BORD NA MÓNA

BORD NA MÓNA ENERGY LIMITED

Annual Environmental Report 2011
P0504-01

March 2012

Bord na Móna today operates 5 main subsidiary companies in more than 20 locations throughout Ireland, the UK and USA. The principal businesses are in the Energy, Resource Recovery, Horticulture, Home Heating and Wastewater Treatment and Air Pollution Abatement markets. The company also engages in an extensive rehabilitation program to develop its peat lands in an environmentally sustainable manner.

Bord na Móna has long recognised the need to diversify its activities in order to secure a sustainable future. In this context we identified the energy and resource recovery sectors as appropriate areas of growth and development, given our assets, strengths and skills. Significant challenges face Ireland in meeting the country's needs to provide secure sustainable energy and manage waste while minimising the impact on the environment.

Bord na Móna is in a strong position to contribute to dealing with these challenges. We have a unique mixture of assets, experience and innovation which will enable us to cross-link our activities in energy, water and resource recovery to provide products and services which will meet Ireland's needs. We also have the capacity to become an exemplar for others to follow in these fields.

With this background we have scoped out a new vision for the future sustainable development of Bord na Móna.
Following on from our vision, we have developed a new mission for Bord na Móna which the Company is committed to achieving.

In 1934 the Turf Development Board was formed to ‘develop and improve the turf industry.' The experience of fuel shortages during the war re-enforced the Irish State's commitment to developing the country's bogs. In 1944 the TDB was asked to devise and submit a comprehensive programme, the outcome was the transformation in 1946 of the TDB into Bord na Móna. The Board was given a mandate to increase the use of peat as a fuel and in energy production. Markets for the use of moss peat in horticulture were also developed.

In 1990 Bord na Móna implemented a divisionalised and decentralised structure, designed to delegate responsibility downwards ensuring a sharper focus on each profit centre and a greater spirit of enterprise.

Group Vision

The vision statement defines the Company's purpose, in terms of its values.
Values are guiding beliefs about how things should be done.
The vision statement communicates both the purpose and values of Bord na Móna.
For employees, it gives direction about how they are expected to behave and inspires them to give their best. Shared with customers, it shapes the customers' understanding of why they should work with Bord na Móna.
Bord na Móna will seek solutions that optimise the creative energy and potential of the organisation, driven by long term goals and the organisation's vision and mission.
In this context our devolved business units will align their vision and strategic planning with the global direction provided.
Consistent with our vision, innovation will once again return to the core of everything we do. We will capitalise on opportunities to cross fertilise our unique range of skills and technologies that add value and are socially and environmentally sustainable.
Greater focus will be placed on managing and developing our land assets in a responsible and sustainable manner. Our award winning initiatives at Lough Boora (Co. Offaly) and Oweninny (Co Mayo), provide shining examples of what can be achieved

Group Mission

We conduct our affairs with openness, honesty and integrity.
We are Ireland's leading environmentally responsible integrated utility service provider encompassing electricity, heating solutions, resource recovery, water, horticulture and related services.
We capitalise on international opportunities where we have a competitive advantage.
We achieve continuing growth through superior customer service, outstanding quality and innovation delivered through the excellence and commitment of our people.
We engage in sustainable profitable business in the communities we serve, which is rewarding and challenging for employees and other stakeholders.

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1.0 Introduction

1.1 IPPC Licence No P0504-01

1.2 Name & Location of Site

Name: Bord na Mona Energy Limited.

Address: Mountdillon Group
C/o Mountdillon Works
Lanesboro
Co. Longford.

Telephone No: 043 3321117 Fax No 043 3321259

Contact Name Danny Murray

Position Resource Manager

National Grid Reference E204720 N268880

1.3 Description of Activities

Peat Milling Operations.

For milled peat production the bog is laid out in a series of rectangular fields of varying length and 15m wide with drains located between. There are essentially four operations involved in milled peat production:
Milling.
Harrowing.
Ridging.
Harvesting.

Milling.
Special milling machines work there way along the fields, milling approximately 15mm of peat of the top of the bog in a pass.

Harrowing
In the course of drying, the milled peat is turned a number of times to avail of the drying conditions. This is achieved with a machine called a harrow. The milled peat is harrowed until its moisture content is down to approximately 40-50%, which can take up to two to three days, weather depending.

Ridging
The dry peat is then scraped into long ridges running down the centre of each field. This is done with a ridger, a machine consisting of a series of blades in the shape of a v that opens the full width of the field.

Harvesting
During harvesting every eleventh field is used to stockpile the peat, with this field receiving the milled peat from the five fields either side.

The milled peat is then transported via the existing network of peatland railways or via road to the following location.
Power station

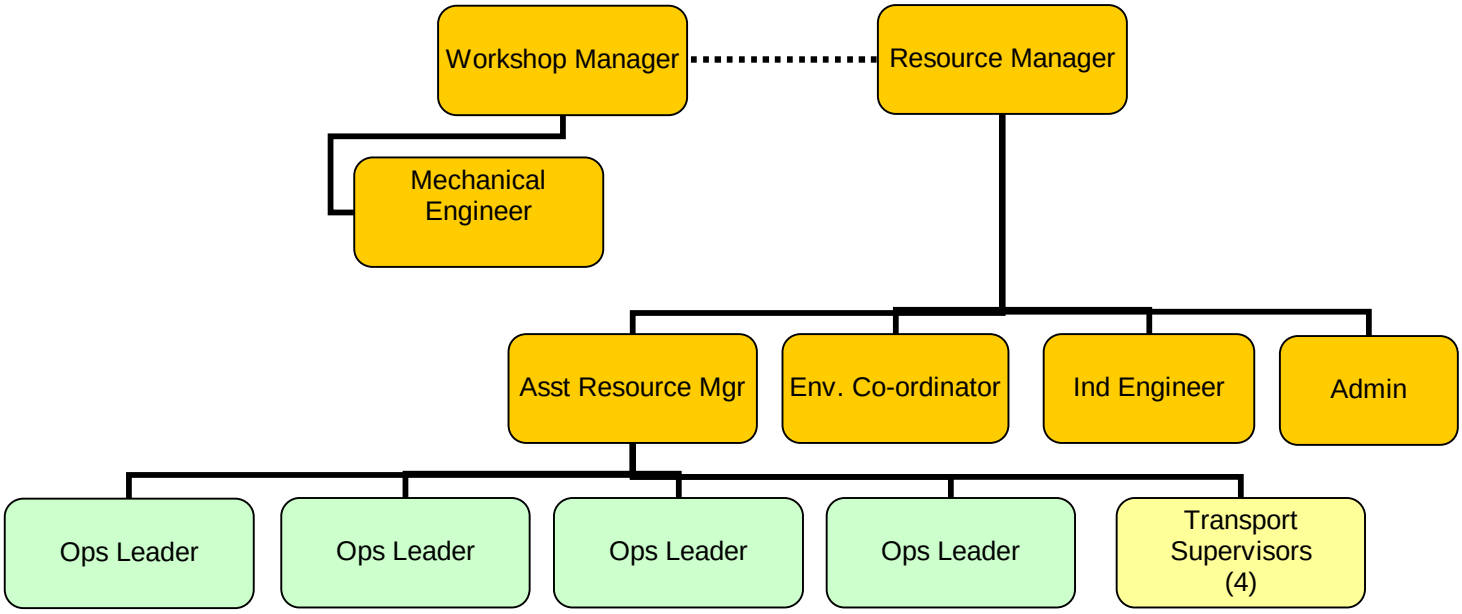
1.4 Environmental Management of the Company

The organisational structure within the Mount Dillon Group is presented in the flow chart below.

Group

Environmental Responsibilities

Mountdillon Organisational Structure.



1.5 Environmental Policy

BORD NA MÓNA

BORD NA MÓNA ENERGY LIMITED

Bord na Mona Energy Limited is a commercial semi-state body with responsibility to develop Ireland's peat resources in the national interest.

Bord na Mona Energy Limited is committed to gather and make available information on all aspects of its environmental impact and to help improve understanding among the public generally of its role and the importance of Irish peatlands.

Bord na Mona Energy Limited recognises the importance of peatland conservation.

Bord na Mona Energy Limited will leave behind all areas it owns as either an economically or socially integrated resource of a high environmental value.

Bord na Mona Energy Limited seeks to conduct all aspects of its business in an environmentally sensitive value.

Bord na Mona Energy Limited operates an environmental management system specifically addressing the following impacts.

Discharges to water.
Emissions to atmosphere.
Waste disposal.
Use of natural resources.
Noise, vibration, odour, dust and visual effects.
Natural environment and eco-system.

The environmental management system will be monitored, maintained and continually improved.

A system of regular environmental audits will be put in place.

Bord na Mona Energy Limited will continue research and development into all aspects of its environmental impact.

This statement is published and is available at all locations within the division and its contents are brought to the attention of all employees.

2.0 Summary Information

2.1 Emissions to Water Summary

2.1.1 Silt Pond Emissions (Quarterly Grab)

Comment

Surface water monitoring was carried on a quarterly basis during the reporting period. In total, analysis was carried out at seven different locations. These locations are as follows, Clonshannagh @ SW8, Granaghan @ SW23, Begnagh @ SW55, Cloneeney @ SW61, Derrycolumb @ SW88, Derryshanoge @ SW94 and Loughbannow @ SW95.
The parameters measured during each sampling event were as follows:
Total Phosphorus, Total Solids, Suspended Solids, pH, Ammonia, Colour and COD.

In general results were constant across all parameters at each monitoring location. October was the wettest month of 2011 with rainfall of 123.5mm being recorded, while March was the driest with 29.4mm recorded.
The quarterly grab sampling programme proved to be 100% compliant for the year as were the 2006, 2007, 2008, 2009 and 2010 regimes. There was however one non-compliance in relation to composite sampling which is discussed below.
Monitoring will continue at the same locations in 2012.

pH values were between 6.4 and 8 pH units.. The average pH result was 7.4 pH units which was slightly down on the previous year's average. Normal emission limit values are of the range 6 and 9.

Suspended solids varied from 5mg/l to 22mg/l, with an average result of 9.1 mg/l and would depend on activities (piping, ditching) etc, in the catchments at the time of sampling. Climatic conditions would also have a bearing on suspended solids results. The sampling regime was 100% compliant for the year with average results being less than those in 2010.

Ammonia levels were constant across all monitoring locations. Analysis results were of the range 0.06 mg/l and 1.91 mg/l. The average ammonia was 0.47 mg/l which is well below I/PV of 4mg/l for A3 waters.

COD readings were consistently below Bord na Mona set trigger levels of 100 mg/l, with the exception of the 2nd and 4th quarter monitoring at Cloneeny SW61. The COD levels on those two occasions exceeded trigger levels with results of 105 and 120 mg/l respectively. Investigations did not uncover any particular reason for these elevated results. The first quarter 2012 results will be watched with interest to see if elevated trends continue.

Flow rates were similar to previous years. Climatic conditions having an obvious impact on flow rates. October was the wettest month with 123.5 mm of rainfall recorded and March the driest with 29.4 mm. Due to water backing up from the receiving water during the 4th quarter monitoring event at Clonshanagh SW8 flow recording was not possible.

Total Phosphorus results were of the range 0.05 mg/l and 0.15 mg/l, the average being 0.059 mg/l, all of which were within quality guidelines.

Surface Water Results are contained in Appendix 1

2.1.2 Yard Discharges (Monthly Grab)

Comment

Yard runoff monitoring took place at six different locations during the reporting period. Sampling frequency was monthly and COD was the parameter requiring analysis. As is evident from the graph, on several occasions no sample was available on the day of sampling. This is due to the physical size of the catchments, which makes it difficult to guarantee a sample.
Trigger levels of 100mg/l were exceeded during the reporting period at Yard SWE-1 during the January sampling event and Cuil na Gun SWE-1 during the August sampling event, with respective results of 126mg/l and 116mg/l. Subsequent results at each location were well down as is evident from the table and graph. Sampling will continue at the same locations during 2012.

Yard Emission Results are contained in Appendix 2

2.1.3 Composite Sampler Report

Comment

The composite sampler was initially operating at SW96 during the reporting period. A submission to relocate the sampler was submitted and subsequently approved by the Agency during the reporting period. The sampler is now operating at Cloneeney SW62.
The parameters measured are Total Phosphorus, Total Solids, Suspended Solids, pH, Ammonia, Colour and COD, with Suspended solids being the only parameter with an emission limit value (35mg/l).
In general results were satisfactory with only one non – compliances being recorded at the previous location SW96 and that result of 60mg/l was only above emission limit values. Investigations were carried out at the time and the Agency was informed.
The sampler appears to be working better at its new location due to the nature of the site and this it is expected that it will result in prolonged operating periods and uninterrupted results data. The sampler was calibrated by Water Technology Ltd during the reporting period.

Composite Sampler Results are contained in Appendix 3.

2.1.4 Emissions to Water Non-compliance's

Emissions to Water Non-Compliances 2011		
Licence: P0504-01		
Works: Mt Dillon		
Type	**Non-Compliances**	**Location / SW Nr**
Composite	1	SW 96
Quarterly Grab	0	
Totals	**1**	

As mentioned above there was one composite non-compliance and the Agency was informed. The quarterly grab regime was 100% compliant for the period.

2.2 Emissions to Air

2.2.1 Dust Monitoring

Comment

Dust monitoring was carried out on three occasions between May and August. Each monitoring event lasted between 28 and 32 days and the Bergerhoff method of analysis was used. The monitoring locations were as follows: Edera DM-01 and Cloonshanagh DM-02. All results were within the emission value of 350 mg/m²/day set out in the licence. Five complaints were received in relation to dust even though all results were compliant. All of the complaints were from Edera and in an effort to combat the problem wind socks have been erected at the two dust sensitive locations. The purpose of the wind socks is to indicate to production personnel the wind direction at any given time, and these personnel have been instructed not to operate at the dust sensitive areas when the wind force and direction may create a dust nuisance. Further to this an area in Edera was selected as a pilot location for mini sod production as its potential dust impact is less than milled peat.

Sampling will continue at the same locations during 2012.

Dust Monitoring Results are contained in Appendix 4.

2.2.2 Emissions to Air Non-compliance's

Dust Non-Compliances 2011	
Licence:P0504-01	
Works: Mt Dillon	
Location / DM Nr	**Non-Compliances**
Edera / DM 01	0
Cloonshannagh / DM 02	0
Total	**0**

The emissions to air during the reporting period were 100% compliant.

2.1 Waste Arisings

2.3.1 Non Hazardous Waste

Note: Polythene, Cardboard and Steel are recycled. Skips are sent to a mixed recycling centre with only the residue going to landfill.

2.3.2 Hazardous Waste

Hazardous Waste Data 2011					
Licence: P0504-01					
Works: Mount Dillon					
Type	**Tonnes**	**EWC Code**	**Contractor**	**Licence Nr**	**Destination**
Waste Oil	33.10	13 02 05	Enva Ireland Ltd Portlaoise	184-1	Portlaoise
Oil Filters	2.38	16 01 07	Enva Ireland Ltd Portlaoise	184-1	Portlaoise
Lead Acid Batt	2.09	16 06 01	Enva Ireland Ltd Portlaoise	184-1	Portlaoise
Parts Wash	0.51	11 01 13	Safety Kleen, Tallaght, Dublin	99-1	Dublin
Total	**38.08**				

2.4 Energy and Water Consumption

2.4.1 Energy Consumption

Energy Consumption 2011				
Licence: P0504-01				
Works: Mt Dillon				
Units	**Diesel (Litres)**	**Petrol (Litres)**	**Electricity (Units)**	**Peat Briquettes (Tonnes)**
Totals	1840035	1931	0	0
MW Hours	18696.6	18.04906	0	0
Total MW Hours	**18714.6**			

Note: Due to issues with Electric Ireland's web site which is outside Bord Na Mona's control, accurate electrical consumption figures were not available. We are informed that this will be resolved in the coming weeks. This is important as the figures are also required in relation to the implementation of the energy standard EN50001 at Mountdillon Works.

2.5 Environmental Incidents and Complaints

2.5.1 Incidents

Environmental Incidents 2011	
Licence: P0504-01	
Works: Mt Dillon	
Incidents	0
Requiring corrective action	
Category	
Water	1
Air	1
Procedural	
Miscellaneous	
Total	**2**

There was one significant incident during the reporting period and that related to a bog fire which spread from an adjacent private producers bog into Bord na Mona bog at Cuil na Gun. This fire was brought under control by Bord Na Mona personnel. The other incident was the aforementioned composite non-compliance.

2.5.2 Complaints

Environmental Complaints 2011	
Licence:P0504-01	
Works: Mt Dillon	
Complaints	**Number**
Requiring corrective action	6
Category	
Water	1
Air	5
Procedural	
Miscellaneous	
Total	**6**

There were six complaints during the reporting period. Five related to dust and are mentioned above, the sixth related to peat silt in a drainage channel.

3.0 Management of the Activity

3.1 Achievement of Objectives & Targets 2011

Project	Description & Status
Project 1: Reduction of fugitive dust emissions.	**Training.** Continue to train all employees in environmental matters. Training will be by means of the screening of an environmental DVD, followed by a power point presentation. **Status** 96 employees received environmental training during the reporting period. **Hydraulic Harrows.** There is one new Hydraulic Harrows programmed for delivery in 2011. This will be deployed at a Dust Sensitive Location. **Status** There are seven hydraulic harrows employed in Mountdillon and they are deployed at dust sensitive locations. **Headland Peat Collection.** Continue with the collection of headland peat, particularly at dust sensitive locations. **Status** In total 2,075 tonnes of headland peat was collected during the production season. This peat was included in general production returns.
Project 2: Waste Management	**Waste Streamlining.** It is planned to continue with and where possible improve the current waste management service provided by AES Ltd. **Status** Ongoing The service included the co-ordination of all waste streams ensuring the correct waste stream was dealt with by the appropriate waste provider. The service also included the issuing of quarterly reports.
Project 3: Minimisation of Suspended Solids.	**Training.** Continue to train all employees in environmental matters. Training will be by means of the screening of an environmental DVD, followed by a power point presentation. **Status** 96 employees received environmental training during the reporting period.

Project 4: Effective spill leak management of mobile fuelling units.	**Research and Development.** Increased bund capacity will be provided where required. Bund integrity testing will be carried out where required. **Status** Bund integrity tests were carried and subsequently passed during 2011.In addition to this containment booms were purchased and are held in storage as backup to existing stocks.
Project 5: Collection storage and reuse of polyethylene.	**Identify Recyclers.** Continue with the recycling of polyethylene. The sourcing of more recycling contractors will be ongoing. **Status** There were 361.62 tonnes of polyethylene removed for recycling in 2011.
Project 6: Mini Sod Project	**Carry out Trial.** On a trial basis switch from milled peat to mini sod production at Edera bog. Part of this project is to mitigate against dust nuisance as the area is dust sensitive. **Status** Some 5000 tonnes of mini sod were produced at Edera in 2011. This in part was to reduce potential dust as the area is deemed dust sensitive.
Project 7: Energy Management	**Energy Management** Continue with the implementation process of the Energy Standard 16001. **Status** Internal meter readings are ongoing as part of the Energy Management process. It is hoped to complete the initial pre certification audit by July 2.12.
Project 8: Septic Tank Upgrade	**Septic Tank Upgrade** It is proposed to upgrade the existing septic tank systems at Mountdillon Workshop and Mountdillon Yard **Status** An 8 module Puraflo treatment plant was installed at Mountdillon workshop in 2011.

3.2 Environmental Management Programme Proposal for 2012

Project	Description & Status
Project 1: Reduction of fugitive dust emissions.	**Training.** Continue to train all employees in environmental matters. Training will be by means of a new four module training programme delivered by dedicated Bord na Mona Training Specialists. This new training programme includes Environmental Compliance - IPPC, Biodiversity, Archaeology and Energy Management. **Hydraulic Harrows.** There are currently seven hydraulic harrows in operation at Mountdillon at dust sensitive locations. There are no plans to increase this number. **Headland Peat Collection.** Continue with the collection of headland peat, particularly at dust sensitive locations.
Project 2: Waste Management	**Waste Streamlining.** It is planned to continue with and where possible improve the current waste management service provided by AES Ltd.
Project 3: Minimisation of Suspended Solids.	**Training.** Continue to train all employees in environmental matters. Training will be by means of a new four module training programme delivered by dedicated Bord na Mona Training Specialists. This new training programme includes Environmental Compliance - IPPC, Biodiversity, Archaeology and Energy Management.
Project 4: Effective spill leak management of mobile fuelling units.	**Research and Development.** Increased bund capacity will be provided where required. Bund integrity testing will be carried out where required.
Project 5: Collection storage and reuse of polyethylene.	**Identify Recyclers.** Continue with the recycling of polyethylene. The sourcing of more recycling contractors will be ongoing.
Project 6: Energy Management	**Energy Management** Continue with the implementation process of the Energy Standard 16001.
Project 7: Septic Tank Upgrade	**Septic Tank Upgrade** It is proposed to upgrade the existing septic tank systems at Mountdillon Yard.

3.3 Environmental Expenditure

Environmental Expenditure 2011	
Licence: P0504-01	
Works: Mt Dillon	
Description	**Cost €**
Capital Costs,	0
Silt Control,(wages + materials)	240,708
Analytical & Consultancy Costs,	16,704
EPA Fees,	11,667
Bog Rehabilitation,	0
Waste Management	8,000
Total	**€277,079**

4.0 Licence Specific Reports

4.1 Surface Water Discharge Monitoring Location Programme Review

Surface water monitoring went well during the reporting period, with only one non-compliance recorded during the reporting period. Initial indications are that the new composite location will be successful in that the site lends itself to more consistent hours of operation. Sampling will take place at the same locations in 2012.

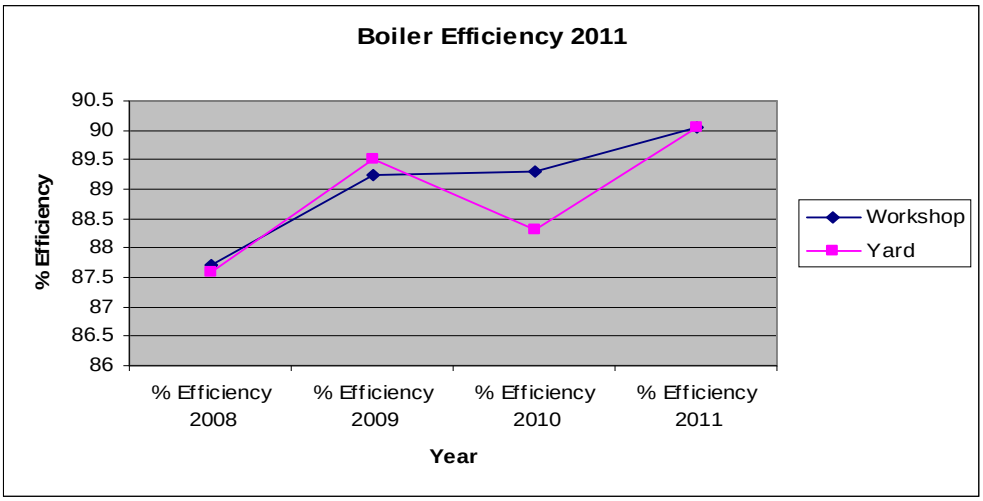
4.2 Bunding Programme

Bund Locations & Numbers Mt Dillon Works					
IPPC Licence: P0504-01					
Location	**Bund Number**	**Last Tested**	**Status Pass/Fail**	**Repair Date**	**Next Test Due**
Mount Dillon Works Bund	504-05-01	Aug-11	Pass	N/A	Aug-13
Mount Dillon Works Waste Oil Bund	504-05-02	Aug-11	Pass	N/A	Aug-13
Mount Dillon Yard Bund	504-05-03	Double Skinned Tank Installed			
Mount Dillon Yard Waste Oil Bund	504-05-04	Aug-09	Pass	N/A	Aug-11
Lough Ree Transport Bund	504-05-05	Aug-11	Pass	N/A	Aug-13
Cuil na Gun Bund	504-05-06	Feb-09	Pass	N/A	Feb-11

Bund integrity testing took place as per the table above. The bund at Cuil na Gun is currently being tested as is the small waste oil bund at Mountdillon works. All other tested bunds passed the test.

4.3 Boiler Combustion Efficiency

Boiler Emissions 2011				
Licence: P0504-01				
Works: Mt Dillon				
Boiler Location	**% Efficiency 2008**	**% Efficiency 2009**	**% Efficiency 2010**	**% Efficiency 2011**
Workshop	87.7	89.25	89.3	90.05
Yard	87.6	89.5	88.3	90.05



4.4 Resource consumption summary

Resource Consumption 2011			
Licence: P0504-01			
Works: Mt Dillon			
Product	**Tonnes Produced**	**Tonnes Sold**	**Customer**
Milled Peat	632,228	707,911	ESB
Mini Sod	5,000	3,000	ESB
Sod Peat	6,900	5,400	Public
Totals	**644,128**	**716,311**	

Proposed Production 2012	
Licence: P0504-01	
Works: Mt Dillon	
Product	**Proposed Target**
Milled Peat	706374
Sod Peat	6500
Totals	**712874**

The mini sod project has been discontinued for the foreseeable future.

4.5 De-Silting Report

The De-silting programme worked well during 2011 with all ponds receiving at least two cleanings. In some instances ponds received three cleanings.

Silt Pond Cleaning Programme attached in Appendix 5.

4.6 Bog Development and Operational Programme

Bog development continued at Whites Bog in the Cuil na Gun group. This involved the conversion of some old sod turf cutaway bog into milled peat production bog, this bog was ploughed and ditched in 2011. Silt settlement ponds have been specified with one still to be completed

4.7 Bog Rehabilitation Report

- The greater area of these bogs is in peat production, with some small areas of cutaway bog emerging in Derraghan, Lough Bannow and Corlea bogs.
- The ecology survey of the Mountdillon Bogs is part complete and habitat maps, ecology reports and draft rehabilitation plans for each of the sites surveyed have been developed.
- There have been a number of interactions with NPWS and local heritage groups in this area particularly the Wetlands Heritage Ireland Group.
- The Mostrim Group is largely in development for sod-moss peat with some areas in reserve.
- Consultation with Heritage groups, NPWS is ongoing.

The above is an overview of the ongoing rehabilitation plan associated with this licence. There is a fully prepared plan retained at the licence site office, which includes Land Use maps for each licensed area updated in January 2012 and the habitat maps, future maps and ecology reports for each site.

4.8 Archaeological Report

There was no archaeology in the Mountdillon Group of bogs during the reporting period.

5.0 Summary

With regard to environmental compliance at the Mountdillon Group of Bogs, there were no non-compliances in the quarterly grab sampling of the ponds in the Surface Water Discharge Monitoring Location Programme. There was one non-compliance in relation to the Composite Sampler during the period of January to the end of December and this was reported to the agency.

There were no non-compliance's relating to dust. Mountdillon received 5 complaints in relation to dust and one in relation to water in 2011, which were reported to the Agency. Staff training in Environmental Management took place this year with 96 employees trained.

Training for 2012 will be by means of a new four module training programme delivered by dedicated Bord na Mona Training Specialists. This new training programme includes Environmental Compliance - IPPC, Biodiversity, Archaeology and Energy Management.

We intend to build on the success of 2011 and increase our efforts to minimise the impact of our operations on the environment. This will include the supply of additional plant, equipment and bunding. We have greatly improved our fire prevention and fire fighting capabilities

Bord na Mona Energy Ltd is represented on the Management Group of both the Shannon River and Eastern River Basin District Management Systems, set up under the Water Framework Directive, and on the Steering Group of the Catchment Management of the River Barrow, and the Inny Catchment Management Plan Project.

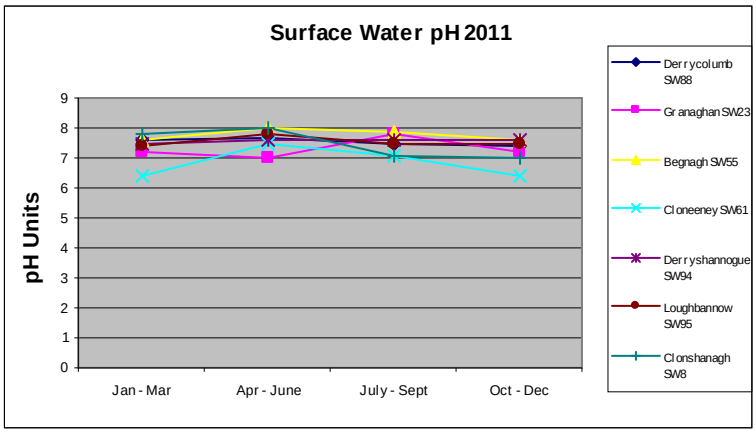
Bord na Mona Energy Ltd would like to take this opportunity to advise the Environmental Protection Agency of its continued commitment to improving its environmental performance by adopting cleaner production methods and improving its environmental protection measures.

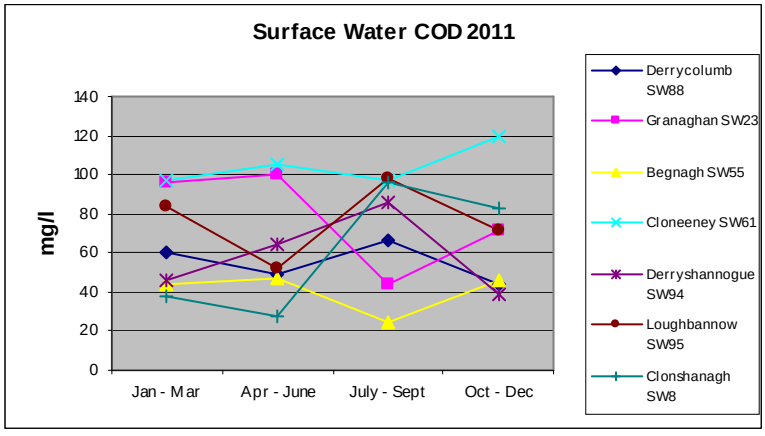
APPENDIX 1

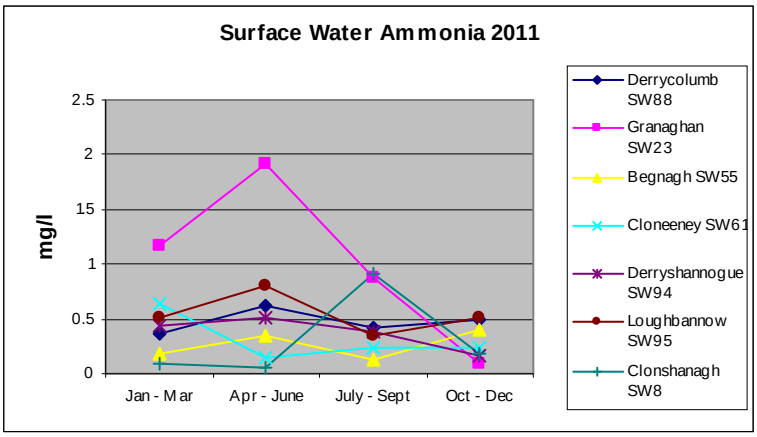
Surface Water Discharge
Monitoring Results
Bogs

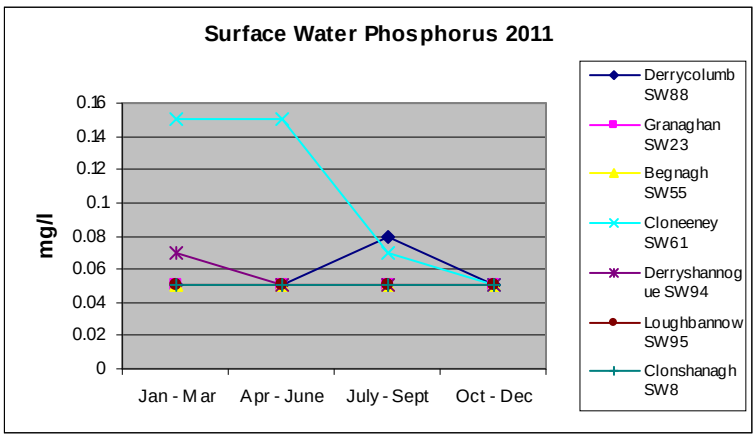
BNM Group:	Mount Dillon		2011	
IPPC Licence No.	504			
pH (units)				
	Jan - Mar	Apr - June	July - Sept	Oct - Dec
Derrycolumb SW88	7.6	7.7	7.5	7.4
Granaghan SW23	7.2	7	7.8	7.2
Begnagh SW55	7.6	8	7.9	7.6
Cloneeney SW61	6.4	7.5	7.1	6.4
Derryshannogue SW94	7.5	7.6	7.6	7.6
Loughbannow SW95	7.4	7.8	7.5	7.5
Clonshanagh SW8	7.8	8	7.1	7
COD (mg/l)				
	Jan - Mar	Apr - June	July - Sept	Oct - Dec
Derrycolumb SW88	60	49	66	44
Granaghan SW23	96	100	44	72
Begnagh SW55	44	47	25	46
Cloneeney SW61	97	105	97	120
Derryshannogue SW94	46	64	86	39
Loughbannow SW95	84	52	98	72
Clonshanagh SW8	38	28	96	83
Ammonia as N (mg/l)				
	Jan - Mar	Apr - June	July - Sept	Oct - Dec
Derrycolumb SW88	0.37	0.62	0.42	0.5
Granaghan SW23	1.16	1.91	0.88	0.1
Begnagh SW55	0.18	0.34	0.12	0.4
Cloneeney SW61	0.63	0.14	0.23	0.23
Derryshannogue SW94	0.43	0.52	0.38	0.16
Loughbannow SW95	0.52	0.81	0.35	0.52
Clonshanagh SW8	0.1	0.06	0.91	0.19
Total Phosphorus (mg/l)				
	Jan - Mar	Apr - June	July - Sept	Oct - Dec
Derrycolumb SW88	0.05	0.05	0.08	0.05
Granaghan SW23	0.05	0.05	0.05	0.05
Begnagh SW55	0.05	0.05	0.05	0.05
Cloneeney SW61	0.15	0.15	0.07	0.05
Derryshannogue SW94	0.07	0.05	0.05	0.05
Loughbannow SW95	0.05	0.05	0.05	0.05
Clonshanagh SW8	0.05	0.05	0.05	0.05
Suspended Solids (mg/l)				
	Jan - Mar	Apr - June	July - Sept	Oct - Dec
Derrycolumb SW88	5	22	7	5
Granaghan SW23	5	19	5	5
Begnagh SW55	5	19	5	8
Cloneeney SW61	5	13	5	5
Derryshannogue SW94	11	7	21	5
Loughbannow SW95	11	13	19	5

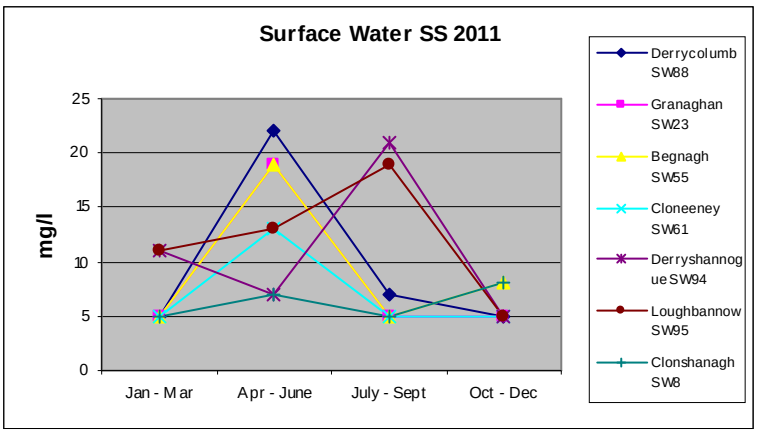
Clonshanagh SW8	5	7	5	8
Flow (l/s)				
	Jan - Mar	Apr - June	July - Sept	Oct - Dec
Derrycolumb SW88	18.2	24.6	16	5.2
Granaghan SW23	24.2	14.7	12	7.2
Begnagh SW55	28.3	31.1	16	22.3
Cloneeney SW61	15.2	12.6	5	2.2
Derryshannogue SW94	11.2	7.4	3	4.8
Loughbannow SW95	26.3	18.3	14	28.3
Clonshanagh SW8	9.2	6.1	17	0

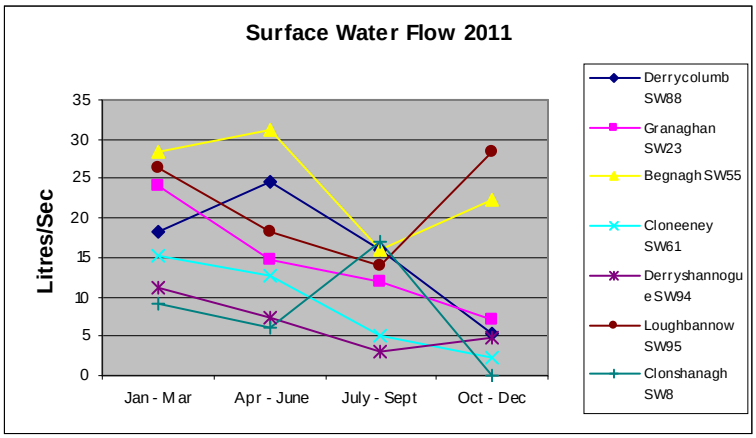





Surface Water Ammonia 2011
mg/l
2.5
2
1.5
1
0.5
0
Jan - Mar
Apr - June
July - Sept
Oct - Dec
Derrycolumb SW88
Granaghan SW23
Begnagh SW55
Cloneeney SW61
Derryshannogue SW94
Loughbannow SW95
Clonshanagh SW8


Surface Water Phosphorus 2011
mg/l
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
Jan - Mar
Apr - June
July - Sept
Oct - Dec
Derrycolumb SW88
Granaghan SW23
Begnagh SW55
Cloneeney SW61
Derryshannogue SW94
Loughbannow SW95
Clonshanagh SW8


Surface Water SS 2011
mg/l
25
20
15
10
5
0
Jan - Mar
Apr - June
July - Sept
Oct - Dec
Derrycolumb SW88
Granaghan SW23
Begnagh SW55
Cloneeney SW61
Derryshannogue SW94
Loughbannow SW95
Clonshanagh SW8

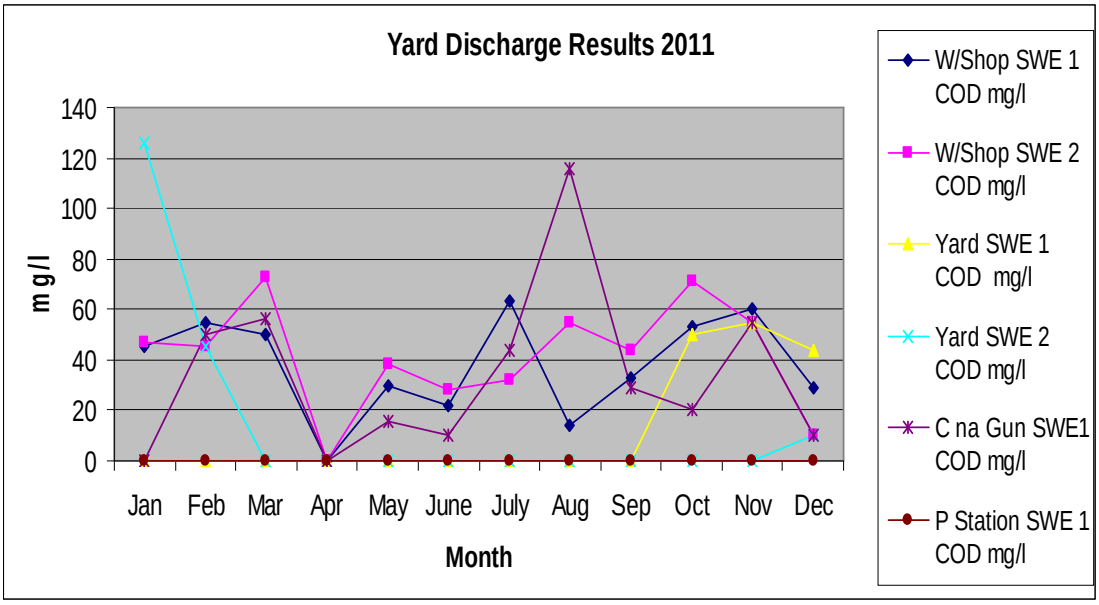

Surface Water Flow 2011
Litres/Sec
35
30
25
20
15
10
5
0
Jan - Mar
Apr - June
July - Sept
Oct - Dec
Derrycolumb SW88
Granaghan SW23
Begnagh SW55
Cloneeney SW61
Derryshannogue SW94
Loughbannow SW95
Clonshanagh SW8

APPENDIX 2

Surface Water Discharge
Monitoring Results
Yards

Yard Discharge Results 2011						
Licence: P0504-01						
Works: Mt Dillon						
Month	**W/Shop SWE 1 COD mg/l**	**W/Shop SWE 2 COD mg/l**	**Yard SWE 1 COD mg/l**	**Yard SWE 2 COD mg/l**	**C na Gun SWE1 COD mg/l**	**P Station SWE 1 COD mg/l**
Jan	45	47	0	126	0	0
Feb	55	45	0	45	50	0
Mar	50	73	0	0	56	0
Apr	0	0	0	0	0	0
May	30	38	0	0	16	0
June	22	28	0	0	10	0
July	63	32	0	0	44	0
Aug	14	55	0	0	116	0
Sep	33	44	0	0	29	0
Oct	53	71	50	0	20	0
Nov	60	55	55	0	55	0
Dec	29	10	44	10	10	0

Note: 0 denotes no flow at emission point on day of sampling



APPENDIX 3

Surface Water Discharge
Monitoring Results
Composite

Month				Parameters							Daily Totals		
January	pH	COD	Ammonia as	Total	Suspended	Total	Colour	Flow	COD	Ammonia as	Total	Suspended	Total
2011		mg/l	N mg/l	Phosphorus	Solids	Solids	Pt Co	Daily	Kg/Day	Kg/Day	Phosphorus	Solids	Solids
SW92				mg/l	mg/l	mg/l	units	Total (litres)			Kg/Day	Kg/Day	Kg/Day
1					0	0		6579014				0.00	0.00
2					0	0		6579014				0.00	0.00
3					0	0		6579014				0.00	0.00
4					0	0		6579014				0.00	0.00
5					0	0		6579014				0.00	0.00
6					0	0		6579014				0.00	0.00
7					0	0		6579014				0.00	0.00
8					0	0		6579014				0.00	0.00
9					0	0		6579014				0.00	0.00
10					0	0		6579014				0.00	0.00
11					0	0		6579014				0.00	0.00
12	7.5	118	0.96	0.05	33	320	187	6579014	776.32	6.32	0.33	217.11	2105.28
13					14	216		6579014				92.11	1421.07
14					26	226		6459869				167.96	1459.93
15					12	286		5984150				71.81	1711.47
16					17	288		8067341				137.14	2323.39
17					18	298		8181216				147.26	2438.00
18					30	380		7837862				235.14	2978.39
19	7.7	71	0.86	0.05	12	298	171	8164800	579.70	7.02	0.41	97.98	2433.11
20					0	0		7735910				0.00	0.00
21					0	0		4864925				0.00	0.00
22					0	0		3427402				0.00	0.00
23					0	0		3427402				0.00	0.00
24					0	0		3427402				0.00	0.00
25					0	0		3427402				0.00	0.00
26					0	0		3427402				0.00	0.00
27	7.6	75	1.28	0.05	5	204	111	3427402	257.06	4.39	0.17	17.14	699.19
28					5	586		3313440				16.57	1941.68
29					8	608		2919370				23.35	1774.98
30					14	690		2710886				37.95	1870.51
31					5	602		2879798				14.40	1733.64

Month				Parameters							Daily Totals		
Feb	pH	COD	Ammonia as	Total	Suspended	Total	Colour	Flow	COD	Ammonia as	Total	Suspended	Total
2011		mg/l	N mg/l	Phosphorus	Solids	Solids	Pt Co	Daily	Kg/Day	Kg/Day	Phosphorus	Solids	Solids
SW92				mg/l	mg/l	mg/l	units	Total (litres)			Kg/Day	Kg/Day	Kg/Day
1					7	596		2492726				17.45	1485.66
2	8.1	44	1.27	0.05	5	580	99	3274214	144.07	4.16	0.16	16.37	1899.04
3					18	328		4056998				73.03	1330.70
4					6	336		4019242				24.12	1350.47
5					18	324		5709399				102.77	1849.85
6					17	336		6244819				106.16	2098.26
7					18	324		8920800				160.57	2890.34
8					12	327		9723456				116.68	3179.57
9	7.7	69	0.45	0.05	11	328	190	8035718	554.46	3.62	0.40	88.39	2635.72
10					5	298		7404567				37.02	2206.56
11					5	276		7593523				37.97	2095.81
12					5	432		7631194				38.16	3296.68
13					5	322		7332595				36.66	2361.10
14					5	280		6860073				34.30	1920.82
15					5	348		5439398				27.20	1892.91
16	7.6	48	0.51	0.05	5	292	172	4822675	231.49	2.46	0.24	24.11	1408.22
17					19	362		5338656				101.43	1932.59
18					17	361		3828470				65.08	1382.08
19					17	436		3988569				67.81	1739.02
20					19	408		3238013				61.52	1321.11
21					17	512		637278				10.83	326.29
22	7.8	53	1.04	0.05	19	558	132	3407271	180.59	3.54	0.17	64.74	1901.26
23					0	0		4502390				0.00	0.00
24					5	607		4478371				22.39	2718.37
25					5	608		4628016				23.14	2813.83
26					5	598		4547578				22.74	2719.45
27					5	622		3586291				17.93	2230.67
28					5	756		3016310				15.08	2280.33

Month				Parameters							Daily Totals		
March	pH	COD	Ammonia as	Total	Suspended	Total	Colour	Flow	COD	Ammonia as	Total	Suspended	Total
2011		mg/l	N mg/l	Phosphorus	Solids	Solids	Pt Co	Daily	Kg/Day	Kg/Day	Phosphorus	Solids	Solids
SW92				mg/l	mg/l	mg/l	units	Total (litres)			Kg/Day	Kg/Day	Kg/Day
1					7	738		3719952				26.04	2745.32
2	7.8	59	1.09	0.05	5	728	114	3899146	230.05	4.25	0.19	19.50	2838.58
3					5	950		3440448				17.20	3268.43
4					5	884		2345933				11.73	2073.80
5					0	0		2318803				0.00	0.00
6					0	0		2782080				0.00	0.00
7					5	898		2785450				13.93	2501.33
8					11	972		2510870				27.62	2440.57
9	7.8	40	1.16	0.05	12	971	96	1886976	75.48	2.19	0.09	22.64	1832.25
10					20	1027		2115072				42.30	2172.18
11					20	292		1571270				31.43	458.81
12					7	386		2346019				16.42	905.56
13					15	372		6484147				97.26	2412.10
14					7	492		6153408				43.07	3027.48
15	7.6	68	0.82	0.05	60	590	114	4653331	316.43	3.82	0.23	279.20	2745.47
16					0	0		3929558				0.00	0.00
17					5	304		3620505				18.10	1100.63
18					6	676		2918851				17.51	1973.14
19					24	698		2686954				64.49	1875.49
20					8	627		2566080				20.53	1608.93
21					27	686		2571178				69.42	1763.83
22					5	310		2889302				14.45	895.68
23	8	49	0.79	0.05	5	700	88	2668291	130.75	2.11	0.13	13.34	1867.80
24					5	782		2610835				13.05	2041.67
25					9	714		2881872				25.94	2057.66
26					5	860		2052605				10.26	1765.24
27					8	894		1739664				13.92	1555.26
28					7	944		1860710				13.02	1756.51
29					5	966		2020896				10.10	1952.19
30	7.7	77	1.15	0.05	12	788	84	1980288	152.48	2.28	0.10	23.76	1560.47
31					6	680		1721620				10.33	1170.70

Month				Parameters							Daily Totals		
April	pH	COD	Ammonia as	Total	Suspended	Total	Colour	Flow	COD	Ammonia as	Total	Suspended	Total
2011		mg/l	N mg/l	Phosphorus	Solids	Solids	Pt Co	Daily	Kg/Day	Kg/Day	Phosphorus	Solids	Solids
SW92				mg/l	mg/l	mg/l	units	Total (litres)			Kg/Day	Kg/Day	Kg/Day
1					14	486		979433				13.71	476.00
2					5	902		2000390				10.00	1804.35
3					16	490		2805850				44.89	1374.87
4					5	902		2461240				12.31	2220.04
5					5	924		3550850				17.75	3280.99
6	8.1	46	0.82	0.05	5	1026	89	3639980	167.44	2.98	0.18	18.20	3734.62
7					5	515		1285780				6.43	662.18
8					5	616		2941860				14.71	1812.19
9					5	752		2892920				14.46	2175.48
10					5	780		1752310				8.76	1366.80
11					5	762		2154510				10.77	1641.74
12					6	814		2100630				12.60	1709.91
13	8.1	53	0.65	0.05	5	796	99	2223140	117.83	1.45	0.11	11.12	1769.62
14					5	653		2098020				10.49	1370.01
15					6	726		1271430				7.63	923.06
16					8	0		1082980				8.66	0.00
17					0	0		850252				0.00	0.00
18					0	0		1596340				0.00	0.00
19					5	288		1275590				6.38	367.37
20	7.8	34	0.31	0.05	5	298	97	1323060	44.98	0.41	0.07	6.62	394.27
21					10	982		1111930				11.12	1091.92
22					7	1346		1258830				8.81	1694.39
23					5	1398		1094690				5.47	1530.38
24					7	1296		1421900				9.95	1842.78
25					6	1342		1332740				8.00	1788.54
26					7	1340		1520600				10.64	2037.60
27	7.9	40	0.66	0.05	7	1478	64	1298250	51.93	0.86	0.06	9.09	1918.81
28					0	0		878854				0.00	0.00
29					0	0		703793				0.00	0.00
30					0	0		870488				0.00	0.00

Month				Parameters							Daily Totals		
May	pH	COD	Ammonia as	Total	Suspended	Total	Colour	Flow	COD	Ammonia as	Total	Suspended	Total
2011		mg/l	N mg/l	Phosphorus	Solids	Solids	Pt Co	Daily	Kg/Day	Kg/Day	Phosphorus	Solids	Solids
SW92				mg/l	mg/l	mg/l	units	Total (litres)			Kg/Day	Kg/Day	Kg/Day
1					0	0		861671				0.00	0.00
2					0	0		767024				0.00	0.00
3					0	0		558664				0.00	0.00
4	8	40	0.54	0.05	6	1620	56	265242	10.61	0.14	0.01	1.59	429.69
5					6	1826		611997				3.67	1117.51
6					7	1756		1144710				8.01	2010.11
7					11	1564		1302730				14.33	2037.47
8					6	1192		1090480				6.54	1299.85
9					11	1184		890050				9.79	1053.82
10					6	1208		1258660				7.55	1520.46
11	7.9	45	0.57	0.05	6	1312	42	904115	40.69	0.52	0.05	5.42	1186.20
12					0	0		883867				0.00	0.00
13					5	1256		1284750				6.42	1613.65
14					5	1370		909679				4.55	1246.26
15					5	1418		992559				4.96	1407.45
16					5	1272		1470140				7.35	1870.02
17					5	1314		1470010				7.35	1931.59
18	7.9	58	0.54	0.05	8	1514	70	450830	26.15	0.24	0.02	3.61	682.56
19					0	0		-296459				0.00	0.00
20					0	0		-12680.3				0.00	0.00
21					0	0		729312				0.00	0.00
22					0	0		1092070				0.00	0.00
23					32	670		1405950				44.99	941.99
24					13	1682		635834				8.27	1069.47
25	8.2	58	0.58	0.05	15	988	104	363651	21.09	0.21	0.02	5.45	359.29
26					0	0		707539				0.00	0.00
27					0	0		205749				0.00	0.00
28					0	0		294947				0.00	0.00
29					0	0		246702				0.00	0.00
30					0	0		321645				0.00	0.00
31					0	0		288402				0.00	0.00

Month				Parameters							Daily Totals		
June	pH	COD	Ammonia as	Total	Suspended	Total	Colour	Flow	COD	Ammonia as	Total	Suspended	Total
2011		mg/l	N mg/l	Phosphorus	Solids	Solids	Pt Co	Daily	Kg/Day	Kg/Day	Phosphorus	Solids	Solids
SW92				mg/l	mg/l	mg/l	units	Total (litres)			Kg/Day	Kg/Day	Kg/Day
1	7.8	43	0.63	0.05	9	1394	91	255454	10.98	0.16	0.01	2.30	356.10
2					5	842		271894				1.36	228.93
3					5	802		164154				0.82	131.65
4					5	1186		127852				0.64	151.63
5					5	1200		507842				2.54	609.41
6					5	1166		350665				1.75	408.88
7					5	1272		472993				2.36	601.65
8	8.3	43	0.08	0.05	5	1312	88	309434	13.31	0.02	0.02	1.55	405.98
9					0	0		379387				0.00	0.00
10					0	0		385887				0.00	0.00
11					0	0		223418				0.00	0.00
12					0	0		273992				0.00	0.00
13					0	0		371776				0.00	0.00
14					0	0		210998				0.00	0.00
15	7.9	48	0.47	0.09	5	1010	107	224832	10.79	0.11	0.02	1.12	227.08
16					6	1122		223332				1.34	250.58
17					5	1114		473020				2.37	526.94
18					5	1000		612742				3.06	612.74
19					5	996		271324				1.36	270.24
20					5	1032		200667				1.00	207.09
21					6	1080		194502				1.17	210.06
22	8.2	45	0.45	0.05	10	1044	31	213549	9.61	0.10	0.01	2.14	222.95
23					0	0		177766				0.00	0.00
24					0	0		426207				0.00	0.00
25					0	0		1599960				0.00	0.00
26					0	0		391151				0.00	0.00
27					0	0		295486				0.00	0.00
28					0	0		402977				0.00	0.00
29	7.8	30	0.43	0.05	6	724	135	321413	9.64	0.14	0.02	1.93	232.70
30					0	0		403538				0.00	0.00

Month				Parameters							Daily Totals		
July	pH	COD	Ammonia as	Total	Suspended	Total	Colour	Flow	COD	Ammonia as	Total	Suspended	Total
2011		mg/l	N mg/l	Phosphorus	Solids	Solids	Pt Co	Daily	Kg/Day	Kg/Day	Phosphorus	Solids	Solids
SW92				mg/l	mg/l	mg/l	units	Total (litres)			Kg/Day	Kg/Day	Kg/Day
1					0	0		293659				0.00	0.00
2					0	0		98876.2				0.00	0.00
3					0	0		312584				0.00	0.00
4					0	0		286729				0.00	0.00
5					0	0		253720				0.00	0.00
6	8	65	0.28	0.05	7	1286	86	301606	19.60	0.08	0.02	2.11	387.87
7					5	940		644551				3.22	605.88
8					5	1114		1560030				7.80	1737.87
9					5	577		1493620				7.47	861.82
10					5	566		889776				4.45	503.61
11					5	636		747730				3.74	475.56
12					5	640		430155				2.15	275.30
13	7.9	95	0.34	0.06	8	768	136	555945	52.81	0.19	0.03	4.45	426.97
14					8	1077		332384				2.66	357.98
15					8	918		491881				3.94	451.55
16					5	882		691093				3.46	609.54
17					6	1046		1308520				7.85	1368.71
18					6	1240		694343				4.17	860.99
19					9	1190		714095				6.43	849.77
20	8.1	28	0.33	0.05	12	1124	214	780539	21.86	0.26	0.04	9.37	877.33
21					0	0		860418				0.00	0.00
22					0	0		610203				0.00	0.00
23					0	0		766566				0.00	0.00
24					0	0		754094				0.00	0.00
25					0	0		872433				0.00	0.00
26					0	0		1204930				0.00	0.00
27	8	50	0.23	0.05	5	1166	89	534222	26.71	0.12	0.03	2.67	622.90
28					5	1080		879739				4.40	950.12
29					5	964		506133				2.53	487.91
30					5	1068		1238800				6.19	1323.04
31					7	10969		261673				1.83	2870.29

Month				Parameters							Daily Totals		
August	pH	COD	Ammonia as	Total	Suspended	Total	Colour	Flow	COD	Ammonia as	Total	Suspended	Total
2011		mg/l	N mg/l	Phosphorus	Solids	Solids	Pt Co	Daily	Kg/Day	Kg/Day	Phosphorus	Solids	Solids
SW92				mg/l	mg/l	mg/l	units	Total (litres)			Kg/Day	Kg/Day	Kg/Day
1					5	1138		546262				2.73	621.6
2					5	1096		462656				2.31	507.1
3	8.3	11	0.03	0.05	5	1130	70	178361	1.96	0.01	0.01	0.89	201.5
4					0	0		240086				0.00	0.0
5					0	0		412514				0.00	0.0
6					0	0		801218				0.00	0.0
7					0	0		863204				0.00	0.0
8					0	0		626424				0.00	0.0
9					0	0		438833				0.00	0.0
10	8	18	0.15	0.05	6	1293	72	1293310	23.28	0.19	0.06	7.76	1672.2
11					0	0		973152				0.00	0.0
12					0	0		633909				0.00	0.0
13					0	0		-16139.8				0.00	0.0
14					0	0		212832				0.00	0.0
15					0	0		12896.6				0.00	0.0
16					0	0		272601				0.00	0.0
17					0	0		84254.8				0.00	0.0
18					5	651		-27976.7				-0.14	-18.2
19					7	950		-312873				-2.19	-297.2
20					6	1070		-84296.8				-0.51	-90.2
21					5	1052		-501.36				0.00	-0.5
22					5	660		-87528.2				-0.44	-57.8
23					9	1116		66916.7				0.60	74.7
24	8	47	0.5	0.05	5	636	133	-105663	-4.97	-0.05	-0.01	-0.53	-67.2
25					0	0		-309174				0.00	0.0
26					0	0		577748				0.00	0.0
27					11	848		322955				3.55	273.9
28					0	0		295234				0.00	0.0
29					0	0		291150				0.00	0.0
30					9	972		288462				2.60	280.4
31	7.8	56	0.35	0.05	5	698	119	353312	19.79	0.12	0.02	1.77	246.6

Month				Parameters							Daily Totals		
Sept	pH	COD	Ammonia as	Total	Suspended	Total	Colour	Flow	COD	Ammonia as	Total	Suspended	Total
2011		mg/l	N mg/l	Phosphorus	Solids	Solids	Pt Co	Daily	Kg/Day	Kg/Day	Phosphorus	Solids	Solids
SW92/62				mg/l	mg/l	mg/l	units	Total (litres)			Kg/Day	Kg/Day	Kg/Day
1					9	802		260785				2.35	209.15
2								365277				0.00	0.00
3					9	800		470980				4.24	376.78
4								462704				0.00	0.00
5					25	430		971603				24.29	417.79
6								3344720				0.00	0.00
7	7.7	64	0.7	0.05	14	324	180	1423690	91.12	1.00	0.07	19.93	461.28
8								220036				0.00	0.00
9								0				0.00	0.00
10								0				0.00	0.00
11								0				0.00	0.00
12								0				0.00	0.00
13								139882				0.00	0.00
14	7.6	76	0.02	0.05	5	348	164	374458	28.46	0.01	0.02	1.87	130.31
15								890784				0.00	0.00
16								856397				0.00	0.00
17								129600				0.00	0.00
18								129859				0.00	0.00
19								128218				0.00	0.00
20								129859				0.00	0.00
21	7.1	72	1.08	0.05	5	167	272	148435	10.69	0.16	0.01	0.74	24.79
22								192672				0.00	0.00
23								187229				0.00	0.00
24								144115				0.00	0.00
25								210470				0.00	0.00
26								218765				0.00	0.00
27								140573				0.00	0.00
28	7.1	55	0.98	0.05	6	130	259	435024	23.93	0.43	0.02	2.61	56.55
29					5	156		653443				3.27	101.94
30					8	188		935107				7.48	175.80

Sampler Relocated 08/09/2011

Month				Parameters							Daily Totals		
Oct	pH	COD	Ammonia as	Total	Suspended	Total	Colour	Flow	COD	Ammonia as	Total	Suspended	Total
2011		mg/l	N mg/l	Phosphorus	Solids	Solids	Pt Co	Daily	Kg/Day	Kg/Day	Phosphorus	Solids	Solids
SW62				mg/l	mg/l	mg/l	units	Total (litres)			Kg/Day	Kg/Day	Kg/Day
1					7	284		1177200				8.24	334.32
2					5	160		110074				0.55	17.61
3					6	146		1998950				11.99	291.85
4					5	156		3403900				17.02	531.01
5	8	70	0.69	0.05	5	174	292	5562690	389.39	3.84	0.28	27.81	967.91
6					5	170		5443290				27.22	925.36
7					5	140		7227790				36.14	1011.89
8					5	308		6172930				30.86	1901.26
9					5	186		5656090				28.28	1052.03
10					5	130		5687450				28.44	739.37
11					5	128		5839170				29.20	747.41
12	7.7	64	0.43	0.05	5	226	210	5652120	361.74	2.43	0.28	28.26	1277.38
13					30	141		5074880				152.25	715.56
14					5	78		5895760				29.48	459.87
15					5	140		6114180				30.57	855.99
16					5	140		5565630				27.83	779.19
17					5	140		3464640				17.32	485.05
18					5	158		632016				3.16	99.86
19	7.7	55	0.73	0.05	5	140	282	2719180	149.55	1.99	0.14	13.60	380.69
20					0	0		6521470				0.00	0.00
21					11	120		7592750				83.52	911.13
22					8	124		6801490				54.41	843.38
23					5	122		803952				4.02	98.08
24					0	0		780883				0.00	0.00
25	6.4	78	0.42	0.05	5	124	231	1580080	123.25	0.66	0.08	7.90	195.93
26					0	0		1753830				0.00	0.00
27					7	152		13549600				94.85	2059.54
28					10	122		14246800				142.47	1738.11
29					6	122		14217700				85.31	1734.56
30					9	118		16700100				150.30	1970.61
31					7	140		16476700				115.34	2306.74

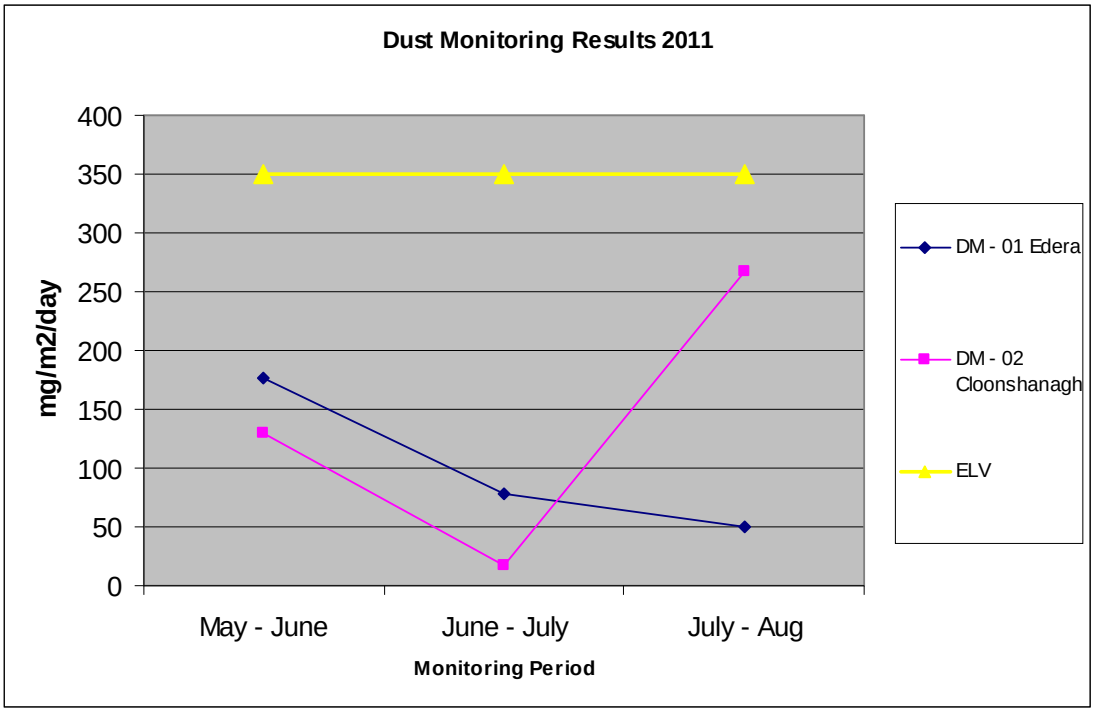
Month				Parameters							Daily Totals		
Nov	pH	COD	Ammonia as	Total	Suspended	Total	Colour	Flow	COD	Ammonia as	Total	Suspended	Total
2011		mg/l	N mg/l	Phosphorus	Solids	Solids	Pt Co	Daily	Kg/Day	Kg/Day	Phosphorus	Solids	Solids
SW62				mg/l	mg/l	mg/l	units	Total (litres)			Kg/Day	Kg/Day	Kg/Day
1					5	119		15545400				77.73	1849.90
2	7.3	89	0.17	0.05	25	146	227	2864940	254.98	0.49	0.14	71.62	418.28
3					5	110		6093790				30.47	670.32
4					5	112		8987500				44.94	1006.60
5					5	122		7689690				38.45	938.14
6					5	120		7088080				35.44	850.57
7					5	120		7149080				35.75	857.89
8					7	133		7090070				49.63	942.98
9	7	61	0.66	0.05	5	136	223	6455460	393.78	4.26	0.32	32.28	877.94
10					5	134		7324820				36.62	981.53
11					11	134		6720540				73.93	900.55
12					5	136		6368720				31.84	866.15
13					5	124		6218640				31.09	771.11
14					6	132		6443020				38.66	850.48
15					5	110		6175440				30.88	679.30
16	7.5	73	0.58	0.05	5	136	242	4939140	360.56	2.86	0.25	24.70	671.72
17					5	272		4103050				20.52	1116.03
18					5	106		8668080				43.34	918.82
19					5	98		6852210				34.26	671.52
20					5	138		7448800				37.24	1027.93
21					5	100		7735820				38.68	773.58
22					5	93		7325680				36.63	681.29
23	7	50	0.66	0.05	5	82	247	6906560	345.33	4.56	0.35	34.53	566.34
24					5	96		7857480				39.29	754.32
25					5	116		5393870				26.97	625.69
26					8	82		2498690				19.99	204.89
27					8	50		1097190				8.78	54.86
28					0	0		-2407710				0.00	0.00
29					10	108		-3987010				-39.87	-430.60
30	6.6	66	0.42	0.05	19	78	166	-2360530	-155.79	-0.99	-0.12	-44.85	-184.12

Month				Parameters							Daily Totals		
Dec	pH	COD	Ammonia as	Total	Suspended	Total	Colour	Flow	COD	Ammonia as	Total	Suspended	Total
2011		mg/l	N mg/l	Phosphorus	Solids	Solids	Pt Co	Daily	Kg/Day	Kg/Day	Phosphorus	Solids	Solids
SW62				mg/l	mg/l	mg/l	units	Total (litres)			Kg/Day	Kg/Day	Kg/Day
1					5	118		7353500				36.77	867.71
2					5	212		7512130				37.56	1592.57
3					5	214		13222100				66.11	2829.53
4					5	112		15756000				78.78	1764.67
5					5	138		17391600				86.96	2400.04
6					8	156		16003200				128.03	2496.50
7	7.1	60	0.13	0.05	5	161		20327800	1219.67	2.64	1.02	101.64	3272.78
8					5	96		18300400				91.50	1756.84
9					5	58		18050700				90.25	1046.94
10					5	80		15420800				77.10	1233.66
11					5	110		17290800				86.45	1901.99
12					6	80		26547800				159.29	2123.82
13					5	90		13189200				65.95	1187.03
14	7.2	45	0.12	0.05	5	92	271	13423200	604.04	1.61	0.67	67.12	1234.93
15					5	100		14916700				74.58	1491.67
16					6	98		13741400				82.45	1346.66
17					5	106		9171790				45.86	972.21
18					5	94		9483180				47.42	891.42
19					5	133		9829730				49.15	1307.35
20					5	126		8620040				43.10	1086.13
21	6.8	34	0.11	0.09	5	116	158	11453400	389.42	1.26	1.03	57.27	1328.59
22					5	90		10694700				53.47	962.52
23					5	98		10305200				51.53	1009.91
24					5	86		10083900				50.42	867.22
25					5	67		10028900				50.14	671.94
26					5	50		10383600				51.92	519.18
27					5	88		10832200				54.16	953.23
28	7.5	37	0.42	0.05	5	104	143	10193000	377.14	4.28	0.51	50.97	1060.07
29					7	50		10314300				72.20	515.72
30					5	92		10415400				52.08	958.22
31					5	88		9915780				49.58	872.59

APPENDIX 4

Dust Monitoring Results.

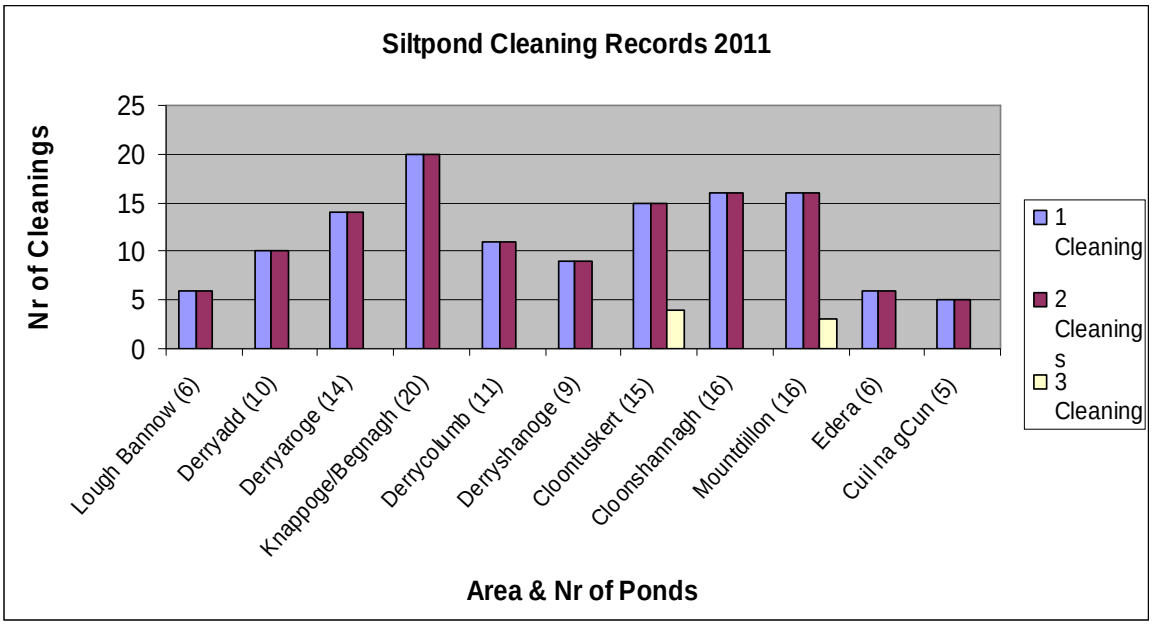
Dust Monitoring Results 2011		
Licence:P0504-01		
Works:Mt Dillon		
Sample Period	**DM - 01 Edera**	**DM - 02 Cloonshanagh**
May - June	177	130
June - July	78	17
July - Aug	50	267



APPENDIX 5

De-silting Programme Review.

Siltpond Cleaning Programme 2011				
IPPC Licence: P0504-01				
Works: Mt Dillon				
Bog Area & Nr Ponds	**1 Cleaning**	**2 Cleanings**	**3 Cleanings**	**4 Cleanings**
Lough Bannow (6)	6	6		
Derryadd (10)	10	10		
Derryaroge (14)	14	14		
Knappoge/Begnagh (20)	20	20		
Derrycolumb (11)	11	11		
Derryshanoge (9)	9	9		
Cloontuskert (15)	15	15	4	
Cloonshannagh (16)	16	16		
Mountdillon (16)	16	16	3	
Edera (6)	6	6		
Cuil na gCun (5)	5	5		



Environmental Protection Agency

Guidance to completing the PRTR workbook

AER Returns Workbook

Version 1.1.13

REFERENCE YEAR	2011

1. FACILITY IDENTIFICATION

Parent Company Name	Bord Na Mona Energy Limited
Facility Name	Bord Na Mona Energy Limited
PRTR Identification Number	P0504
Licence Number	P0504-01

Waste or IPPC Classes of Activity

No.	class_name
1.4	The extraction of peat in the course of business which involves an area exceeding 50 hectares.

Address 1	Mountdillon
Address 2	Lanesboro
Address 3	Co Longford
Address 4	
	Longford
Country	Ireland
Coordinates of Location	-7.92868 53.6697
River Basin District	IEGBNISH
NACE Code	0892
Main Economic Activity	Extraction of peat
AER Returns Contact Name	Enda McDonagh
AER Returns Contact Email Address	enda.mcdonagh@bnm.ie
AER Returns Contact Position	Head of Environment
AER Returns Contact Telephone Number	057 9345911
AER Returns Contact Mobile Phone Number	086 2370816
AER Returns Contact Fax Number	057 9345160
Production Volume	644128.0
Production Volume Units	tonnes
Number of Installations	19
Number of Operating Hours in Year	2232
Number of Employees	142
User Feedback/Comments	
Web Address	www.bnm.ie

2. PRTR CLASS ACTIVITIES

Activity Number	Activity Name
50.1	General

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

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

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

RELEASES TO AIR					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD				QUANTITY		
			Method Used					
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 PRTR POLLUTANTS

RELEASES TO AIR					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD				QUANTITY		
			Method Used					
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 C : REMAINING POLLUTANT EMISSIONS (As required in your Licence)

RELEASES TO AIR					Please enter all quantities in this section in KGs				
POLLUTANT		METHOD					QUANTITY		
			Method Used		DM01	DM02			
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	Emission Point 2	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
210	Dust	E	OTH	VDI 2119 Blatt 2/Part 2	0.0	0.0	0.06471	0.0	0.06471

* 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: Bord Na Mona Energy Limited

Please enter summary data on the quantities of methane flared and / or utilised			Method Used			
	T (Total) kg/Year	**M/C/E**	**Method Code**	**Designation or Description**	**Facility Total Capacity m3 per hour**	
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

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 only concerns Releases from your facility

RELEASES TO WATERS					Please enter all quantities in this section in KGs			
POLLUTANT					QUANTITY			
			Method Used					
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 PRTR POLLUTANTS

RELEASES TO WATERS					Please enter all quantities in this section in KGs			
POLLUTANT					QUANTITY			
			Method Used					
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 C : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

RELEASES TO WATERS					Please enter all quantities in this section in KGs											
POLLUTANT														QUANTITY		
			Method Used		SW88	SW23	SW55	SW61	SW94	SW95	SW8	SW92	SW62			
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	Emission Point 2	Emission Point 3	Emission Point 4	Emission Point 5	Emission Point 6	Emission Point 7	Emission Point 8	Emission Point 9	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
240	**Suspended Solids**	E	OTH	G/19 Based on ALPHA,1998,20th Edition, Method 2540D	4919.0	3893.0	7124.0	1931.0	2289.0	8221.0	1591.0	4313.0	4351.0	38632.0	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

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			
			Method Used					
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			
			Method Used					
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

SECTION A : PRTR POLLUTANTS

RELEASES TO LAND					Please enter all quantities in this section in KGs		
POLLUTANT		METHOD			QUANTITY		
			Method Used				
No. Annex II	Name	M/C/E	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		
			Method Used				
Pollutant No.	Name	M/C/E	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

Please enter all quantities on this sheet in Tonnes

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: Name and Licence/Permit No of Recover/Disposer	Haz Waste : Address of Next Destination Facility Non Haz Waste: Address of Recover/Disposer	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)
						M/C/E	Method Used					
Within the Country	20 03 01	No	32.24	mixed municipal waste	D1	M	Weighed	Offsite in Ireland	AES Ltd,053/OY/39/02	Cappincur,Tullamore,Offaly,.,Ireland		
Within the Country	02 01 04	No	361.62	waste plastics (except packaging)	R3	M	Weighed	Offsite in Ireland	Leinster Environmentals,WP2008/06	Haggardstown,Dundalk,Louth,.,Ireland		
Within the Country	**17 04 07**	**No**	195.25	mixed metals	R4	M	Weighed	Offsite in Ireland	AES Ltd,053/OY/39/02	Cappincur,Tullamore,Offaly,.,Ireland		
Within the Country	01 01 02	No	1364.0	wastes from mineral non-metalliferous excavation	D1	E	Volume Calculation	Onsite of generati	Bord na Mona Energy Ltd,P0504-01	Mountdillon,Lanesboro,Longford,.,Ireland		
Within the Country	15 01 01	No	10.9	paper and cardboard packaging	R3	M	Weighed	Offsite in Ireland	Mulleadys Ltd,S/E 152/2002	Drumlish,Longford,.,.,Ireland		
Within the Country	01 01 02	No	1477.0	wastes from mineral non-metalliferous excavation	D1	M	Weighed	Onsite of generati	Bord na Mona Energy Ltd,P0504-01	Mountdillon,Lanesboro,Longford,.,Ireland		
Within the Country	20 01 39	No	9.14	plastics	D1	M	Weighed	Offsite in Ireland	AES Ltd,053/OY/39/02	Cappincur,Tullamore,Offaly,.,Ireland		
Within the Country	15 01 03	No	16.6	wooden packaging	R1	M	Weighed	Offsite in Ireland	AES Ltd,053/OY/39/02	Cappincur,Tullamore,Offaly,.,Ireland		
Within the Country	13 02 05	Yes	33.1	mineral-based non-chlorinated engine, gear and lubricating oils	R1	C	Volume Calculation	Offsite in Ireland	Enva Ireland Ltd,184-1	Clonminam Indust Estate,Portlaoise,Laois,.,Ireland	Enva Ireland Ltd,184-1,Clonminam Indust Estate,Portlaoise,Laois,.,Ireland	Clonminam Indust Estate,Portlaoise,Laois,.,Ireland
To Other Countries	16 01 07	Yes	2.38	oil filters	R4	C	Volume Calculation	Abroad	Enva Ireland Ltd,184-1	Clonminam Indust Estate,Portlaoise,Laois,.,Ireland	RD Recycling,51727/1/KD,Hauthalen,.,.,.,Belgium	Hauthalen,.,.,.,Belgium
To Other Countries	16 06 01	Yes	2.09	lead batteries	R6	M	Weighed	Abroad	Enva Ireland Ltd,184-1	Clonminam Indust Estate,Portlaoise,Laois,.,Ireland	Campine Recycling,MLAV/05-173/GVDA,Beerse,.,.,.,Belgium	Beerse,.,.,.,Belgium
To Other Countries	11 01 13	Yes	0.51	degreasing wastes containing dangerous substances	R2	C	Volume Calculation	Abroad	Safety Clean Ltd,99-1	Tallaght,Dublin,.,.,Ireland	Solvent Recovery Management,PP33345F,Weeland Rd,Knottingly,West Yorks,WF118DZ,United Kingdom	Weeland Rd,Knottingly,West Yorks,WF118DZ,United Kingdom

* 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