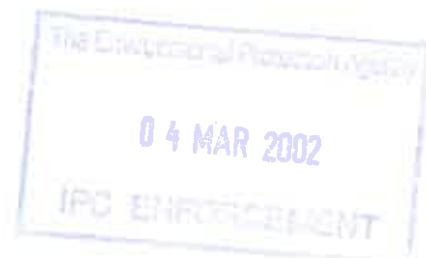


BORD NA MÓNA 

BORD NA MÓNA ENERGY LIMITED
Mountdillon Group, C/O Mountdillon Works,
Lanesboro,
Co Longford, Ireland



Annual Environmental Report

March 2001

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1 Introduction

1.1 Company Details

Name	Bord na Mona Energy Limited		
I.P.C. Licence No.	504		
Full Address	Mountdillon Group C/o Mountdillon Works Lanesboro Co Longford		
Telephone No.	043 21117	Fax No	043 21259
National Grid Reference No.	E204720	N268880	

1.2 Activities

Mountdillon group of bogs is situated in Counties Longford and Roscommon. This group of bogs drain into the upper Shannon Catchment. Gross working hectares for Mountdillon is 4,950 and it is a completely milled peat operation. Our sole customer is the E.S.B. Mountdillon is divided into 10 working areas namely Lough Bannow, Derryadd, Derryarogue, Knappoge, Begnagh, Clooneeny, Derrycolumb, Derryshannoge, Cloontuskert, Cloonshannagh, Derrymoylin, Mt/Dillon, Derrycashel, and Eddera. It is anticipated to be producing on Eddera in 2001,

1.3 Environmental Policy

BORD NA MÓNA 
BORD NA MÓNA ENERGY LIMITED
Environmental Policy Statement

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 of the importance of Irish peatlands.

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

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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 environmental and eco-system

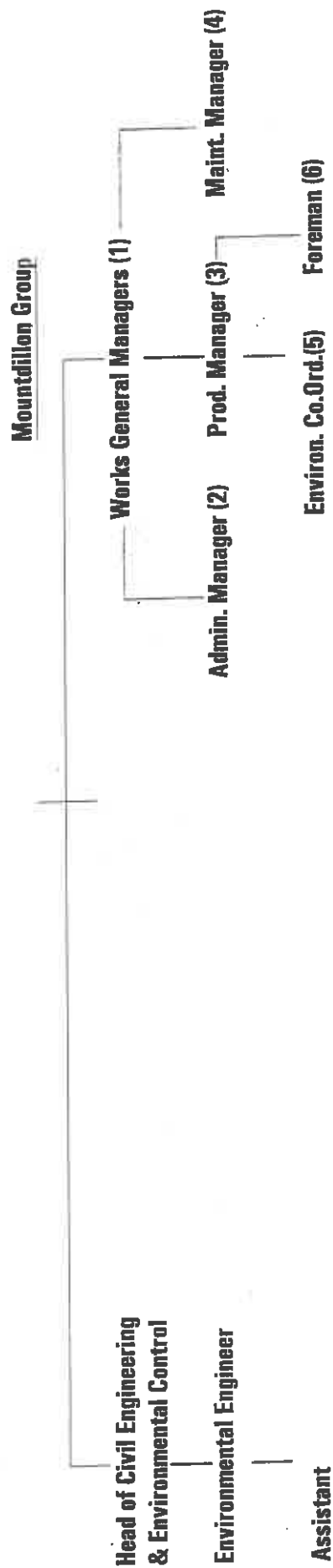
The environmental management system will be monitored, maintained and continually improved.

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

Bord Na Mona Energy Limited will continue research and development(R&D) into all aspects of its environmental impact

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

1.4 Environmental Management of the Company

Bord na Mona Energy Limited***Environmental Responsibilities*****Chief Executive**

1. Overall Environmental Responsibility
2. Records and Complaints Register
3. All Production related issues (silt, dust, noise, waster, code of practice)
4. Machine maintenance, stores, workshops, yards, waste
5. Monitoring maintenance records
6. Silt settlement pond maintenance, codes of practice, peat loading, tea centres

2 Summary Information

2.1 Emissions to Water Summary

2.1.1 Silt Pond Emissions

Bord na Group : Mt.Dillon
IPC Licence No.: 504
Emissions to water summary
SW39

Sept/Oct/Nov (Final Quarter 2000)

Parameter	Average Emission (mg/l)	Emission Limit Value (ELV) (mg/l)
pH units	7.2	
Flow (L/sec)	42.4	
Suspended Solids (mg/l)	45	35mg/l
Total Solids (mg/l)		
Total Phosphorus (mg/l)	<0.05	
Ammonia (mg/l)	0.6	
Colour (Pt Co units)	192	
COD (mg/l)	92	

Emissions to water summary
SW 61

Sept/Oct/Nov (Final Quarter 2000)

Parameter	Average Emission (mg/l)	Emission Limit Value (ELV) (mg/l)
pH units	6.4	
Flow (L/sec)	NO FLOW	
Suspended Solids (mg/l)	13	35mg/l
Total Solids (mg/l)		
Total Phosphorus (mg/l)	0.06	
Ammonia (mg/l)	1.0	
Colour (Pt Co units)	281	
COD (mg/l)	102	

Emissions to water summary SW 23

Sept/Oct/Nov (Final Quarter 2000)

Parameter	Average Emission (mg/l)	Emission Limit Value (ELV) (mg/l)
pH units	7.1	
Flow (L/sec)	145	
Suspended Solids (mg/l)	<5	35mg/l
Total Solids (mg/l)		
Total Phosphorus (mg/l)	<0.05	
Ammonia (mg/l)	<0.2	
Colour (Pt Co units)	207	
COD (mg/l)	66	

Emissions to water summary SW 29

Sept/Oct/Nov (Final Quarter 2000)

Parameter	Average Emission (mg/l)	Emission Limit Value (ELV) (mg/l)
pH units	6.5	
Flow (L/sec)	62.7	
Suspended Solids (mg/l)	8	35mg/l
Total Solids (mg/l)		
Total Phosphorus (mg/l)	<0.05	
Ammonia (mg/l)	0.6	
Colour (Pt Co units)	244	
COD (mg/l)	70	

Emissions to water summary SW 6

Sept/Oct/Nov (Final Quarter 2000)

Parameter	Average Emission (mg/l)	Emission Limit Value (ELV) (mg/l)
pH units	6.2	
Flow (L/sec)	32	
Suspended Solids (mg/l)	12	35mg/l
Total Solids (mg/l)		
Total Phosphorus (mg/l)	<0.05	
Ammonia (mg/l)	0.6	
Colour (Pt Co units)	263	
COD (mg/l)	80	

Emissions to water summary SW 55

Sept/Oct/Nov (Final Quarter 2000)

Parameter	Average Emission (mg/l)	Emission Limit Value (ELV) (mg/l)
pH units	7.2	
Flow (L/sec)	500	
Suspended Solids (mg/l)	4	35mg/l
Total Solids (mg/l)	-	
Total Phosphorus (mg/l)	<0.05	
Ammonia (mg/l)	<0.2	
Colour (Pt Co units)	203	
COD (mg/l)	77	

**Emissions to water summary
SW 34****Sept/Oct/Nov (Final Quarter 2000)**

Parameter	Average Emission	Emission Limit Value (ELV)
	(mg/l)	(mg/l)
pH units	6.3	
Flow (L/sec)	No flow	
Suspended Solids (mg/l)	17	35mg/l
Total Solids (mg/l)	-	
Total Phosphorus (mg/l)	<0.05	
Ammonia (mg/l)	0.3	
Colour (Pt Co units)	250	
COD (mg/l)	92	

2.1.2 Surface Water Discharge Monitoring Location Programme Review

We propose to change the monitoring location of one of the ponds specified in the Surface Water Discharge Location Programme. SW39 receives further treatment downstream of its emission point, so it is proposed to carry out the sampling at the outlet from this further silt pond.

Results for one quarter have been reported on i.e. Sept/Oct/Nov. The next quarter will cover Dec/Jan/Feb/Mar to bring us into line with calendar year.

Monitoring May to December 2000

Emission Pt.	Parameter	Emission Mg/l	Emission Limit Value (ELV) Mg/l for 75% of grab samples.	% Compliance
SW 39	Suspended Solids	45	35mg/l	100%
SW 61	Suspended Solids	13	35mg/l	100%
SW 23	Suspended Solids	<5	35mg/l	100%
SW 29	Suspended Solids	8	35mg/l	100%
SW 6	Suspended Solids	12	35mg/l	100%
SW 55	Suspended Solids	4	35mg/l	100%
SW 34	Suspended Solids	17	35mg/l	100%

2.1.3 Yard Run-off

Bord na Mona Group : Mt/dillon

IPC Licence No.: 504

Emissions to water summary (Yard Run-off)

June to November
2000

Mountdillon Yd SWE-1

Parameter	Average Emission (mg/l)	Emission Limit Value (ELV) (mg/l)
COD	72	N/A

June to November
2000

Mountdillon Wk SWE-1

Parameter	Average Emission (mg/l)	Emission Limit Value (ELV) (mg/l)
COD	75	N/A

June to November
2000

Mountdillon WK SWE-2

Parameter	Average Emission (mg/l)	Emission Limit Value (ELV) (mg/l)
COD	74	N/A

June to November
2000Transport Station
SWE-1

Parameter	Average Emission (mg/l)	Emission Limit Value (ELV) (mg/l)
COD	No Emission	N/A

All of the yard run-off in the Mountdillon Group except Cuil na gCun, have oil interceptors installed at the works. Condition 9.1.8 calls for all surface water discharges to be fitted with an oil-interceptor within 12 mths of the date of licence. Once Cuil na gCun have installed an oil-interceptor, within the time period specified by the licence, it will be included in the monthly monitoring programme, and reported on quarterly.

2.1.4 Composite Sampler Programme

The Composite Sampler Proposal was submitted to the EPA in November 2000 for agreement.

A Composite Sampler has been purchased, ISCO 6700 from WATER TECHNOLOGY in Togher Cork. A site has been prepared and a secure box has been fabricated. It proposed to install the sampler in March 2001. The results of the monitoring will be reported on in the 2002 AER.

The following are the parameters to be monitored .

Parameter	Monitoring Frequency	Location of analysis
pH (pH units)	Weekly	Laboratory
Flow (l/s)	Daily	On-site
Suspended Solids (mg/l)	Daily	Laboratory
Total Solids (mg/l)	Daily	Laboratory
Total Phosphorus as p (mg/l)	Weekly	Laboratory
Ammonia as N (mg/l)	Weekly	Laboratory
Colour (hazen units)	Weekly	Laboratory
COD (mg/l)	Weekly	Laboratory

2.1.5 Bunding Programme

Tanks have been Bunded at the power station and a service pit installed. A concrete spill area has been installed at the refuelling area. The work was carried out by an external Contractor namely, VERSTONE.

Tender Documents are being of prepared for bunding of the tanks at the main workshop and work will commence as soon as possible thereafter. It is proposed to decommission the two 70,000 gl. tanks
See project No. 7 of E.M.P. (appendix i)

2.2 Emissions to Air

2.2.1 Dust Monitoring Locations Programme

Dust Monitoring Location Proposal has been submitted to the EPA for approval. It is proposed to have Bergerhoff. Gauge's installed at the dust sensitive locations in May, to cover May to Sept 2001.

The Environmental co-ordinator will change the sample pots or an employee nominated by him. The samples will be sent to Bord na Mona Environmental Ltds, ILAB accredited laboratory under a strict chain of custody and the results will be reported on in the 2002 A.E.R.

2.2.2 Boiler Combustion Efficiency

The boiler at the main Mountdillon workshop was converted from peat burning to oil fired in Sept 2000 it is proposed to test same during 2001

The peat fired boiler at Mountdillon yard will also be tested and the results reported on in the 2002 AER

Results for Boora and Derrygreenagh Boiler Combustion Efficiency testing during initial application are attached in Appendix 6

2.3 Waste Arisings**2.3.1 Hazardous Waste**

BORD NA MÓNA

BORD NA MÓNA ENERGY LIMITED

Waste Management Record (Hazardous)

Group : BORD NA MONA

IPC Licence no. : 504

Works : MOUNTDILLON

WASTE DESCRIPTION	EW/C CODE	TONNES	NAME OF CONTRACTOR	NAME OF PERSON ULTIMATELY RESPONSIBLE	DESTINATION	DATE
4Barrels oil filters	13.06.01	0.625	ATLAS Oil Ltd	ATLAS Oil Ltd	Metal ret. To Irish steel	31/05/00
1Barrel oil filters	13.06.01	0.156	ATLAS Oil Ltd	ATLAS Oil Ltd	Metal ret. To Irish steel	05/07/00
2 Barrel oil filters	13.06.01	0.315	ATLAS Oil Ltd	ATLAS Oil Ltd	Metal ret. To Irish steel	06/09/00
1 Barrel oil filters	13.06.01	0.156	ATLAS Oil Ltd	ATLAS Oil Ltd	Metal ret. To Irish steel	14/12/00
Waste oil/ lub oil	13.02.00		ATLAS Oil Ltd	ATLAS Oil Ltd	Portlaoise	
Hyd oil	13.01.00	9.4	ATLAS Oil Ltd	ATLAS Oil Ltd	Portlaoise	
Primary Batteries	16.06.05	.06	Returnbatt Ltd.	Returnbatt Ltd.	Accurec in Germany	28/11/00
Lead Acid Batteries	16.06.01	2.250	Returnbatt Ltd.	Returnbatt Ltd.	Snam Ltd. France	31/07/00
Nickel Cad Batteries	16.06.02	.327	Returnbatt Ltd.	Returnbatt Ltd.	Snam Ltd. France	31/07/00

2.4 Energy and Water Consumption

**Bord na Mona Group :
Mountdillon
IPC Licence No.: 504
Energy Consumption
Summary**

Fuel	Megawatt / HRS	Volume cu/mts	Tonnes
May – Dec 2000			
Diesel	9797	1000.34	
Petrol	29.22	3.23	
Electricity	912		
Heating Oil	479	48	
Peat Biquettes	713		214

The only water used in Mountdillon is in teacentres, workshops and office's

2.5 Environmental Incidents and Complaints

Environmental Complaints	Number of complaints
Complaints received	2
Complaints requiring corrective action	2
Categories of complaint	
Odour	
Noise	
Water	
Air	2
Procedural	
Miscellaneous	

2 No. Complaints were received on 20/06/00 at Cloonshannagh bog Rooskey Co. Roscommon concerning dust. They were received via telephone call to Mountdillon office. Mr. Eamon Cassels Environmental officer called to see the two complainants. Production was suspended due to heavy rainfall the complainants agreed to contact Mr. Cassels if the problem reoccurred. The two aforementioned complaints will be addressed by planting a shelter belt of trees, also Bord na Mona Codes of Practice will be reinforced during training for operatives. See project 1 of E.M.P.

2.6 De-Silting Report**Bord na Mona Group : Mountdillon
Group****IPC Licence No.:
504****De-silting Report****May – Dec
2000**

Area Cleaned	No of Cleanings			
	0	1	2	3
1		100%		
2		100%	25%	
3		100%		
4		100%		
5		100%		
6		100%	55%	
7			100%	
8		100%	62%	
9		100%	76%	
10		100%	9%	

1 = Lough Bannow 2 = Derryadd 3 = D/aroge Cloonbony 4 = Knappoge 5 = Begnagh
 Clooneeny 6 = D/colum 7 = D/shannoge 8 = Cloontuskert Cloonadra 9 = Cloonshannagh
 D/moylin 10 = Mt/dillon D/cashel

*Ponds have not yet received 2 cleanings because report covers from date of Licence 09/05/2000 to
 31/12/2000*

2.7 Silt Pond Up-Grade Programme

Silt pond up – grade programme has been submitted 30 November 2000. Copy is attached in appendix (ii)

Stage 1 of Silt Pond upgrade programme (100% effluent treatment)

Mountdillon is in the process of Purchasing Land to locate Silt Ponds for two discharge Pts. that are currently not covered by silt pond treatment system

Stage 2 (100% design standard)

Stage two is ongoing. An extra 1476 cu. Mts. Has been provided from May-Dec 2000

2.8 Bog Development and Operational Programme

Eddera Bog is the only bog under development in the Mountdillon Group it is expected to be in production in 2001. Eddera bog is included in the Silt Pond Up-Grade Programme.

2.8 AER Summary Data Table

Summary Of Emissions			
Company		Bord na Mona Energy	
Address		Mountdillon Works Lanesboro Co. Longford	
Contact Name		Jim Harkins	
Telephone		043 21117	
E-mail		jim.harkins@bnm.ie	
GPS Co-ordinates(4N,4E)		E204720 N268880	
IPC Register Number		504	
IPC Class		1	
IPPC Class			
NOSE-P Code			
NACE CODES			
	Section	C	
	Sub-Section	A	
	Division		
	Group		
	Class	1.4	

Emissions to Waters

Indicate with "X" if emissions are to :

Parameter	Unit	Freshwater	or Sewer		or Sea	
		X				
Volume	M ³	Licensed emission Not applicable see section 2.1.1	1998	1999	2000	2001
Suspended Solids	Kg					
BOD	Kg					
COD	Kg					
Total Dissolved Solids	Kg					
Total Nitrogen	Kg					
Phosphate	Kg					
Toxicity	TU	Not applicable see section 2.1.1				
Hg	Kg					
Cd	Kg					
Pb	Kg					
Cr	Kg					
As	Kg					
Zn	Kg					
Cu	Kg					
Ni	Kg					
% Compliance	%					
Number of samples						

Emissions to air

Parameter	Unit	Licensed emission	1998	1999	2000	2001
Particulates	Kg	Not Applicable see section 2.2.1				
Sox	Kg					
Nox	Kg					
Co2	Kg					
TA Luft Class I	Kg					
TA Luft Class II	Kg					
TA Luft Class III	Kg					
Total Organic (as C)	Kg					
Non-Methane VOC	Kg					
Ammonia	Kg					
Total Heavy Metals	Kg					
% Compliance	%					
Number of samples						

Boiler Emissions to air

Parameter	Unit	Licensed emission	1998	1999	2000	2001
Dust	Kg	Not Applicable see section 2.2.2				
Sox	Kg					
Nox	Kg					
CO2	Kg					
CO	Kg					

Energy Usage

Energy Consumption		Unit	Sulphur Content	1998	1999	2000	2001
Heavy Fuel Oil		M ³				N/A	
Light Fuel Oil		M ³				1003	
Natural Gas		M ³				N/A	
Electricity		MW				912	
Coal		Kg				N/A	

Environmental Complaints

	1998	1999	2000	2001
Complaints received			2	
Complaints requiring corrective action			2	

Categories of complaint

	1998	1999	2000	2001
Odour				
Noise				
Water				
Air			2	
Procedural				
Miscellaneous				

Water		Unit	1998	1999	2000	2001
On-site groundwater use		m ³			N/A	
On-site surface water use		m ³			N/A	
Municipal water use		m ³			N/A	

Accreditation	
EMAS (Yes/No)	No
ISO 14000 (Yes/No)	No
Certification Pending	No

[illegible]

Waste

Total quantity of waste produced in calendar year (Tonnes)	1998	1999	2000	2001
total quantity of waste disposed of on-site			1725.108	
total quantity of waste disposed of off-site			1710	
total quantity of waste recovered on-site			1.65	
total quantity of waste recovered off-site				
Quantity of non-hazardous waste produced in calendar year	1998	1999	2000	2001
quantity of non-hazardous waste disposed of on-site			1711.65	
quantity of non-hazardous waste disposed of off-site			1710	
quantity of non-hazardous waste recovered on-site			1.65	
quantity of non-hazardous waste recovered off-site				
Quantity of hazardous waste produced in calendar year (Tonnes)	1998	1999	2000	2001
quantity of hazardous waste disposed of on-site			13.458	
quantity of hazardous waste disposed of off-site				
quantity of hazardous waste recovered on-site				
quantity of hazardous waste recovered off-site			13.458	

3.0 Management of the Activity

3.1 Environmental Management Programme Report

An E.M.P. has been submitted and will be reported on in next year's A.E.R.
Internal Training has been carried out by Head of Civil Engineering and Environmental Department
on Feb 29 2000 it covered Management Teamleaders and Operatives
Procedures have been prepared Re. Project 2 and Project 6 in the E.M.P.
It is proposed to decommission two 70,000gl. Tanks in accordance with Project 7 of the E.M.P. see
Bunding Programme 2.1.5

3.2 Environmental Management Programme Proposal

This has been submitted to the EPA for approval and a copy is attached in appendix (I)

3.3 Environmental Expenditure

Expenditure Related to the Operation of the Mountdillon IPC Licence During the Period March 2000 – December 2000	
Description	Cost (£)
Capital Costs	£48,671
Plant	
Labour	£67,559
Materials	£2,439
Overheads (ESB, Phones, Consumables)	£100
External Environmental Consultancy	£1000
EPA Fees	£2779
Monitoring Cost	£550
Total	£122,448

3.4 Bog Rehabilitation Report

This Report will be Submitted on Nov 2001 in accordance with Condition 10.2 of I.P.C. Licence

4.0 Summary

As the reporting period only covered date of licence to December 2000 and the Quarterly results only cover Sept/Oct/Nov, an accurate assessment of the results cannot be made. However, the AER for 2002 will include a full set of quarterly results from the grab sampling and a full years composite sampling results allowing a more representative and accurate assessment of Bord na Mona Energy's impacts on the environment. The attached Environmental Management Programme has been implemented throughout the group, operating procedures have been put in place, and training has been provided for all personnel involved in compliance with the licence.

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 (I)

BORD NA MÓNA

BORD NA MÓNA ENERGY LIMITED
Mountdillon GROUP, LANESBORO, CO LONGFORD

Environmental Management Programme Proposal
For
Bord na Mona Energy Ltd
(Mountdillon Group), Lanesboro, Co Longford

IPC Licence No.

504

Report No.

MN001-EMP

Date:

November 30th 2000

Environmental Management Policy

1.3 Environmental Policy

BORD NA MÓNA

BORD NA MÓNA ENERGY LIMITED
Environmental Policy Statement

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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 high environmental value.

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- Discharges to water
- Emissions to atmosphere
- Waste disposal
- Use of natural resources
- Noise, vibration, odour, dust and visual effects
- Natural environmental 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(R&D) into all aspects of its environmental impact

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Environmental Management Programme

1. Purpose

The purpose of the environmental management programme is to ensure that Bord na Mona Energy Ltd's objectives and targets regarding improving environmental performance, are supported by a realistic programme which is implemented throughout the organisation.

The EMP will be prepared by the Environmental Management Systems team and will be reported on and up-dated, quarterly to account for improvements, resulting from the phased introduction of the objectives and targets programme

2 Scope

All operations shall be assessed and all practicable options for the use of cleaner technology and the reduction and minimisation of waste shall be reviewed in accordance with the licence.

3 Definitions

Emissions:

Any Discharge (Air, Water, Waste or Noise) as identified by the IPC Licence, generated by activities associated with Bord na Mona Energy Ltd, (Mountdillon Group), Mountdillon Co Longford

Targets:

Detailed performance requirement, quantified where practicable, applicable to the organisation or parts thereof, that arises from the environmental objectives, that need to be set in order to meet the objectives.

Objectives:

Overall environmental goal, arising from the environmental policy, that an organisation sets itself to achieve, and which is quantified where practicable.

Target Date:

The date or time frame by which the ultimate target (aim or goal) will be achieved. Target dates may also be set for the completion of the objectives.

Person Responsible:

The Employee(s) with the overall responsibility of ensuring that the targets and objectives are completed on schedule.

4.0 Programme Title

4.1 Fugitive Air Emissions Programme

EMP 1

- | | |
|---|-------------|
| <i>4.2 Minimising surfacewater emissions
-Wastewater Generation and Treatment</i> | <i>EMP2</i> |
| <i>4.3 Minimising surfacewater & groundwater
Emissions
-Accidental Emissions
(stormwater management &
bundling and storage of oils)</i> | <i>EMP3</i> |
| <i>4.4 Waste Management</i> | <i>EMP4</i> |
| <i>4.5 Energy Usage</i> | <i>EMP5</i> |

5.0 Procedure

- 5.1 Monitoring Programme:** *All emissions shall be monitored as specified in the IPC Licence schedules:*
- 5.1.1 Emissions to Atmosphere** *(cdn. 5.3)*

- 5.1.2 *Emissions to Water (cdn. 6.2)*
- 5.1.3 *Waste Management (cdn. 7.3)*
- 5.1.4 *Water Protection (cdn. 9.1.2)*
- 5.2 *On a quarterly basis and at any other time deemed necessary by the Environmental Management Team, Forms EMP 1 to EMP 5 shall be checked for achievement of targets and completion of the objectives listed for the previous year.*
- 5.3 *If all targets have been achieved and the objectives completed the form shall be signed off by the Works Manager*
- 5.4 *In the event of any objective not being achieved or any targets not completed, an explanation shall be appended to the form. New targets and objectives shall be listed as specified in 5.6 through 5.7 of this procedure on the appropriate form for the following year. The Works Manager shall then sign the form.*
- 5.5 *On an annual basis, following the preparation of these forms, and at any other time deemed necessary by the Environmental Management Team, a report on the Conditions 2.2.1. through to 2.2.3 of the IPC Licence, shall be prepared by the Works Manager noting the success or failure to meet targets and objectives. The original shall be filed and copies sent to the Head of Civil Engineering & Environmental Control and the Environmental Protection Agency, PO Box 3000, Johnstown Castle Estate, Co, Wexford.*
- 5.6 *On an annual basis and at any other time deemed necessary by the Environmental Management Team, all, operations carried out at the Bord na Mona Energy Ltd facility shall be listed in forms EMP 1 to EMP 5 by the Environmental Management Team.*
- 5.7 *On examination of Forms EMP 1 to EMP 5, and by addressing the following environmental improvements, realistic targets and objectives for the reduction of the emission/energy demand, shall be undertaken.*

- *Process modification:
(cleaner production machines) - cdn 2.2.2(i). Where reasonably practical, machines will be modified to reduce emissions.*

- *Improving process control:
(cleaner production methods) – ditching, milling, harrowing, ridging, harvesting & loading etc. cdn 2.2.2(i, ii, x)*

- *Recovering, reusing and recycling material:*
Polythene, oil, filters, batteries, etc. cdn 2.2.2(vi, vii)

- *Reduction/Alternative material usage:*
Polythene, oil, filters, batteries etc cdn 2.2.2(viii)

- *Identifying, quantifying and reducing fugitive emissions:*
Silt & dust emissions etc. cdn 2.2.2(iv)

- *Preventing incidents with potential for undesirable environmental consequences:*
oil spillage's, works explosions/fires, bog fires etc. cdn 2.2.2(v, xi, xii)

- *Preparing, implementing and reviewing contingency plans:*
Spill/leak management, emergency response procedure etc. 2.2.2(xi) & 13.1.

- *Savings in energy and material usage:*
Polythene, electricity etc. cdn 2.2.2(ix)

- *Employee training:*
IPC management, cleaner production, sampling etc. cdn 2.2.2(i)

- *Alternative methods of Treatment:*
Reed beds, separation of storm water etc. cdn 2.2.2(iii, x)

In setting targets and objectives, account should be taken of compliance with the IPC Licence conditions and schedules and Bord na Mona Energy Ltd's financial, operational and business requirements.

The following projects will be undertaken by Bord na Mona Energy Ltd, Mountdillon Group as required under Condition 2.2 Environmental Management Programme (EMP).

BORD NA MÓNA



BORD NA MÓNA ENERGY LIMITED
Mountdillon Group, Lanesboro, Co Longford

Fugitive Air Emissions Programme (EMP1)

Activity/Emission	Objective	Objective Date	Target	Person Responsible
Emissions to Atmosphere	Achieve air/dust emission limits as in IPC Licence			
Reduce fugitive dust emissions		31-3-2002	Reduction of fugitive dust emissions during loading and production operations on the bog to be examined and a plan put in place. (Project 1)	Production Manager Foreman Environmental Co-ordinator

BORD NA MÓNA

BORD NA MÓNA ENERGY LIMITED
Mounthillon Group, Lanesboro, Co Longford

Wastewater Generation and Treatment (EMP2)

Activity/Emission Emissions to Water	Objective	Objective Date	Target	Person responsible
	Silt reduction	31/34/02	Minimisation of suspended solids movement to surface water drainage channels during development and production operations on peatlands. (Project 2)	Production Manager Foreman Environmental Co-ordinator
Emission pt's Reduction		31/02/02	Rationalisation of surface water discharge pt's examined and a plan put in place. (Project 3)	Production Manager Foreman Environmental Co-ordinator
Improve treatment Efficiency		31/03/02	Investigation of reed-bed systems for final polish of silt pond discharges (Project 4)	Head of Civil Engineering & Environmental Control
Effluent reduction		31/02/02	Separation of flood water and external catchment Run-off from production run-off. Proposals to separate put forward. (Project 5)	Production Manager Foreman Environmental Co-ordinator

Accidental Emissions Programme (EMP3)

Activity/Emission	Objective	Objective Date	Target	Person Responsible
Accidental Emissions	Fuel transfer Management	31-Mar-02	Effective spill/leak management of mobile fuelling units to be examined (Project 6)	Maintenance Manager Foreman Environmental Coordinator
	Fuel storage Management	30-Nov-02	Diesel and oil storage upgrade program (Project 7)	Maintenance Manager Foreman Environmental Co-ordinator

BORD NA MÓNA ENERGY LIMITED
Mountdillon Group, Lanesboro, Co Longford

Waste Management Programme (EMP4)

Activity/Emission	Objective	Objective Date	Target	Person Responsible
Waste Emissions	Waste reduction	Feb 2003	Investigation into the reuse of silt pond waste (Project 8)	Head of Civil Engineering & Environmental Control
	Waste reduction	Mar 2002	Investigation into the collection, storage and reuse of polythene covering (Project 9)	Head of Civil Engineering & Environmental Control
	Alternative stock Protection	Mar 2002	Possible use of reusable material for stockpile protection (Project 10)	Head of Civil Engineering & Environmental Control

BORD NA MÓNA

BORD NA MÓNA ENERGY LIMITED

Mountdillon Group, Lanesboro, Co Longford

Energy Reduction Programme (EMP5)

Activity/Emission	Objective	Objective Date	Target	Person Responsible
Energy Consumption	Reduction of Energy Requirements at Bord na Mona Energy Ltd (Boora Group)	Dec 2001	Investigation into the use of wind power technology for pumped drainage (Project 11)	Head of Civil Engineering & Environmental Control

Relationship to Objectives and Targets

In accordance with Bord na Mona Energy Ltd's commitment to minimise its impact on the environment, Bord na Mona Energy Ltd (Mountdillon Ref. 504) will undertake the following projects during 2001, as required under section 2.2.2. (Environmental Management Programme)

Rational for undertaking this specific project.

Project 1.

Condition 5.4 of the Mountdillon licence calls for an emission limit of 350mg/m²/day in accordance with the Bameec guidelines, with regard to dust emissions from milled peat production bogs. Condition 2.2.2 (iv) of the Environmental Management Programme calls for the reduction of fugitive dust emissions during loading and transfer operations on the bog and during unloading operations at the tippler and works yard areas. Also Condition (v) calls for the provision of measures to protect dust sensitive areas.

Target

Bord na Mona Energy Ltd (Mountdillon Group) aim to reduce fugitive dust emissions from milled peat production bogs by implementing a programme of training for operatives and applying the Bord na Mona Codes of Practice in relation to dust control. This project will also cover measures to protect the dust sensitive areas in the Mountdillon Group as highlighted in the Dust Monitoring Locations proposal

Project Summary:

The Environmental code of Practice for Bord na Mona Works which is included in Attachment no.10 of the Attachments Folder, under the Mountdillon application documents, cover the control of fugitive dust emissions:

1. Training for operatives at the various production cycles will be carried out to cover all locations and the existing dust sensitive locations in the Mountdillon group (Cloonshannagh). This will also incorporate a system of Cleaner Production Methods training, so as to implement the Codes of Practice in relation to dust and increase the awareness of Bord na Mona's production personnel to fugitive dust emissions and waste minimisation.
2. The programme will also include examining production machines, regarding process modifications and improved process control with the objective of increasing production efficiency, while reducing emissions. This will be carried out, with technical assistance from the Research & Development dept.
3. Procedures will be prepared so as to ensure compliance with condition 5.5 of the licence, in relation to dust control.
4. The results from the monitoring of the dust sensitive locations in accordance with condition 5.3 of the licence, will also be examined and used in improving process control.

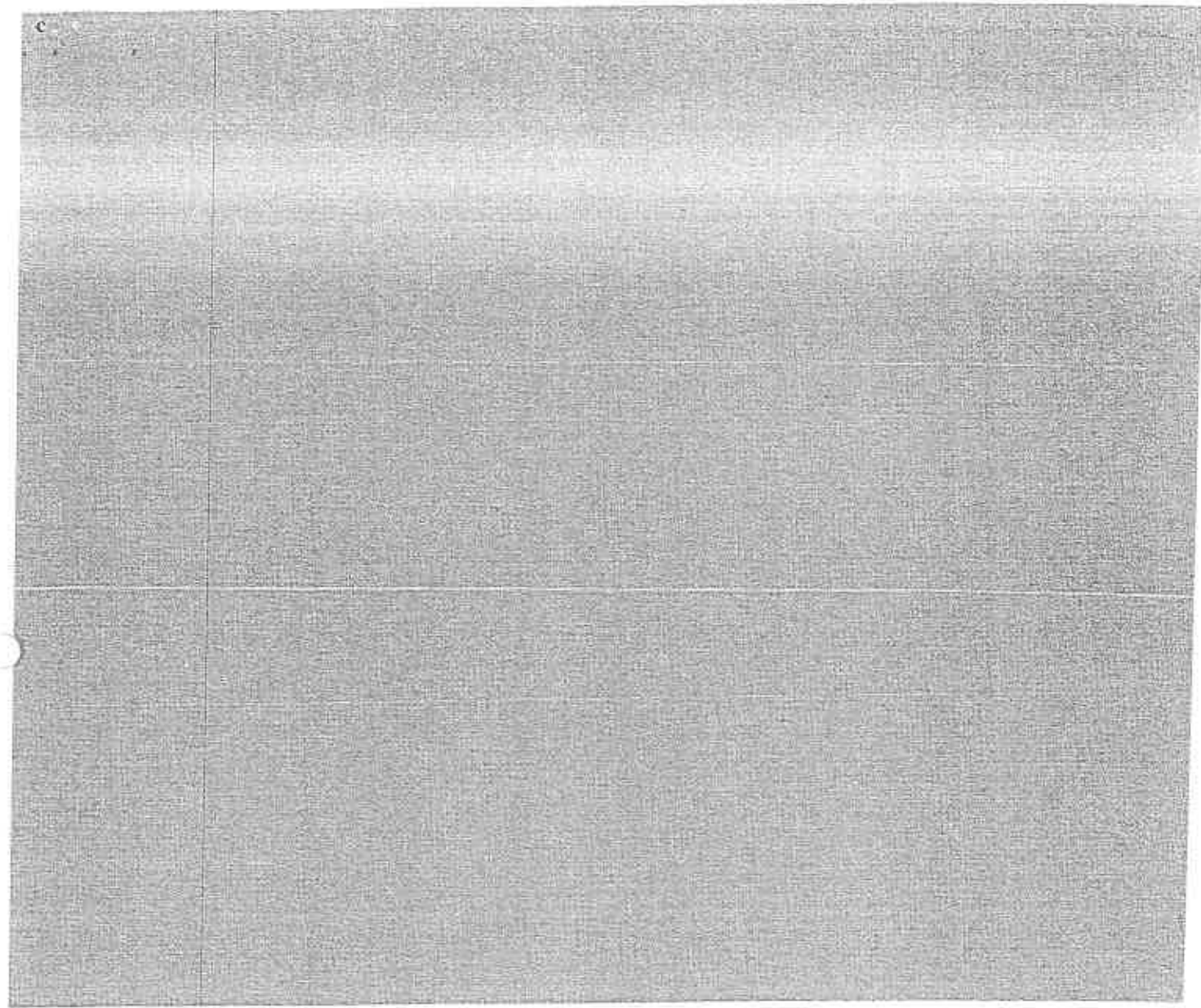
Designation of responsibility

1. Training for Management and Team leaders will be carried out by IBEC in consultation with the Civil Engineering and Environmental Control Dept.
2. Research & Development/Environmental Control/Management will look at improving process control/modifications in order to increase efficiency and reduce waste.
3. Procedures will be prepared by the Environmental Control dept in close consultation with Management, so as to ensure compliance with condition 5.5 of the licence, in relation to dust control.
4. Monitoring results from the sensitive areas in accordance with condition 5.3 of the licence will be examined by all parties, in an effort to improving process control efficiency.

The programme will reviewed and documented by the Environmental Co-ordinator on a quarterly basis, to assess the progress and success of the programme

Time-frame

1. Training — Management (IBEC) January 31st
 — Teamleaders (IBEC) February 28th 2001
 — Seasonals (Internal) April 30th
2. Research & Development — March 31st 2002
3. Procedures — March 31st 2001
4. Monitoring results — March 31st 2002



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Project 2.

Rational for Undertaking this specific project

Schedule 1 (i) of the Mountdillon licence calls for an emission limit of 35mg/litre in accordance with the Batneec guidelines, with regard to silt emissions from milled peat production bogs. Condition 2.2.2 (i) of the Environmental Management Programme calls for the minimisation of suspended solids movement to surface water systems via peatland surface water drainage channels during development and operation of boglands, to be addressed.

Target

Bord na Mona Energy Ltd (Mountdillon Group) aim to reduce peat silt emissions from milled peat production bogs by implementing a programme of improving process control.

Project Summary:

1. The program will look at improving process control and will involve a programme of cleaner production methods being implemented in the various stages of the production cycle, as waste minimisation measures.
2. A large part of the programme will involve training for management and operatives involved at the various stages of a production cycle i.e. milling, harrowing, ridging, harvesting, loading, ditching etc.
3. Procedures will be prepared, which will highlight the best practice in milled peat production. These procedures will be used to implement the Codes of Practice in peat production and will assist in waste minimisation.
4. Process modification will also be examined with the assistance of the Research & Development Dept, which may improve the efficiency of the production machines, reducing the amount of milled peat lost as silt.

Designation of responsibility

1. This part of the programme will involve Management, Environmental Control and Research & Development looking at cleaner production methods and assessing their feasibility.
2. Training for Management, Teamleaders and Seasonals will be provided internally, and will be based on the operating procedures and the Codes of Practice.
3. The operating procedures will be prepared by the Environmental Control dept in consultation with Management.
4. Process modifications/improvements will be examined by the Environmental Control and Research & Development depts, and their feasibility assessed in consultation with Management.

The programme will be assessed quarterly, by the Environmental Co-ordinator and the findings documented and reported to the General Manager. Annual refresher courses will be provided.

Time-frame

1. Cleaner Production Methods - March 2002
2. Training - Management (IBEC) - January 31st
Teamleaders (IBEC) - February 28th
Seasonals (Internal) - April 30th
3. Operating Procedures - March 31st
4. Process modifications/improvements - March 31st 2002

Rational for undertaking this specific project.

Target

Project Summary:

Designation of responsibility

- ### Time-frame

		2001												2002	
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb
Stage	1	Loughbannow Derryadd Derryaroge													
	2	Knappoge Begnagh Clooneeny,													
	3	Derryshannoge, Cloontuskert Cloonshannagh													
	4	Mountdillon, Ederra													

Project 4:

Rational for undertaking this specific project.

Condition 2.2.2 (iii) calls for the investigation of reed-bed systems for final polish of silt pond discharges to be addressed. Condition 9.1.7.

Target

Bord na Mona Energy Ltd (Moundillon Group) aim to examine the feasibility of using reed-bed systems for the final polishing of silt pond discharges

Project Summary:

This project will be a desk-based study to examine the different types of reed-beds in use and the different types of wastewater's that are suitable for final polishing.

1. An Engineer will be appointed to examine and research existing systems that may be in use, and assess their suitability, advantages/disadvantages etc to the Bord na Mona situation. He/She will liaise with 3rd level Institutions who may be carrying out research into reed-bed systems and their applications for final polishing of wastewater.
2. If the above research shows that demonstrating the effectiveness or not of the system, warrants a pilot area to be selected and a reed-bed constructed, then a test area will be selected.
3. If the research shows that the system is not suitable for final polishing of silt pond discharges, the rationale for this will be included in the AER.

Designation of Responsibility

The Head of Civil Engineering & Environmental Control is responsible for the implementation of this project. Technical assistance will be provided by the Research & Development Dept and the program will be assessed quarterly. A report on the program will be included as part of the AER.

1. The research end of the programme will be carried out by the research Engineer and will be reported to Head of Civil Engineering & Environmental Control on a quarterly basis.
2. The Head of Civil Engineering & Environmental Control, Research & Development Depts and the Research Engineer will be responsible for the assessment of the results and will decide on its feasibility.
3. The Head of Civil Engineering & Environmental Control will be responsible for reporting on the research and the rationale for selecting a pilot project or not.

The progress of the programme will be assessed by the Head of Civil Engineering & Environmental Control on quarterly basis, and any changes to the programme will be implemented.

Time-frame

1. Research - Dec 31st
2. Assess feasibility of pilot project - Feb 2002
3. Report on rationale - AER March 2002

Project 5:

Rational for undertaking this specific project.

Condition 2.2.2 (xi) calls for the separation of storm water runoff from process and non-process areas to be examined

Target

Bord na Mona Energy Ltd (Mountdillon Group) aim to reduce the volume of effluent discharging from production bog by, where possible, only treating discharges from production bogs.

Project Summary:

By examining process and non-process water, the volumes of effluent requiring treatment can be reduced. Process water originates from production bog, while non-process water is water from surrounding farmland, which enters the bog drainage system and discharges through the silt pond. The programme will involve three phase's, which will be used to assess all of the bogs, spread over 12 months, and carried out over the four quarters as in the Gantt Chart below

1. The project will initially be in the form of a survey, which will identify the sources of the extraneous water and suggest alternative drainage routes.
2. These areas will then be assessed on the ground for the feasibility of alterations to the existing drainage system and the benefits, if any, of doing so. This will provide for more efficient treatment methods and the reduction of non-process water, which is currently being treated.
3. Any production bog, on which such work would be feasible and beneficial, will be carried out.

Designation of responsibility

The Production Manager, Bog Foreman and Environmental Co-ordinator will be responsibility for the implementation of this program in the time frame agreed below. The progress of the program will be assessed by the Environmental Co-ordinator on a quarterly basis and reported to the General Manager. The results of the program will also be reported on as part of the AER.

Time frame

Stage	2001												2002	
	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb
1	Loughbannow, Derryadd, Derryarogue													
2						Knappoge								
						Begnagh Clooneen								
3									Derryshanoge Cloontuskert, Cloonshannagh					
4													Mountdillon Eddera	

Rationale for undertaking this specific project.	<p>Project 6:</p> <p>Condition 2.2.2 (xii) calls for the effective spill/leak management of mobile fuelling units to be addressed. Condition 9.1.7 also calls for the loading and unloading of fuel oils to fixed fuel storage tanks to be carried out in areas protected against spillage.</p>
Target	<p>Bord na Mona Energy Ltd (Mountdillon Group) aim to examine the methods of fuel distribution and delivery, using mobile fuelling units to provide for more effective spill/leak management.</p> <p>Project Summary:</p> <ol style="list-style-type: none"> 1. This programme will initially involve surveying the current situation in a bog for re-fuelling either production machines or fixed fuel storage tanks, so as to protect the environment from spills or leaks should they occur. 2. A large part of the programme will involve developing operating procedures for the loading and unloading of the fuel oil, to prevent accidental spillage and oil wastage. 3. Operatives will be trained in the safe transfer of fuel from the service wagon/fixed tank to the production machine. 4. The Emergency Response Procedure will be implemented regarding oil spills and will be available at all the works and personnel concerned made aware of its content.
Designation of responsibility	<p>In the workshops and yards, oil spill kits and suitable dry peat will be made available for clean-ups and personnel trained to deal with oil spills.</p> <ol style="list-style-type: none"> 1. The Production Manager, Bog Foreman, and Environmental Co-ordinator will assess the current Re-fuelling methods and the logistics associated with each production bog, to see if measures can be taken to reduce the risk to surface waters from diesel oil spills. 2. Operating procedures will be prepared by the Civil Engineering & Environmental Control Dept. to cover all re-fuelling operations. 3. Training will be provided by the Environmental Co-ordinator and the appropriate Line Manager with regard to safe practice, to all personnel involved in re-fuelling operations, at the works or on the production bog. 4. The Maintenance/Production Manager will be responsible for implementing the Emergency Response Procedure and making its contents and application known to all personnel. <p>The Environmental Co-ordinator will review, on a quarterly basis, the progress of the programme and report it to the General Manager.</p>
Time-frame	<ol style="list-style-type: none"> 1. Survey – July 31st 2001 2. Prepare operating procedures – Feb 28th 2001 3. Training – Nov 30th 2001 4. ERP – March 2002

Project 7.

Rational for undertaking this specific project.

Condition 9.1.4 calls for all tank and drum storage to be rendered impervious to the materials stored therein.

Target

Bord na Mona Energy Ltd (Mountdillon Group) aim to adhere to the requirements by implementing a programme of bunding at all diesel storage locations in the workshop and in the bog.

Project Summary:

All diesel storage locations will be examined under the terms of the licence. Diesel storage and distribution networks will be studied to allow for improvements or adjustments should they be necessary. The program will also cover the rationalisation of the existing diesel/oil storage tanks so as to reduce the bunding requirements and the risk to environment.

1. Analyse oil/diesel storage requirements, with a view to reducing the volumes stored on site, so as to reduce the risk to the environment.
2. Plans for bunding improvements to exist tanks, decommissioning of dis-used tanks and a construction program for new on-bunded tanks will be put in place.
3. Contracts will be placed for the above construction/improvements etc.
4. All bunds will be constructed and certified.

The above phased programme will fulfil the requirements of condition 9.1.4, and their integrity will be reported on in accordance with condition 9.1.6.

Designation of responsibility

The Production Manager, Maintenance Manager, Foremen and Environmental Co-ordinator will be responsible for the implementation of this program both on the bog and in the yards. It will be assessed quarterly by the Environmental Co-ordinator and reported to the General Manager.

1. The General Manager, Maintenance Manager and Environmental Co-ordinator will be responsible for the initial assessment.
2. The bunding programme will be planned out between the General Manager and Civil Section.
3. The Contracts will be placed by either the General Manager or the Civil Section.
4. The Bunds will be inspected and certified by Donal Wynne B.E. C.Eng. FIET, Head of Civil Engineering & Environmental Control.

Time-frame

1. Initial Assessment - Feb 28th 2001
2. Bunding Programme - March 31st 2001
3. Contracts placed - March 31st 2001
4. Inspection and certification - 18 mths from licence issue date.

1/21/01 1/24/01 1/27/01 2/3/01 2/10/01 2/17/01 2/24/01 3/3/01 3/10/01 3/17/01 3/24/01 3/31/01 4/7/01 4/14/01 4/21/01 4/28/01 5/5/01 5/12/01 5/19/01 5/26/01 6/2/01 6/9/01 6/16/01 6/23/01 6/30/01 7/7/01 7/14/01 7/21/01 7/28/01 8/4/01 8/11/01 8/18/01 8/25/01 9/1/01 9/8/01 9/15/01 9/22/01 9/29/01 10/6/01 10/13/01 10/20/01 10/27/01 11/3/01 11/10/01 11/17/01 11/24/01 12/1/01 12/8/01 12/15/01 12/22/01 12/29/01 1/5/02 1/12/02 1/19/02 1/26/02 2/2/02 2/9/02 2/16/02 2/23/02 2/29/02 3/6/02 3/13/02 3/20/02 3/27/02 4/3/02 4/10/02 4/17/02 4/24/02 5/1/02 5/8/02 5/15/02 5/22/02 5/29/02 6/5/02 6/12/02 6/19/02 6/26/02 7/3/02 7/10/02 7/17/02 7/24/02 7/31/02 8/7/02 8/14/02 8/21/02 8/28/02 9/4/02 9/11/02 9/18/02 9/25/02 10/2/02 10/9/02 10/16/02 10/23/02 10/30/02 11/6/02 11/13/02 11/20/02 11/27/02 12/4/02 12/11/02 12/18/02 12/25/02 1/1/03 1/8/03 1/15/03 1/22/03 1/29/03 2/5/03 2/12/03 2/19/03 2/26/03 3/5/03 3/12/03 3/19/03 3/26/03 4/2/03 4/9/03 4/16/03 4/23/03 4/30/03 5/7/03 5/14/03 5/21/03 5/28/03 6/4/03 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Rational for undertaking this specific project.	<p>Project 8.</p> <p>Condition 2.2.2 (vii) of the EMP calls for an investigation into the reuse of silt pond waste</p>
Target	<p>Bord na Mona Energy Ltd (Moundillon Group) aim to adhere to the objectives of the EMP by examining the feasibility of reusing the waste silt taken from the silt ponds bi-annually.</p> <p>Project Summary:</p> <p>The difficulty with reusing peat silt is the contamination of the peat by subsoil, because of the location of the silt ponds. This results in high ash content</p> <ol style="list-style-type: none"> 1. The project will select 1 to 2 ponds in the Bord na Mona Energy Ltd group, with a view to examining the possibilities of silt containment in intermediate settlement ponds 2. Examine the methods used for extracting the silt and the physical make-up of the silt once it has been mechanically taken from the silt pond with regard to contamination. 3. Methods for incorporating the silt back into the stockpiles will be examined for feasibility, effectiveness etc. 4. Alternative uses for the silt will also be explored, either for further use within Bord na Mona Energy Ltd, or for public use. <p>Two suitable ponds will be introduced to the project on a phased basis, to conduct trials. The results from the first pond will determine whether a second test site worth exploring.</p>
Designation of responsibility	<p>The Head of Civil Engineering & Environmental Control is responsible for the implementation of this project. This will be achieved with the assistance of the Research & Development Dept and with input from the various works. Its progress and effectiveness will be assessed quarterly, and the findings reported on annually as part of the AER.</p> <ol style="list-style-type: none"> 1. Management and the Environmental Control Dept, will select Area 1, based on the peat type, pond location, subsoil type etc. Area 2 will be selected, based on the outcome of Area 1 2. The Civil Engineering & Environmental Control and the Research & Development Depts, will be responsible for examining the silt extraction methods, silt composition etc. 3. The Civil Engineering & Environmental Control and the Research & Development Depts will also look at methods for recycling silt, back into Production 4. Alternative uses for peat silt may arise out of the above projects and this will be explored by both depts.
Time-frame	<ol style="list-style-type: none"> 1. Pond Selection – Area 1 – April 30th 2001 Conduct trials May – Sept 2001 Area 2 – April 30th 2002 Conduct trials May – Sept 2002 2. Silt extraction – Feb 28th 2002 3. Waste minimisation – Feb 28th 2002 4. Alternative uses – Feb 28th 2003

Rationale for undertaking this specific project.	<p>Project 9.</p> <p>Condition 2.2.2 (viii) of the EMP calls for the collection, storage, and reuse of polythene covering to be explored.</p>
Target	<p>Bord na Mona Energy Ltd (Mountdillon Group) aim to adhere to the objectives of the EMP by examining the feasibility of the collection, storage and reuse of polythene covering taken from the stockpiles.</p>
	<p>Project Summary:</p>
	<ol style="list-style-type: none"> 1. The project will initially be in the form of desk based study, to examine the methods available for the removal, collection and the storage of the stockpile covering.
	<ol style="list-style-type: none"> 2. It will also cover research into the development of a Bord na Mona specific machine method for the effectiveness and economical removal of the covering.
	<ol style="list-style-type: none"> 3. Polythene reuse will be examined in relation to reuse in Bord na Mona Energy Ltd, other divisions in Bord na Mona Ltd, or other industry.
	<p>The collection and reuse of the material will also be examined in conjunction with the licensed waste contractor, engaged to recycle the used polythene covering. The company is actively pursuing these objectives with Shabra Plastics and is also exploring other outlets for the waste polythene.</p>
Designation of responsibility	<p>The Head of Civil Engineering & Environmental Control is responsible for the implementation of this project. The Research & Development dept will also be engaged to provide technical assistance and the program will be reported on quarterly, for its effectiveness and progress. A report on the results finding will be submitted annually as part of the AER.</p>
	<ol style="list-style-type: none"> 1&2 Paul Riordan, Boora Group will research the collection and storage of polythene and methods for its removal and transportation. This will be reported on in all the IPC Licences.
	<ol style="list-style-type: none"> 3. The Head of Civil Engineering & Environmental Control and the Research & Development depts will be responsible for this stage of the programme and will report on the findings to Management.
Time-frame	<ol style="list-style-type: none"> 1. Research/Recycling – On-going process 2. Re-use – March 2002

Rationale for undertaking this specific project.	<p>Project 10:</p> <p>Condition 2.2.2 (ix) of the EMP calls for an examination of the use of reusable material for stockpile protection.</p>
Target	<p>Bord na Mona Energy Ltd (Mountdillon Group) aim to adhere to the objectives of the EMP by examining the feasibility of using a re-usable material for stockpile protection of peat after the production season has finished.</p>
Designation of responsibility	<p>Project Summary:</p> <ol style="list-style-type: none"> 1. This project will be initially in the form of a desk-based study to examine the various materials on the market, which may suit stockpile protection. 2. It will re-examine previous Bord na Mona research into alternative stockpile protection measures and assess any advances in technology. It will take into account the methods of application, life of the product, methods of removal, recyclability, and economics etc and its suitability to Bord na Mona's requirements. <p>This will be reported, on a quarterly basis, to the Head of Civil Engineering & Environmental Control and the results of the research documented.</p> <p>The Head of Civil Engineering & Environmental Control is responsible for the implementation of this project. Technical assistance will be provided by the Research & Development Dept, and its progress will be monitored by quarterly assessment. It will be reported on annually as part of the AFR.</p> <p>I&D: An Engineer will be appointed to investigate current methods in use and any past research into alternative methods of stockpile protection.</p>
Time-frame	<p>I&D: Research Development – March 2002</p>

Rational for undertaking this specific project.

Project 11:

Condition 2.22 (x) of the EMP calls for the examination of wind power technology for pumped drainage.

Target

Bord na Mona Energy Ltd (Mountdillon Group) aim to adhere to the objectives of the EMP by examining the feasibility of using wind power to operate pumped drainage where it is required.

Project Summary:

1. It will also involve examining previous research carried out by Bord na Mona and assessing changes in technology.
The project will initially be in the form of desk based study, to examine the technology availability, the pumping requirements of the various licensed activities, wind regimes, and the suitability of bogs for the installation of wind powered pumps.

Designation of responsibility

The Head of Civil Engineering & Environmental Control is responsible for the implementation of this project. Technical assistance will be provided by the Research & Development Dept in assessing its feasibility and relevance to Bord na Mona Energy Ltd's activities. It will be reviewed quarterly for progress and will be reported on as part of the AFR.

Time-frame

1. An Engineer will be appointed to carry out a desk based study regarding previous research into wind power, carried out by Bord na Mona Energy Ltd. He/She will report to the Head Of Civil Engineering & Environmental Control on a quarterly basis. A decision on how to proceed with the project will be taken, based on the outcome of the research, regarding a test site.
1. Research/Desk study - Dec 2001

Appendix (ii)

BORD NA MÓNA 

BORD NA MÓNA ENERGY LIMITED
Leabeg, Tullamore, Co. Offaly, Ireland.

Mountdillon Group IPC LICENCE
Ref. 504

***Silt Pond Treatment System Up-Grade Programme
Proposal***

Date: ***30th November 2000***

Company Name: Bord na Mona Energy Ltd.
Mountdillon Group

Required Submission date: 30th November 2000

Report Name: Silt Pond System Treatment Up-Grade
Programme Proposal (Conditions 6.6, 6.9, & 6.10)

In order to meet the requirements of Conditions 6.6, 6.9, & 6.10 of the Mountdillon Licence (ref. 504) the following works will be undertaken by the General Manager of the Mountdillon Group.

Condition 6.6

The Licence shall, within six months of the date of grant of this licence (9th May 2000) submit to the Agency for agreement, a programme to ensure that all drainage water from all boglands in the licenced area is discharged via an appropriately designed silt pond treatment arrangement. The programme, to be implemented within a period agreed with agency, shall ensure that all discharges associated with operational boglands should be prioritised within this programme.

Stage 1 (100% effluent treatment)

There are currently two discharge pts in the Mountdillon Group of bogs, which are not covered by a silt pond treatment system. These are in Lough Bannow (Corlea) and Mountdillon bog and will be prioritised within the Group.

Therefore, appropriately designed silt ponds will be installed on the two discharge points to bring the treatment capacity to 100% for all the bogs in the Mountdillon Group. It is proposed to start this programme by Jan 2001 and complete by June 2001.

Condition 6.9

Within six months of the date of grant of this licence (9th May 2000), the licensee shall submit a programme, for agreement with the agency, to upgrade the sedimentation pond treatment system. The programme shall, inter alia, address provision of additional ponds, weir or pipe installation (inlet and outlet), pond configuration, use of baffles, performance efficiency and frequency of de-silting. The upgrade shall have regard to the minimum silt pond specifications detailed in Condition 6.10.

Stage 2 (100% Design Standard)

Mountdillon's silt pond upgrade programme will address the ponds serving production bog which are not up to design standards as set out in the application document, and in Condition 6.10

41 ponds are not up to design standard, and these 41 ponds will be prioritised as follows:

AREA	SILT POND	PRIORITY
Lough Bannow	LW4	1
Derryarogue	DR55, DR7, DR9, CB1,2,4, CB3	2
Knappogue	KN1 KN4	3
Begnagh	BH1 BH5, BH4	4
Derrycolumb	DC1	5
Derryshannogue	DS3 DS8 DS9	6
Cloonaddra	CA4, CA5, CA6	7
Cloonshannagh	CH1,2,8,9 CH7	8
Derrymoylin	DN3 DN4,5 DN1	9
Mountdillon	MN1,6 MN2,3,4	10
Derrycashel	DL 4,5,6 DL3 DL1	11
Eddra	ED1,2,3	12

Stage 2 will be spread out over a 18 month period having started on September 1st 2000. In addition to increasing the pond capacities, the programme will address the addition where possible, of weirs or pipe installation, in order to increase the control over the discharges. These and the use of baffles, changes in pond configuration, etc will be studied in accordance with the requirements of the EMP (Mountdillon EMP/emp2)

Stage 3 (100% Control)

The final stage of the programme will examine the remaining ponds, which are currently up to the required size, for the addition of weirs, baffles etc. This final stage of the programme will also be spread out over an 18 mth period starting August 2001 so as to satisfy condition 6.10 in the time period required (3 years).

Silt Pond Upgrade Programme

Year 1	Year 2	Year 3
28/04/00 to 28/04/01	28/04/01 to 28/04/02	28/04/02 to 28/04/03

Project	May	Aug	Nov	Feb	May	Aug	Nov	Feb	May	Aug	Nov	Feb
Stage 1				100% Effluent treatment								
Stage 2					100% Design Standard							
Stage 3									100% Control			

Appendix (iii)

BORD NA MÓNA

BORD NA MÓNA ENERGY LIMITED

Environmental Management

Complaint Form

Works: _____ Bog: _____ Ref No.: _____ Date: _____

Method of Complaint :

Letter ____ Telephone Call ____ Interface ____ Other ____

Date Received : _____

Name Of Complainant : _____

Address : _____

Telephone No's : _____ Ph. _____ Mob. _____

Complaint Description	

Location affected (if relevant) : _____

Townland : _____ Co.: _____

Name of Present Land Owner (if different) _____

Address : _____

Name of Previous Land Owner (if known) : _____

Address : _____

Complaint Received By : _____

Complaint Forwarded to for Inspection : _____

Investigation Report	

Resolution	

Work Progress	

Date Resolved : _____ Signed : _____

Appendix (iv)

BORD NA MONA ENERGY LIMITED

FORTNIGHTLY INSPECTION

IPC Licence No: 504

Bog Name: Claudia's Kert / Moller / CLAUDIA

[illegible]

Appendix (v)



U

Weekly Inspections

IPC Licence no.: 5074

Wyk.:

Overground Pipeline

[illegible]

Oil Traps/Interceptors

[illegible]

Surface Water Discharges

[illegible]

Appendix (vi)

***TOTAL DUST AND PARTICULATE
EMISSIONS ANALYSIS FROM BOILER
STACKS AT PRE-SELECTED LOCATIONS
IN COMPLIANCE WITH THE
REQUIREMENTS OF BORD NA
MÓNA'S INTEGRATED POLLUTION
CONTROL LICENCE APPLICATION***

REPORT NO:

K960-D

ATTENTION:

Mr. Paul Riordan
Bord na Móna Energy Limited
Boora Group
c/o Boora Works
Leabeg
Tullamore
Co. Offaly

Mr. Finn Campbell
Bord na Móna Allen Peat Limited
Allen Group
c/o Derrygreenagh Works
Rochfordbridge
Mullingar
Co. Westmeath

PREPARED BY:

Paul Chadwick
Environmental Consultant

DATE:

26 April 1999

CONFIDENTIAL

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REGISTERED OFFICE: MAIN STREET, NEWBRIDGE, CO. KILDARE
REGISTERED IN IRELAND NUMBER: 303313

1.0 INTRODUCTION

In compliance with the requirements of their Integrated Pollution Control Licence Application, Bord na Móna are required to assess the nature of boiler emissions from various works within the company. As a basis for a preliminary assessment it was proposed to sample the boiler stacks from two works, namely Boora Works (Boora Group) and Derrygreenagh works (Derrygreenagh Group) which are deemed representative of the total dust and particulate emissions from the peat briquette boilers that are generated at other works sites within Bord na Móna .

Bord na Móna Environmental Ltd. was commissioned to conduct this monitoring programme. The Boora and Derrygreenagh works facilities were visited by Environmental Consultants from Bord na Móna Environmental Ltd. on the 21st and 23rd of April 1999, respectively, for the purpose of monitoring the following emission points:

Emission Point Reference	Location	Description
AB-1	Boora Works	Boiler Emission
AB-1	Derrygreenagh Works	Boiler Emission

The locations of the boiler emissions sampling points are accurately marked on Appendix 1 (taken from Drawing 11.2 of the Drawing's Folder of the Boora Group IPC Licence Application) and Appendix 2 (taken from Drawing 11.2 of the Drawing's Folder of the Derrygreenagh Group IPC Licence Application), respectively.

This report details the sampling and analytical methodologies employed.

2.0 METHODOLOGY

2.1 Volume Flow and Temperature

Volume flow was measured in accordance with ASTM standard test method D3154-91 for average velocity in a duct (pitot tube method). A standard L-type pitot tube and digital manometer were used to record velocity pressures. A K-type thermocouple was used for measuring temperature.

2.2 Total Dust and Particulates

The total dust and particulates was determined in accordance with US EPA standard methods. Samples were collected isokinetically on pre-weighed filters using an Anderson Universal stack sampler. Where access was prohibited an in-stack sampling procedure was employed. The weight gain was determined gravimetrically using 5 point calibrated balances.

2.3 Quality Control

The Environmental Limited Laboratory complex have been awarded ILAB accreditation by the ILAB secretariat. A stringent six point quality control approach is at present implemented in the laboratories.

- (i) Controlled chain of custody.
- (ii) Operator competence - all analysts must be suitably qualified to carry out the required analysis.
- (iii) Certified Reference Materials (CRM). The accuracy of a series of determinations is checked against known standards.
- (iv) Duplicate - 10% duplication is normal.
- (v) Quality Control Charts.
- (v) Inter Laboratory Testing - The Environmental Limited Laboratories are members of the WASP Interproficiency Testing Scheme and the W.R.C. Aquacheck Scheme. The Laboratory also participates in the Environmental Protection Agency's Intercalibration Programme and is listed on the Agency's Draft Register of Quality Approved Testing Laboratories for 1998/99.

2.4 Control Chain Of Custody

As part of the Quality System in place in Bord na Móna, Environmental Limited, measures are taken to ensure controlled chain of custody. An outline of the chain of custody is given overleaf.

BORD NA MÓNA

BORD NA MÓNA ENVIRONMENTAL LIMITED

CONTROLLED CHAIN OF CUSTODY

SITE

Sampling and packaging of all samples was carried out by Bord na Móna Technical Team:
D. Dolan, P. Chadwick

TRANSPORT

Transport Document Form

Transport to laboratory by Bord na Móna Technical Team.

LABORATORY

Sample Reception Form

Receiving of samples at Bord na Móna Environmental Laboratory complex by:
Dr. J. Reilly, Laboratory Manager
(Secure laboratory complex access to authorised personnel only)

→

→

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Storage of all samples for 1 month period after report issue.

↓

Supervised Disposal

3.0 RESULTS

The results of the monitoring program are outlined in tables 3.1 and 3.2.

TABLE 3.1: RESULTS OF TEMPERATURE AND VOLUME FLOW MEASUREMENTS			
Emission Point Reference	Location	Temperature °C	Volume Flow Nm³/hr
AB-1	Boora Works	246	1189
AB-1	Derrygreenagh Works	59	1480

TABLE 3.2: RESULTS OF TOTAL DUST AND PARTICULATE ANALYSIS			
Emission Point Reference	Location	Total Dust & Particulates mg/Nm³	Mass Flow kg/hr
AB-1	Boora Works	95	0.11
AB-1	Derrygreenagh Works	181	0.27

4.0 DISCUSSION

Table 3.2 details the results of the monitoring of the dust and particulate emissions from the boiler stacks at both the Boora Works and the Derrygreenagh Works. With regard to emission limit values the TA Luft guidelines (1986) are referred to. These state that dust emissions in waste gas shall not exceed:

- mass concentrations of 50 mg/m^3
at a mass flow of more than 0.5 kg/hr
- mass concentrations of 0.15 g/m^3
at a mass flow of up to 0.5 kg/hr

Due to the very low flows of the boiler stacks at both works the mass flow in both cases is below the 0.5 kg/hr guideline figure and hence the second emission limit value stated applies. The dust and particulate emissions from the boiler stack at the Boora works (95 mg/Nm^3) are well within this guideline figure. However, the dust and particulate emissions from the boiler stack at the Derrygreenagh works (181 mg/Nm^3) marginally exceed this guideline. In summary, it is concluded that the dust and particulate emissions from the boiler stacks at both works facilities will have a negligible environmental impact on the receiving environment.