dry	Dry	Dry	Dry
Water Level	m below ToC	-	Dry	Dry	Dry	Dry	Dry

Table 3.9: Groundwater Monitoring Results at BH-2 during Q3, 2010

Parameter	Units	Drinking Water Limit	Q3, 2010	Q2, 2009	Q3, 2008	Q3, 2007	Q2, 2006
Potassium	mg/l	N/A	<2.34	<2.3	0.3	0.7	0.7
Sodium	mg/l	200	11.3	13.3	6.1	12.5	12.5
Calcium	mg/l	N/A	116	118	118	103	122
Chloride	mg/l	250	16.4	23	18	14	17
Sulphate	mg/l	250	34.4	68	42	44	40
Total Oxidised Nitrogen	mg/l	N/A	1.41	1.6	2.0	0.4	1.3
Conductivity	mS/cm	2.5	0.640	0.651	0.526	0.666	0.574
pH	pH units	6.5 – 9.5	7.2	6.85	7.12	7.1	7.45
Ammoniacal Nitrogen	mg/l	0.39	<0.2	<0.2	<0.2	<0.2	0.6
Faecal Coliforms	cfus/100ml	0	5	0	3	<1	<1
Total Coliforms	cfus/100ml	0	5	0	39	128	<1
Water Level	m below ToC	-	3.04	2.28	2.93	3.24	4.93

Table 3.10: Groundwater Monitoring Results at BH-3 during Q3, 2010

Parameter	Units	Drinking Water Limit	Q3, 2010	Q2, 2009	Q3, 2008	Q3, 2007	Q2, 2006
Potassium	mg/l	N/A	<2.34	<2.3	0.5	1	0.7
Sodium	mg/l	200	12.7	15	12.8	16	16
Calcium	mg/l	N/A	103	11	116	110	131
Chloride	mg/l	250	15	18	20	17	15
Sulphate	mg/l	250	46.6	69	91	115	94
Total Oxidised Nitrogen	mg/l	N/A	1.09	1.1	1.5	0.7	2.7
Conductivity	mS/cm	2.5	0.580	0.640	0.582	0.682	0.629
pH	pH units	6.5 – 9.5	7.6	6.72	7.01	7.52	7.37
Ammoniacal Nitrogen	mg/l	0.39	<0.2	<0.2	<0.2	<0.2	2.3
Faecal Coliforms	cfus/100ml	0	4	0	3	<1	<1
Total Coliforms	cfus/100ml	0	12	0	200	163	48
Water Level	m below ToC	-	6.25	6.0	5.20	5.59	5.94

Table 3.11: Groundwater Monitoring Results at BH-6 during Q3, 2010

Parameter	Units	Drinking Water Limit	Q3, 2010	Q2, 2009	Q3, 2008	Q3, 2007	Q2, 2006
Potassium	mg/l	N/A	<2.34	<2.3	0.8	0.9	0.7
Sodium	mg/l	200	8.67	9	8	9	9
Calcium	mg/l	N/A	3.77	3.7	4.1	35	4
Chloride	mg/l	250	11.2	13	14	11	12
Sulphate	mg/l	250	7	8	10	8	8
Total Oxidised Nitrogen	mg/l	N/A	2.5	2.9	4.9	2.3	3.2
Conductivity	mS/cm	2.5	0.100	0.101	0.094	0.108	0.833
pH	pH units	6.5 – 9.5	6.6	6.2	6.22	5.59	5.88
Ammoniacal Nitrogen	mg/l	0.39	<0.2	<0.2	<0.2	<0.2	1.2
Faecal Coliforms	cfus/100ml	0	1000	0	22	<1	<1
Total Coliforms	cfus/100ml	0	1000	15	34	9	2
Water Level	m below ToC	-	6.69	6.8	6.58	6.62	6.35

Table 3.12: Groundwater Monitoring Results at BH-7 during Q3, 2010

Parameter	Units	Drinking Water Limit	Q3, 2010	Q2, 2009	Q3, 2008	Q3, 2007	Q2, 2006
Potassium	mg/l	N/A	<2.34	<2.3	0.6	0.8	0.5
Sodium	mg/l	200	15.6	21	14	17	16
Calcium	mg/l	N/A	180	216	184	112	155
Chloride	mg/l	250	12.8	250	21	24	27
Sulphate	mg/l	250	105	192	182	89	87
Total Oxidised Nitrogen	mg/l	N/A	NS	<0.3	<0.3	1.3	1.6
Conductivity	mS/cm	2.5	0.910	0.101	0.844	0.742	0.710
pH	pH units	6.5 – 9.5	7.2	6.32	6.21	7.2	7.07
Ammoniacal Nitrogen	mg/l	0.39	<0.2	0.75	<0.2	<0.2	0.5
Faecal Coliforms	cfus/100ml	0	1000	NS	8	<1	<1
Total Coliforms	cfus/100ml	0	1000	NS	23	130	2
Water Level	m below ToC	-	3.18	4.14	2.55	2.05	7.07

Table 3.13: Groundwater Monitoring Results at BH-8 during Q3, 2010

Parameter	Units	Drinking Water Limit	Q3, 2010	Q2, 2009	Q3, 2008	Q3, 2007	Q2, 2006
Potassium	mg/l	N/A	<2.34	<2.3	0.7	1.3	0.5
Sodium	mg/l	200	18.6	11.7	9.8	26.5	8.5
Calcium	mg/l	N/A	153	119	123.7	118	203
Chloride	mg/l	250	24.4	18	25	21	23
Sulphate	mg/l	250	79.9	37	71	238	213
Total Oxidised Nitrogen	mg/l	N/A	0.874	1.0	2.4	<0.3	0.6
Conductivity	mS/cm	2.5	0.840	0.637	0.570	1.031	0.930
pH	pH units	6.5 – 9.5	7.5	6.85	6.79	7.46	7.17
Ammoniacal Nitrogen	mg/l	0.39	<0.2	<0.2	<0.2	<0.2	3.5
Faecal Coliforms	cfus/100ml	0	0	0	19	NDP	<1
Total Coliforms	cfus/100ml	0	8	0	42	NDP	22
Water Level	m below ToC	-	2.19	3.08	1.86	3.38	2.55

Table 3.14: Groundwater Monitoring Results at PW-2 (Jones) during Q3, 2010

Parameter	Units	Drinking Water Limit	Q3, 2010	Q2, 2009	Q3, 2008	Q3, 2007	Q2, 2006
Potassium	mg/l	N/A	<2.34	No access	1.2	2.3	2.2
Sodium	mg/l	200	9.89	No access	6.8	10.0	9
Calcium	mg/l	N/A	75.8	No access	314.6	71	60
Chloride	mg/l	250	14	No access	12	13	12
Sulphate	mg/l	250	27.7	No access	11	21	18
Total Oxidised Nitrogen	mg/l	N/A	2.22	No access	0.7	1.4	1.2
Conductivity	mS/cm	2.5	0.46	No access	0.181	0.364	0.310
pH	pH units	6.5 – 9.5	7.8	No access	7.34	7.23	7.35
Ammoniacal Nitrogen	mg/l	0.39	<0.2	No access	<0.2	<0.2	<0.2
Faecal Coliforms	cfus/100ml	0	0	No access	1	<1	<1
Total Coliforms	cfus/100ml	0	4	No access	48	4	11

Table 3.15: Groundwater Monitoring Results at PW-3 (Murphy) during Q3, 2010

Parameter	Units	Drinking Water Limit	Q3, 2010	Q2, 2009	Q3, 2008	Q3, 2007	Q2, 2006
Potassium	mg/l	N/A	<2.34	<2.3	0.8	1.0	0.9
Sodium	mg/l	200	14	89	13	15	14
Calcium	mg/l	N/A	39.4	<0.01	205.8	95	44
Chloride	mg/l	250	14.6	11	17	13	16
Sulphate	mg/l	250	13.3	5	13	13	16
Total Oxidised Nitrogen	mg/l	N/A	1.05	1.1	0.8	0.6	1.6
Conductivity	mS/cm	2.5	0.38	0.367	0.296	0.358	0.342
pH	pH units	6.5 – 9.5	8.1	7.6	7.21	7.79	7.93
Ammoniacal Nitrogen	mg/l	0.39	<0.2	<0.2	<0.2	<0.2	4.8
Faecal Coliforms	cfus/100ml	0	0	0	10	72	<1
Total Coliforms	cfus/100ml	0	0	0	100	158	38

3.5 Dust Monitoring

Dust was measured using a Bergerhoff dust gauge, which was exposed over a 30-day period to collect bulk dust deposition. The method employed is based on the German Standard Method VDI 2119 and collects total particulate matter. The gauge consists of a gauge bottle supported on a stand of approximately 1.5 metres high (**Plates 3.1-3.2**). The gauges were located at two positions as outlined in **Table 3.16**.

The apparatus consists of a collection vessel with an open mouth of 90mm diameter with a collection sample bottle of 1.5 litres volume (**Plate 3.1**). It was set up in the areas outlined in Schedule D of the waste licence. The gauges were left for a period of 30 days. When the sample period had elapsed the sample bottles were checked for the presence of any unusual deposits such as leaves or insects and these were removed before analysis of the samples took place.

The samples collected were then transferred to a laboratory for gravimetric (weight) analysis to determine the concentration of deposited material in each gauge bottle.



Plate 3.1: Dust Bottle

The dust bottle used as part of the Bergerhoff Dust Deposition Gauge; note the neck of the dust bottle has a diameter of 90 mm.



Plate 3.2: Bergerhoff Dust Gauge

The Bergerhoff Dust Gauge apparatus as used to measure the level of dust deposition.

Dust Monitoring Locations

Dust monitoring locations, in accordance with Table D.2.1 of the Waste Licence, are listed in **Table 3.16** below.

Table 3.16: Dust Monitoring Locations

Monitoring Location	Location	Grid Ref
DS-1	Southern boundary	E324849, N212646
DS-3	South-eastern boundary	E325058, N212630

Dust Monitoring Results

A dust deposition survey was carried out at the site over a 30-day period between 22nd July and 20th August 2010. It was previously agreed by the EPA that dust monitoring at the site could be reduced to once during the licence year and at two monitoring locations DS-1 and DS-3. The results for the dust deposition monitoring are given in **Table 3.17** below.

Results from the survey showed that dust deposition concentrations measured at DS-1 and at DS-3 were significantly below the licence limit of 350 mg/m²/day.

Table 3.17: Results of Dust Deposition sampling at Marrakesh Site

Location	Dust (mg/m ² /day)					EPA Licence Limit
	2010	2009	2008	2007	2006	
DS-1	10.48	29	176	83	65	350
DS-3	63.28	57	N/A*	187	65	350

*During 2008 DS-3 was rendered an invalid sample due to damage sustained to the dust gauge during the monitoring period.

3.6 Noise Monitoring

Noise levels are monitored to determine the impact of site operations on noise sensitive receptors.

Noise Monitoring Locations

Noise monitoring locations are listed in **Table 3.18**.

Table 3.18: Noise Monitoring Locations

Monitoring Location	Location	Grid Ref
NSL1	North-western boundary	E324675, N212744
NSL2	Northeast of landfill	E325075, N212931
NSL3	East of landfill	E325258, N212652

Noise Monitoring Results

An environmental noise survey conducted at Kilmurry South Landfill on the 20th August 2010 concluded that the site does not contribute significantly to environmental noise conditions at the locations assessed. The noise measurements taken during site operational hours at the three pre-determined monitoring positions confirmed that noise emissions from the Kilmurry South landfill site are at or below the EPA guidance values for L_{Aeq} of 55 dB(A) for daytime noise levels at noise sensitive locations. Results of the noise survey are presented in **Table 3.19**.

Table 3.19: Daytime Noise Readings at Kilmurry South Landfill

Location	Noise Level (L_{Aeq} dB(A))					
	2010	2009	2008	2007	2006	EPA Limit
NSL1	45	50	48	52	45	55
NSL2	53	48	50	55	45	55
NSL3	No access	43	52	55	51	55

The limits for L_{Aeq} as set down in schedule E.1 of the waste licence is 55 dB(A) for daytime readings. The L_{Aeq} is the measurement of steady continuous sound which has been corrected to allow for the non linearity of human hearing.

The highest noise level recorded during the 2010 noise survey was at NSL2, measuring 53 dB(A). The main noise source at this location was determined to be from traffic on the N11 road; site plant was not audible at this location during the measurement.

There are no night-time operations at the Marrakesh facility.

3.7 Meteorological Monitoring

Meteorological data was obtained from the meteorological station situated at Dublin Airport, the parameters obtained were: precipitation, temperature (average), wind speed and direction, relative humidity and atmospheric pressure (as per Schedule D.5). **Figures 3.2 to 3.5** represent temperature, precipitation and atmospheric pressure throughout the reporting period.

Figure 3.2: Rainfall, 2010

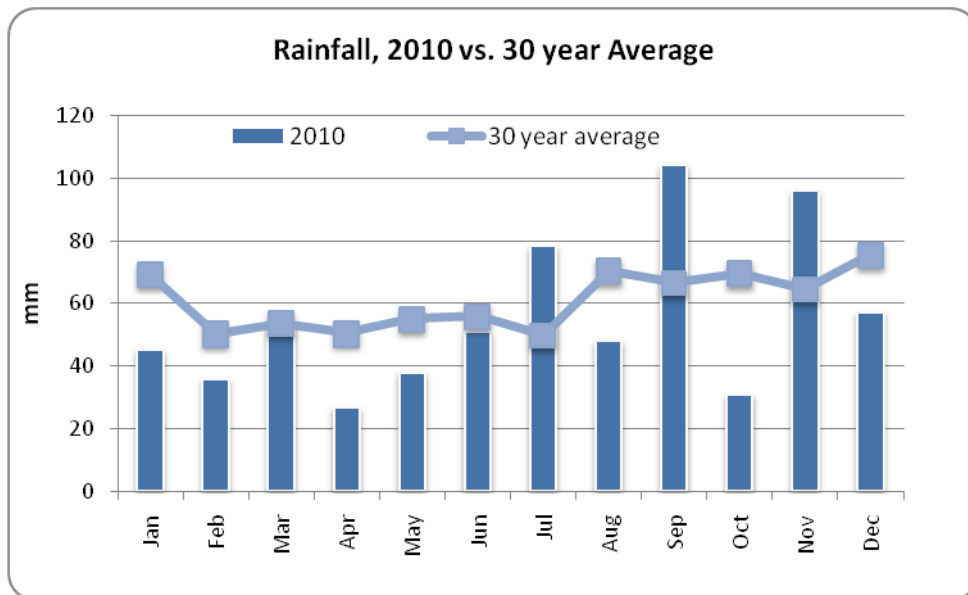


Figure 3.3: Average Minimum and Maximum Temperatures, 2010

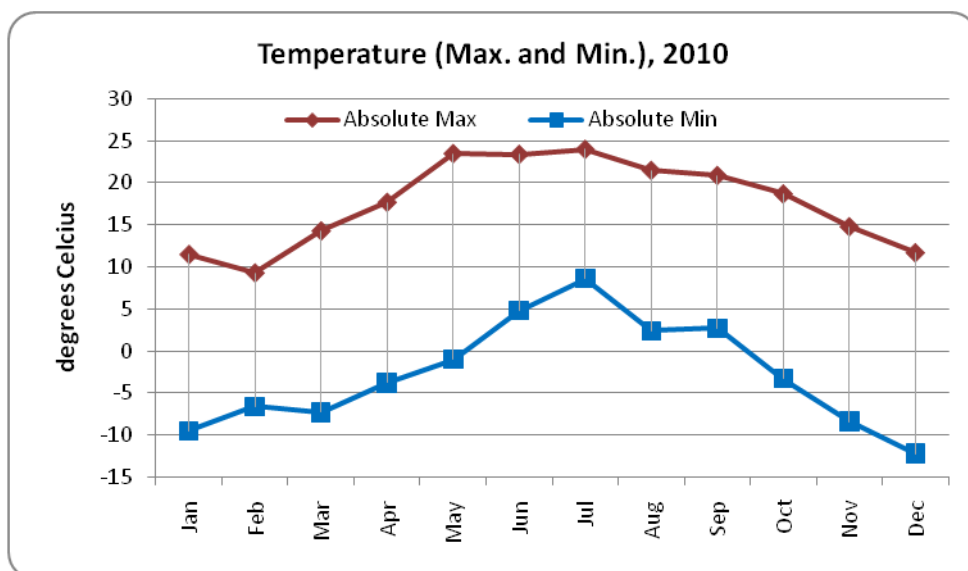


Figure 3.4: Mean Sea Pressure, 2010

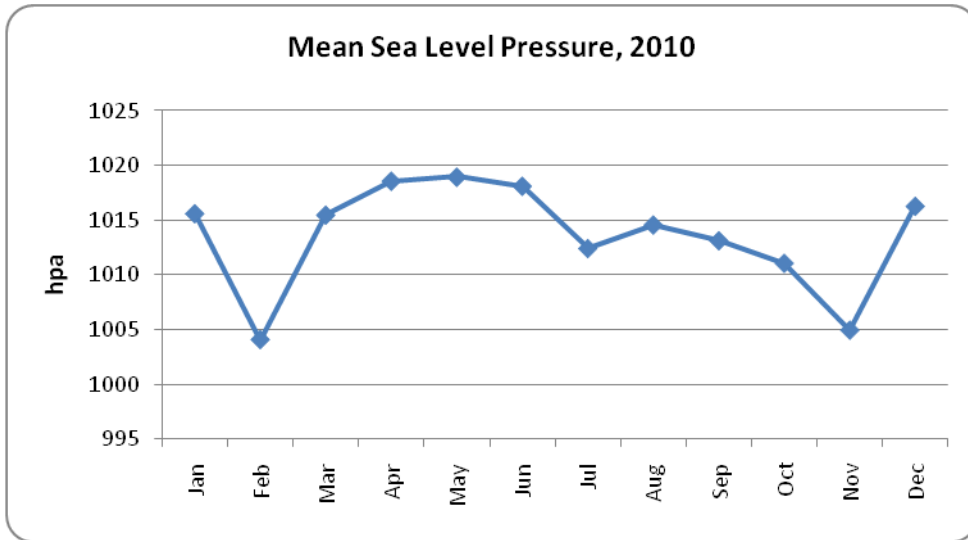
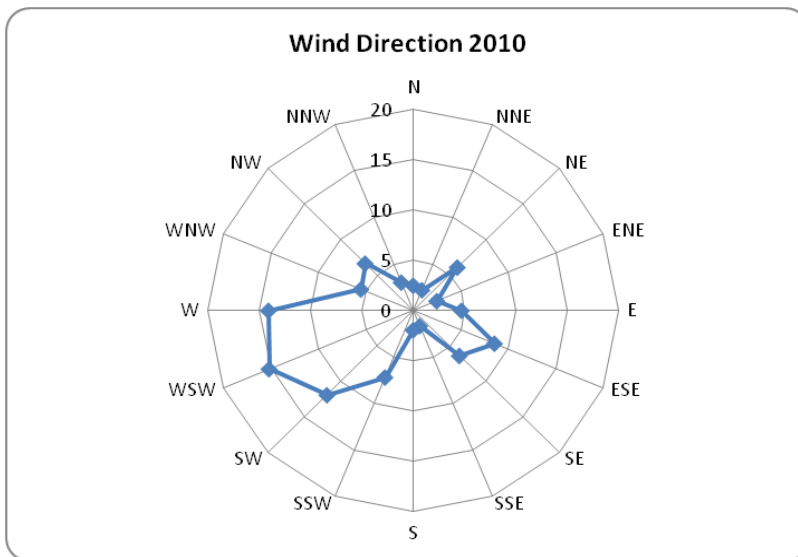


Figure 3.5: Wind Rose, 2010



3.8 Resource and Energy Consumption Summary

Electricity

Based on ESB bills, the estimated energy consumption for the period January 2010 to December 2010 was 3,135 kWh.

Fuel

Based on delivery dockets, the total diesel usage at the site between January 2010 and December 2010 was estimated at 45,684 litres.

4.0 Site Development Works

4.1 Development Works Undertaken During the Reporting Period

An agricultural building was constructed at the facility during 2010, to replace a previous structure. The building is unrelated to the site's waste activities.

4.2 Site Stability and Site Survey

No landfilling has been conducted at the facility since the last site survey was submitted to the Agency; therefore there were no changes in levels. A slope stability review was completed and submitted to the Agency in April 2007, again no changes to slopes/levels have occurred since that time.

4.3 Progress on Restoration of Completed Phases

Proposed Restoration of the Site and Timescale of such Development

Due to the high level of recycling carried out on site, the two phases at the Marrakesh site have not yet been completed. The restoration of the completed phases will only be carried out when the required levels have been reached.

The restoration and aftercare of the facility shall be carried out in accordance with EPA guidance.

5.0 Environmental Incidents and Complaints

5.1 Complaints Received

No complaints were received in 2010.

5.2 Environmental Incidents

An incident report in relation to water and gas monitoring was submitted to the Agency on 16th September 2010.

Table 5.1: Reported Incidents, January 2010 to December 2010

Date	Incident				Likely Cause
	Parameter	Monitoring Location	Level Detected	Limit	
16/09/10	Polycyclic Aromatic Hydrocarbons ($\mu\text{g/l}$)	BH-7	0.34	0.1	PAHs are synthetic compounds that occur as a result of combustion products. The level detected is the sum of Total USEPA 16 PAHs.
16/09/10	Faecal Coliforms (cfus/100ml)	BH-2	5	0	Coliform levels in breach of DW limits are thought to be due to human or animal waste polluting the water from either the failure of domestic septic tanks or from the entry of animal-based fertiliser washing into the groundwater.
		BH-3	4		
		BH-6	1000		
		BH-7	1000		
16/09/10	Total Coliforms (cfus/100ml)	BH-2	5	0	This type of contamination is not associated with the operation of an inert construction and demolition waste recovery operation.
		BH-3	12		
		BH-6	1000		
		BH-7	1000		
		BH-8	8		
16/09/10	CO ₂ (% v/v)	BH-1	2.9	1.5	Readings of a similar level have been detected during previous sampling rounds. This is thought to be associated with aerobic microbial activity at these locations.
		BH-2	4.2		
		BH-8	5.9		
		BH-9	3.8		

6.0 Environmental Management Programme

6.1 Environmental Objectives and Targets, 2010

Progress on the schedule of objectives and targets for 2010 is summarised in **Table 6.1** below.

Table 6.1: Objectives & Targets 2010

Objective / Target	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Progress
Prepare a Schedule of Environmental Monitoring		⊙											✓
Submit AER to the Agency			⊙										✓
Check monitoring infrastructure and replace as required						⊙							✓
Carry out daily meteorological monitoring	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	✓
Carry out litter and nuisance checks	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	✓
Carry out septic tank inspections	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	✓
Review site files and ensure that they are up to date		⊙		⊙		⊙		⊙		⊙		⊙	✓
Review any complaints received and ensure that they are dealt with adequately						⊙						⊙	✓
Ensure that adequate measures are taken to control the generation of dust during dry periods.	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	✓
Maintenance of site roads				⊙									✓
Establish appropriate and designated metal storage area		⊙											✓
Check tare weights of all incoming vehicles on a six-monthly basis					⊙						⊙		✓

KEY: ✓ = achieved in 2010; ! = not achieved; ⊙ = target date

6.2 Environmental Objectives & Targets 2011

Objectives and targets for 2011 are outlined in **Table 6.2** below.

Table 6.2: Objectives & Targets 2011

Objective / Target	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Prepare a Schedule of Environmental Monitoring		⊙										
Submit AER to the Agency			⊙									
Check monitoring infrastructure and replace as required						⊙						
Carry out daily meteorological monitoring	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Carry out litter and nuisance checks	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Carry out septic tank inspections	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Review site files and ensure that they are up to date		⊙		⊙		⊙		⊙		⊙		⊙
Review any complaints received and ensure that they are dealt with adequately						⊙						⊙
Ensure that adequate measures are taken to control the generation of dust during dry periods	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Maintenance of site roads				⊙								
Check tare weights of all incoming vehicles on a six-monthly basis					⊙						⊙	
KEY: ⊙ = Targets to be completed during 2011												

6.3 Tank, Pipeline and Bund Testing

No tank, pipeline or bund testing has been conducted during the reporting period. All old fuel tanks that were on site have been removed and replaced with double skinned tanks located in a metal container for protection.

6.4 Review of Nuisance Controls

The facility has not recorded any environmental nuisances. Roads in the vicinity of the site are serviced by a facility roadsweeper and the installation of a wheel cleaner further reduces any potential mud generation on roads. Vermin, birds, flies and odours have not caused a nuisance at the facility.

6.5 Public Information

Marrakesh Ltd. regularly communicates with site neighbours and site records are available for inspection with prior appointment. Residents are notified if there any exceedances of Drinking Water guideline limit values in their wells.

6.6 Procedures Developed

No new procedures were developed in 2010.

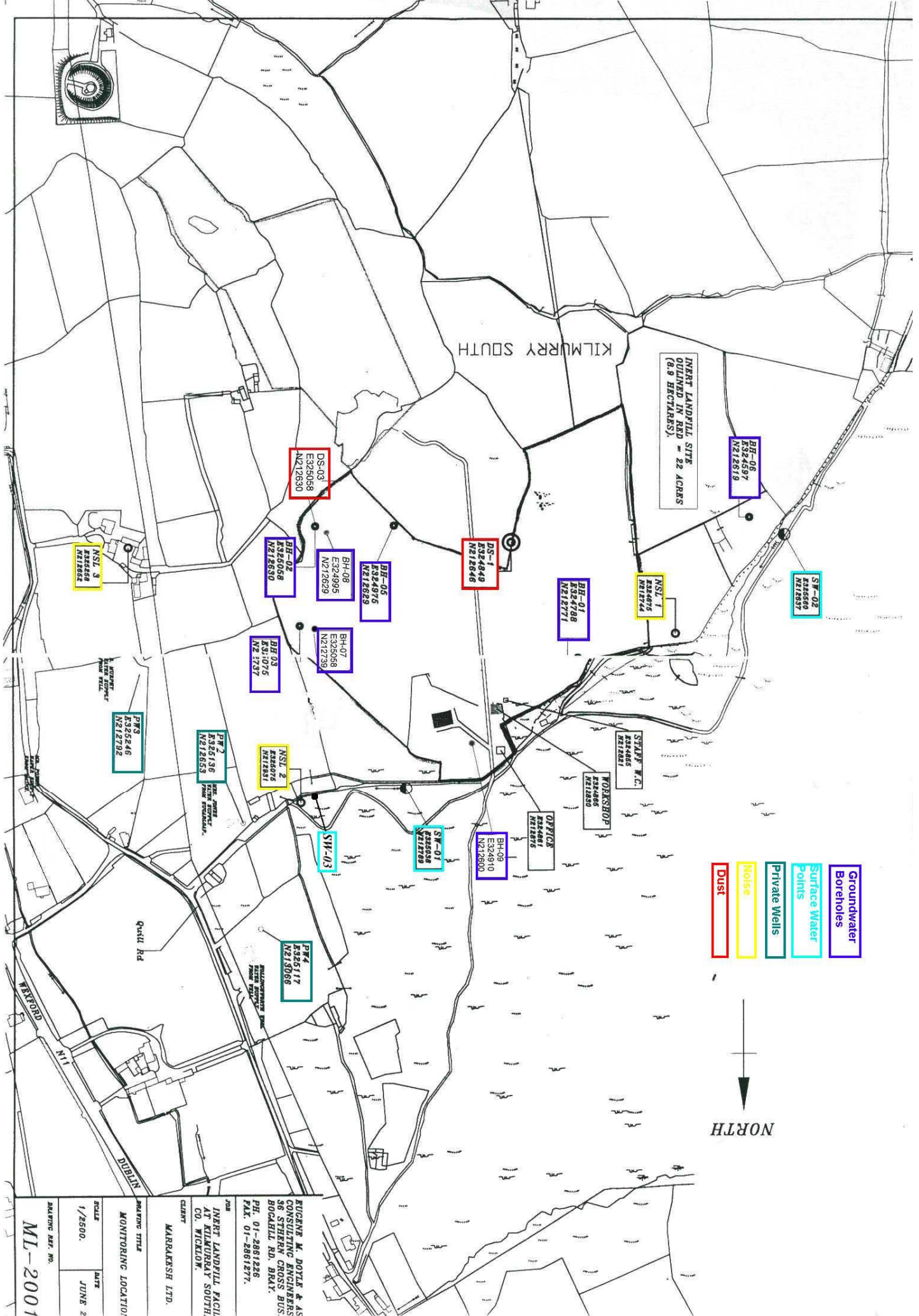
6.7 Off-site Waste Disposal Facilities

During 2010 the following facilities were used for the off-site removal of wastes and materials (See **Table 6.3**). All facilities were agreed in advance with the Agency.

Table 6.3: Off-site Disposal Facilities, 2010

Waste Company	Waste Facility Permit/Licence No.
Greenstar	W0053-03
Multi Metals	WFP/WW/09001401
Enva Environmental	EPA W0184-01
Leon Recycling Ltd	WFP/WW/09/0061/02
King Tree Service Ltd.	EPA W0218-01
Marrakesh Ltd	WP 255
Marrakesh Ltd	WFP/WW/09/0010/01
Antonia Lawlor	WP 295
C&D Recycling	WFP/WW/09/0009/02

Figure 1: Monitoring Location Map



- Groundwater Boreholes
- Surface Water Points
- Private Wells
- Noise
- Dust



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 CONSULTING ENGINEERS
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 BOCKLEILL RD. BRAY.
 PH. 01-2861226
 FAX. 01-2861277.

CLIENT
 MARRAKESH LTD.

MONITORING TITLE
 MONITORING LOCATION:
 DATE
 1/2500. JUNE 2

MONITORING REF. NO.
 ML-2001

Appendix 1: PRTR



Environmental Protection Agency

[Guidance to completing the PRTR workbook](#)

AER Returns Workbook

Version 1.1.12

REFERENCE YEAR	2010
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1. FACILITY IDENTIFICATION

Parent Company Name	Marrakesh Limited
Facility Name	Kilmurry South
PRTR Identification Number	W0048
Licence Number	W0048-01

Waste or IPPC Classes of Activity

No.	class_name
3.1	Deposit on, in or under land (including landfill).
3.13	Storage prior to submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where the waste concerned is produced.
4.13	Storage of waste intended for submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where such waste is produced.
4.2	Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes).
4.4	Recycling or reclamation of other inorganic materials.
Address 1	Bray
Address 2	Co. Wicklow
Address 3	
Address 4	
Country	Ireland
Coordinates of Location	-6.13329 53.1506
River Basin District	IEEA
NACE Code	3821
Main Economic Activity	Treatment and disposal of non-hazardous waste
AER Returns Contact Name	Antonia Lawlor
AER Returns Contact Email Address	marrakeshltd@gmail.com
AER Returns Contact Position	Office Manager
AER Returns Contact Telephone Number	(01) 2868119
AER Returns Contact Mobile Phone Number	087 6641866
AER Returns Contact Fax Number	(01) 2868119
Production Volume	0.0
Production Volume Units	
Number of Installations	0
Number of Operating Hours in Year	0
Number of Employees	0
User Feedback/Comments	
Web Address	

2. PRTR CLASS ACTIVITIES

Activity Number	Activity Name
5(d)	Landfills
5(c)	Installations for the disposal of non-hazardous waste
50.1	General

3. SOLVENTS REGULATIONS (S.I. No. 543 of 2002)

Is it applicable?	No
Have you been granted an exemption ?	No
If applicable which activity class applies (as per Schedule 2 of the regulations) ?	
Is the reduction scheme compliance route being used ?	

4.1 RELEASES TO AIR

[Link to previous years emissions data](#)

| PRTR# : W0048 | Facility Name : Kilmurry South | Filename : W0048_PRTR_2010.xls | Return Year : 2010 |

19/04/2011 09:38

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

POLLUTANT		RELEASES TO AIR			Please enter all quantities in this section in KGs				
No. Annex II	Name	M/C/E	METHOD		Emission Point 1	QUANTITY			
			Method Code	Designation or Description		T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year	
						0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING PRTR POLLUTANTS

POLLUTANT		RELEASES TO AIR			Please enter all quantities in this section in KGs				
No. Annex II	Name	M/C/E	METHOD		Emission Point 1	QUANTITY			
			Method Code	Designation or Description		T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year	
						0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION C : REMAINING POLLUTANT EMISSIONS (As required in your Licence)

POLLUTANT		RELEASES TO AIR			Please enter all quantities in this section in KGs				
Pollutant No.	Name	M/C/E	METHOD		Emission Point 1	QUANTITY			
			Method Code	Designation or Description		T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year	
						0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

Additional Data Requested from Landfill operators

For the purposes of the National Inventory on Greenhouse Gases, landfill operators are requested to provide summary data on landfill gas (Methane) flared or utilised on their facilities to accompany the figures for total methane generated. Operators should only report their Net methane (CH4) emission to the environment under T(total) KG/yr for Section A: Sector specific PRTR pollutants above. Please complete the table below:

Landfill: [Kilmurry South](#)

Please enter summary data on the quantities of methane flared and / or utilised	T (Total) kg/Year	M/C/E	Method Used		Facility Total Capacity m3 per hour
			Method Code	Designation or Description	
Total estimated methane generation (as per site model)	0.0				N/A
Methane flared	0.0				0.0 (Total Flaring Capacity)
Methane utilised in engine/s	0.0				0.0 (Total Utilising Capacity)
Net methane emission (as reported in Section A above)	0.0				N/A

4.2 RELEASES TO WATERS

[Link to previous years emissions data](#)

| PRTR# : W0048 | Facility Name : Kilmurry South | Filename : W0048_PRTR_2010.xls | Return Year : 2010 |

19/04/2011 09:39

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

Data on ambient monitoring of storm/surface water or groundwater, conducted as part of your licence requirements, should NOT be submitted under AER / PRTR Reporting as this onl

RELEASES TO WATERS					Please enter all quantities in this section in KGs			
POLLUTANT		M/C/E	Method Used		QUANTITY			
No. Annex II	Name		Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING PRTR POLLUTANTS

RELEASES TO WATERS					Please enter all quantities in this section in KGs			
POLLUTANT		M/C/E	Method Used		QUANTITY			
No. Annex II	Name		Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION C : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

RELEASES TO WATERS					Please enter all quantities in this section in KGs			
POLLUTANT		M/C/E	Method Used		QUANTITY			
Pollutant No.	Name		Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

4.3 RELEASES TO WASTEWATER OR SEWER

[Link to previous years emissions data](#)

| PRTR# : W0048 | Facility Name : Kilmurry South | Filename : W0048_PRTR_2010.xls | Return Year

19/04/2011 09:39

SECTION A : PRTR POLLUTANTS

OFFSITE TRANSFER OF POLLUTANTS DESTINED FOR WASTE-WATER TREATMENT OR SEWER					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

OFFSITE TRANSFER OF POLLUTANTS DESTINED FOR WASTE-WATER TREATMENT OR SEWER					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

4.4 RELEASES TO LAND

[Link to previous years emissions data](#)

| PRTR# : W0048 | Facility Name : Kilmurry South | Filename : W0048_PRTR_2010.xls | Return Year : 2010 |

19/04/2011 09:39

SECTION A : PRTR POLLUTANTS

RELEASES TO LAND			Please enter all quantities in this section in KGs				
POLLUTANT		METHOD		QUANTITY			
No. Annex II	Name	M/C/E	Method Used Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year
					0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

RELEASES TO LAND			Please enter all quantities in this section in KGs				
POLLUTANT		METHOD		QUANTITY			
Pollutant No.	Name	M/C/E	Method Used Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year
					0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

5. ONSITE TREATMENT & OFFSITE TRANSFERS OF WASTE

| PRTR# : W0048 | Facility Name : Kilmurry South | Filename : W0048_PRTR_2010.xls | Return Year : 2010 |

19/04/2011 09:39

Please enter all quantities on this sheet in Tonnes

3

Transfer Destination	European Waste Code	Hazardous	Quantity (Tonnes per Year)	Description of Waste	Waste Treatment Operation	Method Used		Location of Treatment	Haz Waste : Name and Licence/Permit No of Next Destination Facility	Non	Haz Waste : Address of Next Destination Facility	Name and License / Permit No. and Address of Final Recoverer / Disposer (HAZARDOUS WASTE ONLY)	Actual Address of Final Destination i.e. Final Recovery / Disposal Site (HAZARDOUS WASTE ONLY)
						Haz Waste: Name and Licence/Permit No of Recover/Disposer	Non Haz Waste: Address of Recover/Disposer						
Within the Country	17 01 01	No	27314.0	concrete	R5	M	Weighed	Onsite in Ireland	Various off-site reuse in construction-related activities,Not Applicable	,Ireland		
Within the Country	17 03 02	No	4325.0	bituminous mixtures containing other than those mentioned in 17 03 01	R5	M	Weighed	Onsite in Ireland	Various off-site reuse in construction-related activities,Not Applicable	,Ireland		
Within the Country	17 05 04	No	32462.0	soil and stones other than those mentioned in 17 05 03	R5	M	Weighed	Onsite in Ireland	Various off-site reuse in construction-related activities,Not Applicable	,Ireland		
Within the Country	17 09 04	No	757.0	mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03	R5	M	Weighed	Onsite in Ireland	Various off-site reuse in construction-related activities,Not Applicable	,Ireland		

* Select a row by double-clicking the Description of Waste then click the delete button

[Link to previous years waste data](#)

[Link to previous years waste summary data & percentage change](#)