

INSPECTORS REPORT
WASTE LICENCE REGISTER NUMBER 24-1

(1) Summary:

This application relates to an **existing landfill** (Ballinacarrick Landfill) for the disposal of household, commercial, and industrial wastes.

Name of Applicant	Donegal County Council
Facility Name (s)	Ballinacarrick Landfill Ballintra, Ballyshannon Co Donegal.
Quantity of waste (tpa)	24,000tpa (Maximum to landfill from 1 st Jan 2000 to closure is 100,000tonnes)
Environmental Impact Statement Required	No
Number of Submissions Received	8 valid submissions
Inspector's Recommendation	The proposed decision as submitted to the Board be approved.

SITE VISITS:

DATE	PURPOSE	PERSONNEL	OBSERVATIONS
15/5/98	Check Site Notice	P. Carey	Site Notice complies with Art. 8
27/10/98	Site visit	P. Carey	Site visit
30/8/99	Site visit	P. Carey	Site visit
17/5/00	Site visit	P. Carey, M Henry, C Mac Gearailt	Site visit

An Article 16 (4) notice was issued to Donegal County Council on 1st June 2000 requiring significant quantities of outstanding information in relation to this site. This information was received on 7th and 16th of June 2000.

(2) Activity Summary

This site has an area of approximately 7.5 ha and has been operational since 1980. Waste input was initially approximately 4,000tpa rising to 23,000tpa in 1999. Only household, commercial, construction & demolition and non-hazardous industrial solid waste are to be accepted at this facility. The licensee has stated that waste currently being accepted at this site from Sligo will no longer be accepted after September 2000. This is currently approximately 11,000tpa.

This facility is currently unlined with no leachate control measures. Uncontrolled releases of leachate into local small watercourses has occurred in the past.

However, compliance with the conditions of the proposed decision, particularly with regard to capping, leachate management and surface water control measures will result

in a significant reduction in uncontrolled leachate discharges from the site with a corresponding ongoing and continual improvement in both surface and groundwater quality.

The landscape is blanket bog in nature and the restoration plan aims to restore the site to the original field patterns in place before the landfilling activity began. The application was made on 27/2/98.

(3) Facility Location

Appendix 1 contains a site location map and a plan showing the layout of the facility.

The facility is situated between Ballyshannon and Donegal town approximately 2.5km off the N25. The vicinity of the site is bogland by nature with approximately 15 houses (some unoccupied) within 500m of the site. The nearest dwelling is a mobile home approximately 50m from the site entrance, while the nearest permanent dwelling is approximately 350m to the north.

There are two proposed SAC's (Ballintra Hill and Lough Golagh/Breezy Hill) and one proposed NHA (Carricknahorna Lough/Lough Gorman) within 2.5km of the site.

(4) Waste Types and Quantities

Condition 5 of the proposed decision controls the quantities and types of waste to be accepted at the facility.

YEAR	NON-HAZARDOUS WASTE (tpa)	HAZARDOUS WASTE (tpa)	TOTAL QUANTITY OF WASTE (tpa)
2000 to 2005	24,000	Not Applicable	100,000 from 1 st Jan 2000

The licensee will also be required to carry out an annual void space survey (Condition 9.11). The quantities of waste to be accepted for each waste type are specified in Schedule H: Waste Quantities.

(5) Facility Design

Access to the site is via a third class road (2.5km) from the N25. Site security around the boundary of the facility is currently in the form of a gate and limited palisade fencing adjacent to the site entrance. The licensee will be required to upgrade this fencing to encircle the perimeter of the site.

The proposed decision requires that the following infrastructure be put in place within nine months of date of grant of licence (Condition 4)

- Weighbridge
- Wheelwash
- Improved internal access road
- Site office
- Waste Inspection/Quarantine area

Lining

There is currently no liner in place at this facility. The licensee is limited to waste disposal either on existing waste (Condition 5.6) or in cells lined to landfill directive

requirements. This PD specifies the lining system to be used in the event of any new area of the facility being used for disposal purposes.

Leachate management

There are no leachate control measures currently in place at this site. The applicant will be required to install a leachate management system (Condition 4.14) which will include the following:

- Leachate abstraction points with high level alarms.
- Construction of a sub-surface leachate toe drain.
- Provision of adequate leachate storage and treatment facilities.
- Diversion of a stream which currently runs under the landfill, and extraction of leachate from the culvert left behind.

The applicant proposes to treat leachate using a Puraflo system (peat based biofilm) and discharge to a local stream. The stream 95-%ile flow and proposed leachate emission flow are as follows;

- Max discharge of leachate **160m³/day** (5m³/hr)
- 95-%ile flow in stream **42m³/day** (4.8 x 10⁻⁴ m³/sec)

It is evident from this, that the stream in effect, would become a conduit for treated leachate.

Therefore, due to the lack of assimilative capacity and dilution the licensee will be required to tanker the leachate off-site and discharge to an agreed WWTP (Condition 4.14.4).

Landfill gas management

The licensee will be required to install at least 12 extraction wells on site to prevent off-site migration of gas. The licensee will be required to install these wells on an ongoing basis in parallel with the phased site infilling programme. The analysis presented as part of the application indicated high proportions of H₂S and other odorous landfill gas (LFG) minor constituents. Therefore, due to potential odour problems and greenhouse gas implications (and past complaints) the licensee will be required to install active collection and flaring of LFG. The licensee will be required to commence flaring of landfill gas within 18 months of date of grant of licence. This PD specifies ELV's for the LFG flaring system.

(6) Facility Operation/Management
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Waste Acceptance/Handling Procedures

Conditions 5.1 and 5.2 and Schedule H of the proposed decision restrict the types of waste to be disposed of at this site. Disposal of hazardous wastes, liquid wastes, septic tank waste, silt and dredgings, oil/water mixtures, oils, animal excrement and blood are prohibited. Condition 5.3 specifies waste acceptance procedures to be followed.

Nuisance Control

Potential nuisances are controlled by Condition 6 - Environmental Nuisances.

Hours of Operation

Condition 5.8 controls the hours of operation of the facility (8:30am – 5pm Monday to Friday inclusive and 9am – 1pm on Saturdays with the exclusion of Bank Holidays), as applied for by the licensee.

Phasing

The site will be infilled on a six phase sequence. It is envisaged that each phase will last approximately 8 months.

(7) Restoration and Aftercare

The applicant has proposed to return the site to grazing and restore the former hedgerow/field boundaries as indicated on the 6" OS map of the area. The landscape around is generally bogland with a patchwork of grazing areas. The final height of the facility is limited to 104mOD, as proposed by the applicant (Condition 8.2) and is designed to reflect the prevailing landscape character (Condition 8.1). Planting will also reflect the local landscape. The licensee will be required to install 1m high earthen berms around the site (to 2m in parts) for screening purposes. These will be seeded and planted, and integrated into the restoration & aftercare plan. Capping of the site will be as per Condition 4.16 of the proposed decision.

The licensee is required to have completed the restoration of the facility within 12 months of completion of landfilling activities on site.

(8) Emissions to Air

Emissions to air include landfill gas, odour and dust. Dust and landfill gas monitoring requirements are set out under Condition 9.1 & 9.2 of the proposed decision. Dust control requirements are established under Condition 6.6. Compliance with Condition 6.7 will ensure that nuisance will not arise from the licensed activity. Odour and other nuisances will also be abated by the requirement for sufficient quantities of daily cover.

(9) Emissions to Groundwater

This landfill was established on an area of blanket bog. Strata underlying the site vary but generally consist of the following:

- Peat layer
- Sandy silty CLAY (boulder clay)
- Schist (bedrock)

In areas which have been landfilled on, the peat will have compressed under the weight of existing waste. However, it also appears that in some areas of the landfill waste has been deposited directly onto rock outcrop.

The aquifer beneath this site would be considered to be of local importance, at most, with poor production. However, the quality of groundwater in the aquifer is poor. Analyses undertaken as part of the application indicated that levels of Calcium, Magnesium, Manganese, Alkalinity and Nickel (List II) were in excess of drinking water quality standards both upgradient and downgradient of the landfill.

However, there was some elevation of Ammonia (NH₃), Potassium (K), Barium (Ba) and Nitrite (NO₂) in downgradient boreholes and this contamination is likely to be due to the presence of the landfill. (*see* Table 1)

Parameter	Level observed (mg/l)	Drinking water standard (mg/l)
NH ₃	0.5 - 0.78	0.3
NO ₂	<0.05 - 0.18	0.1

Ba	0.07 - 1.05	0.5
K	6.5 - 28	12

Table 1 – Contaminants evident in monitoring boreholes

Groundwater sampling and analysis was also carried out for a range of List I parameters and none were detected.

Compliance with the conditions of this proposed decision, particularly with regard to capping, leachate management and surface water control measures will result in a significant reduction in uncontrolled leachate discharge from the site with a resulting significant ongoing improvement in both surface and groundwater quality.

The licensee will be required to monitor the six existing groundwater boreholes around the site in accordance with Schedule E5 of this proposed decision. This includes a requirement for the applicant to monitor the following;

- one upstream & two downstream bedrock boreholes
- one upstream & two downstream overburden boreholes (annually only).

(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 and at the nearest adjacent noise sensitive location.

The noise monitoring results 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 47-49 dB(A).

Noise emission limits are specified by Schedule F1. Noise monitoring requirements are set out in Conditions 9.1, and Schedule E4. The licensee will be required to specify two additional noise monitoring locations at the site boundary, within three months of date of grant of licence.

(11) Emissions to Sewer

There are no emissions to sewer from this site.

(12) Emissions to Surface Waters

The site is bounded by two surface water drains which run ultimately to the Ballintra river (undesignated river *i.e.* not Salmonid) and from there into Durnesh lake. The stream adjacent to the landfill shows evidence of contamination caused by the infiltration of leachate from the landfill mass into the stream. Elevated Conductivity, BOD, COD, coliforms and faecal coliforms are apparent in samples taken downstream of the landfill. Again, this is due to the uncontrolled discharge of untreated leachate from the site.

Leachate management works alluded to above (Condition 4.14), along with the surface water management works required by Condition 4.17 (*see* below) will serve to significantly reduce uncontrolled leachate discharge from the site. Consequently, this will significantly improve both surface and groundwater quality on an ongoing basis. Requirements of Condition 4.17 are as follows;

- Separation of contaminated surface water from clean surface water
- Construction of a clean surface water toe drain.
- Design of drains around site including possible use of open drainage ditches, french drains or other methods for surface water control (*as per* draft Landfill Site Design Manual)
- Provision of holding lagoons or treatment systems (e.g. reed bed systems) for collected surface water.

The licensee will be required to monitor surface water at four locations around the site. Condition 9.1 and Schedule E5 specify the monitoring requirements. This includes a requirement for the licensee to monitor at one upstream, two adjacent and one downstream location.

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

Consideration was given to the Draft Waste Management Plan for Donegal County Council May 2000. This plan has not yet been adopted. This plan indicates an intention to operate this site for a further 4-5 years and dispose of approximately 100,000 tonnes from January 2000.

(15) Other Impacts

Access to the site is via a third class road known locally as The Bog Road. This road is described in the application as narrow in parts, not clearly defined, and showing evidence of deterioration and rutting. In parts the road is only 3.0m-3.5m wide. The site is near the village of Ballintra where traffic could potentially pass through, particularly when coming to the site from a northerly direction. However, given that no EIS was required for this activity (<25,000tpa) prohibiting access through Ballintra village and requirements for upgrading of the access road falls outside the scope of this proposed decision.

(16) Submissions/Complaints

Eight valid submissions were received in relation to this application, Appendix 2 contains copies of the submissions.

1, 2 & 3. Submissions from Mr Harry Lloyd, Northern Regional Fisheries Board. [Dates Received 7/9/99, 15/1/99, and 23/3/98].

Three submissions were received from Mr Lloyd.

These submissions refers to uncontrolled escape of leachate from the site, inadequate capping resulting in increased quantities of leachate, and the impact the landfill is having on surface waters adjacent to the site and possibly downstream also (Durnesh Lough)

RESPONSE

The proposed decision will ensure that the facility does not cause environmental pollution when the activities licensed are carried out in accordance with the conditions of the proposed decision. Extensive leachate, surface water and groundwater control

measures are required as part of the proposed decision. Discharge of leachate to surface waters from this facility is prohibited. Leachate treatment is required along with subsequent discharge to an agreed waste water treatment plant. Capping requirements are specified and consist of adequate daily and intermediate along with final capping provisions.

4. Submission from Mr. Adrian Kennedy on behalf of Dúchas [Date Received 29/3/99].

The submission requests that archaeological monitoring be carried out prior to further development of the site.

RESPONSE

Condition 4.22 requires that prior to commencement of any excavation works in undeveloped land on-site, the licensee shall submit to the Agency for its agreement, a pre-agreed proposal with Dúchas regarding archaeological supervision of said works.

5. Submission from Mr. Patrick White on behalf of Dúchas [Date Received 15/6/98].

The submission raises concerns regarding possible impact of leachate discharges from the site, otherwise the submittee has no objection to the proposal.

RESPONSE

As above

6. & 7. Submissions from Mrs Regina Meehan – local resident [Dates Received 1/2/99 and 25/8/98].

The submission includes a number of general newspaper articles regarding landfills and a list of ‘Tipping Conditions’ issued to contractors from Donegal Co. Co regarding operation of the landfill. Mrs Meehan stated that these ‘Tipping Conditions’ were issued by order of the courts following a case against Donegal Co. Co. Mrs Meehan also encloses well water analysis regarding what she felt was contamination of her well caused by the landfill.

Mrs Meehan raises a number of issues specific to the this facility as follows:

1. *Odour nuisance from the site*
2. *Bird nuisance from the site*
3. *Rats from the site*
4. *Windblown litter from the site*
5. *Is there landfill gas testing to be carried out on the site?*
6. *Contamination of her well*

RESPONSE

1. Odour

Odour will be controlled by adequate provision of capping on site, and adequate covering of the working face at the end of the working day (Condition 5.9 & 5.10). The licensee will also be required to install a landfill gas collection and flaring system. Waste being carried to the site shall be covered *as per* Condition 6.5. Condition 7.3

requires that activities occurring on site shall not cause significant impairment of, or significant interference with the environment beyond the facility boundary.

2. & 3. *Bird and rat nuisance*

Bird and rat nuisance will be controlled by Condition 6.8 which requires a plan to be put in place addressing the control and/or eradication of bird, vermin and fly infestations at the facility. This programme shall include as a minimum;

- details on the control measures including rodenticides & insecticides to be used
- operator training
- mode and frequency of application
- inspection and maintenance records
- measures to contain sprays within the facility boundary.

Condition 6.3.1 will also require the use of netting around the working face. All areas within the landfill apart from the working face shall be adequately capped.

Condition 5.12 requires that cover material be maintained across the entire landfill so that no waste other than cover material or material suitable for specified engineering works is exposed.

Condition 6.7 requires that vermin, birds, flies, mud, dust and odours do not give rise to nuisance at the facility or the immediate area of the facility, and that any method used by the licensee to control any such nuisance will not cause environmental pollution. Groundwater monitoring requires monitoring of any rodenticides used on site on an annual basis (Table E5)

4. *Windblown litter.*

Condition 6.3.1 requires that prior to the disposal of waste in any cell, litter fencing shall be installed and maintained around the perimeter of the active tipping area.

Condition 6.3.3 requires that all loose litter accumulated within the facility and its environs, excluding that which is deposited on the working face, shall be removed on a daily basis. Daily inspection of litter control infrastructure is required under Condition 6.3.2

5. *Landfill gas testing*

Condition 4.15 deals with landfill gas management. This condition requires the installation of 12 landfill gas (LFG) extraction wells to protect against lateral migration of landfill gas. This condition also requires the licensee to install active collection and flaring of LFG. Monitoring of FLG will be carried out at six locations.

6. *Well contamination*

Mrs. Meehan encloses monitoring information, which indicates that her house well was contaminated from the landfill. Reports are included from the public analyst laboratory, from the ASEP laboratory (Queens University Belfast) and from the North Western Health Board, between 1995-1996. These reports indicate that there was elevated Ammonia in the water (2.13mg/l) on 3/4/97, however there was no evidence of any other contamination (bacterial or chemical). Information submitted by the applicant states that this house is now on the mains water supply. However, Condition 9.3 requires the licensee to survey the existence of any downgradient wells within 1km of the facility and propose a monitoring programme for appropriate wells. It is not clear whether Mrs Meehan's well is still in use or even in existence. If it can be sampled then

it will be included in the monitoring programme, whether it is in use or not (subject to the agreement of the well owners).

8. Submission from Mrs Angela Meehan – local resident [Dates Received 5/1/99].

Mrs Angela Meehan is the daughter of Mrs Regina Meehan. This submission requests that the Agency consider the submission of Mrs Meehan's mother and reinforces the points raised by Mrs Regina Meehan.

RESPONSE

Dealt with in submissions 6 & 7 above.

Signed: _____
Name: Cormac Mac Gearailt.

Dated: _____

APPENDIX 1
LOCATION & LAYOUT DRAWING

3026.21 A03 Site location

&

3026.23 A04 General site layout

APPENDIX 2
SUBMISSIONS

APPENDIX 3
SITE PHOTOGRAPHS