



Annual Environmental Report

Name: McGill Environmental Systems (Ireland) Limited

Address: Coom, Glenville, Co. Cork

Waste Licence: W0180-01

Reporting Period: January 1st 2016 – December 31st 2016

Signed: 

Heather Loughlin
Environmental Manager

1.0 REPORTING PERIOD

This report covers the period 1st January 2016 – 31st December 2016.

2.0 WASTE ACTIVITIES CARRIED OUT AT THE FACILITY AND QUANTITY/ COMPOSITION OF WASTE RECEIVED, DISPOSED OF AND RECOVERED DURING THE REPORTING PERIOD

2.1 *Waste Activities*

McGill Environmental Systems (Ireland) Ltd operates an in-vessel composting facility in Coom, Glenville, County Cork, under the Conditions of Waste Licence W0180-01.

On 16th February 2016 the facility received approval as a “Type 8” composting plant under the Animal By-Products Regulations (S.I. No. 187 of 2014). Approval No. Comp 31. This permits the company to accept organic fines produced from municipal waste and amendment material only. Prior to this date the company had full ABP approval to accept other types of ABP waste.

Operating as a Type 8 facility means that the facility is still regulated by the Department of Agriculture Food and the Marine, but is no longer required to have separate clean and dirty areas for waste processing, DAFM do not place restrictions on the way the compost is produced and we are not required to carry out pathogen tests on the compost because all of the material is destined for landfill.

During 2016 over 99% of the facility’s feedstock was organic fines from the processing of municipal solid waste (MSW). The remainder of the feedstock was industrial biodegradable waste, accepted prior to 16th February 2016.

The feedstock is mixed with amendment materials such as leaves and sawdust and composted to produce a stabilised biowaste that is used as landfill cover. ‘Overs’ from the composting process are disposed of to landfill.

In 2016 all composted material and overs were sent to Greenstar’s Landfills in Ballynagran, Co. Wicklow and Knockharley landfill in Meath and Bord na Mona’s Dredge Landfill in Kildare.

2.2 Incoming Waste

| Description of Incoming Waste | List of Waste Code | Quantity accepted from ROI (TONNES) |
|--|--------------------|-------------------------------------|
| Organic Fines* | 19 12 12 | 19101.60 |
| Waste from sewage cleaning | 20 03 06 | 0.8 |
| Materials unsuitable for consumption or processing (drinks industry) | 02 07 04 | 24.36 |
| | | 19126.76 |

*animal by-product waste

| Amendment materials | List of Waste Code | Quantity accepted from ROI (TONNES) |
|---------------------|--------------------|-------------------------------------|
| Hawthorn leaves | 07 05 14 | 38.86 |
| Ginko leaves | 07 05 99 | 958.44 |
| Chaff | 02 01 03 | 41.94 |
| Biofilter woodchip | 20 01 38 | 23.88 |
| Sawdust | - | 613.94 |
| Virgin woodchip | - | 2060.48 |
| | | 2,059.60 |

2.3 Outgoing

| Material Description | List of Waste Code | Quantity (TONNES) | Name & address of offsite facility to which waste was sent, also permit or licence number |
|-----------------------------------|--------------------|-------------------|---|
| Biostabilised waste (CLO) | 19 05 99 | 6731.72 | Ballynagran Landfill, Wicklow W0165-02 |
| | | 910.62 | Drehid Landfill, Co Kildare W0201-04 |
| | | 1826.90 | Knockharley Landfill, Meath W0146-02 |
| Residual oversize material (CLOR) | 19 05 99 | 1894.30 | Ballynagran Landfill, Wicklow W0165-02 |
| | | 590.26 | Drehid Landfill, Co Kildare W0201-04 |
| | | 586.5 | Knockharley Landfill, Meath W0146-02 |
| Biofilter water | 16 10 02 | 1417.26 | Fermoy WWTP |
| Sludge from on-site interceptor | 13 05 08 | 8.1 | Rilta Environmental W0192-03 |
| Mixed municipal (skip) | 20 03 07 | 0.42 | Waste Recovery Services, Fermoy |

3.0 EMISSIONS AND RESULTS OF ENVIRONMENTAL MONITORING

A summary of monitoring results is included in Appendix 1. The following monitoring was carried out in 2016:

- Compost Analysis results for stability are required quarterly by the Waste Licence and monthly by the destination landfill. Samples of the compost and oversize were taken monthly for analysis. All samples were compliant.
- McGill conducted dust monitoring on site for three different 28 day periods during 2016. All results were compliant.
- Odour Monitoring Ireland were on site in April and August and November of 2016 to conduct PM10 and Bioaerosol monitoring. The results of these visits showed that there are no significant 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 50µg m³.

- Biofilter sampling was conducted biannually as per the licence requirement. There were no environmental concerns with the results.
- Groundwater sampling was conducted once in 2016 as per the licence requirement. There were no environmental concerns with the results.
- Surface water sampling was conducted once in 2016 as per the licence requirement. There were no environmental concerns with the results.
- Wastewater from the biofilter was analysed once in 2016.

During 2016 it was confirmed by the EPA that quality monitoring (pathogens & trace elements) of the biostabilised waste is not required as the material is going to landfill.

4.0 RESOURCE AND ENERGY CONSUMPTION SUMMARY

Water usage: 256m³ for the reporting period.

Diesel Usage: 45,831 litres of diesel was used during the reporting period to operate equipment in the facility.

Electricity Usage: McGill have used 475,000 kWh of electricity at the facility during the reporting year

5.0 REPORT ON DEVELOPMENT WORKS UNDERTAKEN DURING THE REPORTING PERIOD, AND A TIMESCALE FOR ANY PROPOSED FOR THE COMING YEAR.

There were no development works on site during 2016 and there are no proposed developments for 2017.

6.0 ENVIRONMENTAL MANAGEMENT PROGRAMME

6.1 Environmental Management Programme 2016 - Update on progress made

The progress made towards the Environmental Management Programme for 2016 is as follows. This programme was updated in December 2016 as part of the annual EMS update.

| Target | Responsibility | Target Date | Status | Last review date |
|--|------------------------------------|----------------|--|------------------|
| Implement Type 8 procedures and identify areas for improvements in operational efficiency. | Heather Loughlin | End July 2016 | Complete. Several procedures/forms merged and simplified. | 01.12.2016 |
| Continue with the revision of the Environmental Management System and streamline procedures wherever possible. | Heather Loughlin | End March 2016 | Ongoing | 01.12.2016 |
| Monitor energy usage and identify opportunities for reductions. | Heather Loughlin/ Niall Carroll | Ongoing | Ongoing | 01.12.2016 |
| Investigate the financial viability of covering the biofilter | Heather Loughlin/ Niall Carroll | End March 2016 | Quote obtained from Odour Monitoring Ireland. Waiting on quote for topographical survey. | 01.12.2016 |
| Prepare case for reducing monitoring frequency for noise/dust/odour/water, where appropriate. | Heather Loughlin | End April 2016 | Ongoing - will discuss with EPA at their next site visit. | 01.12.2016 |

6.1 ENVIRONMENTAL MANAGEMENT PROGRAMME 2017

| Target | Responsibility | Target Date |
|--|------------------------------------|----------------|
| Continue with the revision of the Environmental Management System and streamline procedures wherever possible. | Heather Loughlin | End March 2016 |
| Monitor energy usage and identify opportunities for reductions. | Heather Loughlin/ Niall Carroll | Ongoing |
| Investigate biofilter odour control options - alternative technology/cover etc | Heather Loughlin/ Niall Carroll | End May 2016 |
| Prepare case for reducing monitoring frequency for noise/dust/odour/water, where appropriate. | Heather Loughlin | End April 2016 |
| Carry out refresher training for all staff | Heather Loughlin | End June 2016 |
| Sow wildflower meadow on site | Heather Loughlin | End March 2016 |

7.0 SUMMARY OF PROCEDURES DEVELOPED DURING THE YEAR

During 2015 we made an application to the Department of Food, Agriculture and the Marine to operate as a “Type 8” facility under the Animal By-Products Regulations. Approval was granted on 17th February 2016.

The following new procedures were developed and were implemented following approval:

Procedures (Pre-Requisite Programmes)

- PRP1 Biosecurity Procedure
- PRP2 Waste Intake Procedure
- PRP3 Cleaning & Hygiene Procedure
- PRP4 Vermin Procedure
- PRP5 Process Control Procedure
- PRP6 Dispatch Procedure
- PRP7 Non-conformance, Corrective and Preventive Action Procedure
- PRP8 Audit and Review Procedure

Forms

- Site Inspection Checklist
- Feedstock Acceptance Form
- Acceptance Area Cleaning Record Form
- Dispatch Area Cleaning Record Form
- Commercial Document
- Non Conformance Log
- HACCP Audit Checklist

8.0 BUND TESTING AND INSPECTION REPORT

An inspection was carried out in March 2016 and covered the following:

- Oil storage bund
- Biofilter basin and sump
- Oil interceptor
- Building floor.

No issues were identified.

8.0 REPORTED INCIDENTS AND COMPLAINTS SUMMARIES

There were 7 complaints in 2016. The cause of two of these complaints was found to be due to incorrect mixing of the waste. No cause could be found for the remainder of the complaints. All complaints were recorded and responded to.

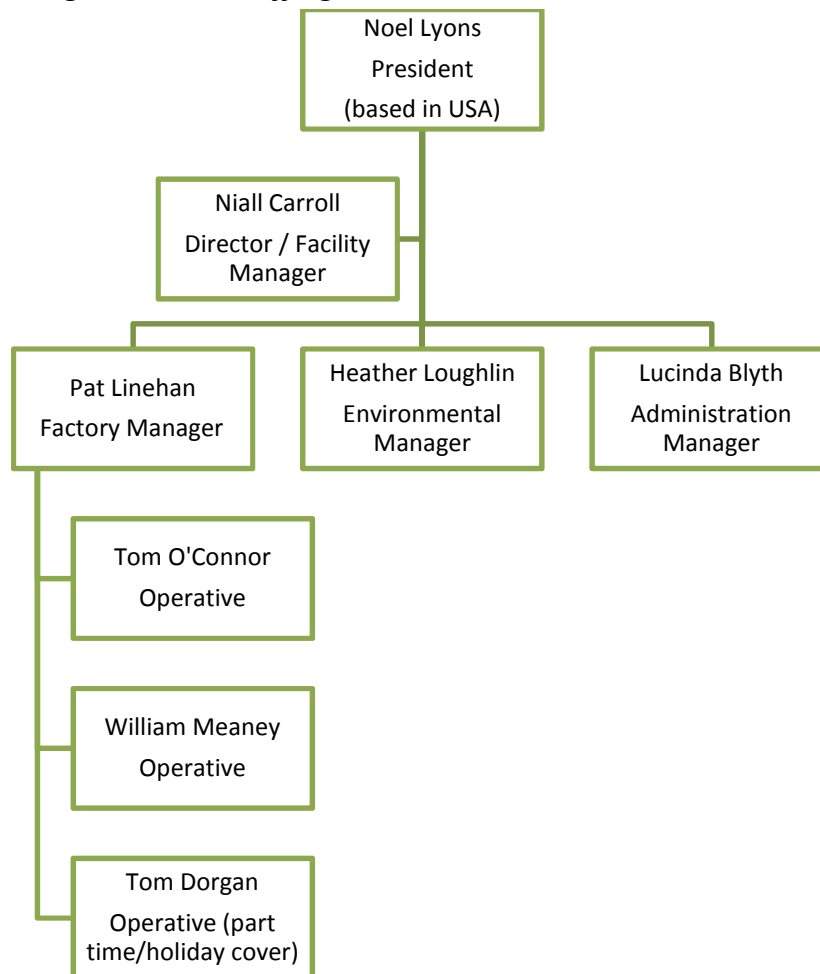
There were no reportable incidents during the reporting period.

9.0 FINANCIAL PROVISIONS, MANAGEMENT AND STAFFING STRUCTURE AND PROGRAMME FOR PUBLIC INFORMATION

9.1 Financial Provisions

McGill have put financial provisions in place to cover any Environmental Risk or Closure costs associated with the site as per the decommissioning and aftercare plan and as per the Environmental Liability Risk Assessment. This was looked at during the year and it was determined that there was no additional risks. These provisions are in the form of a guarantee from McGill Compost, USA, parent company of McGill Environmental Systems (Ireland) Limited

9.2 Management and Staffing Structure



9.0 INFORMATION PROGRAMME

A procedure is in place to ensure that the public can obtain information concerning the environmental performance of the facility at all reasonable times.

There were no requests for information during 2016.

10.0 FOUL WATER MOVEMENT

McGill transported 1427.26 tonnes of water from the Biofilter to Fermoy WWTP during the reporting year.

Appendix 1

Summary of Monitoring Results

| BIOAEROSOL MONITORING | | | | | |
|-----------------------|-----------------------|-------------------------|--------|--------|--------|
| Date | Bioaerosol | Ref Concentration Range | Glen 1 | Glen 2 | Glen 3 |
| 22.08.2016 | Aspergillus fumigatus | 1000-5000 CFU m3 | <3 | <3 | <3 |
| 22.08.2016 | Mesophilic Bacteria | 5000 - 10000 CFU m3 | 56 | 200 | <750 |
| 22.11.2016 | Aspergillus fumigatus | 1000-5000 CFU m3 | <3 | <3 | <3 |
| 22.11.2016 | Mesophilic Bacteria | 5000 - 10000 CFU m3 | 207 | 226 | 117 |

| DUST MONITORING | | | | | | | |
|-------------------|------------------|------------------|---------------|------------------------|--------|-----|------------|
| Sampling End Date | McGill Reference | Monitoring Point | Lab Reference | Units | Result | ELV | Compliant? |
| 25.02.2016 | GLV DM1 R1 2016 | DM1 | 0360/424/01 | mg/m ² /day | 27.26 | 350 | YES |
| 25.02.2016 | GLV DM2 R1 2016 | DM2 | 0360/424/02 | mg/m ² /day | 41.94 | 350 | YES |
| 25.02.2016 | GLV DM3 R1 2016 | DM3 | 0360/424/03 | mg/m ² /day | 38.27 | 350 | YES |
| 13.06.2016 | GLV DM1 R2 2016 | DM1 | 0360/428/01 | mg/m ² /day | 148.88 | 350 | YES |
| 13.06.2016 | GLV DM2 R2 2016 | DM2 | 0360/428/02 | mg/m ² /day | 204.45 | 350 | YES |
| 13.06.2016 | GLV DM3 R2 2016 | DM3 | 0360/428/03 | mg/m ² /day | 137.35 | 350 | YES |
| 22.12.2016 | GLV DM1 R3 2016 | DM1 | 0360/435/01 | mg/m ² /day | 66.05 | 350 | YES |
| 22.12.2016 | GLV DM2 R3 2016 | DM2 | 0360/435/02 | mg/m ² /day | 25.16 | 350 | YES |
| 22.12.2016 | GLV DM3 R3 2016 | DM3 | 0360/435/03 | mg/m ² /day | 73.92 | 350 | YES |

| PM10 MONITORING | | | |
|-----------------|------------------|----------------------|---------------------------|
| DATE | REPORTING PERIOD | REFERENCE CONC RANGE | PM10 (ug/m ³) |
| 12/04/2016 | Bi annual | 50 ug/m3 PM10 | 7.5 |
| 22/11/2016 | Bi annual | 50 ug/m3 PM10 | 7.5 |

| BIOFILTER GASES MONITORING | | | | | | | | | | | | | | |
|----------------------------|-------------------|---------------------|------------|----|----|----|----|----|----|----|----|-----|-----|-----|
| Date | Test | ELV | Sample No. | | | | | | | | | | | |
| | | | S1 | S2 | S3 | S4 | S5 | S6 | S7 | S8 | S9 | S10 | S11 | S12 |
| 21.04.16 | Ammonia | 50mg/m ³ | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 21.04.16 | Hydrogen Sulphide | 5mg/m ³ | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 21.04.16 | Total Mercaptans | 5mg/m ³ | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 22.11.16 | Ammonia | 50mg/m ³ | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 22.11.16 | Hydrogen Sulfide | 5mg/m ³ | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 22.11.16 | Total Mercaptans | 5mg/m ³ | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |

| BIOFILTER BED MEDIA | | | |
|---------------------|--------------------|------------|---------|
| Date | Analyte | Units | Results |
| 15.3.16 | % Moisture Content | % | 74.89 |
| | Ammonia | mg/Kg as N | 13.95 |
| | pH | pH Units | 4.1 |
| | **TVC @ 22°C | cfu/g | 191000 |
| | **TVC @ 37°C | cfu/g | 239000 |
| 14.12.16 | % Moisture Content | % | 69.89 |
| | Ammonia | mg/Kg as N | 143.68 |
| | pH | pH Units | 7.9 |
| | **TVC @ 22°C | cfu/g | 16400 |
| | **TVC @ 37°C | cfu/g | 8200000 |

| MATURITY MONITORING | | | | |
|---------------------|---------------|---|--|----------|
| Report date | Sample ref | CLO AT4 (mg O ₂ /g TS in 4 days) | CLOR AT4 (mg O ₂ /g TS in 4 days) | Standard |
| 07.03.2016 | 23.02.16 CLO | 1.3 | | <7 |
| 07.03.2016 | 23.02.16 CLOR | | 0.8 | <7 |
| 29.03.2016 | 03.03.16 CLO | 3.1 | | <7 |
| 29.03.2016 | 03.03.16 CLOR | | 1.8 | <7 |
| 28.04.2016 | 21.03.16 CLO | 3.0 | | <7 |
| 28.04.2016 | 21.03.16 CLOR | | 1.8 | <7 |
| 01.06.2016 | 13.04.16 CLO | 2.7 | | <7 |
| 01.06.2016 | 13.04.16 CLOR | | 3.0 | <7 |
| 21.06.2016 | 11.05.16 CLO | 2.0 | | <7 |
| 21.06.2016 | 11.05.16 CLOR | | 1.7 | <7 |
| 21.06.2016 | 02.06.16 CLO | 3.2 | | <7 |
| 21.06.2016 | 02.06.16 CLOR | | 3.0 | <7 |
| 16.08.2016 | 04.07.16 CLO | 6.0 | | <7 |
| 16.08.2016 | 04.07.16 CLOR | | 2.2 | <7 |
| 06.09.2016 | 03.08.16 CLO | 4.3 | | <7 |
| 06.09.2016 | 03.08.16 CLOR | | 3.3 | <7 |
| 22.11.2016 | 01.09.16 CLO | 6.1 | | <7 |
| 22.11.2016 | 01.09.16 CLOR | | 1.5 | <7 |
| 25.11.2016 | 02.11.16 CLO | 4.4 | | <7 |
| 25.11.2016 | 02.11.16 CLOR | | 1.3 | <7 |
| 06.02.2017 | 12.12.17 CLO | 6.1 | | <7 |
| 06.02.2017 | 12.12.17 CLO | | 5.7 | <7 |

| GROUNDWATER MONITORING 14.12.16 | | | | | | |
|---------------------------------|---------------------------------|-------------|-------|-------|-------|-------|
| Parameter | Analytical Technique | Units | GW1 | GW2 | GW3 | GW4 |
| Depth | | | | | | |
| Ammonium (NH4) | Colorimetry | mg/l | <0.01 | <0.01 | <0.01 | <0.01 |
| Chloride | Colorimetry | mg/l | 13.7 | 13.41 | 13.68 | 11.38 |
| Coliforms (Faecal) | Filtration/Incubation @ 44C/24H | cfu/100ml | 0 | 0 | 0 | 0 |
| Coliforms (Total) | Filtration/Incubation | cfu/100ml | 0 | 8 | 6 | 0 |
| Electrical Conductivity | Electrometry | uscm -1@20C | 261 | 272 | 193.9 | 162.6 |
| pH | Electrometry | pH units | 6.9 | 6.9 | 6.8 | 5.9 |

| SURFACE WATER MONITORING 14.12.16 | | | |
|-----------------------------------|---------------------------------|-------------|---------|
| Parameter | Analytical Technique | Units | Results |
| Ammonia | Colorimetry | mg/l | 0.061 |
| BOD | Electrometry | mg/l | <2 |
| Coliforms (Faecal) | Filtration/Incubation @ 44C/24H | cfu/100ml | 66 |
| Coliforms (Total) | Filtration/Incubation | cfu/100ml | 81 |
| Electrical Conductivity | Electrometry | uscm -1@20C | 106.4 |
| pH | Electrometry | pH units | 7.6 |
| Solids | Filtration/drying @140C | mg/l | 2 |

| WASTEWATER MONITORING 14.12.16 | | |
|--------------------------------|----------|---------|
| Analyte | Units | Results |
| BOD | mg/l | 165 |
| pH | pH units | 7.9 |
| Solids (Total Suspended) | mg/l | 547 |