INSPECTORS REPORT

WASTE LICENCE REGISTER NUMBER 90-1

APPLICANT: Donegal County Council

FACILITY: Balbane Landfill

INSPECTOR'S RECOMMENDATION: That a waste licence be granted subject to conditions.

(1) Introduction:

Balbane landfill has been operated by Donegal County Council since 1976. Approximately 130,000 tonnes of waste have been deposited to date. This application, which was made in February 1999, is to continue landfilling at a rate of 5,000 tonnes per annum. I have estimated that void space (carried out in Feb 2001) remains for a maximum of 7,500 tonnes of waste. The site is approximately 6km due north of Killybegs, and is in a remote location on the flanks of Balbane hill (at approximately 180m OD). The facility is surrounded by peatland and mountains and is located approximately 1.5km north of the Lough Aderry reservoir. This reservoir supplies Killybegs with potable water and was specifically located upstream of this landfill. The nearest dwelling is approx. 200m south of the site, while there are two additional dwellings to the south, within 1km of the site. The landfill is in an elevated location and is well screened from view by the undulating nature of the landscape around the site.

The Council has applied to continue landfilling operations on a dilute and disperse basis (Class 1-3rd Schedule). Other classes applied for (Class 2, Class 4, Class 6 and Class 13-3rd Schedule) are in relation to leachate treatment and storage of materials at the site. The Proposed Decision permits the deposition of waste at the landfill, and the applicant will be permitted to deposit a total of 7,500t of municipal waste. In addition, the applicant is permitted to deposit a total of 70,000t (estimated based on EPA manual requirements) of inert waste for the purposes of restoration and aftercare. With regard to leachate treatment, the applicant is required to manage and collect leachate at the site and therefore is licenced under Class 4 and Class 13 - 3rd Schedule. The applicant also applied for licensing under Class 2 and Class 6-3rd Schedule in relation to leachate management. However, these classes are not required in order to carry out the leachate management measures conditioned and are therefore recommended for refusal.

Quantity of waste to be accepted (Total)	7,500t of municipal waste *and* 70,000t of inert waste for the purposes of restoration & aftercare
Environmental Impact Statement Required	No
Number of Submissions Received	None

FACILITY VISITS:

DATE	PURPOSE	PERSONNEL
13/2/01	Site visit	Cormac Mac Gearailt and Caoimhín Nolan.
31/1/01	Site visit	Cormac Mac Gearailt
18/5/00	Site visit/handover visit	Peter Carey, Cormac Mac Gearailt, Michael Henry.

(2) Facility development:

The majority of the site is currently covered by interim capping and the working face is kept small. Waste activities permitted under the terms of this Proposed Decision will result in the filling of remaining void space in 12 months. This licence requires that the facility be fully capped and restored by July 31st 2004.

A portacabin site office is currently in place on site.

This Proposed Decision allows waste acceptance during the following hours (as applied for):

- 8:30am – 5:00pm Monday to Friday inclusive and;
- 8:30am – 1pm on Saturdays.

Given the short lifetime, and the small quantity of municipal waste to be deposited at the facility, a Schedule of Objectives & Targets is not required. However, an Environmental Management System (EMS) remains a requirement of this licence, which includes an Environmental Management Programme (EMP) and corrective action procedures. The time period for submission of the EMS is reduced to six months.

(3) Waste Types and Quantities

This facility is licensed to accept 7,500 tonnes of municipal waste from the date of grant of licence. In addition to this waste, the applicant is also licensed to accept up to 70,000 tonnes of inert waste for the purposes of grading, capping and restoration of the facility.

The applicant estimated the remaining void space in Balbane landfill to be approximately 16,000t from January 2000. The most recent estimate (Feb 2001) of available void space is that void space remains for the deposition of approximately 7,500t of municipal waste.

The applicant will be required to inspect wastes at the working face and remove any unsuitable wastes for disposal at an appropriate facility.

The facility will be restored as improved pastureland, similar in nature to adjacent farming activities. The final maximum height of the facility after restoration is limited to 185mOD (Malin Head), as proposed by the licensee.

(4) Emissions to Air

It is not considered necessary to install gas migration monitoring wells for the following reasons:

- The remoteness and topography of the site,
- The low risk of landfill gas migration,
- The nature of the bedrock (relatively impermeable massive schist/quartzite rock) and saturated peat overburden,

- The particular location of the 3 neighbours (between 200m-1km from the site).

Given the quantities of waste already landfilled at this site, the age of the waste, the shallowness of the waste (average depth ~4m) and the low modelled gas production rates, flaring of landfill gas is not considered feasible. Landfill gas will be controlled by the installation of passive vents, and will be monitored on a quarterly basis.
Dust and noise monitoring will be carried out annually.

(5) Emissions to Groundwater/Hydrogeology

- **Geology/Hydrogeology**

The site is located in a peaty area and the underlying bedrock is schist with bands of quartzite. Overburden is thin (~1m) and consists of peat with some thin lenses of glacial subsoil's consisting of gravelly-silty sand. The aquifer under the site is classified as a poor and generally unproductive aquifer (Pu), and the bedrock has little fracturing or porosity to allow for storage or transmission of significant quantities of groundwater.
Groundwater investigations at the facility indicate that the landfill has had no significant impact on the small quantities of local groundwater present.

(6) Emissions to Surface Water

Leachate discharges from the eastern and southern edges of the facility and via small streams and drains, ultimately reaches a local watercourse (Loughaderry River – not a designated watercourse). This is approx. 2.5km from the site.

Given the local geology and the nature of the site it is clear that the majority of leachate arising on the site discharges to surface water in the area. Elevated Ammonia levels (up to 128mg/l) have been observed on site and adjacent to the site boundary where leachate flows unimpeded onto neighbouring peatland. These leachate emissions flow overland and discharge to local small watercourses, untimately leading to the Loughaderry river. The impact on these small watercourses is outlined in Table 1 below.

Parameter	Range observed (mg/l)	Compared to upstream
NH_3	2.9-13.5	greater than 10 fold increase
Conductivity	240-472 (μS)	~ 30 fold increase

Table 1 – Observed impact of landfill on adjacent watercourses within 100m of site boundary

The applicant stated in the application that remedial measures would be required "to mitigate the impact on surface water quality in the immediate vicinity of the landfill". To this end the applicant proposed the treatment of leachate on-site using a solely peat-based system. However, the lack of assimilative capacity in the proposed receiving watercourse strongly mitigates against the installation of any leachate treatment system with a subsequent discharge to water. Given the flows in this stream, the available assimilative capacity is 107g/BOD/day. Assuming the system successfully treats the leachate to the level proposed by the applicant (*i.e.* best case scenario), the assimilative capacity required for this emission would be 1000g/BOD/day. This exceeds the available assimilative capacity by a factor of greater than nine. Discharge of the effluent as proposed by the licensee would, therefore result in environmental pollution of the adjacent watercourse, with regards

to B.O.D, Ammonia, Suspended Solids and other parameters. As such the treatment system proposed does not constitute BAT (Best Available Technique) in this case.

Therefore applicant will be required to install the following works;

- **Landfill Leachate Management**

The applicant will be required to install a leachate interception drain and a collection tank on-site. The only leachate containment works carried out up to now has been the construction of a shallow trench around part of the landfill site. This trench intercepts some leachate arising, however the leachate subsequently discharges to surface water since there is no storage or treatment of leachate on-site. The conditions of the PD require completion of the following works;

- Installation of a leachate collection toe drain. The leachate collection toe drain shall be keyed into and covered by the capping layer, once the capping layer is installed.
- Provision of an appropriate leachate collection and storage tank.
- Installation of an appropriate road for access to the leachate storage tank by the leachate tanker vehicle.
- Separation of clean and contaminated surface water, and discharge of contaminated surface water to the leachate treatment system.

The site topography falls to the south east, and is suitable for the installation of a leachate collection and storage system. Leachate will be extracted from the collection/storage system and tankered off site for treatment at a waste water treatment plant to be agreed with the Agency. Leachate quantities generated will be minimised as a result of the progressive capping and restoration of the facility.

I am satisfied that the ongoing leachate collection and management as required under the terms of this Proposed Decision will ensure that the existing facility will have a significantly reduced and diminishing impact on the surface watercourses in the area.

The topography of the landscape surrounding the facility mitigates against any emission of leachate from the facility to the Lough Aderry reservoir, either through potential groundwater or surface water emissions.

Regular chemical monitoring is required on the local watercourses upstream and downstream of the facility, at a total of five locations.

(7) Other Environmental Impacts of the Development

- **Visual**

This site is located in an upland area. The site is not particularly obtrusive, given the naturally occurring screening ridges and its remote nature.

- **Restoration and Aftercare.**

The applicant will be required to restore the site to improved pastureland in keeping with farm holdings in the local area, as stated in the application.

(8) Waste Management Plans

The Donegal Waste Management Plan October 2000 (which has been adopted) considers three possible scenarios for the remaining landfills in County Donegal. The first is that all licences (including Balbane) are granted. The second is that no further licences are granted (apart from Ballinacarrick – already licensed Reg No. 24-1). The third is that any licences granted by the Agency are reviewed in order to secure up to 5 years further landfilling capacity. The plan also examines the prioritisation of existing void space in the county and recognises the fact that this goal (*i.e* granting of

any further waste licences apart from Ballinacarrick Reg No. 24-1) may not be achieved.

(9) Submissions/Complaints

No submissions were received.

(10) Reasons for the Recommendation.

I recommend that a waste licence be granted for the waste activities outlined below, subject to conditions;

- **Class 1-3rd Schedule** [*Deposit on, in or under land (including landfill)*]
- **Class 4 - 3rd Schedule** [*Surface impoundment– leachate collection & treatment*]
- **Class 13 - 3rd Schedule** [*Storage- leachate collection & storage prior to treatment*]

The applicant applied for licensing under Class 2 and Class 6-3rd Schedule, however these classes are not required in order to carry out the leachate management measures conditioned and are therefore recommended for refusal.

The applicant applied to deposit up to 5,000 tonnes of municipal waste per annum. This application was made in February 1999. Most recent estimates (carried out by this inspector in Feb 2001) are that from Jan 1 2001, void space remains for the deposition of 7,500 tonnes of municipal waste in total. This Proposed Decision permits the licensee to deposit a total of 7,500 tonnes of municipal waste.

The deposition of 70,000 tonnes of inert waste is also permitted for regrading, restoration and aftercare of the facility. This is as applied for by the licensee.

I am satisfied that the waste activities, if carried on in accordance with the conditions in the proposed decision, will comply with the requirements of Section 40(4) of the Waste Management Act 1996.

Signed _____ Dated:

Cormac Mac Gearailt,
Inspector, Environmental Management & Planning.

APPENDIX 1

LOCATION MAP & LAYOUT PLAN

- Site location Map 3026.26/A03

and

- Monitoring Locations (for more detail) 3026.26/A12

[Volume 4 of Waste Licence Application]