

**INSPECTORS REPORT**  
**WASTE LICENCE REGISTER NUMBER W059**

**(1) Summary:**

The facility consists of an existing municipal waste landfill in a peatland area. The site has been used for landfilling since 1974 and is one of two operational landfills in Roscommon. Reference is made in the Draft Waste Management Plan for Connaught Region (1999 – 2004) to upgrading of the facility, for use in the short term. No potential for expansion is alluded to in the plan. The application proposes to use the facility until the end of 2006. The area being landfilled is unlined. The application refers to an overall area for landfilling of 3.8 hectares, which will be controlled by Condition 5.8 of the PD.

<b>Name of Applicant</b>	Roscommon County Council
<b>Facility Name(s)</b>	Ballaghadereen Landfill
<b>Facility Address</b>	Aghalustia Townland, Ballaghadereen, Co Roscommon
<b>Description of Principal Activity</b>	Disposal on land of non-hazardous solid waste.
<b>Quantity of waste (tpa)</b>	15,000 t/a
<b>Environmental Impact Statement (EIS) Required</b>	No
<b>Number of Submissions Received</b>	<b>Three.</b>
<b>INSPECTOR'S RECOMMENDATION</b>	The proposed decision as submitted to the Board be approved.

**(2) Activity Summary:**

The applicant intends to continue landfilling of waste within the current area up until 2006. Only household, commercial, sewage sludge, construction and demolition, and industrial non-hazardous solid wastes will be accepted at the landfill. The applicant proposes to integrate the landfill with the surrounding landscape by encouraging the development of woody scrub thickets and developing a final topography which reflects the prevailing landscape character.

There is no lining nor leachate collection system in operation at the site. Waste has been primarily deposited directly onto peat, which provides an element of attenuation

and some restriction of lateral and vertical movement of leachate. The peat is underlain primarily by Boulder Clay, with some alluvial clay overlying the Boulder Clay in the northern part of the site.

The applicant proposes to provide a Civic Waste Facility near the entrance of the facility.

### **(3) Facility Location**

#### **Appendix 1 contains a Site Location Map.**

Ballaghadereen landfill is located approximately 2.5 km to the south of Ballaghadereen on a side road that runs east from the Ballaghadereen-Moyne Road. The River Lung flows eastwards some 250-500m to the north of the site, eventually discharging into Lough Gara some 6 km to the north-east. The surrounding land comprises partially cut over peat bog and agricultural fields used primarily for grazing of dairy livestock. These lands are crossed by a number of drainage ditches which link up and ultimately discharge to the River Lung. The nearest sensitive receptors are two private dwellings located approximately 450 m to the west of the landfill and adjacent to the Ballaghadereen-Moyne Road. To the east the nearest houses are located approximately 900 m from the site.

### **(4) Waste Types and Quantities**

Condition 5 controls the quantities and types of waste to be accepted at the facility. The total quantity of waste to be accepted for disposal at the facility shall not exceed 15,000 tonnes per annum and 120,000 tonnes in total from January 1999.

### **(5) Facility Design**

#### **• Infrastructure**

Condition 4.3 requires site security measures to be provided at the facility, such as, a site access gate flanked along the full roadside boundary by security fencing. This fencing is to continue along the western and northern boundaries of the site and be linked to stockproof fencing along the eastern boundary.

The site is immediately adjacent to a paved public road. Site roads and hardstanding areas not otherwise specified are controlled by Condition 4.4. In accordance with Condition 4.8, a weighbridge is to be installed at the facility. Condition 4.9 requires that a wheelwash be installed at the facility. Condition 4.12 requires that a bunded fuel storage area be installed at the facility. Condition 4.7 requires the installation of Waste Inspection and Waste Quarantine Areas at the facility.

Condition 4.11 relates to toilet facilities, which are to be provided by means of a chemical toilet, which will be contracted out for regular cleaning. **The waste licence application refers to a water supply to be provided via a branch from the nearest water main, located 300m west of the site at the junction of the site access road with the Ballaghadereen-Moyne Road.** Condition 4.5 relates to the provision of a site office.

The equipment compound shall be an extension of the proposed hardstanding waste reception area located immediately north of the site offices accommodation. Condition 4.18 relates to fire control provisions.

- **Civic Waste Facility**

Conditions 4.19 and 5.21 of the PD relate to the provision and operation of a Civic Waste Facility.

- **Lining**

Condition 4.16 specifies lining system to be used in the event of any new cells at the facility being used.

- **Leachate Management**

The application gives an estimate of 20,000 – 25,000 m<sup>3</sup>/year for leachate production. The applicant proposed not to cap the landfill with any low permeability material and consequently assumed 100% rainfall penetration. However, Condition 5.13 of the PD requires that cover material be placed over the whole landfill and in Condition 4.15 final capping is specified to include a low permeability layer. As a result of this the leachate production estimated in the application is significantly greater than the leachate produced following implementation of the Conditions of the PD.

The application proposed a system whereby there would be managed infiltration of leachate through peat. The proposal referred to the establishment of a leachate drainage gradient towards the north. This would involve placing 1-2m of waste close to the southern boundary, and then to provide slotted 150mm drain pipes in clean sand backfill to drain at a gradient of approx. 2% to the north. It proposed that filling along the northern, eastern and southern areas of the site will be undertaken in a manner to maintain the gradient. **It also proposed to install a series of 8 east-west trenches (1m wide & 0.5m deep) to be connected by 2 boundary ditches and 3 north-south trenches. It was proposed to connect the leachate drainage to this system in order to divert the leachate for controlled infiltration of leachate to peat.** The storage volume available in the trench system was envisioned to provide a time buffer, if needed, to enable emergency back-up measures (such as off-site tankering) to be implemented if necessary.

**The above proposals were not considered to be BAT. Where possible leachate should be collected and treated. Peat does provide a certain amount of attenuation such as BOD reduction and partial ammonia removal, although this**

**capacity is finite and can be exhausted.** Condition 4.13 of the PD details the leachate management requirements, such as, **that arrangements be made to abstract/collect leachate from the waste and unless otherwise agreed with the Agency to tanker the collected leachate off site for treatment. Details of the leachate storage lagoon are specified in this Condition.**

- **Landfill Gas Management**

The site is a landfill standing 4-5m above the surrounding bogland. The application referred to gas venting through the uncovered waste and proposed to promote gas venting through the installation of a network of 3-4m deep open gas vent holes at 50m intervals in each completed portion of the waste. However, Condition 4.14 requires the installation of a landfill gas collection and flaring system. Condition 9.1 governs landfill gas monitoring at the facility. Schedule G specifies emission limit values for a Landfill Gas Flare and/or Utilisation Plant.

<b>(6) Facility Operation/Management</b>
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- **Waste Acceptance/Handling Procedures**

Conditions 5.1 and 5.2 restrict the types of waste to be disposed of at the facility to non-hazardous household, industrial, commercial and construction and demolition wastes and treated sewage sludges. Hazardous wastes, liquid wastes, industrial non-hazardous sludges and untreated sludges are prohibited. Condition 5.3 and 5.4 controls waste acceptance and specifies inspection requirements to be followed.

- **Nuisance Control**

Potential nuisances are controlled by Condition 6 - Environmental Nuisances.

- **Hours of Operation**

Condition 5.10 controls the hours of waste acceptance at the facility.

<b>(7) Restoration and Aftercare</b>
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The applicant proposed to encourage the establishment of woody scrub thickets, which have already become locally established around the fringes of the site. The objective of the landform and landcover proposals are to integrate the landfill with the surrounding landscape by encouraging the development of woody scrub thickets and a final topography to reflect the prevailing landscape character.

The final profile of the facility and its restoration and aftercare are controlled by Condition 8 Restoration and Aftercare which reflects the applicants proposals, subject to the capping requirements of Condition 4.15. The levels along the site boundaries fluctuate between 76-79m OD, sloping down towards the southern bank of the River Lung, where levels are in the region of 73m OD. The highest level of the proposed

initial restoration contours as shown in Drawing Number G1- Restoration proposals are 85m.

#### **(8) Emissions to Air**

Emissions to air include landfill gas, odour and dust. Potential sources of background odour in the vicinity are mainly associated with agricultural practices e.g. spreading of farmland manure.

Dust and landfill gas monitoring requirements are set out under Condition 9.1. Dust control requirements are established under Condition 6.6. Under Condition 6.10 no nuisance may arise from odours or dust at the facility.

#### **(9) Emissions to Groundwater**

The bedrock of the area is Carboniferous Oakport Limestone, which is categorised as a regionally important fractured bedrock aquifer (R<sub>f</sub>) according to the Geological Survey of Ireland (GSI) classification (Daly, 1997). The aquifer is not exploited for water supply in the Ballaghaderreen area. The application indicated that there were no known or recorded groundwater abstractions within 3km of the site, with nearby houses on the town water supply sourced from Lough Gara. The overlying drift geology comprises a sequence of boulder clay with overlying deposits of peat. The depth to bedrock was not proven, although the depth of boulder clay below the site (> 5m) indicate a vulnerability rating of Moderate to Low.

Monitoring of leachate from within the waste indicated that leachate was perched within the landfilled waste. Analysis of leachate from the site generally indicated typical compositions of methanogenic leachate. Analysis of leachates for organics indicated the presence of a number of List I substances in BH5, namely: 2,3 Dimethyl Phenol (20 µg/l); 1,1,2,2-tetrachloroethane (20 µg/l); ethylbenzene (5 µg/l); m/p Xylenes (15 µg/l); O Xylene (6 µg/l); trans 1,2 Dichloroethene (8 µg/l); and cis 1,2 dichloroethene (39 µg/l). No List I substances were detected in any of the other leachate boreholes nor any of the groundwater boreholes.

The applicant proposed to monitor nine groundwater boreholes around the site. Condition 9.1 and Schedule F.5 specify the monitoring requirements. This includes a requirement for the licensee to monitor three of the above mentioned boreholes along with three further boreholes to be provided; one upstream borehole and two downstream boreholes which extend into the bedrock aquifer. The requirements of the PD for leachate management, specifically Condition 4.13, provide for the minimisation of leachate production and for the collection and treatment of the leachate produced. Condition 4.16 specifies the lining system to be used in the event of any future cells being used at the facility.

## **(10) Noise Emissions**

The noise sources identified on site were the vehicles delivering waste and the bulldozer currently used on site. Noise monitoring was carried out in the centre of the site, at the entrance of the site and at three noise sensitive locations. These three locations are the nearest properties to the west (450m), the east (900m) and north (1000m) of the facility. The noise monitoring results at the noise sensitive receptors, taken during the operation of the facility were primarily affected by the local traffic. Results from the noise monitoring indicated that noise levels within the site boundary, in terms of  $L_{Aeq}$  during routine activities, is in the order of 44-46 dB(A)

Noise emission limits are established by Condition 7.1. Noise monitoring requirements are set out in Conditions 9.1 and 9.4.

## **(11) Emissions to Sewer**

There are no emissions to sewer from this site.

## **(12) Emissions to Surface Waters**

### **1. Surface Water Management**

The facility is flanked by drains on the eastern, western and southern sides, which ultimately drain to the River Lung. Sampling of the drain running along the eastern side of the facility has indicated some contamination. The applicant states that flow in this drain is sporadic. Levels of ammonia in the two sampling locations (SW3 and SW2) of this drain fluctuate between levels of 1.2 to 115 mg/l for SW3 (adjacent to facility) and <0.1 to 112 mg/l for SW2 (downstream of SW3 near River Lung). Similarly levels for chloride fluctuate from 91 to 584 mg/l for SW3 and 15 to 573 mg/l for chloride. In the case of SW2 other elevated levels include conductivity (3180  $\mu$ S/cm), COD (652 mg/l) and BOD (38 mg/l).

Monitoring of SW3 also found levels of pesticides, which were; aldrin (0.033  $\mu$ g/l), dieldrin (0.097  $\mu$ g/l) and permethium (0.14  $\mu$ g/l). The use of aldrin and dieldrin (both List I substances) is prohibited under Directive 88/347/EEC. However, the EQS proposed in the EPA discussion document for both these substances is 10  $\mu$ g/l.

Condition 4.17 requires the licensee to adopt a programme for the management and control of surface water.

### **2. Discharge of treated leachate (subject to agreement of the Agency)**

The PD provides scope to the licensee, subject to Conditions, to provide for on site treatment of leachate. Otherwise, the PD requires leachate to be collected on site and

tankered off site to a suitable Waste Water Treatment Plant, agreed with the Agency. Any leachate treated on site must comply with Schedule G.4 of the PD, in order to be allowed to discharge to the River Lung.

In determining the discharge limits to the River Lung (Schedule G.4) the Water Quality Management Plan (WQMP) for the Upper Shannon Catchment and the Urban Waste Water Treatment (UWWT) Discharge Limits were referred to. The WQMP recommends that the 95%ile flow be taken as the flow at and above which the recommended standards should be met for the whole of the river channel and all of the tributaries of the Upper Shannon Catchment. The plan recommends the salmonid standards. The PD ensures that the discharge of treated leachate to the River Lung would not result in a breach of the WQMP when the applicant complies with all relevant conditions.

The water quality standards for phosphorous (S.I. No. 258 of 1998) sets out the long term goals for phosphorous in water courses. Based on the 95% flow for the River Lung of 0.5 m<sup>3</sup>/sec, it is expected that ortho-phosphate discharges from the leachate treatment plant will comply with the requirements of the legislation. A limit of 2 mg/l is set for the discharge. Toxicity testing against two of the most sensitive of four trophic groups to be undertaken twice a year if leachate is being discharged. A limit of 10 T.U is set for the discharge.

### **(13) Other Significant Environmental Impacts of the Development**

Condition 9.16 requires a repeat of the baseline ecological survey in spring (for fauna observation) and summer (for flora) each year during continued site operation and at a lesser frequency in the aftercare period.

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

Consideration was given to the Draft Waste Management Plan for Connaught Region 1999-2004 (1999), the Water Quality Management Plan for the Upper Shannon Catchment (1990) and Roscommon County Council's Draft Waste Management Plan for 1995-2000.

<b>(15) Submissions/Complaints</b>
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**A total of three submissions were received in relation to this application. Appendix 2 contains copies of the submissions.**

**1. Submission from Roscommon County Council. [Date Received 18/03/99].**

*The submission contains a copy of an Environmental Health Officer's Report received from the Western Health Board. This report states that there is no objection to the granting of a waste licence in relation to the facility subject to compliance with all relevant environmental legislation to ensure protection of public health.*

**RESPONSE**

The PD is set to ensure that the facility does not cause environmental pollution when the activities licensed are carried out in accordance with the conditions of the PD.

**2. Submission from Mr. John Hoblin on behalf of Connaught Zero Waste Action Group. [Date Received 12/04/00].**

*The submission refers to the following concerns:*

- (a) proximity of the landfill to the Lung River and the risk of seepage from the landfill to underground streams;*
- (b) the huge increase in volume of waste going to the site;*
- (c) nature of the waste going to the landfill, whether it is toxic;*
- (d) who monitors the vehicles using the facility*
- (e) whether the Lung River and its tributaries are regularly monitored; and*
- (f) the lack of recycling facilities in the area*

**RESPONSE**

- (a) Condition 4.13 of the PD provides for leachate management at the facility. The licensee is required to provide for the collection/abstraction of leachate from the facility, and unless otherwise agreed with the Agency, to tanker the leachate off-site for treatment. The PD does allow for the licensee to propose on-site treatment of the leachate and provides for the controlled discharge of the treated leachate under Condition 7.7 subject to meeting specific standards.
- (b) The closure of three of Roscommon County Council's landfills has meant an increase in the quantity of waste going to the other two Council landfills. The application estimates quantities of 8,000 and 9,000 tonnes in the years 1997 and 1998 increasing to 12,300 tonnes in 1999. The applicant indicated a quantity of 15,000 tonnes per annum as the maximum quantity to be disposed of. The PD limits the quantity of waste to 15,000 tonnes per annum along with an overall deposition limit of 120,000 from January 1999.
- (c) Condition 5.2 of the PD governs the types of waste that are allowed to be disposed of at the facility. Condition 5.1 specifies wastes which can not be



disposed of at the facility, which includes, *inter alia*; hazardous waste, asbestos waste, liquid waste and industrial non-hazardous sludges.

- (d) Conditions 5.3 and 5.4 govern waste acceptance procedures at the facility and Condition 3.10 requires that written records of waste loads arriving at the facility, which includes details of the vehicles.
- (e) Schedule F specifies monitoring requirements which include the undertaking of monitoring of the River Lung both upstream and downstream of the landfill.
- (f) Conditions 4.19, 5.19 and 5.21 provide for the recycling of various wastes.

**3. Submission from Mr. Joe Madden on behalf of Ballaghadereen & District Angling Club. [Date Received 12/04/00].**

*The submission relates to the following concerns;*

- (a) *pollution of the River Lung, emanating from the landfill;*
- (b) *monitoring of runoff from the facility; and*
- (c) *whether the Council applied to extend or to continue the use of the facility*

**RESPONSE**

- (a) this issue is dealt with in response to 2(a) above;
- (b) this issue is dealt with in response to 2(e) above; and
- (c) the Council applied for a licence to continue the use of the facility. No extension of the area already being used was requested and this is reflected in Condition 5.8 which limits the area in which waste may be deposited.

Signed \_\_\_\_\_

Dated:

Name