

*Bord na Móna
Energy Ltd.*

**Integrated Pollution Control
Licence Application**

ATTACHMENT No. 5

DESCRIPTION OF ACTIVITY



GENERAL OVERVIEW

Peat excavation commenced in Ireland around the 16th century as the forests were cut down and peat was used as the principal fuel. This peat excavation was small scale and turf was cut primarily for private use in the home. The potential to utilise bogs on a large scale for economic benefit was recognised in the early 19th century by the bog commissioners. The commission on bogs which was established in 1909 declared that it would be possible to drain nearly all the large bogs in the country naturally, and that such systematic drainage would open the way to proper development of the bogland resource.

In 1934 the Turf Development Board was established. The Board took over many small scale peat operations and undertook fact-finding missions to Russia and East Germany to investigate industrial peat production and utilised this knowledge at home. The advent of the Second World War put an urgency on the Board to develop bogs quickly because of fuel shortages and in 1938 surveys of the bogs of Ireland were being planned. In 1946 the Turf Development Board became Bord na Móna. Bord na Móna subsequently changed from sod peat to milled peat production because of the high costs associated with sod peat production.

Various bogs were acquired under Bord na Móna's first and second development programmes. The third development programme (1974) was implemented as a result of the oil crises of the 1970's. The government wanted to reduce dependency on imported fuels and asked Bord na Móna to increase production.

DESCRIPTION OF ACTIVITY

Overall schematic diagrams of the peat extraction processes taking place within the Derrygreenagh Group are illustrated in Figures 5.1 (milled peat production) and 5.2 (sod peat production).

MILLED PEAT PRODUCTION

Drainage

It can take up to five years to bring a bog from its undrained state (virgin bog) to a state where milled peat can be produced on it. Virgin bogs have a water content of approximately 95%. Bogs are typically drained in order to reduce the water content of the surface and increase bearing capacity. This permits the use of larger and, therefore, more economical machines in the production process and also substantially reduces the amount of water that has to be removed from peat during the drying process.



Figure 5.1: Milled Peat Production

Operating Period

September to March

April to May

May

June onwards to September

Bog Drainage

Ditching resinking outfalls, cleaning railways, drains and boundary drains

Bog Preparation

Prepare turning grounds, screw levelling of production fields every 3rd cycle

Milling

Offset mill all production areas and continue the off setting after every 3rd harvest

Full Production

Peat production operates on a 3 to 4 day cycle

Harrowing

Harrow each crop twice during drying process

Ridging

Harvesting

Milling

Pile Rolling

This operation is carried out after every 5th harvest to protect stock during bad weather conditions

Stock Pile Covering

Transport

Figure 5.2: Sod Peat Production - German Bagger

October - March

Bog Drainage



Mid March

Bog Preparation



April

Cutting Hoppers



Mid June

Ploughing



Splitting



Rowing



Collection



September

Polycovering



Transport



Before development work starts on a bog, the area is surveyed and a drainage plan is designed to suit the subsequent production system. The drainage plan generally involves a network of parallel open drains 15 m apart. The strip of bog between two drains is called a field. If a normal deep drain is opened within virgin bog its sides will collapse because of the soft nature of the bog. To overcome this difficulty the drains are deepened gradually. Progressively deeper ploughs are used every few months in order to lower the water content of the bog surface to a stage where it is firm enough to support normal open drains. After the bog has been drained it is levelled. This step removes vegetation and gives the area a gentle slope towards the nearest drain. This allows machinery to work at maximum efficiency and facilitates run-off of rainwater from the bog surface.

Drainage of water by gravity is not always possible in some of the low lying peatlands. Many of the bogs historically formed in lakes below the present river levels and pumping (Archimedean screw pumps which were previously used are now being replaced by modern submersible pumps) is necessary for drainage of water.

Peat Milling Operations

For milled peat production the bog is laid out in a series of rectangular drying fields around 730 to 1830 m long and 14 m wide with drains located between. There are essentially four operations in milled peat production:

- Milling
- Harrowing
- Ridging
- Harvesting.

Milling

Special milling machines work their way along the field. The miller itself consists of a number of rotating drums fitted with pins to cut the peat. The rotating drums cut a thin layer of peat about 15 mm deep. This layer of peat is called a crop. Typically the water content of the crop is about 80%.



Harrowing

In the course of drying, the layer of peat is turned a few times to make the best use of available drying. This is achieved with a machine called a harrow. The milled peat is left to dry until its moisture content is down to between 40 and 50% which takes two or three days during good weather conditions.

Ridging

The dry milled 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

Two production systems are used to stockpile peat:

- Peco
- Haku

In the Peco system every eleventh field is used to stockpile the peat and it receives the output of the five fields on either side. In the Haku system the output of each field is transported in trailers to large central stockpiles.

The process unit steps of milling, harrowing, ridging and harvesting are repeated for each crop and are collectively described as a cycle. In an average year 12 crops or production cycles are achieved.

Transport Operations

Milled peat produced is subsequently transported via rail from the peatlands to one or more of the following outlets:

- Power Stations (ESB)
- Briquette Factories (Bord na Móna Fuels Ltd)
- Horticultural Factories (Bord na Móna Horticulture Ltd)

SOD PEAT PRODUCTION

The production operations for sod peat production are stripping, cutting and spreading, harvesting/windrowing, turning, collecting and stockpile/protection.



DERRYGREENAGH GROUP

The Derrygreenagh Group consists of the Derrygreenagh and Ballivor group of bogs and Rossan bog (Drawing 2.2).

The Derrygreenagh Group currently employs 96 permanent and 31 seasonal workers.

Operating Hours

Transport operations are carried out on a six day cycle throughout the year for 8 to 9 hours duration per day

Production operations are typically carried out over a 7 day week (weather permitting) for 12 to 15 hours duration per day.

DERRYGREENAGH GROUP OF BOGS

The Derrygreenagh group of bogs is located in North East Offaly and South East of County Westmeath. Development work in the second programme commenced in 1952. The original acquisition was 5,668 gross hectares and 3,238 net hectares were developed and production of milled peat began in 1958. The Derrygreenagh group of bogs has been the sole supplier to Rhode ESB Power station and Croghan briquette factory. In addition, the Derrygreenagh group of bogs supplied peat for the moss peat plants in Kilberry and Cúil na Móna when required. In the mid seventies approximately 1,214 net hectares was developed in the third programme, which is now assigned to Bord na Móna Allen Peat Limited as part of the Allen Group. Cutaway acreage at present (including Clonsast) is estimated at 2,833 hectares. The main river catchments to which peatlands within the the Derrygreenagh group of bogs drain are to the Boyne (North of the Grand Canal) and the Barrow (to the South).

BALLIVOR GROUP OF BOGS

The Ballivor group of bogs is made up of the Ballivor (Area 14), Carranstown (Area 15) and Bracken West (Area 16) bog areas. Each of these bog areas are rail linked to the Ballivor horticultural factory and associated works which is situated midway between Ballivor and Raharnay villages. Drainage of these bog areas is to the Deel and Stonyford rivers (tributaries of the Boyne). Production activities within the Ballivor group of bogs originally commenced in production in the mid 1980's following the development programme of the 1970's.



ROSSAN BOG

Rossan bog (324 hectares) is located one mile from Kinnegad on the Castlejordan road. There are currently 142 hectares in milled moss production with an annual target of 27,000 tonnes. A further 49 hectares is in development and 40 hectares is developed for further milled peat supplies with the remaining acres in fringe bog with some sod turf cutting operation carried out privately by locals. The bog drains into the Kinnegad River – tributary of the Boyne.

