

Annual Environmental Report

Name: Molaisín Compost Limited
Address: Kilmolash, Cappoquin, Co Waterford
Waste Licence: W0245-01
Reporting Period: January 1st 2013 – December 31st 2013

Signed: 

Fiona O'Sullivan

Summary:

Molaisín Compost Limited (Molaisín) commenced waste activities at the facility at Kilmolash, Cappoquin, Co Waterford in 2005. Molaisín operated under a Waterford County Council waste permit up to August 2010. Since August 10th Molaisín has operated under EPA Waste Licence W0245-01.

Molaisín specializes in the composting of non-hazardous industrial and sewage sludges, and other non-hazardous biodegradable materials. Molaisín will compost any biodegradable material provided it meets stringent regulatory requirements as well as Molaisín's own waste acceptance criteria.

Molaisín specialises in the recovery of biodegradable materials through the process of industrial composting. Molaisín operate the industrial composting facilities using a controlled static pile, forced aeration system. The process takes place completely indoors. The incoming wastes are mixed with dry finished compost and other dry amendments. The Molaisín method is based on a scientific enhancement of the natural composting process that creates and maintains an environment conducive to the proliferation of specific microbial populations. These microbes are responsible for biodegradation and, when provided with the right balance of moisture, temperature, and oxygen are able to affect the rapid decay of organic material.

The composting of non-hazardous industrial sludges and biosolids produces a very valuable end product from material that was previously considered a waste. The finished product adds an important micronutrient and humus-rich stable material to soil. The compost produced by Molaisín is a class 1 compost. All compost produced on site is sent for Horticultural use.

The attached Environmental Report covers the period 1st January 2013 to 31st December 2013.

1.0 Waste activities carried out at the facility and quantity/composition of waste received, disposed of and recovered during the reporting period:

Molaisín Compost Limited accepted waste during the reporting period for composting. Molaisín operate an industrial composting facility using a controlled static pile, forced aeration system. The process takes place completely indoors. The incoming wastes are mixed with dry finished compost and other dry amendments.

Attached are summary sheets with details of:

All wastes accepted during the year – no Animal By Products Material is accepted on site

All amendments accepted during the year

All compost moved off site during the reporting period

A weighbridge log is available with details of all loads

See Attachment 1

2.0 Emissions from the facility:

There were no emissions from the facility during the reporting period. Air is extracted from the facility through a biofiltration system. The biofilter was monitored during the reporting period both independently and by Molaisín Compost Limited and there were no emissions noted.

See Attachment 2

3.0 Resource consumption summary

Diesel Usage: 22003 litres of diesel was used during the reporting period to operate equipment in the facility.

Electricity Usage: From Electricity Bills McGill have used approximately 293062 Kwh of electricity at the facility during the reporting period.

4.0 Complaint Summary

There was one complaint made about the facility during the reporting period. These were both related to odour. This was reported directly to an employee of Molaisín. The complaint was followed up immediately and a response made to the complainant.

5.0 Schedule of Environmental Objectives and Targets

See Attachment 3

6.0 Environmental Management Programme

See Attachment 4

7.0 Noise Monitoring Report Summary

Noise monitoring was conducted on site by KD Environmental on 13th November 2012. Daytime noise levels were within the permitted day time noise level of 55dB(A) at three noise measurement locations – N1, N2 and N4. Noise levels were above 55dB(A) at N3 during one of the three monitoring durations. This reading was recorded when a HGV was idling on the weighbridge for a prolonged period of time. It should be noted that N3 is not a noise sensitive location and that there are no private dwellings in the vicinity of N3 – the land bordering N3 is open farmland.

Evening time noise levels were within the permitted evening time noise level of 50 dB(A) at) at three noise measurement locations – N1, N2 and N3. The noise reading at N4 was above the permitted evening time noise limit but this was due to site traffic on the adjacent road.

There was no significant tonal or impulsive noise from activities during daytime and evening noise monitoring.

The full noise monitoring report is available.

8.0 Ambient Monitoring Summary

All monitoring conducted during the year is reported in Attachment 2

9.0 Emissions and results of environmental monitoring.

- Compost Analysis summary reports for metals and pathogens are attached
- Sludge Analysis Report is attached. All sludges were analysed on a quarterly basis.
- McGill conducted dust monitoring on site for four different 30 day periods during 2013. The results of these are attached.
- Odour Monitoring Ireland (OMI) conducted quarterly Odour Monitoring on site. Bioaerosol and PM10 monitoring was conducted on site by OMI on 11th June 2013 and 6th November 2013. The results of these visits showed that there were no significant odours or bioaerosol impacts in the vicinity of the facility and the ambient air concentration levels of PM10 were below the statutory 24-hour average ambient air concentration level of 50ug m3.
- Biofilter sampling was conducted as per the licence requirement and a summary sheet and full methodology is attached. There were no environmental concerns with the results.
- Groundwater sampling was conducted as per the licence requirement and a summary sheet is attached. There were no environmental concerns with the results.
- Surfacewater sampling was conducted as per the licence requirement and a summary sheet is attached. There were no environmental concerns with the results.

See Attachment 2

10.0 Tank and pipeline testing and inspection report

A report on pipeline testing showing that there are no leaks or spills, this report was submitted to the Agency on completion.

11.0 Reported Incidents Summary

There were no reportable incidents during the reporting year.

12.0 Energy Efficiency audit report summary

Molaisín Compost are using an average of 52KwH electricity and 3.89 litres of diesel per tonne of biosolids accepted at the facility. This is a reduction on the usage of diesel and a very slight increase in electricity used in 2013 showing that the facility is becoming more energy efficient.

13.0 Report on the assessment of the efficiency of the use of raw materials in processes and the reduction in waste generated.

Amendments for the composting process are the only raw materials used on site at Molaisín Compost Limited. The ratio of amendments to waste used during the reporting period was 0.16 tonnes amendment: 1 tonne waste, this figure is lower than in 2012 showing increased efficiency in the facility.

There was a 54% reduction in the volume of waste accepted versus compost produced.

14.0 Report on progress made and proposals being developed to minimise water demand and the volume of trade effluent discharges

There are no effluent discharges from the process or facility at Molaisín Compost. Water is not added to the process, the only water used is for the cleaning of delivery trucks and equipment to ensure that no waste is carried from the facility out onto the site. The amount of water used cannot be reduced without compromising the cleanliness of the vehicles, equipment, and the site.

15.0 Development/Infrastructural works summary

There were no development works carried out in 2013.

16.0 Management and Staffing Structure

See Attachment 5

17.0 Public Information Programme

See Attachment 6

18.0 Review of Decommissioning management plan / Closure, restoration and aftercare management plan and Statement of measures in relation to Prevention of Environmental Damage and remedial Actions (Environmental Liabilities)

The Environmental Liabilities Risk Assessment and Decommissioning Plan was reviewed and submitted to the Agency in January 2014

19.0 Review of Nuisance Controls

A daily check takes place for Vermin, Birds, Flies, Mud, Dust, Odour, Surface Water, and Biofilter Odour.

20.0 Volume of trade effluent / leachate produced and transported off site

There was no trade effluent or leachate produced on site during the reporting period.

Attachment 1

Waste Figures

Waste Licence W0245-01

Reporting Period January 1st 2013 - 31st December 2013

Incoming Waste Material

Material	EWC Code	Quantity
Wastes from the production of alcoholic and non-alcoholic beverages	020704	17.08
Wastes from the preparation and processing of meat, fish and other foods (Non Animal By Products)	020204	443.38
Wastes from the dairy products industry (Non Animal By Products)	020502	708.14
Wastes from the production of alcoholic and non-alcoholic beverages	020705	885.62
Waste Leaves	070599	1424.5
Wastes from the MFSU of pharmaceutical ingredients	070599	484.08
Wastes from the MFSU of basic inorganic chemicals	070199	34.76
Wastes from the MFSU of pharmaceutical ingredients	070512	471.64
Wastes from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics	070699	15.2
Wastes from waste water treatment plants	190805	984.36
Wastes from treatment of industrial waste waters	190814	4.48
Wastes from the preparation of water	190902	73.4
Edible Oils and Fats	200125	102.82
Septic tank sludge	200304	2.72
Total		5652.18

Incoming Amendment

Amendment	Quantity
Wood Chip	183.98
Sawdust	720.7
Total	904.68

Compost Removed from Site

Use	Quantity
Horticulture	2600.14
Total	2600.14

Attachment 2

Lab Analysis

Compost Metal Results

		Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
		0.7	100	100	100	0.5	50	200
		1.5	150	150	150	1	75	400
Molaisín Reference	Class I Standard	Class II Standard						
	Lab Reference							
MCL Jan 13	0360/298/06	<0.01	1.93	32.39	21.79	0.103	2.095	97.822
MCL Feb 13	0360/298/07	<0.01	1.904	32.79	14.21	0.095	2	106.11
MCL Mar 13	0360/301/01	0.208	2.802	43.93	12.59	0.155	2.715	78.604
MCL Apr 13	0360/306/01	0.209	2.314	27.9	9.692	0.099	1.594	50.536
MCL May 13	0360/307/01	<0.01	2.145	29.43	10.45	0.124	1.689	65.874
MCL June 13	0360/312/01	0.03	2.462	36.76	9.78	0.0606	2.191	60.301
MCL July 13	0360/319/01	0.158	2.169	29.18	13.6	0.172	1.973	53.241
MCL Aug 13	0360/325/01	<0.01	2.488	26.25	19.27	0.046	2.468	63.328
MCL Sept 13	0360/331/01	<0.01	1.575	17.94	18.05	0.242	1.528	0.216
MCL Oct 13	0360/334/01	0.097	1.667	17.61	17.11	0.035	1.333	81.24
MCL Nov 13	0360/399/01	<0.01	2.277	39.6	29.71	0.112	2.404	119.45
MCL Dec 13	0360/344/01	<0.01	1.998	43.06	26.15	0.055	1.751	59.154

All compost was tested by Euro Environmental Services, Drogheda

COMPOST PATHOGEN RESULTS

Lab Ref:	Result Faecal Coliforms no/100ml	Result Salmonella per 25g
65/46289		Not Detected
65/46290		Not Detected
65/46291		Not Detected
65/46292		Not Detected
65/46293		Not Detected
0360/297/01	<10	
0360/297/02	<10	
0360/297/03	<10	
0360/297/04	<10	
0360/297/05	<10	
65/68716		Not Detected
65/68715		Not Detected
65/68714		Not Detected
65/68713		Not Detected
65/68712		Not Detected
0360/298/01	<10	
0360/298/02	<10	
0360/298/03	<10	
0360/298/04	<10	
0360/298/05	<10	
67/6019		Not Detected
67/6020		Not Detected
67/6021		Not Detected
67/6022		Not Detected
67/6023		Not Detected
0360/303/01	<10	
0360/303/02		190
0360/303/03	<10	
0360/303/04	<10	
0360/303/05	<10	
67/85414		Not Detected
67/85415		Not Detected
67/85416		Not Detected
67/85417		Not Detected
67/85418		Not Detected
0360/305/01	<10	
0360/305/02	<10	
0360/305/03	<10	
0360/305/04	<10	
0360/305/05	<10	
0360/308/01	<10	
0360/308/02	<10	
0360/308/03	<10	
0360/308/04	<10	
0360/308/05	<10	
68/91996		Not Detected

Lab Ref:	Result Faecal Coliforms no/100ml	Result Salmonella per 25g
68/91997		Not Detected
68/91998		Not Detected
68/91999		Not Detected
68/92000		Not Detected
0360/311/01		
0360/311/02		
0360/311/03		
0360/311/04		
0360/311/05		
70/17620		Not Detected
70/17621		Not Detected
70/17622		Not Detected
70/17623		Not Detected
70/17624		Not Detected
71/3127		Not Detected
71/3128		Not Detected
71/3129		Not Detected
71/3130		Not Detected
71/3131		Not Detected
0360/318/01	<10	
0360/318/02	<10	
0360/318/03	<10	
0360/318/04	<10	
0360/318/05	<10	
0360/324/01	<10	
0360/324/02	<10	
0360/324/03	<10	
0360/324/04	60	
0360/324/05	<10	
71/99456		Not Detected
71/99457		Not Detected
71/99458		Not Detected
71/99459		Not Detected
71/99460		Not Detected
0360/329/01	<10	
0360/329/02	<10	
0360/329/03	<10	
0360/329/04	<10	
0360/329/05	<10	
73/80819		Not Detected
73/80820		Not Detected
73/80821		Not Detected
73/80822		Not Detected
73/80823		Not Detected
74/60803		Not Detected
74/60804		Not Detected
74/60805		Not Detected
74/60806		Not Detected

Lab Ref:	Result Faecal Coliforms no/100ml	Result Salmonella per 25g
74/60807		Not Detected
74/81143	<10	
74/81144	<10	
74/81145	<10	
74/81146	<10	
74/81147	<10	
75/81846	<3	Not Detected
75/81847	<3	Not Detected
75/81848	<3	Not Detected
75/81849	<3	Not Detected
75/81850	<3	Not Detected
0360/336/01	<10	
0360/336/02	<10	
0360/336/03	<10	
0360/336/04	<10	
0360/336/05	<10	
76/34323		Not Detected
76/34324		Not Detected
76/34325		Not Detected
76/34326		Not Detected
76/34327		Not Detected

Surface Water Results

		<i>Lab Reference</i>	0360/310/01	1233542
Analytical Technique	Units	<i>Molaisin Reference</i>	MCL SW Sample 1 2013	MCL SW2 2013
Colorimetry	mg/L as N	Ammonia	0.702	0.33
Electrometry	mg/L	BOD	<2	<2
Filtration/Drying @104C	mg/L	Solids (Total Suspended)	3	<3

All testing was completed by Southern Scientific Services, Killarney

Sludge Analysis

	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Molybdenum	Selenium
Lab Reference									
0360/300/03	0.025	0.356	1.118	0.172	0.02	0.275	4.925	0.62	0.366
0360/300/01	0.028	0.491	10.064	0.261	0.062	0.495	27.643	1.083	<0.01
0360/300/02	0.0268	0.349	1.361	51.624	0.053	0.43	24.224	0.27	<0.01
0360/300/05	0.0216	0.465	1.979	563	0.009	0.495	42.59	0.157	0.02
0360/300/04	0.004	0.033	0.302	0.0077	0.001	0.03	2.775	0.054	<0.02
C13 May 541	<0.25	4.39	9.17	3.77	<0.025	3.76	54.4	0.93	0.29
C13 May 542	<0.25	5.03	11.3	4.55	<0.025	4	82.8	0.6	<0.25
C13 May 543	<0.25	2.89	4.01	0.87	<0.025	1.86	14.4	0.78	<0.25
C13 May 544	<0.25	<0.25	5.74	<0.25	<0.025	<0.25	5.68	<.25	<0.25
C13 May 545	0.28	3.99	10.7	593	0.226	3.92	159	4.95	<0.25
C13 May 546	0.69	19.7	148	62.9	16.7	26.6	507	4.91	7.51
C13 May 547	<0.25	0.7	2.56	0.4	<0.025	0.72	9.25	0.48	<0.25
C13 May 548	<0.25	2.73	49	2.56	0.14	2.18	74.9	0.67	<0.25
C13 May 549	1.3	19.9	192	75.1	0.626	16.7	293	6.11	4.86
C13 May 550	<0.25	1.65	20.4	16.5	<0.025	1.28	83.5	2.44	<0.25
0360/322/01	0.074	0.565	2.064	0.36	0.155	0.457	5.541	0.189	<0.01
0360/326/01	0.018	0.855	3.443	437.6	<0.002	0.794	7.864	0.248	0.012
0360/322/02	0.055	1.269	2.501	0.284	0.011	1.054	6.959	0.126	0.741
0360/322/03	0.081	1.849	3.343	0.481	0.031	1.078	20.876	0.086	<0.01
0360/322/04	0.098	0.763	1.758	0.987	0.017	0.97	11.268	0.286	0.567
0360/322/05	0.092	0.648	2.915	122.955	0.106	0.6	41.792	0.035	<0.01
0360/322/06	0.0013	0.019	1.172	0.025	3E-04	0.044	0.816	0.013	<0.002
0360/322/07	0.084	0.6	12.684	0.366	0.087	0.525	18.026	0.652	<0.01
0360/322/08	0.07	0.163	7.442	0.381	0.02	0.479	9.85	0.162	0.681
0360/328/01	<0.01	0.048	0.735	<0.01	0.024	<0.01	3.805	0.08	0.018
0360/330/01	<0.01	0.883	1.918	0.598	0.078	0.669	<.01	0.423	<0.01
0360/343/01	<0.01	<0.01	4.869	<0.01	0.009	0.084	18.06	0.277	<0.01
C13 Oct 669	0.026	3.64	21.2	1.62	<0.025	2.81	45.6	0.23	<0.25
C13 Oct 670	1.36	21.1	307	47.6	0.07	16.8	456	7.27	7.09
C13 Oct 671	<0.25	0.488	27.2	19.4	<0.025	3.64	121	1.68	0.37
C13 Oct 672	<0.25	0.37	2.68	0.57	0.05	0.33	32.3	0.13	3.48
C13 Oct 673	<0.25	4.92	28.4	37.8	<0.025	6.48	181	6.29	1.7
C13 Oct 674	<0.25	0.66	10.8	0.6	<0.025	0.48	7.18	0.12	<0.25
C13 Oct 675	<0.25	3.04	22.6	10.2	0.05	3.42	190	0.53	<0.25
C13 Oct 677	<0.25	5.8	7.68	2.08	0.05	4.26	73.7	0.68	0.37
C13 Oct 678	<0.25	4.34	2.52	0.48	<0.025	2.16	18.23	0.39	0.38
C13 Oct 679	0.48	4.4	16.7	6.13	1.33	3.91	64.3	0.94	6.8
C13 Oct 681	<0.25	6.73	50	3.33	0.57	4.27	81.4	1.09	<0.25

All results are expressed in mg/kg

All testing was completed by Euro Environmental Services, Drogheda and Southern Scientific, Killarney

Biofilter Monitoring

Colormetric Indicator Tube Testing

Results of Monitoring March 2013

Sample	Ammonia NH3 (ppm)	Hydrogen Sulfide H ₂ S (ppm)	Total Mercaptans
S1	<5	Not detected	Not detected
S2	<5	Not detected	Not detected

Full Monitoring Report is available

Results of Monitoring October 2013

Sample	Ammonia NH3 (ppm)	Hydrogen Sulfide H ₂ S (ppm)	Total Mercaptans
S1	Not detected	Not detected	Not detected
S2	<5	Not detected	Not detected

Full Monitoring Report is available

Lab Analysis of Biofilter

		Lab Reference	0360/299/02	C13-Oct 664
		Units		
%	Drying at 104c	% Moisture Content	74.4	68.5
mg/Kg as N	Colorimetry	Ammonia (Solid)	97.4	380
ph Units	Electrometry	pH	4.1	5.9
no/g	Incubation @ 22c/72H	TVC's	7300000	8363636
no/g	Incubation @ 37c/48H		1270000	

All lab analysis was conducted by Southern Scientific, Killarney and Fitz Scientific, Drogheda

Odour Monitoring

	March 22nd 2012 Feb 28th 2013	June 11th 2013	Sept 12th 2013	Nov 6th 2013
Average Inlet Odour Conc (OuE/m3)	31526	14669	4256	5362
Exhaust Odour Conc (OuE/m3)	2305	1290	529	491
Average Removal Efficiency %	92	91	87	91

All monitoring was carried out by Odour Monitoring Ireland.
 Full reports are available.

Particulate Monitoring

	Reference Concentration Range	June 11th 2013	Nov 6th 2013
PM10	8.5	12	7

Bioaerosol Monitoring 19th November 2012

	Reference Concentration Range	Cappo 1	Cappo 2	Cappo 3
Total Fungi (includes <i>Aspergillus fumigatus</i>)	1000- 5000 CFU m3	<12	<21	<85
Mesophilic Bacteria	5000 - 10000 CFU m3	6	39	88

All monitoring was carried out by Odour Monitoring Ireland.
 Full reports are available.

Dust Monitoring

<i>Molaisin Reference</i>	<i>Lab Reference</i>	<i>Units</i>	<i>Result</i>
<i>MCL Q1-13 DM1</i>	<i>0360/302/01</i>	mg/m ² /day	120.05
<i>MCL Q1-13 DM2</i>	<i>0360/302/02</i>	mg/m ² /day	63.43
<i>MCL Q1-13 DM3</i>	<i>0360/302/03</i>	mg/m ² /day	59.76
<i>MCL Q1-13 DM4</i>	<i>0360/302/04</i>	mg/m ² /day	71.82
<i>MCLQ2-13 DM1</i>	<i>0360/316/01</i>	mg/m ² /day	50.85
<i>MCLQ2-13 DM2</i>	<i>0360/316/02</i>	mg/m ² /day	91.74
<i>MCLQ2-13 DM3</i>	<i>0360/316/03</i>	mg/m ² /day	43.51
<i>MCLQ2-13 DM4</i>	<i>0360/316/04</i>	mg/m ² /day	56.62
<i>MCL Q3-13 DM1</i>	<i>0360/332/01</i>	mg/m ² /day	159.37
<i>MCL Q3-13 DM2</i>	<i>0360/332/02</i>	mg/m ² /day	131.58
<i>MCL Q3-13 DM3</i>	<i>0360/332/03</i>	mg/m ² /day	9.069
<i>MCL Q3-13 DM4</i>	<i>0360/332/04</i>	mg/m ² /day	16.25
<i>MCL DM1 Q4-13</i>	<i>0360/337/01</i>	mg/m ² /day	63.43
<i>MCL DM2 Q4-13</i>	<i>0360/337/02</i>	mg/m ² /day	36.17
<i>MCL DM3 Q4-13</i>	<i>0360/337/03</i>	mg/m ² /day	70.25
<i>MCL DM4 Q4-13</i>	<i>0360/337/04</i>	mg/m ² /day	55.04

All analysis was conducted by Euro Environmental Services,
Drogheda

Groundwater Monitoring

	Molaisín Ref:	Groundwater MCL1	Groundwater MCL2	Groundwater MCL3
	Lab Ref:	63/83545&74/80980	63/83546&74/80981	63/83547&74/80982
	Units			
Conductivity @ 25 deg C	uS/cm	283	267	319
ph Value	pH Unit	6.7	6.2	6.6
Chloride	mg/l	18	12	16
Nitrate (as N)	mg/l	5.1	17.7	3.5
Ammonia (N)	mg/l	<0.05	0.5	<0.05
Total Nitrogen (as N)	mg/l	5.2	18.8	3.6
HPC 37DegC 48 hr pour plate	CFU/ml	4	24000	330
HPC 22DegC 72 hr pour plate	CFU/ml	22	15000	3800
Total Coliform Count	MPN/100mls	30	48840	113
Ecoli Count	MPN/100mls	17	60	2
Dichlorodifluoromethane	mg/l	<3	<3	<3
Chloromethane	mg/l	<1	<1	<1
Vinyl chloride	mg/l	<1	<1	<1
Bromomethane	mg/l	<1	<1	<1
Chloroethane	mg/l	<1	<1	<1
Trichlorofluoromethane	mg/l	<1.5	<1.5	<1.5
Acetone	mg/l	<10	<10	<10
Diethyl Ether	mg/l	<2	<2	<2
1,1-Dichloroethene	mg/l	<1	<1	<1
Freon 113	mg/l	<1.5	<1.5	<1.5
Carbon disulphide	mg/l	<0.8	<0.8	<0.8
Allyl chloride	mg/l	<2	<2	<2
Methylene chloride	mg/l	<2	<2	<2
Trans-1,2-dichloroethene	mg/l	<1	<1	<1
tert-Butyl methyl ether	mg/l	<1	<1	<1
1,1-Dichloroethane	mg/l	<1	<1	<1
2-Butanone	mg/l	<10	<10	<10
cis-1,2-Dichloroethene	mg/l	<1	<1	<1
2,2-Dichloropropane	mg/l	<1	<1	<1
Chloroform	mg/l	<0.8	<0.8	<0.8
Tetrahydrofuran	mg/l	<10	<10	<10
1,1,1-Trichloroethane	mg/l	<0.8	<0.8	<0.8
1,2-Dichloroethane	mg/l	2	<1	<1
1-Chlorobutane	mg/l	<1	<1	<1
1,1-Dichloropropene	mg/l	<1	<1	<1
Benzene	mg/l	<0.8	<0.8	<0.8
Carbon tetrachloride	mg/l	<1	<1	<1

	Molaisín Ref:	Groundwater MCL1	Groundwater MCL2	Groundwater MCL3
	Lab Ref:	63/83545&74/80980	63/83546&74/80981	63/83547&74/80982
	Units			
2-Nitropropane	mg/l	<2	<2	<2
Methyl methacrylate	mg/l	<2	<2	<2
2-Hexanone	mg/l	<3	<3	<3
4-Methyl-2-pentanone	mg/l	<5	<5	<5
1,2-Dichloropropane	mg/l	<1	<1	<1
Trichloroethene	mg/l	<1	<1	<1
Dibromomethane	mg/l	<1	<1	<1
Bromodichloromethane	mg/l	<1	<1	<1
trans-1,3-Dichloropropene	mg/l	<1	<1	<1
cis-1,3-Dichloropropene	mg/l	<1	<1	<1
Toluene	mg/l	<1	<1	<1
1,1,2-Trichloroethane	mg/l	<1	<1	<1
1,3-Dichloropropane	mg/l	<1	<1	<1
Ethyl methacrylate	mg/l	<2	<2	<2
Dibromochloromethane	mg/l	<1	<1	<1
1,2-Dibromoethane	mg/l	<1	<1	<1
Tetrachloroethene	mg/l	<1	<1	<1
Chlorobenzene	mg/l	<0.8	<0.8	<0.8
1,1,1,2-Tetrachloroethane	mg/l	<1	<1	<1
Ethyl benzene	mg/l	<0.8	<0.8	<0.8
m&p-Xylene	mg/l	<1.5	<1.5	<1.5
Stryene	mg/l	<1	<1	<1
Bromoform	mg/l	<1	<1	<1
0-Xylene	mg/l	<0.8	<0.8	<0.8
1,1,1,2,2-Tetrachloroethane	mg/l	<1	<1	<1
1,2,3-Trichloropropane	mg/l	<1	<1	<1
Isopropylbenzene	mg/l	<0.9	<0.9	<0.9
trans-1,4-Dichloro-2-butene	mg/l	<2	<2	<2
Bromobenzene	mg/l	<1	<1	<1
2-Chlorotoluene	mg/l	<1	<1	<1
n-Propylbenzene	mg/l	<1	<1	<1
4-Chlorotoluene	mg/l	<1	<1	<1
1,3,5-Trimethylbenzene	mg/l	<1	<1	<1
Pentachloroethane	mg/l	<2	<2	<2
1,2,4-Trimethylbenzene	mg/l	<1	<1	<1
tert-butylbenzene	mg/l	<1	<1	<1
1,3-Dichlorobenzene	mg/l	<1	<1	<1

	Molaisín Ref:	Groundwater MCL1	Groundwater MCL2	Groundwater MCL3
	Lab Ref:	63/83545&74/80980	63/83546&74/80981	63/83547&74/80982
	Units			
sec-Butylbenzene	mg/l	<1	<1	<1
1,4-Dichlorobenzene	mg/l	<1	<1	<1
4-Isopropyltoluene	mg/l	<1	<1	<1
1,2-Dichlorobenzene	mg/l	<1	<1	<1
n-Butylbenzene	mg/l	<0.9	<0.9	<0.9
Hexachloroethane	mg/l	<2	<2	<2
1,2-Dibromo-3-chloropropane	mg/l	<1	<1	<1
1,2,4-Trichlorobenzene	mg/l	<1	<1	<1
Naphtalene	mg/l	<1	<1	<1
1,2,3-Trichlorobenzene	mg/l	<1	<1	<1
Hexachlorobutadiene	mg/l	<1	<1	<1
2-Picoline	mg/l	<0.5	<0.5	<0.5
Methyl Methane Sulfonate	mg/l	<0.5	<0.5	<0.5
N-Nitrosomethylethylamine	mg/l	<0.5	<0.5	<0.5
N-Nitrosodiethylamine	mg/l	<0.5	<0.5	<0.5
Ethyl Methane Sulfonate	mg/l	<0.5	<0.5	<0.5
Aniline	mg/l	<0.5	<0.5	<0.5
Phenol	mg/l	<1.5	<1.5	<1.5
Bis(2-Chloroethyl)ether	mg/l	<0.5	<0.5	<0.5
2-Chlorophenol	mg/l	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	mg/l	<1	<1	<1
1,4-Dichlorobenzene	mg/l	<1	<1	<1
1,2-Dichlorobenzene	mg/l	<1	<1	<1
Benzyl Alcohol	mg/l	<1	<1	<1
O-Cresol	mg/l	<1	<1	<1
Bis (2-Chloroisopropyl) ether	mg/l	<0.5	<0.5	<0.5
m/p Cresol	mg/l	<0.5	<0.5	<0.5
Acetophenone	mg/l	<0.5	<0.5	<0.5
N-Nitrosopyrrolidine	mg/l	<0.5	<0.5	<0.5
Hexahloroethane	mg/l	<1	<1	<1
N-Nitrosomorpholine	mg/l	<0.5	<0.5	<0.5
N-Nitrosodi-n-propylamine	mg/l	<1	<1	<1
O-Toluidine	mg/l	<1	<1	<1
Nitrobenzene	mg/l	<0.5	<0.5	<0.5
N-Nitrosopiperidine	mg/l	<0.5	<0.5	<0.5
Isophorone	mg/l	<0.5	<0.5	<0.5
2-Nitrophenol	mg/l	<0.5	<0.5	<0.5

	Molaisín Ref:	Groundwater MCL1	Groundwater MCL2	Groundwater MCL3
	Lab Ref:	63/83545&74/80980	63/83546&74/80981	63/83547&74/80982
	Units			
2,4-Dimethylphenol	mg/l	<1	<1	<1
o.o.o-Triethyl Phosphorothioate	mg/l	<1	<1	<1
Bis(2-Chloroethoxy) methane	mg/l	<1	<1	<1
2,4-Dichlorophenol	mg/l	<1	<1	<1
1,2,4-Trichlorobenzene	mg/l	<1	<1	<1
Naphthalene	mg/l	<1	<1	<1
2,6-Dichlorophenol	mg/l	<1	<1	<1
4-Chloroaniline	mg/l	<1	<1	<1
Hexachloropropene	mg/l	<1.5	<1.5	<1.5
Hexachlorobutadiene	mg/l	<1.5	<1.5	<1.5
N-Nitrosodi-n-butylamine	mg/l	<1	<1	<1
Safrole	mg/l	<1	<1	<1
4-chloro-3-Methylphenol	mg/l	<1	<1	<1
2-Methylnaphthalene	mg/l	<1	<1	<1
Isosafrole cis/trans	mg/l	<1	<1	<1
1,2,4,5-Tetrachlorobenzene	mg/l	<1	<1	<1
Hexachlorocyclopentadiene	mg/l	<1.5	<1.5	<1.5
2,4,6-Trichlorophenol	mg/l	<1	<1	<1
2,4,5-Trichlorophenol	mg/l	<1	<1	<1
Isosafrole cis/trans	mg/l	<1	<1	<1
2-Chloronaphthalene	mg/l	<1	<1	<1
2-nitroaniline	mg/l	<5	<5	<5
m-Dinitrobenzene	mg/l	<1.5	<1.5	<1.5
Acenaphthylene	mg/l	<0.5	<0.5	<0.5
Dimethylphthalate	mg/l	<0.5	<0.5	<0.5
2,6-Dinitrotoluene	mg/l	<0.5	<0.5	<0.5
Acenaphthene	mg/l	<1	<1	<1
3-Nitroaniline	mg/l	<5	<5	<5
Pentachlorobenzene	mg/l	<1	<1	<1
2,4-Dinitrophenol	mg/l	<10	<10	<10
Dibenzofuran	mg/l	<0.5	<0.5	<0.5
4-Nitrophenol	mg/l	<10	<10	<10
2,4-dinitrotoluene	mg/l	<1	<1	<1
2,3,4,6-Tetrachlorophenol	mg/l	<1.5	<1.5	<1.5
Fluorene	mg/l	<0.5	<0.5	<0.5
Diethylphthalate	mg/l	<0.5	<0.5	<0.5
4-chlorophenyl-Phenylether	mg/l	<1	<1	<1

	Molaisín Ref:	Groundwater MCL1	Groundwater MCL2	Groundwater MCL3
	Lab Ref:	63/83545&74/80980	63/83546&74/80981	63/83547&74/80982
	Units			
Thioazin	mg/l	<1	<1	<1
5-Nitro-o-toluidine	mg/l	<1	<1	<1
Diphenylamine	mg/l	<0.5	<0.5	<0.5
4-Nitroaniline	mg/l	<5	<5	<5
2-Methyl-4,6-Dinitrophenol	mg/l	<5	<5	<5
Diallate cis/trans	mg/l	<1	<1	<1
1,3,5-Trinitrobenzene	mg/l	<1	<1	<1
Sulfotepp	mg/l	<1	<1	<1
Phorate	mg/l	<1	<1	<1
alpha BHC	mg/l	<0.5	<0.5	<0.5
4-Bromophenyl-Phenylether	mg/l	<1	<1	<1
beta BHC	mg/l	<0.5	<0.5	<0.5
gamma BHC	mg/l	<1	<1	<1
Pronamide	mg/l	<0.5	<0.5	<0.5
Phenacetin	mg/l	<5	<5	<5
Hexachlorobenzene	mg/l	<0.5	<0.5	<0.5
Dimethoate	mg/l	<10	<10	<10
4-Aminobiphenyl	mg/l	<1	<1	<1
Pentachlorophenol	mg/l	<10	<10	<10
Pentachloronitrobenzene	mg/l	<1	<1	<1
Phenanthrene	mg/l	<0.5	<0.5	<0.5
Dinoseb (DNBP)	mg/l	<5	<5	<5
Anthracene	mg/l	<0.5	<0.5	<0.5
Disulfoton	mg/l	<1	<1	<1
delta BHC	mg/l	<0.5	<0.5	<0.5
Carbazole	mg/l	<1	<1	<1
Methyl Parathion	mg/l	<1	<1	<1
Heptachlor	mg/l	<1	<1	<1
Di-n-Butylphthalate	mg/l	<0.5	<0.5	<0.5
Aldrin	mg/l	<0.5	<0.5	<0.5
Parathion	mg/l	<1	<1	<1
Isodrin	mg/l	<1	<1	<1
Heptachlor Epoxide	mg/l	<1	<1	<1
Fluoranthene	mg/l	<0.5	<0.5	<0.5
Pyrene	mg/l	<0.5	<0.5	<0.5
4,4-DDE	mg/l	<1	<1	<1
Dieldrin	mg/l	<1	<1	<1

	Molaisín Ref:	Groundwater MCL1	Groundwater MCL2	Groundwater MCL3
	Lab Ref:	63/83545&74/80980	63/83546&74/80981	63/83547&74/80982
	Units			
p-(Dimethylamino)Azobenzene	mg/l	<5	<5	<5
Chlorobenzilate	mg/l	<5	<5	<5
Endrin	mg/l	<10	<10	<10
4,4-DDD	mg/l	<1	<1	<1
Endosulfan sulfate	mg/l	<1	<1	<1
3,3-Dimethylbenzidine	mg/l	<10	<10	<10
Butylbenzylphthalate	mg/l	<1	<1	<1
4,4-DDT	mg/l	<1	<1	<1
2-Acetylaminofluorene	mg/l	<10	<10	<10
Benzo(a)anthracene	mg/l	<0.5	<0.5	<0.5
3-3-Dichlorobenzidine	mg/l	<10	<10	<10
Methoxychlor	mg/l	<1	<1	<1
Chrysene	mg/l	<1	<1	<1
Bis(2-Ethylhexyl) Phthalate	mg/l	<1	<1	<1
Di-n-octylphthalate	mg/l	<10	<10	<10
Benzo(b)Fluoranthene	mg/l	<1	<1	<1
Benzo(k)Fluoranthene	mg/l	<1	<1	<1
Benzo(a) Pyrene	mg/l	<1	<1	<1
Indeno(1,2,3-cd) Pyrene	mg/l	<1.5	<1.5	<1.5
Dibenz(a,h) Anthracene	mg/l	<1.5	<1.5	<1.5
Benzo(g,h,i) Perylene	mg/l	<1.5	<1.5	<1.5

All analysis was conducted by Exova, Cork

Attachment 3

Environmental Objectives and Targets

MCL7 Objectives and Targets

Objective	Target
Biofilter Maintenance	<ol style="list-style-type: none"> 1. Biofilter to be monitored on a weekly basis, and dug and reseeded as required
Develop written procedures	<ol style="list-style-type: none"> 1. Standard operating procedures are in place, these need to be upgraded to include every aspect of the process
Training	<ol style="list-style-type: none"> 1. On-going training required for all staff in updated health and safety and operational issues
Monitoring	<ol style="list-style-type: none"> 1. Follow schedule based on licence requirements 2. List of consultants in place to conduct monitoring
Staff	<ol style="list-style-type: none"> 1. Adequate cover if an employee is on holidays or away from the facility 2. Training in advance notification of absence
Raw Material Usage	<ol style="list-style-type: none"> 1. Monitor Raw Material usage and analyse results 2. Put procedures in place to maximise efficiency of raw material usage
Energy Audit	<ol style="list-style-type: none"> 1. Reduce Energy consumption on site 2. Review Energy Suppliers

Attachment 4

Environmental Management Programme

MCL8 Environmental Management Programme

The responsibility of implementing the Environmental Management System lies with the appointed Environmental Team:

Fiona O'Sullivan Environmental Manager

Lucinda Blyth Administration Manager

Noel Lyons General Manager

Niall Carroll Facilities Manager

Yevgeniy Chizhikov Factory Manager

The Environmental Management Programme (EMP) for Molaisín Compost Ltd. will be updated periodically.

The EMP for Molaisín Compost Ltd. is as follows:

Environmental Management Plan	Responsibility	Target Date
Continuous Onsite Training of Operators	Fiona O'Sullivan Niall Carroll	Ongoing
Improve compost marketing tools	Fiona O'Sullivan	Dec 14
Implement Requirements of Energy Audit	Fiona O'Sullivan	Dec 14
Improve Energy Efficiency	Fiona O'Sullivan	Dec 14
Raw Material Usage	Fiona O'Sullivan	Dec 14

Attachment 5

Management Structure

MCL5 Structure and Responsibility

Roles and Qualifications

James H. McGill, Chief Scientific Advisor. Mr. McGill is an environmental engineer with over 30 years in the field. He qualified with a primary arts degree from Trinity College, Dublin, and went on to study science at Rutgers University, where he earned a masters degree in environmental science. He taught same and undertook environmental research at Rutgers. Mr. McGill was a founder of the McGill group of companies and has worked on major waste management and bioremediation projects in the U.S., Europe, and Asia. Jim has 25 years international experience in Environmental Engineering. He has worked on major environmental projects in the US and for the US Government overseas. He has designed industrial composting plants in North Carolina, The Philippines and Thailand. He has also worked on Bioremediation projects in Sweden. Jim is a director of Molaisín Compost Ltd.

M. Noel Lyons, Managing Director. Mr. Lyons is also a founder of the McGill group and president of McGill (U.S.), with 17 years in the field of waste management. He is a graduate of the Waterford Institute of Technology and holds a certificate of supervisory management (with distinction) from the Irish Management Institute, and a certificate of technical competency in composting from the University of Maine. Noel is responsible for overall guidance and management of the company. Noel has a unique combination of technical and sales knowledge in feedstocks, composting and transportation. He has accomplished significant business results in challenging enterprise environments over the past 15 years. Noel has pioneered product marketing of compost as a revenue-producing service in North Carolina. Noel is currently splitting his time between America and Ireland. Noel is a director of Molaisín Compost Ltd.

Fiona O’Sullivan, Environmental Manager. Fiona graduated from University College Dublin with a primary Degree in Agricultural Science and a Masters Degree in Environmental Science from Sligo Institute of Technology. Fiona has extensive knowledge of waste management and planning regulations and plays a key role in the company’s planning and waste permit/license applications. Fiona is

responsible for ensuring environmental compliance with all regulations and permits, and monitoring incoming sludges and outgoing compost.

Duties:

- All environmental monitoring as per Planning Permissions and Waste Permit or Waste Licence
- Ensuring pre acceptance criteria are met for incoming waste
- Process control monitoring
- Product quality assurance
- Implementation of environmental management system
- Research and development
- Waste management
- Industrial and environmental compliance
- Health and Safety

Niall Carroll, Facilities Manager. Mr. Carroll has been with McGill (Ireland) since its start-up, managing daily operations and serving as a technical specialist serving for Ireland and U.S. plants. His expertise is in factory management with particular knowledge in machine maintenance. Niall spent three months at the McGill Composting factory in North Carolina in early 2000 where he was trained in compost plant management. He has completed courses in the United States to qualify him for position of factory manager, and to enable him to train in others for this position, including qualifying as Compost Facility Operator and Process Engineer at the University of Winthrop in Charlotte, South Carolina. This course would be of similar level to recommended Fás course. He has also completed an intensive course in Composting in North Carolina. Niall is facilities manager of McGill Environmental Systems (Ireland) Ltd. Niall is a director of Molaisín Compost Ltd.

Yevgeniy Chizhikov, Factory Manager. Yevgeniy has been trained in all aspects of factory management by Niall Carroll. Yevgeniy has successfully completed the Fás Waste Management Course.

The factory manager is responsible for the daily operation of the composting facility. The manager can delegate responsibility to his assistant manager and jobs to the general operators; however it is his duty

to oversee any delegated work, and ensure that it is completed to a satisfactory standard. The responsibilities and duties of the factory manager are detailed as follows:

- Daily operation of the composting facility and supervision of all factory staff.
- Factory operator training
- Ensuring that all vehicles entering and leaving the facility meet McGill Environmental Systems (Irl.) Ltd. requirements.
- Supervising the landspreading of compost
- Ensure that incoming biosolids have been approved by the Environmental Manager.
- Responsible for all factory staff and the delegation of work
- Responsible for health and safety in the factory
- Responsible for ensuring that incoming materials are consistent, of good quality and are suitable for composting.
- Ensuring that raw material expenditure is not overly excessive.
- Ensure that a continuous throughput of material is maintained while keeping below 1000 cubic metres of waste material on site at any one time.
- Ensuring that the factory grounds are maintained to as high a standard as possible.
- Responsible for the implementation of the Environmental Management System on site

Lucinda Blyth, Administration Manager. Lucinda has been with McGill since 2002. Among her responsibilities are office administration, human resources and record keeping. Lucinda's previous experience includes six years as Assistant to the Chairman of a Private Bank in London, several years as Administration Manager at a Strategy Consultancy based in London, Paris and Rome. Lucinda has also spent time working for a middle-eastern royal family organizing the logistics and staffing of several large palaces and houses throughout the world and a fleet of aeroplanes worldwide.

Lucinda is responsible for:

- Day to day running of the office
- Records of Biosolids / Raw Materials entering the facility
- Payroll

- Dealing with Incoming Loads from Clients - weigh in/out
- Administration and update of Company Database
- Dealing with Reporting information from the reporting database system
- Preparation of Weekly reports for Management
- Preparation of Purchase Orders to vendors
- Monthly Invoicing

Factory Operators

The duties of the factory operator include:

- knowledge of composting process, temperature range etc.
- mixing of incoming biosolids with dry amendments at the correct ratio
- ensuring that all pipes are clean prior to placing mix in bay
- correct method of filling the composting bays
- placing temperature probe in bay
- removal of finished compost from bays
- landspreading of compost / filling haulage trucks with compost
- visual inspection of quality of incoming biosolids
- response to the delivery of unacceptable materials
- visual inspection of vehicles delivering biosolids and raw materials
- cleaning of wheels and body of vehicles prior to leaving the facility
- ensuring all vehicles are covered entering and leaving the facility
- awareness of irregularities in the system, e.g. temperatures not rising correctly
- emergency response
- operation of control panel and aeration fans
- procedure for opening / closing facility at beginning and end of working day
- operation of the loader and mixing equipment
- safety procedures to be followed when operating heavy machinery, within, and outside the building
- keeping internal passageways and tipping area clear of biosolids
- maintenance of plant and machinery

Attachment 6

Communications Procedure

MCL10 Communications Procedure

1. The purpose of this procedure is to describe the methods of communication at Molaisin Compost Ltd.

2. The procedure applies to all communications, internal and external.

3. The procedure refers to:

Waste Licence W0245-01

Planning Permission PD.02.681

4. Internal Communication

- Management Review of EMS
- Notice Board

The organization regards verbal communication to be an important aspect due to its size.

5. External Communication

As per Licence Notification: In the event of any incident which may result in water, soil or air pollution, the Environmental Manager shall immediately report the incident to the EPA by phone or fax and shall confirm the communication in writing within 24 hours.

- Records of external communication are kept by the Office Manager and the Environmental Manager. These records consist of letters, faxes and telephone conversations.

6. Complaints

- Complaints are handled by the Environmental Manager. Details of the complaint are recorded. Responses to complaints can be by phone or written.

7. Public programme for information

- As per Waste Licence Molaisin have put in place a programme to ensure that members of the public can obtain information concerning the environmental performance of the Permit Holder at all reasonable times.

- The facility notice board provides contact details for members of the public to arrange to meet Fiona O’Sullivan regarding all environmental reports and records.
- All documentation relating to incoming waste and loads of material being moved off site are available during the facility opening hours.
- The site is manned for enquiries during opening hours.