

BORD NA MÓNA
BORD NA MÓNA ENERGY LIMITED
Derrygreenagh, Rochfortbridge, Mullingar, Co-Westmeath.

Annual Environmental Report
IPC LICENCE 501

March 2003

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1 Introduction

1.1 Company Details

Name: **Bord na Mona Energy Limited.**

Address: **Derrygreenagh Group
Derrygreenagh Works
Rochfortbridge
Mullingar
Co Westmeath.**

Telephone No: **044 / 22181** Fax No: **044 / 22344**

Contact Name: **Paul Riordan**

Position: **Regional Manager.**

National Grid Reference: **E249450 N238140**

1.2 Activities

The Derrygreenagh Group consists of the Derrygreenagh and Ballivor Groups and Rossan Bog.

The Derrygreenagh group of bogs is located in North Offaly and Southeast Westmeath. The Derrygreenagh group comprises of 3664 acquired hectares, of which there are 1300 nett production hectares. The main catchment of these areas is the River Boyne.

The Ballivor group is made up of the bogs in the Ballivor, Carranstown, Bracklin and Lisclogher areas. There is a total of 283 hectares in production and each of these areas are linked by peatland railway to the Bord na Mona horticultural factory, situated between Ballivor and Raharney villages. Drainage from these bogs is to the Deel and Stonyford rivers, tributaries of the Boyne.

Rossan bog is situated one mile from Kinnegad village. There are currently 142 hectares in milled moss production. This bog drains to the Kinnegad River, a tributary of the River Boyne.

The Derrygreenagh Group currently employs 87 permanent and 24 seasonal workers. Transport operations are carried out on a seven day cycle throughout the year. Production operations are typically carried out over a seven day week (weather permitting) for 12 to 15 hours per day.

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 to one of the following locations.

- Power station (EPL)
- Horticultural Factory.

1.3 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.

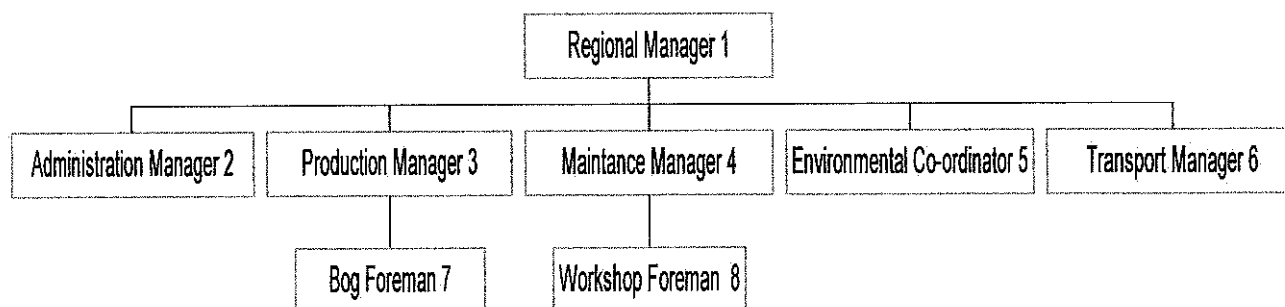
This statement is published and is available at all locations within the division and its contents are brought to the attention of all employees.

1.4 Environmental Management of the Company

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

Derrygreenagh Group

Environmental Responsibilities



- (1) Overall environmental responsibilities
- (2) Records of complaints and registers
- (3) All production related issues
- (4) Machine maintenance
- (5) Co-ordinating environmental affairs
- (6) All peat transportation matters
- (7) Silt pond maintenance, tea centres, codes of practice
- (8) Fuel loading, oil traps, weekly workshop inspections.

APPENDIX 6

2 Summary Information

2.1 Emissions to Water Summary

2.1.1 Silt Pond Emissions

The following tables contain a summary of the emissions to surface waters from within the Derrygreenagh Group.

Silt Pond No: DH 1		SW No. 1				
Reporting Period (Jan-Dec 2002)						
Parameter	Jan/Feb/Mar Emission (mg/l)	April/May/June Emission (mg/l)	July/Aug/Sept Emission (mg/l)	Oct/Nov/Dec Emission (mg/l)	EL V (mg/l)	Compliant
pH units	7.8	7.7	7.5	6.9	~	
Flow (L/sec)	3.1	2.5	0.5	18.2	~	
Suspended Solids (mg/l)	<5	<5	<5	10	35mg/l	YES
Total Solids (mg/l)	388	346	400	172	~	
Total Phosphorus (mg/l)	<0.05	<0.05	<0.05	<0.05	~	
Ammonia (mg/l)	1.6	1.8	2.3	1.0	~	
Colour (Pt Co units)	99	150	55	258	~	
COD (mg/l)	48	62	38	69	~	

Silt Pond No: DM 6		SW No. 6					
Reporting Period (Jan-Dec 2002)		Jan/Feb/Mar	April/May/June	July/Aug/Sept	Oct/Nov/Dec	EL V	Compliant
Parameter	Emission	Emission	Emission	Emission	Emission	(mg/l)	
pH units	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	
	8.2	8.0	8.0	7.4		~	
Flow (L/sec)	156	117	81.2	400.7		~	
Suspended Solids (mg/l)	<5	<5	15	6		35mg/l	YES
Total Solids (mg/l)	550	512	548	124		~	
Total Phosphorus (mg/l)	0.06	<0.05	0.07	0.05		~	
Ammonia (mg/l)	0.6	0.4	0.4	0.8		~	
Colour (Pt Co units)	50	75	32	125		~	
COD (mg/l)	32	33	20	53		~	

Silt Pond No: TR 19		SW No. 14					
Reporting Period (Jan-Dec 2002)		Jan/Feb/Mar	April/May/June	July/Aug/Sept	Oct/Nov/Dec	EL V	Compliant
Parameter	Emission	Emission	Emission	Emission	Emission	(mg/l)	
pH units	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	
	7.5	7.3	7.7	6.7		~	
Flow (L/sec)	13.8	35	6.1	46.3		~	
Suspended Solids (mg/l)	35	<5	14	8		35mg/l	YES
Total Solids (mg/l)	278	176	408	230		~	
Total Phosphorus (mg/l)	0.09	0.05	0.07	<0.05		~	
Ammonia (mg/l)	2.0	1.1	2.1	0.9		~	
Colour (Pt Co units)	203	286	94	348		~	
COD (mg/l)	90	70	43	77		~	

Silt Pond No: BN 36				SW No. 30		
Reporting Period (Jan-Dec 2002)						
Parameter	Jan/Feb/Mar	April/May/June	July/Aug/Sept	Oct/Nov/Dec	ELV	Compliant
	Emission	Emission	Emission	Emission		
	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	
pH units	7.7	7.3	7.8	7.0	~	
Flow (L/sec)	1.25	5.3	1.56	16.5	~	
Suspended Solids (mg/l)	5	6	6	7	35mg/l	YES
Total Solids (mg/l)	218	98	340	250	~	
Total Phosphorus (mg/l)	<0.05	0.08	<0.05	<0.05	~	
Ammonia (mg/l)	0.5	0.4	0.3	0.4	~	
Colour (Pt Co units)	325	232	146	412	~	
COD (mg/l)	92	66	87	113	~	

Silt Pond No: CN 39				SW No. 32		
Reporting Period (Jan-Dec 2002)						
Parameter	Jan/Feb/Mar	April/May/June	July/Aug/Sept	Oct/Nov/Dec	E L V	Compliant
	Emission	Emission	Emission	Emission		
	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	
pH units	7.5	7.5	7.3	7.5	~	
Flow (L/sec)	39.6	106	0.02	114	~	
Suspended Solids (mg/l)	<5	10	8	6	35mg/l	YES
Total Solids (mg/l)	164	196	376	478	~	
Total Phosphorus (mg/l)	<0.05	0.05	0.09	0.11	~	
Ammonia (mg/l)	1.0	0.4	2.1	0.5	~	
Colour (Pt Co units)	206	434	103	89	~	
COD (mg/l)	46	114	62	36	~	

Silt Pond No: KD 50			SW No. 43			
Reporting Period (Jan-Dec 2002)						
Parameter	Jan/Feb/Mar	April/May/June	July/Aug/Sept	Oct/Nov/Dec	ELV	Compliant
	Emission	Emission	Emission	Emission		
	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	
pH units	7.6	7.5	7.7	6.6	~	
Flow (L/sec)	30	66	38	47.5	~	
Suspended Solids (mg/l)	<5	<5	<5	317	35mg/l	NO
Total Solids (mg/l)	184	184	270	288	~	
Total Phosphorus (mg/l)	0.09	0.08	<0.05	0.04	~	
Ammonia (mg/l)	2.0	1.9	2.8	1.0	~	
Colour (Pt Co units)	244	275	204	320	~	
COD (mg/l)	73	87	62	434	~	

2.1.2 Yard Run-off

The tables below is a summary of the emissions to surface waters from yards and workshops within the Derrygreenagh Group.

Derrygreenagh SWE-1

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
COD mg/l	-	-	-	-	-	-	-	-	-	-	2510	<10

Derrygreenagh SWE-2

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
COD mg/l	32	39	40	15	23	-	-	-	-	47	56	31

Note: As part of bunding programme SWE-1 was moved to a new location, where sampling began in November 2002. The high figure for that same month is due to the sampling pot being contaminated at time of sampling.

2.1.3 Composite Sampler Report

A proposal will be submitted to the Agency, to relocate the composite sampler in June 2003. At that time it will have been in operation for two years at its present location.

Attached in Appendix 1 are the results of the monitoring carried out using the composite sampler.

2.1.4 Non-compliance's

There was only one non-compliance, in relation to water in the reporting period, the details are included in the table below.

Date	Non-compliance	Cause	Corrective Action
2811/02	SS from SW43. Emission Limit Value was exceeded ie. (317mg/l Vs 35mg/l)	A combination of very heavy rainfall preceding sampling event and silt pond not cleaned due to machine breakdown.	Machine repaired and silt pond cleaned.

2.2 Emissions to Air

2.2.1 Dust Monitoring

The tables below contain the dust emissions for each dust monitoring location within the Derrygreenagh Group. Monitoring took place on three separate occasions during the periods, June – July, July – August, August – September 2002.

June - July

Emission Point	Parameter	Emission (mg/m ² /day)	Emission Limit Value	Compliant
DM 01	Dust	49	(350mg/m ² /Day)	YES
DM 02	Dust	31	(350mg/m ² /Day)	YES
DM 03	Dust	12	(350mg/m ² /Day)	YES

July - Aug

Emission Point	Parameter	Emission (mg/m ² /day)	Emission Limit Value	Compliant
DM 01	Dust	18	(350mg/m ² /Day)	YES
DM 02	Dust	25	(350mg/m ² /Day)	YES
DM 03	Dust	18	(350mg/m ² /Day)	YES

Aug - Sep

Emission Point	Parameter	Emission (mg/m ² /day)	Emission Limit Value	Compliant
DM 01	Dust	18	(350mg/m ² /Day)	YES
DM 02	Dust	18	(350mg/m ² /Day)	YES
DM 03	Dust	37	(350mg/m ² /Day)	YES

Note: DM 01 = Toar Bog. DM 02 = Derryhinch Bog. DM 03 = Ballivor Bog.

2.2.2 Non-compliance's

There was no non-compliance, in relation to air in the reporting period.

2.3Waste Arisings

2.3.1 Hazardous Waste

The following table is a record of all the hazardous wastes handled by the Derrygreenagh Group from January - December 2002.

WASTE DESCRIPTION	EWG CODE	TONNES/ LITRES	NAME OF CONTRACTOR	DESTINATION	DATE	REJECTED CONSIGNMENTS
Waste Oil	130202	6300L	Atlas Waste Oil	Portlaoise	07/03/02	NA
Lead Acid Batteries	160601	56Nr	Returnbatt LTD	Kildare Town	14/05/02	NA
Lead Acid Batteries	160601	40Nr	Returnbatt LTD	Kildare Town	01/07/02	NA
Waste Oil	130202	7200L	Atlas Waste Oil	Portlaoise	31/07/02	NA
Lead Acid Batteries	160601	80NR	Returnbatt LTD	Kildare Town	26/08/02	NA
Waste Oil	130202	4000L	Atlas Waste Oil	Portlaoise	19/09/02	NA
Waste Oil	130202	1500L	Atlas Waste Oil	Portlaoise	07/10/02	NA
Oil Filters		* 2.5	Atlas Waste Oil	Portlaoise	07/10/02	NA
Waste Oil	130202	18000L	Atlas Waste Oil	Portlaoise	17/10/02	NA
Fluorescent Tube	200121	0.049	Irish Lamp Recycling	Athy Co Kildare	26/11/02	NA
Waste Oil	130202	7800L	Atlas Waste Oil	Portlaoise	05/12/02	NA

Note: * Approximate weight.

2.3.2 Non-Hazardous Waste

The following table lists the quantities of the wastes generated from January-December 2002 from all of the Derrygreenagh Group.

Waste Type	Quantity (Tonnes)
Silt Pond Waste	
Scrap Metal	
Mixed Municipal Waste	
Total	380.87

2.4 Energy Consumption

The table below is a summary of the energy consumption for the Derrygreenagh Group, from the dates January – December 2002.

Water is not included, as it is not used as part of the production process. It is only used in offices, canteens and workshops on a domestic scale.

Fuel	Volume M ³	Tonnes	MW/Hours
Jan - Dec 2002			
Diesel	882	732	8637
Petrol	Nil	Nil	0
Electricity	NA	NA	41.33
Peat Briquettes	NA	210	1050
Total	882	942	9728.33

2.5 Environmental Incidents & Complaints

There was one incident within the Derrygreenagh Group, which occurred in July 2001. This incident was very minor and the Agency was not informed.

Environmental Incidents	Number of Incidents
Incidents	0
Incidents requiring corrective action	0
Categories of Incident	
Odour	
Noise	
Water	
Air	
Procedural	
Miscellaneous	

There were no complaints within the Derrygreenagh Group, in the period January - December 2002.

Environmental Complaints	Number of complaints
Complaints received	0
Complaints requiring corrective action	0
Categories of complaint	
Odour	
Noise	
Water	
Air	
Procedural	
Miscellaneous	

2.6 AER Summary Data Table

3 Management of the Activity

3.1 Environmental Management Programme Report

Project	Description	Status
Project 1 & Project 2	(1) The reduction of fugitive dust emissions. (2) The minimisation of suspended solids movement to surface waters. (3) The examination of production machine modification. (4) The results of dust monitoring.	Projects ongoing, with production methods and training continuously being assessed for improvement.
Project 3	Rationalisation of surface water discharge points.	Project Complete
Project 4	Investigation of reed bed systems for final polish of silt pond discharges.	Project complete and retained on file
Project 5	The separation of flood water and external runoff from production runoff.	Project Complete
Project 6	The effective spill/leak management of mobile fueling units by implementing a programme of training and adopting Codes of Practice.	1: Procedures in place. 2: Training complete 3: ERP in place. 4: Upgrading of fueling units ongoing.
Project 7	Programme of bunding at all bulk diesel storage facilities	Project complete.
Project 8	Investigation into the reuse of silt pond waste	Project complete, report on file.
Project 9	Study into the collection storage and reuse of polyethylene covering	Recycling company sourced, recycling ongoing, with records on file
Project 10	Examination of the use of reusable materials in the protection of stockpiles	Project Completed by Polymer Institute, Athlone I. T, report on file.
	Examination of wind power technology for pumped drainage	Project complete, report on file.

3.2 Environmental Expenditure

The table below lists the environmental costs incurred by the Derrygreenagh Group between January – December 2002.

In calculating the environmental costs 70% of the total costs were attributed to Licence 503 and 30% to Licence 501. The Ballivor Group costs were then added to the Derrygreenagh totals.

Expenditure Related to the Operation of the Derrygreenagh IPC Licence During the Period January – December 2002			
Description	Ballivor Cost	D/Green Cost	Total Cost (€)
Plant @ €40/hour		173,280	
Labour		54,769	
Materials		31,728	
Overheads (ESB, Phones, Consumables)		6,000	
Laboratory Analysis		17,500	
EPA Fees		7,920	
Total		€ 291,197	

To be totaled

4 Licence Specific Reports

4.1 Surface Water Discharge Monitoring Location Programme Review

The surface water discharge monitoring location programme remains the same as was submitted and accepted by the Agency in June 2000.

Pipes have been fitted at each location in order to accommodate flow metres and the provision of safe access is also ongoing.

Emission point signs have been designed and are in place.

Additional work has also been carried out at these locations as part of the ongoing silt pond upgrade programme.

Monitoring will be carried out at these same locations in the forthcoming year and reported on in next years AER.

4.2 Bunding Programme

The bunding programme for large scale oil storage facilities is complete.

4.3 Boiler Combustion Efficiency

Boiler Details

Twin Danstoker solid fuel units each rated at 725KW, fuelled by loose briquettes. Operating from Oct-Mar approximately at Derrygreenagh Works.

A boiler efficiency test was carried out on the 09/12/02. The results of this test showed the boiler to be operating at an efficiency level of 82.1%.

A full breakdown of the test is retained on file at the Derrygreenagh office.

4.4 Resource consumption Summary

There was a total of 64,088 + Ballivor tonnes of milled peat produced across the licence area in the production season 2002.

There was also a total of 43,977 + Ballivor tonnes of stock peat sold during the reporting period. Of this total 42,916 tonnes were sold to Edenderry Power Limited, 1,061 tonnes to Derrinlough Briquette Factory and ? tonnes to Kilberry/Ballivor Moss Factory.

4.5 De-silting programme report

Summary Data Table of Ponds De-Silted From Jan-December 2002

Bog	No Silt Ponds	Cleaned Once	Cleaned Twice	Cleaned >Three Times	Notes
Ballivor	10	6	4		
Carranstown	5		5		
Bracklin West	6			6	
Lisclogher	7				*
Kinnegad	6	4	2		
D/Hinch	4	4			**
Drumman	6	2			**
Ballybeg	6	4	2		
Toar	6	4	2		**

*: Bog still under development, no production.

**: No production at this Bog.

4.6 Bog Development and Operational Programme

The bogs in the Derrygreenagh Group are well into their productive lives, therefore there will be no development in the year 2003.

However in the Ballivor Group, Carranstown bog is currently under development, with approximately 120 acres to be developed.

It is proposed to develop initially part of this total for the 2003 production season, with no production planned at the site for 2002.

4.7 Bog Rehabilitation Report

Management guidelines for the planning and implementation of cutaway bog rehabilitation have been adopted and the document is currently available for inspection on file at the Derrygreenagh office.

5 Summary

With regard to environmental compliance at the Derrygreenagh Group of Bogs, there were no exceedences 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 operation period May to the end of December. Dust monitoring results at the dust sensitive locations were also below the Emission Limit Value and there were no complaints of an environmental nature received during the reporting period.

The staff awareness through training and involvement in the operation of the licence has also improved immensely. A full programme of training and awareness has been conducted at the works and has targeted all personnel ie. office, workshop, transport and production.

Bord na Mona are participating on the three Rivers project, (Boyne, Liffey and Suir) water quality, monitoring and management.

Bord na Mona are also involved in catchment management on 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.