

INSPECTORS REPORT
WASTE LICENCE REGISTER NUMBER W49-1

(1) Summary:

This proposed facility is a specially engineered landfill for the deposition of fly and bottom ashes arising from the combustion of peat at the proposed Europeat power station near Edenderry. The proposed landfill facility is located in a rural setting on the edge of a cut-away raised bog some 3Km from the power station. The ash will be delivered from the power station across an intervening bog to the proposed facility by special Bord na Mona trains three times a day, six days a week. The proposed facility is expected to be in operation in the autumn of 2000.

Each year it is proposed to deposit approximately 43,000 tonnes of ash into a single cell, during which time the cell for receipt of the following year's waste will be developed, and the cell which received the previous year's waste will be restored. Upon full restoration a partially wooded hill, approximately 7 metres above the surrounding landscape, will have been created.

A borrow area of approximately 71 hectares immediately adjacent to the facility will be used to provide peat for development and restoration purposes. This peat will be harvested on an as-required basis using standard Bord na Mona techniques and will be transported to the facility by rail.

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| Name of Applicant | Bord na Mona Peat Energy Division |
| Facility Name(s) | Clonbullogue Ash Repository |
| Facility Address | Cloncreen, Clonbullogue, Co. Offaly |
| Description of Principal Activity | Landraise deposition of peat fly ash and bottom ash from the proposed Europeat power station |
| Quantity of waste (tpa) | A maximum of 50,000 tpa peat ash |
| Environmental Impact Statement (EIS) Required | Yes |
| Number of Submissions Received | One |
| INSPECTOR'S RECOMMENDATION | That the proposed decision, as submitted to the Board, be approved. |

| Notices | Issue Date(s) | Reminder(s) | Response Date(s) |
|-------------------------|--------------------------|-------------|---|
| Article 14 (2) (b) (i) | Not Applicable. | | |
| Article 14 (2) (b) (ii) | 16 July 98 4 Sept. 98 | | 18 Aug. 98 3 Nov 98 1 Dec. 98 21 Dec. 98 |
| Article 14 (2) (a) | 6 Jan. 99 | | |
| Article 16 | 13 Jan. 99 | | 12 April 99 |

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| Applicant Address | Bord na Mona, Peat Energy Division, Leabeg, Tullamore, Co. Offaly |
| Planning Permission Status and Date Granted (if appropriate) | PL2/98/462 : granted 12/6/98 |
| Planning Authority | Offaly County Council |
| Is the facility an existing facility | No |
| Prescribed date for application | Licence required prior to the commencement of the activity. |
| Date Application received | 12 June 98 |
| Confidential Information Submitted | No |
| Location of Planning Documents in Application | Submitted to Agency on the 1 st December 1998. |
| Location of EIS in Application | Volumes 1 and 2 plus additional information supplied on request |

SITE VISITS:

| DATE | PURPOSE | PERSONNEL | OBSERVATIONS |
|---------|------------------------|-------------|-----------------------------------|
| 24/8/98 | Site notice inspection | E. Merriman | Site notice compliant with Art. 7 |
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(2) Class/Classes of Activity

The class of activity for which the applicant has applied is marked below. The principal activity is indicated by (P).

| Waste Management Act, 1996 | | | |
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| THIRD SCHEDULE Waste Disposal Activities | | FOURTH SCHEDULE Waste Recovery Activities | |
| 1. Deposit on, in or under land (including landfill). | P | 1. Solvent reclamation or regeneration. | |
| 2. Land treatment, including biodegradation of liquid or sludge discards in soils. | | 2. Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes). | |
| 3. Deep injection of the soil, including injection of pumpable discards into wells, salt domes or naturally occurring repositories. | | 3. Recycling or reclamation of metals and metal compounds. | |
| 4. Surface impoundment, including placement of liquid or sludge discards into pits, ponds or lagoons. | | 4. Recycling or reclamation of other inorganic materials. | |
| 5. Specially engineered landfill, including placement into lined discrete cells which are capped and isolated from one another and the environment. | | 5. Regeneration of acids or bases. | |
| 6. Biological treatment not referred to elsewhere in this Schedule which results in final compounds or mixtures which are disposed of by means of any activity referred to in paragraphs 1 to 10 of this Schedule. | | 6. Recovery of components used for pollution abatement. | |
| 7. Physico-chemical treatment not referred to elsewhere in this Schedule (including evaporation, drying and calcination) which results in final compounds or mixtures which are disposed of by means of any activity referred to in paragraphs 1 to 10 of this Schedule. | | 7. Recovery of components from catalysts. | |
| 8. Incineration on land or at sea. | | 8. Oil re-refining or other re-uses of oil. | |
| 9. Permanent storage, including emplacement of containers in a mine. | | 9. Use of any waste principally as a fuel or other means to generate energy. | |
| 10. Release of waste into a water body (including a seabed insertion). | | 10. The treatment of any waste on land with a consequential benefit for an agricultural activity or ecological system. | |
| 11. Blending or mixture prior to submission to any activity referred to in a preceding paragraph of this Schedule. | | 11. Use of waste obtained from any activity referred to in a preceding paragraph of this Schedule. | |
| 12. Repackaging prior to submission to any activity referred to in a preceding paragraph of this Schedule. | | 12. Exchange of waste for submission to any activity referred to in a preceding paragraph of this Schedule. | |
| 13. Storage prior to submission to any activity referred to in this Schedule, other than temporary storage, pending collection, on the premises where the waste concerned is produced. | | 13. Storage of waste intended for submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where such waste is produced. | |

Class Description:

The applicant described the class as follows;

Third Schedule

Class 1 : Deposit on, in or under land (including landfill).

The applicant states in another section of the application that furnace bottom ash (4,000 tonnes per annum) and fly ash (38,000 tpa) will be the main waste products produced from peat combustion within the fluidised bed boiler of the proposed 120 megawatt peat power station at Ballykilleen, Edenderry. Fly ash will typically be dampened with water at source for dust control during transit to a total weight of approximately 39,000 tpa. Bottom ash is a solid, coarse grained, granular ash while fly ash is lighter and fine grained and accounts for approximately 90% of the ash produced from peat combustion.

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| (3) Facility Location |
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A location plan showing the outline of the facility to which the application relates is provided in Appendix 1. A separate plan shows the layout of the facility.

The proposed landfill facility, comprising of 25 hectares, is located in a rural setting on the southern edge of the cut-away raised Cloncreen Bog, some three kilometres from the proposed power station. It will be set back 750 metres from the regional Clonbulloge to Daingean road, R402, approximately two kilometres north-west of Clonbulloge village. A borrow area of approximately 71 hectares immediately to the north and west of the facility will be used to provide peat for development and restoration purposes. The proposed facility is surrounded by developed Bord na Mona bog to the north and west, pasture to the south, with some turbary rights to the east. The nearest residents are located approximately 580 metres to the south and south-east of the proposed facility. The landscape is generally flat interspersed with a few small hills. This facility will create another small hill on the landscape though no significant visual intrusion is envisaged. The Figile River, a tributary of the river Barrow, flows north to south approximately one kilometre east of the facility.

All waste, fuel and materials movement to and from the facility will be by private Bord na Mona trains from the Europeat Power Station on a specially constructed 1 Km spur line leading off from an existing rail network. Plant will access the site by a similar route unless agreed otherwise with the Agency (Condition 4.4.1). However, an adjacent lane off the Clonbulloge to Daingean road, which is used primarily for access to pastoral and turbary land, will provide for pedestrian access from the nearby lane through a side gate (Condition 4.4.2). The pedestrian access is required for monitoring and emergency purposes.

(4) Waste Types and Quantities

Total quantities and types of wastes to be accepted by the facility are shown below.

| YEAR | NON-HAZARDOUS WASTE (tpa) | HAZARDOUS WASTE (tpa) | TOTAL ANNUAL QUANTITY OF WASTE (tpa) |
|--------------|---|-----------------------|--------------------------------------|
| 2000 to 2024 | estimated 39,000 tpa fly ash, estimated 4,000 tpa bottom ash and peat from borrow area for development, cover and restoration work. | Nil | 43,000' |

The total quantities of waste “already deposited” at the facility and “to be deposited” are shown below.

| | NON-HAZARDOUS WASTE (tonnes) | HAZARDOUS WASTE (tonnes) | TOTALS (tonnes) |
|---------------------|--|--------------------------|----------------------|
| “Already deposited” | Nil | Nil | Nil |
| “To be deposited” | 1,075,000 tonnes ash and 355,000 m ³ peat ^(Note 1) from borrow area for development, cover and restoration purposes. | Nil | 1,075,000 tonnes ash |

Note 1 : Condition 5.5 requires all materials received to be recorded in tonnes.

The expected life of the facility and the expected maximum annual tonnage are indicated below.

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| Expected Life of Facility (years) | 25 |
| Maximum Annual Tonnage (tpa) | 43,000 |

The applicant sought a licence for the deposition of 43,000 tpa. The fee paid by the applicant allows for waste acceptance of up to 100,000 tpa. It is proposed to licence a waste ash intake of 50,000 tpa to compensate for any errors in estimation. As basically this is a monofill facility that will be restored to known elevations and design (Condition 5.11.g), this margin of error has no environmental significance.

(5) Facility Design

- **Facility Development**

Condition 4.1 requires the establishment of all infrastructure prior to the commencement of licenced activities unless otherwise instructed by the Agency. Condition 9.1 requires monitoring to begin, unless instructed otherwise by the Agency, at least one month prior to the date of commencement of waste ash deposition.

- **Infrastructure**

Condition 4.3.2 requires fencing of the facility as agreed with the Agency. It is not proposed to fence the Peat Borrow Area other than any treatment facilities or plantings. An office, phone/fax and toilet will be provided (Conditions 4.5, 4.6 and 4.7). The landfill area of the facility will be surrounded by a perimeter bund (Condition 4.11.1). This area will then be subdivided progressively into 25 cells (Condition 5.11.b) based on approximately one cell for each years projected waste intake. Each active cell will be divided into two active tipping faces by an embankment which will support a railway line (Condition 5.11.a and 5.11.d). Fuel will be supplied to plant on the facility on a demand basis (ie. no fuel storage on site; Condition 4.9.1).

- **Liner System**

The materials to be deposited, fly ash (EWC 100103) and bottom ash (EWC 100101) from the proposed Europeat power station, are not hazardous wastes as defined in Section 4(2) of the Waste Management Act (1996), in that neither waste type is listed as hazardous in the Hazardous Waste List (Council Decision 94/904/EC). However, it cannot be deemed to be inert as defined in the Landfill Directive (1999/31/EU), as the ecotoxicity of the eluate from the materials to be deposited is not insignificant and poses a danger to groundwater and/or surface waters. Additionally there are high levels of ammonium in surface and ground waters adjacent to the site which, under the influence of a high pH, will result in high levels of unionised ammonia, a substance toxic to many aquatic fauna. The applicant proposes the recirculation of leachate in order to provide liquid for peat ash dampening. Therefore, it is proposed to classify this facility as a non-hazardous landfill, as opposed to an inert landfill, and require the licensee to line the landfill and leachate lagoon (Conditions 4.11.1 and 4.12.1.c) to the non-hazardous landfill standard specified in the EU Landfill Directive. Condition 4.11.2 sets the elevation of the landfill liner surface at 70 metres OD and requires the removal of any residual peat prior to lining.

- **Leachate Management**

Leachate will be generated in the active cell (via surface water run-off and infiltration) and in restored cells (via infiltration). Based on eluate tests, the pH of the leachate will be very high (range 12 to 13). A landfill liner (Condition 4.11) and a leachate

collection/recirculation system will be installed (Condition 4.12.1). This infrastructure will direct leachate to a leachate lagoon. Leachate will be then pumped back to the active cell using a tractor mounted pump where it will be used to dampen ash to 38% w/w moisture level during and after unloading in order to achieve good compaction of the ash waste (Condition 5.4). Water demand for this dampening process is estimated to be 45 m³ per day. So in addition to recirculated leachate, additional water for dampening the ash will be sourced, if required, from a holding pond fed by surrounding peatland drains (Condition 4.13.1.3). No capping layer is proposed by the applicant. Rather the restoration layer profile coupled with low infiltration values for compacted ash should reduce leachate generation following restoration. Nonetheless, it is likely that there will be occasional discharges from the leachate lagoon to the West-East Drain during operational and post-closure phases. Therefore, Condition 4.12.1(e) seeks a proposal for the treatment of any discharges from the lagoon to the West-East Drain so as to meet emission limit values set forth in Schedule G, Table G.5. A flow control loop for leachate discharges will also be required along with flow monitoring of the lagoon discharge and the receiving waters (Conditions 4.12.1.f & g). Condition 2.4.1 requires the generation of written corrective action procedures, one of which will be expected to address back-up arrangements for leachate pumping.

- **Landfill Gas Management**

As no biodegradable waste is to be accepted at this facility (Condition 5.2), landfill gas, if any, is only likely to arise from chemical reactions. Condition 9.2.1 requires a proposal for monitoring landfill gas in Cell 1, while Condition 9.2.2 requires a once-off report, based on the results of eight months of such monitoring, along with a proposal for subsequent monitoring and management at the facility. This report will allow the Agency determine an appropriate regime for landfill gas management. Condition 7.1 specifies gas concentration limits. Condition 9.10 allows alteration of monitoring requirements.

- **Capping System**

While waste is being deposited in the active cell, the cell which received the previous year's waste will be restored. Condition 8.2 requires each cell to be capped to agreed restoration levels within three months of completion of ash waste deposition. The exact nature of the final capping system will be determined through Condition 8.1 which requires the submission of a restoration plan for the Agency's agreement. Condition 5.11(h) requires a proposal for the installation of a temporary cap. The latter may be necessary if waste handling activities cease for a period or if dust blows become a problem..

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| (6) Facility Operation/Management |
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- **Waste Acceptance Procedures**

Only two wastes materials will be accepted at this facility, namely bottom and fly ash derived from the combustion of peat at the proposed Europeat power station (Condition 5.2). Therefore neither a waste quarantine nor a dedicated waste inspection area is required. Visual waste inspection at the tipping face (Condition 5.6) should ensure any extraneous waste is detected and removed.

The nature of the deposited waste ash will vary depending on the source of the peat used for combustion in the proposed power station (38 identified source areas). However, based on the analyses of these peat sources, the variation is not envisaged as presenting problems for the acceptance of these ashes. Moreover, monitoring of leachate composition (Conditions 9.1 and 9.7) will enable the detection of any significant alterations to ash composition over time. The weight of ash deposited will be determined by volume of ash released from storage silos at the power station into special train wagons cross-referenced to its density. Condition 5.5 requires this method to be set out in a formal procedure.

The applicant did not apply for the temporary storage of waste prior to landfilling. However, it is considered that landfilling may be interrupted on occasions, for example during adverse wind conditions. Consequently a proposal for the management of ash waste due and/or arriving at the facility during periods when landfilling is interrupted has been sought (Condition 5.16.2).

- **Waste Handling**

It is planned to accept three train loads of ash on each working day. Condition 5.4 specifies a waste acceptance procedure which may be changed based on operational experience subject to agreement with the Agency. This condition specifies that during loading of the ash into the train wagons at the power station, the ash will be dampened with water to a 2.5% w/w ash:moisture ratio so as to prevent dust nuisance during transport to the landfill facility. Once loaded at the power station, the train will then travel 3Km to the facility and move to the active cell along an embankment which divides the cell into two equal working faces (Condition 5.11(d)). The saddle wagons will then tip their contents onto one or other of the two working faces (Condition 5.11(d)), all the time being further sprayed (Condition 5.4) with liquid recirculated from the leachate lagoon or a back-up source (Condition 4.12.1(d)). Additional in-situ dampening of the deposited ash will then proceed in order to attain a 38% w/w ash moisture content which has been shown to be ideal for compaction purposes (Condition 5.4). Condition 5.11(e) requires compaction of the deposited ash, while 5.11(f) requires the addition of intermediate peat cover at defined intervals of ash deposition. The purpose of this intermediate cover is to help buffer the high pH of leachate derived from the deposited ash. Each cell will receive ash to agreed restoration levels (Condition 5.11(g)).

- **Nuisance Control**

As only peat combustion ash is to be accepted at this facility, no vermin, bird, fly, odour or litter nuisance should arise. However, Conditions 6.7 and 6.8 preclude such nuisance creation, while Condition 6.3 requires the removal of any litter on a daily basis. The major nuisance to be dealt with is dust from the ash itself. Fly ash has a PM₁₀ fraction between 65% and 90%. Provisions made in the Proposed Decision for dust control include:

1. The dampening of the ash at the power station and on arrival at the landraise facility will aid in dust control (Conditions 5.4). Condition 6.5 stipulates that ash transport from the power station shall not create a nuisance during transit.
2. Deposited ash will be levelled and compacted at the end of each working (Condition 5.11(e)). The compacted damp ash will resemble a lean concrete mix, therefore minimising dust emissions. Therefore, considering that dust is the only likely source of nuisance on account of the nature of waste to be deposited, no daily cover is specified. Condition 6.8 requires that birds, vermin, flies and dust to not give rise to nuisance. Only one working face will be in operation at any one time (Condition 5.11(d)).
3. After a 20 centimetre layer of ash has been deposited, approximately every fortnight, a 5 centimetre layer of peat will be laid as an intermediate cover material (Condition 5.11(f)).
4. The prevailing winds are from the south-west. The maintenance of an existing copse to the south of the facility (Condition 8.3.1), and further boundary plantings to the southwest (Condition 8.3.2), will help provide a windbreak for the facility, thus reducing dust generation.
5. Each cell, designed to accept waste for a one year period, will be capped and seeded within three months of filling, thereby minimising dust emissions (Condition 8.2).
6. Condition 5.11(a) requires a procedure for the handling of waste during adverse wind conditions.
7. Condition 4.10.2 requires a proposal to control dust emissions from the peat borrow area.
8. Boundary dust monitoring will be undertaken (Condition 9.14.1) in order to ascertain compliance with a dust deposition limit at Dust Sensitive Locations (Condition 7.9.1). Condition 9.14.2 seeks a proposal for PM₁₀ monitoring, while Condition 7.9.2 sets a trigger level for PM₁₀ emissions at Dust Sensitive Locations.

- **Hours of Operation**

8 am to 6 pm Monday to Friday, and

8 am to 4 pm Saturday. (Condition 5.10).

These are the hours of operation applied for by the applicant.

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| (7) Restoration and Aftercare |
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Condition 8.6 requires that environmental pollution be prevented following termination or planned cessation for a period greater than six months. A cycle of progressive ash deposition will occur across the site, with one cell being restored while a second receives waste and a third is prepared for waste acceptance. A proposal for mixed grassland and copses, submitted as part of the application, is an acceptable afteruse for the facility. Condition 8.3.2 starts this landscaping in a buffer zone to the south of the facility, while Condition 8.3.1 retains an existing copse. This approach allows dust, noise and visual impact control to be expedited during the operational phase of the landfill while a Restoration and Aftercare plan for the facility and peat borrow area is prepared by the applicant for the agreement of the Agency (Condition 8.1). Condition 8.2 restricts the height of restored cells to those specified in a visual impact assessment of the proposed restored facility which found little impact. Condition 4.10.3 requires that a minimum of 0.5 metres of undisturbed peat shall remain in the Peat Borrow Area following peat harvesting. This will facilitate tree planting in that area.

(8) Emissions to Air

Potential emissions to air from this facility are dust, odours, aerosols and gas.

- **Dust** : A baseline dust deposition survey indicated that there is no existing dust nuisance problem at the location of the proposed facility. However, the nature of the waste materials to be handled, and the fact that peat harvesting will occur in the adjacent Peat Borrow Area, mean that dust control is an important issue at this facility. The provisions discussed under Nuisance Control above should provide adequate dust control. There is one other potential environmental impact that may arise from dust scatter from this facility. Namely the mineral composition of topsoils in pasture land could be altered by deposition of ash dust. Therefore, Condition 9.14.3 will establish baseline mineral composition in the pasture land to the south of the facility and provide a proposal for the subsequent annual monitoring of these levels. Condition 9.9 allows for subsequent alteration of monitoring requirements. Other than the pasture land to the south, the facility is surrounded by active peat harvesting operations.
- **Odour** : the BOD:COD ratio of peat ash eluate suggests there will be no odour problem. Provisions for odour management are included in Condition 6.7.
- **Aerosols** : Leachate, pumped from the leachate interceptor lagoon, will be sprayed over ash in the active cell in order to control dust emissions and aid in the compaction of the deposited ash. This spraying process will generate aerosols. Due to the nature of the waste to be accepted, there should be neither bacteria nor viruses in the leachate. As discussed above, no odour problems are anticipated. Also, given the remote location of the facility, no special requirements are conditioned for the control of aerosols other than Condition 7.3.
- **Landfill Gas** : a baseline survey of the proposed facility as part of the application process revealed gas concentrations in two boreholes to be similar to ambient air values. As no biodegradable waste is to be accepted at this facility (Condition 5.2), landfill gas, if any, is only likely to arise from chemical reactions. Conditions 9.1 and 9.2 (as discussed in Section 5, Landfill Gas Management) require the monitoring of

landfill gas in Cell 1 and in two boreholes close to Cell 1 in order to determine subsequent monitoring/management requirements.

(9) Emissions to Groundwater

Site geology is dominated by the Lower Carboniferous Allenwood Formation (Edenderry limestone). Bedrock occurs at depths from 1.0 to 8.0 metres, and results indicate that it is thick bedded and clean. Overburden glacial deposits, based on four borehole log records and a geophysical survey, vary from approximately 1.2 to 5.5 metres in depth and consists of gravely clay. The proportion of gravel is estimated to increase with increasing depth. These deposits are further overlain by a saturated peat layer up to 3.5 metres deep.

The aquifer is classified as a locally important, moderately productive aquifer where groundwater is moderately to highly vulnerable to contamination (Lm/M-H). This leads to a response matrix for landfills classification of R3¹ or R2² (Groundwater Protection Schemes, DoLEG & Environmental Protection Agency & GSI, 1999). This classification permits the proposed landfill at this location subject to the conditions of the Proposed Decision.

Based on three assessments of groundwater quality at the facility, groundwater is alkaline (pH range 7.0 to 8.5) and has high levels of ammonium. The source of this ammonium has not been established but may arise from the peat deposits. The lining of the landfill will prevent the highly alkaline leachate from further exacerbation of this situation.

Based on three pizeometric surveys, the water table at this facility is close to the existing ground surface and is higher than the proposed basal levels of the waste deposition cells (Condition 4.11.2). Condition 4.12.3 requires that leachate head in the waste shall not exceed one metre. Therefore, Condition 4.14.3 requires a proposal to control groundwater ingress to the facility. The direction of groundwater flow is south to south-east. As there are five private wells located approximately 580 metres to the south of the facility, Condition 9.3.2 requires a baseline assessment and subsequent annual monitoring of groundwater quality in these private wells. Condition 4.14.1 requires protection against groundwater contamination through infiltration into existing site investigation boreholes, some of which are located in areas that will one day receive ash waste.

(10) Noise Emissions

The facility is located in a quiet rural setting, and this was confirmed by a background noise survey. The main source of noise at the nearest noise sensitive receptor, a private dwelling located approximately 580 metres south of the facility, is traffic on the Clonbullogue to Daingean road.

There are several noise sources which will be associated with this activity: trains moving, trains emptying ash and development/restoration materials, ash compacting by excavator, bund construction, other construction, ash dampening using a tractor-

mounted pump. There will also be noise emissions resultant from the harvesting and transport of peat from the peat Borrow Area.

There is a good deal of screening to the south of the facility due to hedgerows. The planting/maintenance of trees (Condition 8.3) and the sequence of cell filling (Condition 5.11(b)) will further reduce noise impact on residences to the south over time by increasing the degree of screening. Table G.1 of Schedule G sets standard noise emission limits, while Condition 7.4 precludes tonal or impulsive noise nuisance, at Noise Sensitive Locations. Condition 9.1 requires an annual noise survey at the facility boundaries and the nearest noise sensitive receptor. Condition 4.10.2 requires a proposal to control noise emissions from the peat borrow area.

(11) Emissions to Sewer

There will be no emissions to sewer. However, Condition 4.7 requires a proposal for on-site sanitary facilities. It is envisaged that the sewage from a toilet would be treated on site or tankered off site for subsequent treatment (portaloo type system). Emission limit values have been set (Schedule G, Table G.7) in case the former option is pursued.

(12) Emissions to Surface Waters

Any surface water emissions will discharge to a drain henceforth called the West-East Drain. This West-East Drain in turn discharges to the Figile River, a tributary of the River Barrow. The Water Quality Management Plan for the River Barrow Catchment (1985) proposes salmonid water quality standards for all main channels, including the Figile River. The Figile River shows signs of eutrophic conditions with elevated levels of ammonium and nitrates, and depressed levels of dissolved oxygen. The unionised ammonia standard (0.02 mg/l) is currently breached in the Figile river.

There are three discharge routes to the West-East Drain associated with this facility;

1. Peat harvesting in the peat borrow area may pose a risk to the adjacent West-East Drain. High suspended solids content in run-off from peat harvesting operations are well documented. Therefore a suspended solids emission limit value for these discharges has been set through Schedule G, Table G.6., and Condition 9.1 (Note 4 of Table F.4.6) requires monitoring. Condition 4.13.1.3 requires a proposal for the control of any such discharges.
2. Condition 4.13.2.1 specifies that all surface water run-off from capped cells and areas of the landfill under development shall discharge at one point, SWR-1, into the West-East Drain. Conditions 4.13.2.2 seeks a proposal to divert these sources to SWR-1 and to achieve the emission limit values set through Schedule G, Table G.5. Condition 9.6.2 requires on-line pH monitoring of this discharge.
3. Condition 4.12.2 requires that all surface water run-off from the active cell and any leachate generated shall be collected and directed to the Leachate Lagoon. Discharges from the leachate lagoon to the West-East Drain are likely during operational and post-closure phases. Based on ash eluate analysis, a very high pH is possible in this discharge. Testing at two trophic levels has also shown the ash

eluate to have ecotoxic effects. High pH values (> 9 pH units) can have negative direct and indirect impacts on aquatic life. Therefore any discharge from the leachate interceptor lagoon may potentially make the already poor situation in the Figile River worse. Schedule G, Table G.4 therefore sets emission limit values for this discharge. Condition 4.12.1(e) requires a proposal to achieve these emission limits. The design of the Leachate Lagoon incorporates a discharge point monitoring station (Condition 4.12.1(h)). Condition 9.6.2. requires continuous monitoring and recording of this discharge for pH. Condition 9.6.1 requires a proposal to evaluate the toxicity of the treated leachate. Thereafter there will be biannual toxicity monitoring (Table F.4.6). Flow monitoring of this discharge and the receiving waters (Conditions 4.12.1(f) and (g)) is required as part of the emission control process in order to insure sufficient dilution of the discharge.

Condition 4.13.1 precludes drainage from the surrounding peatland entering the ash disposal area. Condition 7.3 stipulates that these discharges shall not result in significant impairment of the receiving waters.

(13) Other Significant Environmental Impacts of the Development

The EIS submitted with this application was judged to be compliant with the relevant regulations. The facility, which contains no noteworthy fauna or flora, does not have statutory protection. However, a proposal on ecological monitoring is required for the Restoration/Aftercare Plan (Condition 8.1) so that the effectiveness of this plan can be assessed.

(14) Waste Management, Air Quality and Water Quality Management Plans

The Water Quality Management Plan for the River Barrow Catchment (1985) proposes certain water quality standards for all main channels, including the Figile River, in this catchment. Therefore, in order to assess the discharge from the facility against these standards, monitoring of the Figile River upstream and downstream (outside the mixing zone) of the discharge from the East-West Drain, which itself receives the surface water discharge from the facility, will be undertaken for specified parameters (Condition 9.1).

(15) Submissions/Complaints

Appendix 2 contains a list of all submissions received relating to the application. The dates received and the details of the individual, department, group or organisation making the submission are provided.

An overview of all submissions received in relation to the waste licence application is provided. This includes a summary of all issues raised in the submissions and clearly shows how these issues are dealt with in the proposed decision.

15.1 Summary of Submissions/Complaints

- One submission was received from Offaly County Council.

15.2 Discussion of Submissions/Complaints

- The submission from Offaly County Council merely stated that the council had no objection to the granting of a waste licence to this facility.

Signed _____

Dated:

Name Eamonn Merriman

APPENDIX 1

LOCATION PLAN

Two drawings are included for reference:

1. Location of Occupied Premises (Amendment 1.) Drg. C5.0 ; drawing number 2401011.
2. Site Infrastructure - Surface Water Drainage Infrastructure (Amendment 2) D1.3 ; drawing number 318/15/5 D.

APPENDIX 2

SUBMISSIONS

1. *Offaly County Council, 18th September 1998*: The submission from Offaly County Council merely stated that the council had no objections to the granting of a waste licence to this facility.