



## **Annual Environmental Report 2008 P0504-01**

**March 2009**

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. The company turnover for 2007/8 was €370m.



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** 504**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 21117 Fax No 043 21259**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

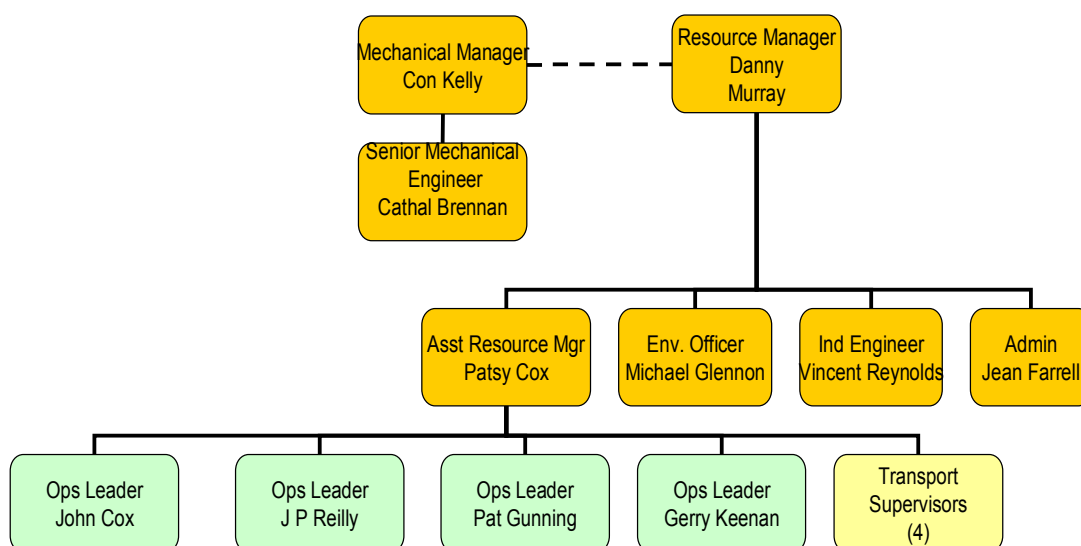
## 1.4 Environmental Management of the Company

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 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 will establish 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 out four times 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.

August was the wettest month of 2008 with rainfall of 210.7mm being recorded, while May was the driest with 14.7mm recorded.

The quarterly grab sampling programme proved to be 100% compliant for the year as were the 2006 and 2007 regimes.

Monitoring will continue at the same locations in 2009.

**pH** values were between 6.2 and 8.2, with normal emission limit values being of the range 6 and 9. This represented a slight broadening of the pH bands on previous years.

**Suspended solids** varied from 5mg/l to 20mg/l and would depend on activities ( piping, ditching ) etc in the catchments at the time of sampling. All are within the licence limit of 35mg/l.

**Ammonia** levels were constant across all monitoring locations and well below I/PV of 4mg/l for A3 waters. Analysis results were of the range 0.02 mg/l and 2.84 mg/l. The slightly elevated ammonia recorded in 2007 at SW 23 appears to have returned to normal levels, with no other location warranting comment.

**COD** readings were consistently below Bord na Mona set trigger levels of 100 mg/l, with the exception of 1<sup>st</sup> quarter monitoring at SW23. Subsequent results at this location were very acceptable. Results were down on previous years.

**Flow** rates were similar to previous years with increased flows during the 3<sup>rd</sup> quarter not having any great effect on suspended solids results in the same period.

**Total Phosphorus** results were of the range 0.05 mg/l and 0.33 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. With the exception of location, "P Station SWE1", a sample was retrieved at all other locations the majority of times. The recurring issue is the physical size of the catchments, which makes it difficult to guarantee a sample.

Trigger levels were exceeded at Yard SWE2, during the August monitoring event, however subsequent results from the same location indicate a return to normal levels.

Sampling will continue at the same locations during 2009.

Yard Emission Results are contained in Appendix 2

### 2.1.3 Composite Sampler Report

#### Comment

The composite sampler was operating at SW96 during the reporting period.

The parameters measured were 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 one non-compliance being recorded for the period.

August was the wettest month of 2008 with rainfall of 210.7mm being recorded, while May was the driest with 14.6mm recorded. This did not seem to have an adverse affect on results during the wetter periods.

Instances in the composite results tables, in the appendix, where no flow or negative flow is recorded, can be attributed to either, flooding of the outfall on which the sampler is located or mechanical failure of the sampler itself.

Composite Sampler Results are contained in Appendix 3.

## 2.1.4 Emissions to Water Non-compliance's

**Emissions to Water Non-Compliances 2008****Licence: P0504-01****Works: Mt Dillon**

Type	Non-Compliances	Location / SW Nr
Composite	1	SW 96
Quarterly Grab	0	
Monthly Yard	N/A	
<b>Totals</b>	<b>1</b>	

There was one non-compliance in relation to emissions to water and the agency was informed. Bord na Mona set trigger levels of 100 mg/l in relation to COD were exceeded twice during the reporting 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 and Cloonshanagh. All results were within the emission value of 350 mg/m<sup>2</sup>/day set out in the licence and no complaints were received in relation to dust. Sampling will continue at the same locations during 2009.

Dust Monitoring Results are contained in Appendix 4.

## 2.2.2 Emissions to Air Non-compliance's

<b>Dust Non-Compliances 2008</b>	
<b>Licence:P0504-01</b>	
<b>Works: Mt Dillon</b>	
Location / DM Nr	Non-Compliances
Edera/ DM 01	0
Cloonshannagh / DM 02	0
<b>Total</b>	<b>0</b>

## 2.2 Waste Arisings

### 2.3.1 Non Hazardous Waste

#### Non Hazardous Waste Data 2008

Licence: P0504-01

Works: Mt Dillon

Type	Tonnes	EWC Code	Contractor	Licence Nr
Skips	15.18	20 03 01	Mulleady	S/E152/2002
Cardboard	2.02	20 01 01	Mulleady	S/E152/2002
Polyethylene	599.86	02 01 04	Leinster Environmentals	WP 2004/30
Scrap Steel	381.88	17 04 07	AES Ltd	053/OY/39/02
Septic Tank Sludge	45.45	20 03 04	Clonterm Ltd	WCP/OY/718/08
Silt Pond Cleanings	1137.96	01 01 02	Bord na Mona	IPPC P0504-01
Peat Screenings	1564.00	01 01 02	Bord na Mona	IPPC P0540-01
<b>Totals</b>	<b>3746.35</b>			

**Note:** Polythene, Cardboard and Steel are recycled.

### 2.3.2 Hazardous Waste

#### Hazardous Waste Data 2008

Licence:P0504-01

Works: Mt Dillon

Type	Tonnes	EWC Code	Contractor	Licence Nr	Destination
Waste Oil	29.21	13 02 05	Enva Ireland Ltd Portlaoise	184-1	Portlaoise
Oil Filters	2.94	16 01 07	Enva Ireland Ltd Portlaoise	184-1	Portlaoise
Oily Rags	0.45	15 02 02	Enva Ireland Ltd Portlaoise	184-1	Portlaoise
Waste Grease	0.00	13 08 99	Enva Ireland Ltd Portlaoise	184-1	Portlaoise
Lead Acid Batt	3.81	16 06 01	Enva Ireland Ltd Portlaoise	184-1	Portlaoise
Fluorescent Tubes	0.00	20 01 21	Enva Ireland Ltd Portlaoise	184-1	Portlaoise
Parts Wash	1.51	11 01 13	Safety Kleen, Tallaght, Dublin	99-1	Dublin
Contaminated Soil	0.40	15 02 02	Enva Ireland Ltd Portlaoise	184-1	Portlaoise
<b>Total</b>	<b>38.31</b>				

**Note:** 76% of hazardous waste produced pertained to waste oil, of which a large amount pertained to the cleaning of oil traps and an oil spill clean up.

## 2.4 Energy and Water Consumption

Water is not used as part of the production process and is only used on a domestic scale at canteens and workshops.

### Energy Consumption 2008

<b>Licence: P0504-01</b>				
<b>Works: Mt Dillon</b>				
Units	Diesel ( Litres )	Petrol (Litres)	Electricity (Units)	Peat Briquettes (Tonnes)
<b>Totals</b>	1620955	1713	1951270	28
<b>MW Hours</b>	15873.0	15.48545	1951.27	140
<b>Total MW Hours</b>	<b>17979.8</b>			

**Note:** The electricity consumption figure was extracted from ESB on line information systems. Some of the consumption figures relate to estimated readings which do not reflect on the exact amount of consumption. Going forward/ Bord na Mona are liaising with the supplier, to try and eliminate all estimated readings. This will give a more precise figure in relation to consumption in the future.

## 2.5 Environmental Incidents and Complaints

### 2.5.1 Incidents

#### Environmental Incidents 2008

<b>Licence: P0504-01</b>	
<b>Works: Mt Dillon</b>	
	Number
Incidents	1
Requiring corrective action	1
<b>Category</b>	
Water	
Air	1
Procedural	
Miscellaneous	
<b>Total</b>	<b>1</b>

There was one incident during the reporting period and it related to a Bog Fire. The Agency was informed.

## Environmental Complaints 2008

**Works: Mt Dillon**

Complaints	0
Requiring corrective action	
<b>Category</b>	
Water	
Air	
Procedural	
Miscellaneous	
<b>Total</b>	<b>0</b>

### 3.0 Management of the Activity

Project	Description & Status
<p><b>Project 1:</b></p> <p>Reduction of fugitive dust emissions.</p>	<p><b>Training.</b> Train all employees in environmental matters. Training will be by means of the screening of an environmental DVD, followed by a power point presentation.</p> <p><b>Status</b> 109 Employees received environmental training during the reporting period.</p> <p><b>Hydraulic Harrows.</b> There are two new Hydraulic Harrows programmed for delivery for 2008 to be used in Dust Sensitive Locations.</p> <p><b>Status</b> Mt Dillon took delivery of one hydraulic harrow in 2008. In addition to this 5 hydraulic harrows were deployed at four locations in 2008.</p> <p><b>Headland Peat Collection.</b> Continue with the collection of headland peat, particularly at dust sensitive locations. A new mobile Haku Harvester is programmed for delivery for 2008/09 which will include dust sensitive headlands in its operations.</p> <p><b>Status</b> In total 1680 tonnes of headland peat were lifted during the production season.</p>

<p><b>Project 2:</b></p> <p>Waste Management</p>	<p><b>On Site Inspections.</b> A full programme of internal audits will be carried out as soon as production commences. This will be an annual exercise with the 2008 audit placing more emphasis on waste management.</p> <p><b>Status</b> Due to unforeseen circumstances, this project did not materialise.</p>
<p><b>Project 3:</b></p> <p>Minimisation of Suspended Solids.</p>	<p><b>Training.</b> Train all employees in environmental matters. Training will be by means of the screening of an environmental DVD, followed by a power point presentation.</p> <p><b>Status</b> 109 Employees received environmental training during the reporting period. Mt Dillon also took delivery of a new silt pond cleaning excavator.</p>
<p><b>Project 4:</b></p> <p>Effective spill leak management of mobile fuelling units.</p>	<p><b>Research and Development.</b> The identification and ultimately the introduction of mobile fuelling units which will enhance the spill / leak management of fuel oils. Increased bund provisions are planned for 2008, as well as three new fuel service wheeled wagons which contain banded tanks. In addition to this, one new rail operated Fuel Service Wagon will be introduced in Mt Dillon.</p> <p><b>Status</b> Mt Dillon took delivery of one rail operated Fuel Service Wagon. The delivery of Wheeled Fuel Service Wagons was deferred due to design issues.</p>
<p><b>Project 5:</b></p> <p>Collection storage and reuse of polyethylene.</p>	<p><b>Identify Recyclers.</b> Continue with the recycling of polyethylene. The sourcing of more recycling contractors will be ongoing.</p> <p><b>Status</b> There was 600 tonnes of polyethylene removed for recycling in 2008. In addition to this Mt Dillon took delivery of a new poly stripper / roller.</p>
<p><b>Project 6:</b></p> <p>Provision of measures to protect Dust Sensitive Areas.</p>	<p><b>Planting.</b> Ongoing Planting is ongoing as required, with areas in the periphery of production bogs that are being developed for housing being prioritised.</p> <p><b>Status</b> Planting took place at Derryadd Bog. In total a shelter belt of 100 trees were planted.</p>



### 3.2 Environmental Management Programme Proposal for 2009

Project	Description & Status
<b>Project 1:</b>  Reduction of fugitive dust emissions.	<b>Training.</b> 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.  <b>Hydraulic Harrows.</b> There are four new Hydraulic Harrows programmed for delivery over a five year period. These will be used in Dust Sensitive Locations.  <b>Headland Peat Collection.</b> Continue with the collection of headland peat, particularly at dust sensitive locations. A new mobile Haku Harvester is programmed for delivery for 2008/09 which will include dust sensitive headlands in its operations.
<b>Project 2:</b>  Waste Management	<b>Waste Streamlining.</b> Following the purchase by Bord na Mona of AES Ltd, meetings with that company's management will be ongoing to see how best Bord na Mona's needs can be catered for. Key account managers dedicated to Bord na Mona have been requested and are due to be in place in 2009.
<b>Project 3:</b>  Minimisation of Suspended Solids.	<b>Training.</b> 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.
<b>Project 4:</b>  Effective spill leak management of mobile fuelling units.	<b>Research and Development.</b> Continue to introduce rail operated fuel service wagons on a phased basis, with Mt Dillon works budgeted to receive one wagon during 2009. Increased bund provisions where required, will be provided, in 2009.
<b>Project 5:</b>  Collection storage and reuse of polyethylene.	<b>Identify Recyclers.</b> Continue with the recycling of polyethylene. The sourcing of more recycling contractors will be ongoing.
<b>Project 6:</b>  <b>PCB Directive</b>	<b>Survey.</b> Carry out a comprehensive survey of all PCB suspect appliances. Following this, liaise with EPA in deciding plan of action once a definitive amount of suspect PCB holdings are agreed.

### 3.3 Environmental Expenditure

#### Environmental Expenditure 2008

Licence: P0504-01

Works: Mt Dillon

Description	Cost €
Capital Costs	85,879.00
Silt Control ( Wages + Mats)	234,717.00
Analytical & Consultancy Costs	10,757.00
EPA Fees	9,188.00
Bog Rehabilitation	0.00
Waste Management	38,614.00
<b>Total</b>	<b>379,155.00</b>

### 4.0 Licence Specific Reports

#### 4.1 Surface Water Discharge Monitoring Location Programme Review

Surface water monitoring proved to be quite successful during the reporting period, with only one non-compliance being recorded in the reporting period. This was a quite satisfactory performance considering the rainfall experienced. With 210.7mm of rainfall recorded in August alone.

Sampling will take place at the same locations in 2009.

#### 4.2 Bunding Programme

Bund integrity testing was last carried out in 2007, with retesting scheduled for 2009.

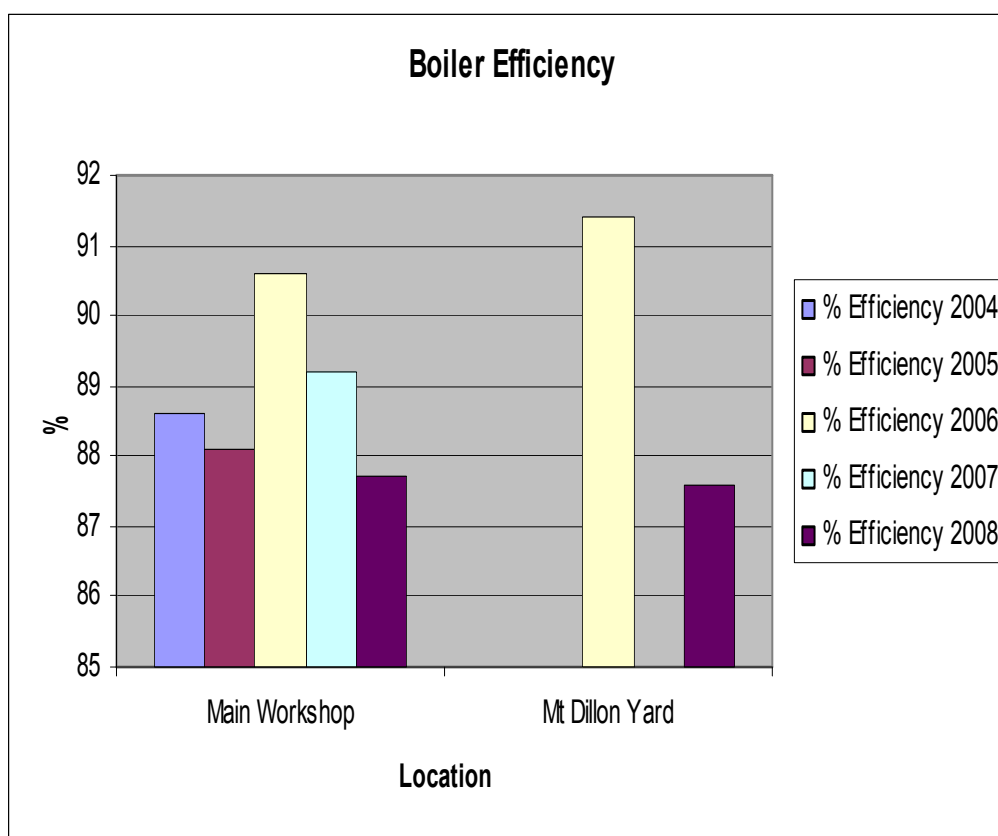
### 4.3 Boiler Combustion Efficiency

#### Boiler Emissions 2008

Licence: P0504-01

Works: Mt Dillon

Boiler Location	% Efficiency 2004	% Efficiency 2005	% Efficiency 2006	% Efficiency 2007	% Efficiency 2008
Main Workshop	88.6	88.1	90.6	89.2	87.7
Mt Dillon Yard			91.4		87.6



**Note:** All boilers are serviced at the time of efficiency testing.

#### 4.4 Resource consumption summary

Resource Consumption 2008			
Licence: P0504-01			
Works: Mt Dillon			
Product	Tonnes Produced	Tonnes Sold	Customer
Milled Peat	590299	838620	ESB
<b>Totals</b>	590299	838620	

Proposed Production 2009	
Licence: P0504-01	
Works: Mt Dillon	
Product	Proposed Target
Milled Peat	700000
Moss	
<b>Totals</b>	700000

#### 4.5 De-Silting Report

The De-silting programme worked well during 2008 with all ponds receiving at least two cleanings.

Silt Pond Cleaning Programme attached in Appendix 5.

#### 4.6 Bog Development and Operational Programme

Bog development took place at Cuil na Gun bog. This involved the conversion of some old sod turf cutaway bog, into milled peat production bog, by using earth moving machinery to level the terrain. In all, the works extended to approximately 40 hectares. It is proposed to set out and ditch this area in 2009.

The area developed is already serviced by an appropriately designed silt settlement pond.

#### **4.7 Bog Rehabilitation Report**

Following consultation with the National Parks and Wildlife Service ( Local and Regional Managers ), a group was established to identify potential areas within the Licence area, that may be suitable for management with a biodiversity focus. Following on from an initial baseline survey, 3 areas were identified as having potential. Further consultation with the NPWS will continue in 2009.

All bogs have been mapped, distinguishing current and future cutaway rehabilitation plans and will feed into a specific cutaway rehabilitation plan for Mt Dillon, in accordance with condition 10.2

#### **4.8 Archaeological Report**

10 bogs in the Mount Dillon group were surveyed during 2008. The walking survey, carried out under contract to Bord na Mona and the Department of Environment, Heritage and Local Government, yielded 100 potential sites for excavation in the future.

#### **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 were no non-compliance's in relation to the Composite Sampler during the period of January to the end of December. There was one non-compliance in relation to dust and the Agency was informed, however, Mountdillon received no complaints in relation to dust or silt in 2007.

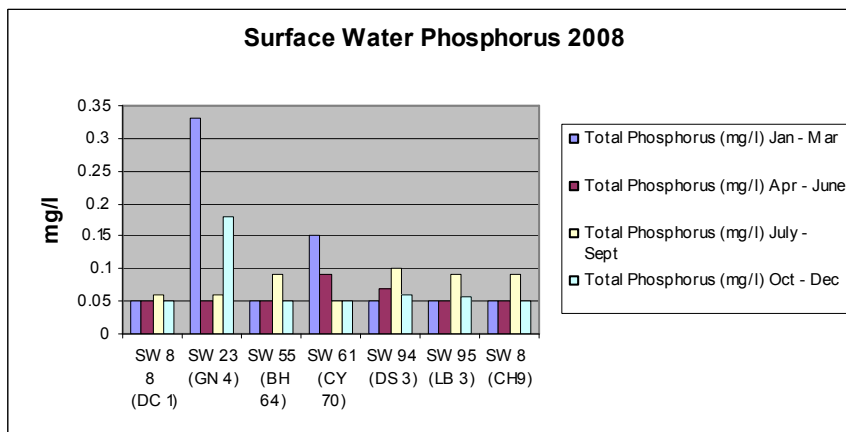
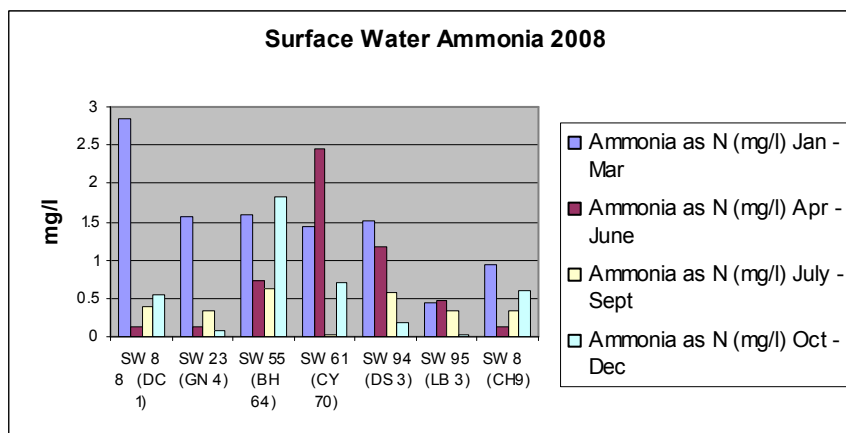
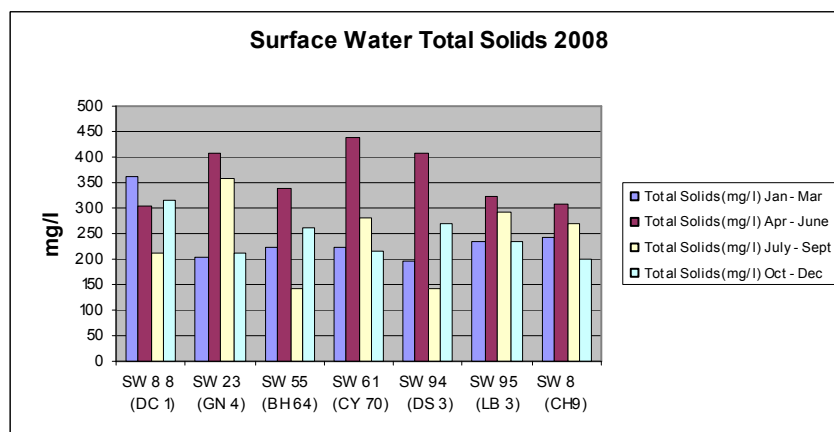
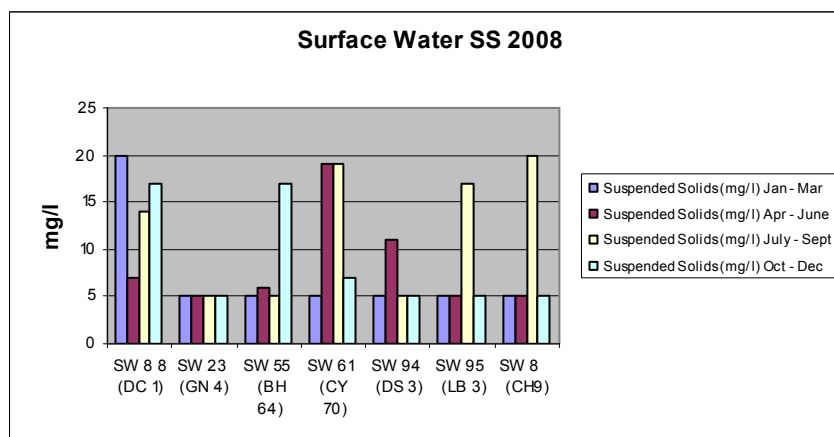
We intend to build on the success of 2007 and increase our efforts to minimise the impact of our operations on the environment. This will include the supply of additional plant, equipment and bunding. We have greatly improved our fire prevention and fire fighting capabilities in line with experience gained from the bog fires in June of 2006.

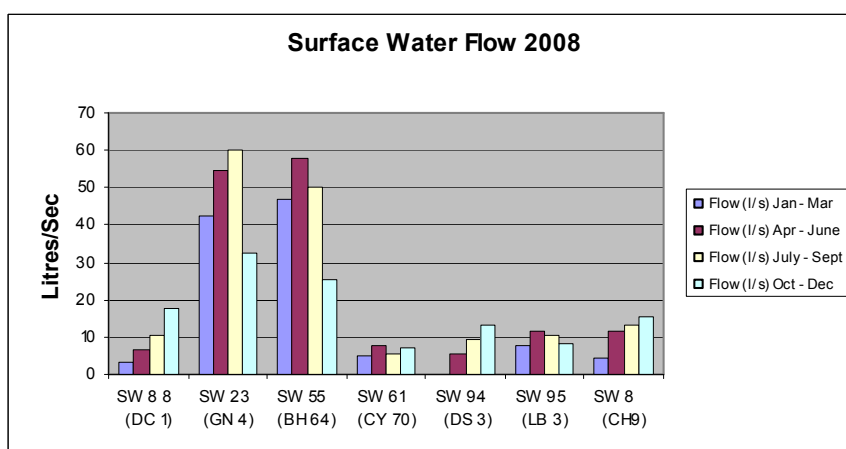
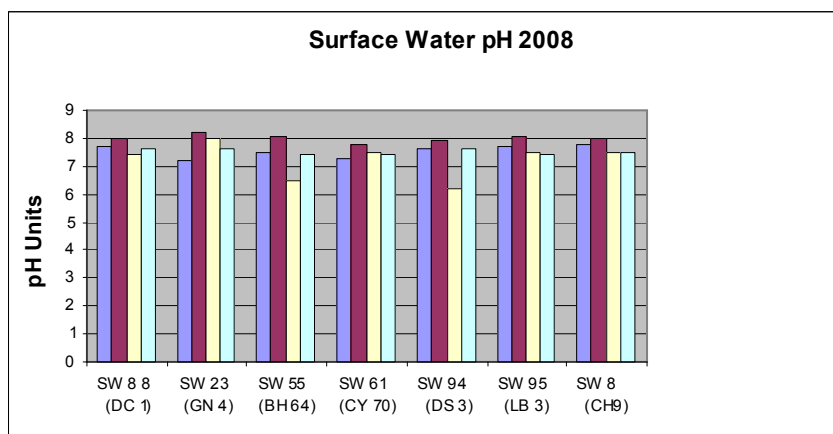
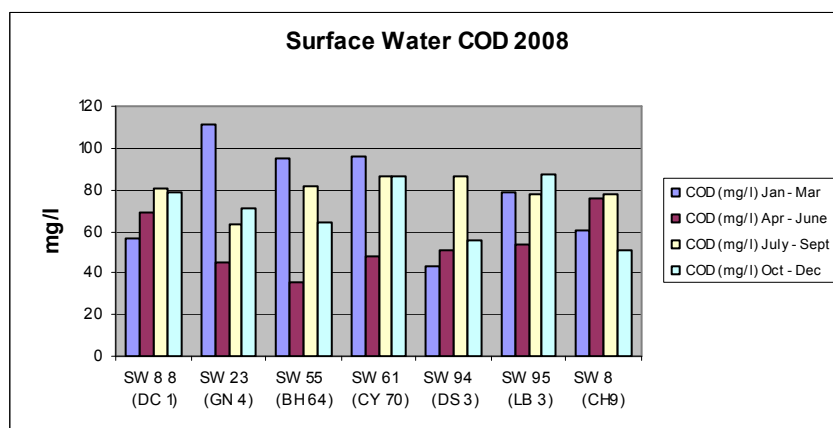
Bord na Mona Energy Ltd are represented on the Management Group of both the Shannon River and Eastern River Basin District Management Systems, set up under the Water Framework Directive, and on the Steering Group of the Catchment Management of the River Barrow.

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**







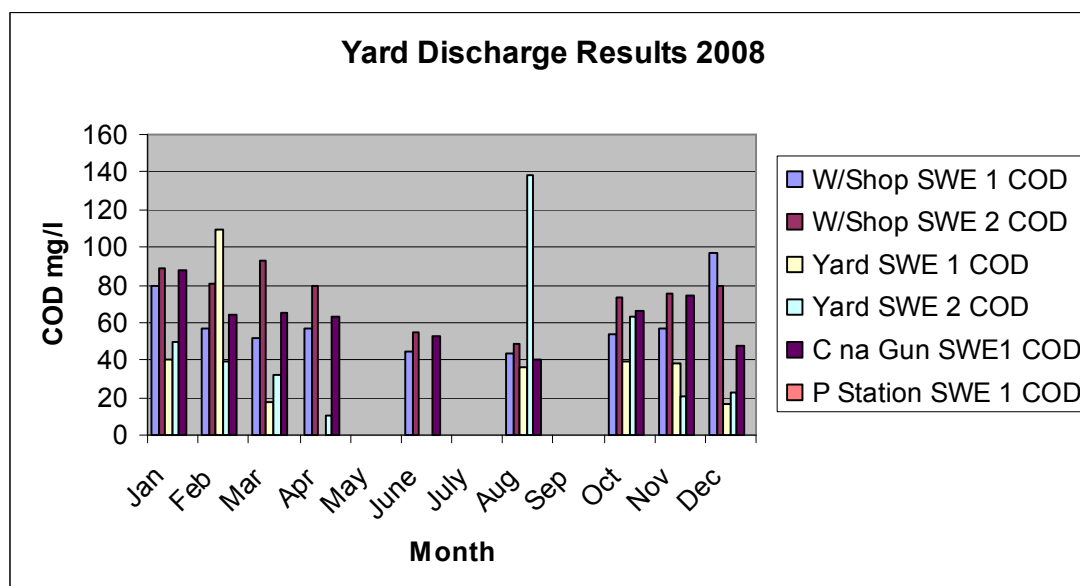
# **APPENDIX 2**

## **Surface Water Discharge Monitoring Results Yards**

### Yard Discharge Results 2008

Licence: P0504-01						
Works: Mt Dillon						
Month	W/Shop SWE 1 COD	W/Shop SWE 2 COD	Yard SWE 1 COD	Yard SWE 2 COD	C na Gun SWE1 COD	P Station SWE 1 COD
Jan	79	89	40	50	88	NF
Feb	57	81	109	39	64	NF
Mar	52	93	18	32	65	NF
Apr	57	79	NF	10	63	NF
May	NF	NF	NF	NF	NF	NF
June	44	55	NF	NF	53	NF
July	NF	NF	NF	NF	NF	NF
Aug	43	49	36	138	40	NF
Sep	NF	NF	NF	NF	NF	NF
Oct	54	73	39	63	66	NF
Nov	57	75	38	21	74	NF
Dec	97	79	17	23	48	NF

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



# **APPENDIX 3**

## **Surface Water Discharge Monitoring Results Composite**

Month				Parameters									
January	pH	COD	Ammonia as	Total	Suspended	Total	Colour	Flow	COD	Ammonia as	Total	Suspended	Total
2008		mg/l	N mg/l	Phosphorus	Solids	Solids	Pt Co	Daily	Kg/Day	Kg/Day	Phosphorus	Solids	Solids
				mg/l	mg/l	mg/l	units	Total (litres)			Kg/Day	Kg/Day	Kg/Day
1													
2													
3	7.7	42	0.35	0.05	7	324	130						
4													
5													
6													
7													
8													
9													
10													
11	7.3	52	0.38	0.07	25	118	101						
12													
13													
14													
15													
16													
17	7.8	67	0.69	0.08	47	302	157						
18													
19													
20													
21													
22													
23													
24	7.5	81	0.47	0.07	33	294	199						
25													
26													
27													
28													
29													
30													
31													

Month				Parameters									
February	pH	COD	Ammonia	Total	Suspended	Total	Colour	Flow	COD	Ammonia	Total	Suspended	Total
2008		mg/l	as	Phosphorus	Solids	Solids	Pt Co	Daily	Kg/Day	as	Phosphorus	Solids	Solids
			N mg/l	mg/l	mg/l	mg/l	units	Total (litres)		Kg/Day	Kg/Day	Kg/Day	Kg/Day
1													
2													
3													
4													
5													
6													
7	7.7	61	0.31	0.05	34	256	164						
8					13	284							
9					12	297		60906050				730.87	18089.10
10					14	322		61454420				860.36	19788.32
11					9	330		60667510				546.01	20020.28
12					14	346		58914350				824.80	20384.37
13	8	76	0.77	0.05	14	322	123	57103910	4339.90	43.97	2.86	799.45	18387.46
14					61	350		56051410				3419.14	19617.99
15					35	380		55218080				1932.63	20982.87
16					5	356		54558150				272.79	19422.70
17								53266010				0.00	0.00
18					6	360		52737230				316.42	18985.40
19					5	360		52472660				262.36	18890.16
20	8.5	62	1.56	0.05	13	354	131	52429300	3250.62	81.79	2.62	681.58	18559.97
21					11	289		51846540				570.31	14983.65
22					23	362		53456250				1229.49	19351.16
23					13	344		51869140				674.30	17842.98
24					8	372		52000230				416.00	19344.09
25					11	364		58050420				638.55	21130.35
26					8	338		57283740				458.27	19361.90
27	8.1	61	0.87	0.05	11	324	119	55581920	3390.50	48.36	2.78	611.40	18008.54
28								52750190					
29								59607290					

Month				Parameters									
March	pH	COD	Ammonia as	Total	Suspended	Total	Colour	Flow	COD	Ammonia as	Total	Suspended	Total
2008		mg/l	N mg/l	Phosphorus	Solids	Solids	Pt Co	Daily	Kg/Day	Kg/Day	Phosphorus	Solids	Solids
				mg/l	mg/l	mg/l	units	Total (litres)			Kg/Day	Kg/Day	Kg/Day
1					70	354		55835940				3908.52	19765.92
2					42	346		58338380				2450.21	20185.08
3					38	318		61443270				2334.84	19538.96
4					74	416		60804410				4499.53	25294.63
5	7.9	68	0.31	0.05	40	292	130	60857660	4138.32	18.87	3.04	2434.31	17770.44
6					26	292		58188990				1512.91	16991.19
7					15	300		61148680				917.23	18344.60
8					59	344		29788820				1757.54	10247.35
9					19	132		1126827				21.41	148.74
10					11	322		3317705				36.49	1068.30
11					21	326		2590113				54.39	844.38
12	8.2	54	0.02	0.05	5	328	130	2621815	141.58	0.05	0.13	13.11	859.96
13								2060313					
14								1215552					
15								1890862					
16								3126589					
17								1376368					
18								1197608					
19								1009964					
20								709377					
21								1021435					
22								709591					
23								637298					
24								463056					
25								892323					
26	8	58	0.59	0.05	26	344	111	1085824	62.98	0.64	0.05	28.23	373.52
27					5	348		30978930				154.89	10780.67
28					9	310		61676910				555.09	19119.84
29					5	392		66949690				334.75	26244.28
30					5	262		69666900				348.33	18252.73
31					5	296		59429030				297.15	17590.99

Month				Parameters							Daily Totals		
April	pH	COD	Ammonia as	Total	Suspended	Total	Colour	Flow	COD	Ammonia as	Total	Suspended	Total
2008		mg/l	N mg/l	Phosphorus	Solids	Solids	Pt Co	Daily	Kg/Day	Kg/Day	Phosphorus	Solids	Solids
				mg/l	mg/l	mg/l	units	Total (litres)			Kg/Day	Kg/Day	Kg/Day
1					5	338		4838746				24.19	1635.50
2	8.4	59	0.24	0.05	5	318	142	4838746	285.49	1.16	0.24	24.19	1538.72
3								4838746				0.00	0.00
4					7	386		4838746				33.87	1867.76
5					7	394		4838746				33.87	1906.47
6					5	392		4838746				24.19	1896.79
7					5	384		4838746				24.19	1858.08
8					5	406		4838746				24.19	1964.53
9	8.4	51	0.93	0.05	5	404	115	4838746	246.78	4.50	0.24	24.19	1954.85
10								4838746				0.00	0.00
11					5	346		4838746				24.19	1674.21
12					7	394		4838746				33.87	1906.47
13								4838746				0.00	0.00
14					5	352		4838746				24.19	1703.24
15								4838746				0.00	0.00
16	8.4	58	0.84	0.05	5	390	111	4838746	280.65	4.06	0.24	24.19	1887.11
17					5	412		4838746				24.19	1993.56
18					5	436		4838746				24.19	2109.69
19								4838746				0.00	0.00
20					11	436		4838746				53.23	2109.69
21					11	390		4838746				53.23	1887.11
22					10	452		4838746				48.39	2187.11
23	8	73	1.25	0.05	20	375	121	4838746	353.23	6.05	0.24	96.77	1814.53
24					8	422		4838746				38.71	2041.95
25					5	434		4838746				24.19	2100.02
26					10			4838746				48.39	0.00
27					5	438		4838746				24.19	2119.37
28	8.2	50	1	0.05	6	442	102	4838746	241.94	4.84	0.24	29.03	2138.73
29								4838746				0.00	0.00
30								4838746				0.00	0.00

Month				Parameters									
May	pH	COD	Ammonia	Total	Suspended	Total	Colour	Flow	COD	Ammonia	Total	Suspended	Total
2008		mg/l	as N mg/l	Phosphorus	Solids	Solids	Pt Co	Daily	Kg/Day	Kg/Day	Phosphorus	Solids	Solids
				mg/l	mg/l	mg/l	units	Total (litres)			Kg/Day	Kg/Day	Kg/Day
1					11	426		4838746				53.23	2061.31
2					12	450		4838746				58.06	2177.44
3					6	462		4838746				29.03	2235.50
4					13	452		4838746					
5					9	440		4838746					
6					11	482		4838746				53.23	2332.28
7	8.3	57	0.85	0.05	5	457	80	4838746	275.81	4.11	0.24	24.19	2211.31
8					5	520		4838746				24.19	2516.15
9					14	496		4838746				67.74	2400.02
10					7	508		4838746				33.87	2458.08
11					5	516		4838746				24.19	2496.79
12					5	522		4838746				24.19	2525.83
13					5	514		4838746				24.19	2487.12
14	8.4	50	0.78	0.05	5	520	75	4838746	241.94	3.77	0.24	24.19	2516.15
15								4838746				0.00	0.00
16								4838746				0.00	0.00
17								4838746				0.00	0.00
18								4838746				0.00	0.00
19								4838746				0.00	0.00
20								4838746				0.00	0.00
21								4838746				0.00	0.00
22								4838746				0.00	0.00
23								4838746				0.00	0.00
24								4838746				0.00	0.00
25								4838746				0.00	0.00
26								4838746				0.00	0.00
27								4838746				0.00	0.00
28	8.1	17	0.61	0.05	5	271	17	4838746	82.26	2.95	0.24	24.19	1311.30
29								4838746				0.00	0.00
30								4838746				0.00	0.00
31								4838746				0.00	0.00



Month				Parameters							Daily Totals		
June	pH	COD	Ammonia	Total	Suspended	Total	Colour	Flow	COD	Ammonia	Total	Suspended	Total
2008		mg/l	as N mg/l	Phosphorus	Solids	Solids	Pt Co	Daily	Kg/Day	Kg/Day	Phosphorus	Solids	Solids
				mg/l	mg/l	mg/l	units	Total (litres)			Kg/Day	Kg/Day	Kg/Day
1								4838746				0.00	0.00
2								4838746				0.00	0.00
3								4838746				0.00	0.00
4								4838746				0.00	0.00
5								4838746				0.00	0.00
6								4838746				0.00	0.00
7								4838746				0.00	0.00
8								4838746				0.00	0.00
9								4838746				0.00	0.00
10								4838746				0.00	0.00
11								4838746				0.00	0.00
12	8.1	23	0.43	0.05	5	294	63	4838746	111.29	2.08	0.24	24.19	1422.59
13								4838746				0.00	0.00
14								4838746				0.00	0.00
15								4838746				0.00	0.00
16								4838746				0.00	0.00
17								4838746				0.00	0.00
18								4838746				0.00	0.00
19	8	29	0.43	0.05	5	278	53	4838746	140.32	2.08	0.24	24.19	1345.17
20								4838746				0.00	0.00
21								4838746				0.00	0.00
22								4838746				0.00	0.00
23								4838746				0.00	0.00
24								4838746				0.00	0.00
25								4838746				0.00	0.00
26	8	69	0.67	0.05	20	401	98	4838746	333.87	3.24	0.24	96.77	1940.34
27								4838746				0.00	0.00
28								4838746				0.00	0.00
29								4838746				0.00	0.00
30								4838746				0.00	0.00

Month				Parameters									
July	pH	COD	Ammonia	Total	Suspended	Total	Colour	Flow	COD	Ammonia	Total	Suspended	Total
2008		mg/l	as N mg/l	Phosphorus	Solids	Solids	Pt Co	Daily	Kg/Day	Kg/Day	Phosphorus	Solids	Solids
				mg/l	mg/l	mg/l	units	Total (litres)			Kg/Day	Kg/Day	Kg/Day
1								4838746				0.00	0.00
2								4838746				0.00	0.00
3	7.9	81	0.53	0.05	54	322	191	4838746	391.94	2.56	0.24	261.29	1558.08
4					5	200		4838746				24.19	967.75
5					6	190		4708282				28.25	894.57
6					5	196		6079363				30.40	1191.56
7					5	270		6190474				30.95	1671.43
8					5	292		3765658				18.83	1099.57
9	8.2	62	0.39	0.05	8	240	186	2832106	175.59	1.10	0.14	22.66	679.71
10					5	400		2250374				11.25	900.15
11					5	410		3183408				15.92	1305.20
12					6	352		2810851				16.87	989.42
13					5	292		2349562				11.75	686.07
14					5	274		1775088				8.88	486.37
15					5	408		901670				4.51	367.88
16	7.9	43	0.44	0.05	7	354	133	1333152	57.33	0.59	0.07	9.33	471.94
17					5	396		961978				4.81	380.94
18					5	366		1191456				5.96	436.07
19					5	382		1212365				6.06	463.12
20					5	378		1140653				5.70	431.17
21					5	433		691459				3.46	299.40
22					6	422		682949				4.10	288.20
23	8	60	0.3	0.05	5	356	124	692885	41.57	0.21	0.03	3.46	246.67
24					5	442		637839				3.19	281.92
25					7	440		469973				3.29	206.79
26					6	442		361238				2.17	159.67
27					7	446		600808				4.21	267.96
28								272480				0.00	0.00
29					5	466		569117				2.85	265.21
30	8.4	55	0.15	0.05	5	454	106	1145405	63.00	0.17	0.06	5.73	520.01
31					5	394		684927				3.42	269.86

Month				Parameters							Daily Totals		
August	pH	COD	Ammonia as	Total	Suspended	Total	Colour	Flow	COD	Ammonia as	Total	Suspended	Total
2008		mg/l	N mg/l	Phosphorus	Solids	Solids	Pt Co	Daily	Kg/Day	Kg/Day	Phosphorus	Solids	Solids
				mg/l	mg/l	mg/l	units	Total (litres)			Kg/Day	Kg/Day	Kg/Day
1					5	282		1341446				6.71	378.29
2					5	263		2629930				13.15	691.67
3					5	304		2840659				14.20	863.56
4					5	318		2022106				10.11	643.03
5					5	336		1322784				6.61	444.46
	8.4	59	0.45	0.05	5	334	162	1483920	87.55	0.67	0.07	7.42	495.63
7					5	338		1636243				8.18	553.05
8					5	330		1480637				7.40	488.61
9					5	346		1075853				5.38	372.25
10					5	340		3729110				18.65	1267.90
11					5	336		1307837				6.54	439.43
12					5	196		3517949				17.59	689.52
13	8.1	69	0.32	0.05	5	240	275	4560970	314.71	1.46	0.23	22.80	1094.63
14					5	297		3105130				15.53	922.22
15					5	278		2903472				14.52	807.17
16					5	288		2572474				12.86	740.87
17					5	196		5167584				25.84	1012.85
18					5	256		3497386				17.49	895.33
19					8	298		3457901				27.66	1030.45
20	7.7	71	0.36	0.05	5	324	210	3375821	239.68	1.22	0.17	16.88	1093.77
21					7	388		2478038				17.35	961.48
22					7	382		2137709				14.96	816.60
23					8	390		2000506				16.00	780.20
24					5	386		2307226				11.54	890.59
25					8	384		2492122				19.94	956.97
26					8	384		2335910				18.69	896.99
27	7.9	70	0.46	0.06	6	372	177	2386973	167.09	1.10	0.14	14.32	887.95
28					18	376		2320531				41.77	872.52
29					7	378		1908749				13.36	721.51
30					5	364		1623629				8.12	591.00
31					10	348		1583021				15.83	550.89

Month				Parameters									
September	pH	COD	Ammonia	Total	Suspended	Total	Colour	Flow	COD	Ammonia	Total	Suspended	Total
2008		mg/l	as N mg/l	Phosphorus	Solids	Solids	Pt Co	Daily	Kg/Day	Kg/Day	Phosphorus	Solids	Solids
				mg/l	mg/l	mg/l	units	Total (litres)			Kg/Day	Kg/Day	Kg/Day
1					6	331		1441411				8.65	477.11
2					9	286		2113862				19.02	604.56
3	8.5	73	0.03	0.05	5	350	178	2499638	182.47	0.07	0.12	12.50	874.87
4								3198701					
5								2677190					
6								4097779					
7								4748458					
8								2866320					
9								2579731					
10								2899930					
11					5	293		4210531				21.05	1233.69
12					17	358		3993062				67.88	1429.52
13					8	374		3548448				28.39	1327.12
14					8	282		3133728				25.07	883.71
15					12	250		4076957				48.92	1019.24
16								5998061				0.00	0.00
17	8.3	81	0.21	0.05	16	342	224	3353962	271.67	0.70	0.17	53.66	1147.06
18					5	425		3238618				16.19	1376.41
19					6	356		2993242				17.96	1065.59
20					9	390		2790720				25.12	1088.38
21					9	448		2213050				19.92	991.45
22					7	412		2028672				14.20	835.81
23					5	396		910417				4.55	360.53
24	7.9	44	0.21	0.05	5	340	104					0.00	0.00
25					11	358						0.00	0.00
26					11	377						0.00	0.00
27					8	426						0.00	0.00
28					5	472						0.00	0.00
29					5	342						0.00	0.00
30					12	346						0.00	0.00
31												0.00	0.00

Month				Parameters									
October	pH	COD	Ammonia as	Total	Suspended	Total	Colour	Flow	COD	Ammonia as	Total	Suspended	Total
2008		mg/l	N mg/l	Phosphorus	Solids	Solids	Pt Co	Daily	Kg/Day	Kg/Day	Phosphorus	Solids	Solids
				mg/l	mg/l	mg/l	units	Total (litres)			Kg/Day	Kg/Day	Kg/Day
1	8.5	75	0.12	0.1	5	400	142	4217098	316.28	0.51	0.42	21.09	1686.84
2					14	304		4217098				59.04	1282.00
3					30	322		4217098				126.51	1357.91
4					5	250		4217098				21.09	1054.27
5					5	276		4217098				21.09	1163.92
6					19	250		4217098				80.12	1054.27
7								4217098				0.00	0.00
8								4194720				0.00	0.00
9					5	302		4053024				20.27	1224.01
10					13	332		4347821				56.52	1443.48
11					5	192		38787550				193.94	7447.21
12					10	256		-2307226				-23.07	-590.65
13								-38431				0.00	0.00
14								-33644				0.00	0.00
15	7.8	65	0.19	0.05	5	84	221	-524413	-34.09	-0.10	-0.03	-2.62	-44.05
16								-122170				0.00	0.00
17								3620				0.00	0.00
18								291643				0.00	0.00
19								599547				0.00	0.00
20								591097				0.00	0.00
21								-364824				0.00	0.00
22	7.7	68	0.18	0.05	5	340	204	-592168	-40.27	-0.11	-0.03	-2.96	-201.34
23					11			-211395				-2.33	0.00
24								1002326				0.00	0.00
25					5	446		163097				0.82	72.74
26					34	270		17993660				611.78	4858.29
27					8	176		-3193690				-25.55	-562.09
28					5	454		-3810				-0.02	-1.73
29	7.7	90	0.5	0.05	8	228	235	76913	6.92	0.04	0.00	0.62	17.54
30								78296				0.00	0.00
31								-428613				0.00	0.00

Month				Parameters									
November	pH	COD	Ammonia as	Total	Suspended	Total	Colour	Flow	COD	Ammonia as	Total	Suspended	Total
2008		mg/l	N mg/l	Phosphorus	Solids	Solids	Pt Co	Daily	Kg/Day	Kg/Day	Phosphorus	Solids	Solids
				mg/l	mg/l	mg/l	units	Total (litres)			Kg/Day	Kg/Day	Kg/Day
1								203895				0.00	0.00
2								92586				0.00	0.00
3								174191				0.00	0.00
4								-328994				0.00	0.00
5	8	46	0.24	0.05	5	282	143	-278182	-12.80	-0.07	-0.01	-1.39	-78.45
6								-137938				0.00	0.00
7								60618				0.00	0.00
8								715651				0.00	0.00
9								715651				0.00	0.00
10								715651				0.00	0.00
11								715651				0.00	0.00
12	7.7	64	0.33	0.05	6	326	186	715651	45.80	0.24	0.04	4.29	233.30
13					8	330		715651				5.73	236.16
14					7	322		2823725				19.77	909.24
15					5	346		2379802				11.90	823.41
16					8	322		1869610				14.96	602.01
17								3548535				0.00	0.00
18								1502496				0.00	0.00
19	7.9	75	0.56	0.05	14	340	183	917222	68.79	0.51	0.05	12.84	311.86
20								695675				0.00	0.00
21								976234				0.00	0.00
22					18	291		960509				17.29	279.51
23					18	286		1061942				19.11	303.72
24					19	326		3607718				68.55	1176.12
25					24	358		809991				19.44	289.98
26	8.2	91	0.72	0.05	19	50	179	576893	52.50	0.42	0.03	10.96	28.84
27								1138406				0.00	0.00
28								1549670				0.00	0.00
29								1157328				0.00	0.00
30								709119				0.00	0.00

Month				Parameters									
December	pH	COD	Ammonia	Total	Suspended	Total	Colour	Flow	COD	Ammonia	Total	Suspended	Total
2008		mg/l	as N mg/l	Phosphorus	Solids	Solids	Pt Co	Daily	Kg/Day	Kg/Day	Phosphorus	Solids	Solids
				mg/l	mg/l	mg/l	units	Total (litres)			Kg/Day	Kg/Day	Kg/Day
1								834365				0.00	0.00
2								951869				0.00	0.00
3	7.6	73	1.22	0.05	6	414	132	1382832	100.95	1.69	0.07	8.30	572.49
4					34	296		1284768				43.68	380.29
5					18	196		7003238				126.06	1372.63
6					24	84		2424989				58.20	203.70
7					33	380		1149466				37.93	436.80
8								671172				0.00	0.00
9								2189894				0.00	0.00
10	8	110	1.24	0.05	27	328	134	1428451	157.13	1.77	0.07	38.57	468.53
11					19	186		1568333				29.80	291.71
12					13	218		2092781				27.21	456.23
13					62	278		5907254				366.25	1642.22
14					54	354		5973177				322.55	2114.50
15					40	346		1834963				73.40	634.90
16								1330992				0.00	0.00
17	7.9	102	0.84	0.05	54	366	155	2258237	230.34	1.90	0.11	121.94	826.51
18								1714781				0.00	0.00
19								1530576				0.00	0.00
20								223163				0.00	0.00
21								2126909				0.00	0.00
22								2242253				0.00	0.00
23								1741133				0.00	0.00
24								1619568				0.00	0.00
25								1656634				0.00	0.00
26								1363651				0.00	0.00
27								1225066				0.00	0.00
28								1570666				0.00	0.00
29								1173485				0.00	0.00
30								1217117				0.00	0.00
31								1327996				0.00	0.00

# **APPENDIX 4**

## **Dust Monitoring Results.**

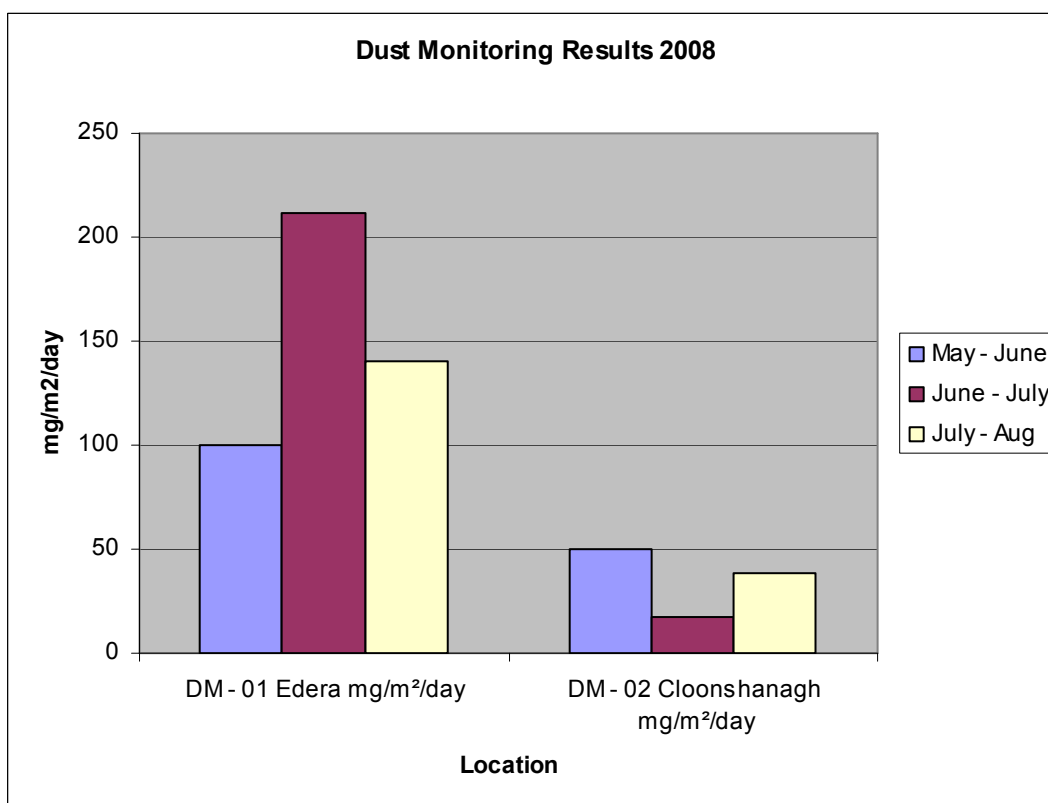


<b>Dust Monitoring Results 2008</b>
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<b>Licence: P0504-01</b>
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<b>Works: Mt Dillon</b>
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Sample Period	DM - 01 Edera mg/m <sup>2</sup> /day	DM - 02 Cloonshanagh mg/m <sup>2</sup> /day
May - June	100	50
June - July	212	17
July - Aug	140	38



# **APPENDIX 5**

## **De-silting Programme Review.**

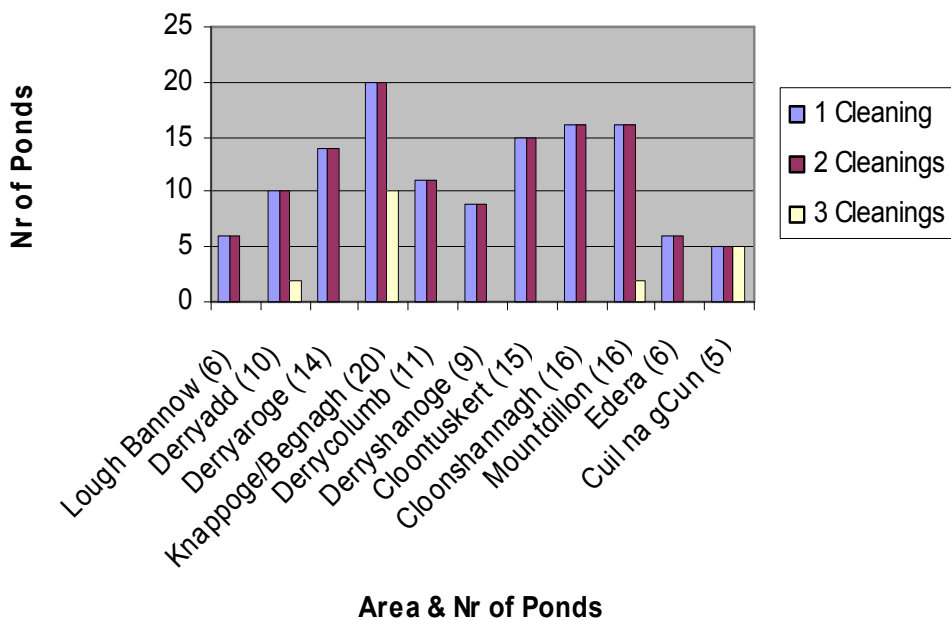
### Siltpond Cleaning Programme 2008

IPPC Licence: P0504-01

Works: Mt Dillon

Bog Area & Nr Ponds	1 Cleaning	2 Cleanings	3 Cleanings
Lough Bannow (6)	6	6	
Derryadd (10)	10	10	2
Derryaroge (14)	14	14	
Knappoge/Begnagh (20)	20	20	10
Derrycolumb (11)	11	11	
Derryshanoge (9)	9	9	
Cloontuskert (15)	15	15	
Cloonshannagh (16)	16	16	
Mountdillon (16)	16	16	2
Edera (6)	6	6	
Cuil na gCun (5)	5	5	5

### Siltpond Cleaning Records 2008



# **APPENDIX 6**

## **AER & PRTR Data**