



**OFFICE OF
LICENSING &
GUIDANCE**

INSPECTORS REPORT ON A LICENCE APPLICATION

To:	DIRECTOR. P LARKIN	
From:	MALCOLM DOAK	LICENSING UNIT
Date:	3 NOVEMBER 2004	
RE:	APPLICATION FOR A WASTE LICENCE (REVIEW) FROM DONEGAL COUNTY COUNCIL, LICENCE REGISTER 24-2 , BALLYNACARRICK LANDFILL.	

Application Details	
Type of facility:	Landfill for Non-Hazardous Waste
Class(es) of Activity (P = principal activity):	3 rd Schedule: 2, 4, 5 (P), 6, 13. 4 th Schedule: 2, 3, 4, 13.
Quantity of waste per annum:	24,000 T Note: The existing Waste Licence max annual tonnage is 24,000T
Types of Waste:	See Section 2
Location of facility:	Ballynacarrick, Ballintra, Co. Donegal
Licence review application received:	28 November 2003
Third Party submissions:	1; 15/12/2003
EIS Required:	An EIS was submitted to the planning authority (An Bord Pleanála - ABP) on 21 November 2003 under Section 175 of the Planning and Development Act, 2000, and was attached to the Waste Application.
Article 14 compliance date:	10 May 2004
Site Inspection:	11 February 2004, Malcolm Doak

1. Facility

This report relates to an application received from Donegal County Council for a review of the existing waste licence (Reg. No. 24-1) at Ballynacarrick Landfill (issued 7 December 2000). The review is straightforward; the County Council wish to expand the landfill with four new lined cells into an area west of the existing facility boundary,

and extend same boundary. The same annual tonnage of 24,000 tonnes per annum has been applied for.

Donegal has operated a landfill at Ballynacarrick since 1980, originally filling into an unlined peat depression (Area 1), and expanding into a lined cell (Area 2) on issue of Waste Licence 24-1. Filling at Area 2 is near completion, to be finished by October 2004, although it was envisaged at the time of application that filling in Area 2 would occur into November 2005. The landfill can be split into three areas (*Figure 1* below outlines the landfill areas, existing facility and proposed extension).

- Area 1: original waste body, unlined, final capping/gas extraction commenced;
- Area 2: lined cell, to be filled by October 2004;
- Area 3: proposed site for extension and licence review application (225,000m³ capacity).

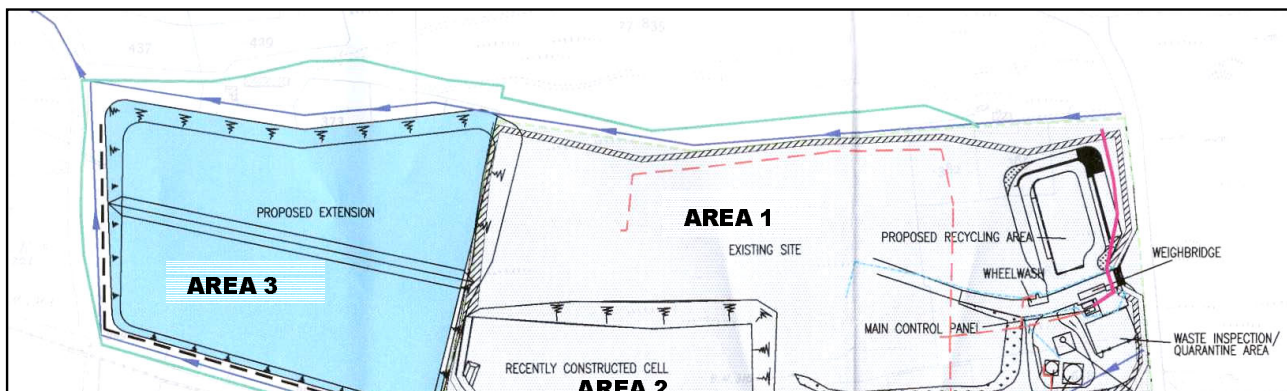
The existing rural landfill is surrounded on all sides by drumlin hills and agricultural land and lies on an inter-drumlin hollow running east-west. The unlined landfill is impacting on surface water quality, and the Northern Regional Fisheries Board note the existing stream has a Q value of 1 (poor quality). The landfill and proposed extension will form a footprint of 9 ha. Up to eight occupied dwellings are located within 500 metres of the landfill site, the nearest dwelling is a mobile home located across the road from the northeast boundary of the existing site.

It is envisaged that the landfill operations in the extension area will commence during 2005 and cease by the end of 2013. The extension will be constructed in two phases each containing two discrete cells for the acceptance of waste. Landfill operations are envisaged as progressing from the southeastern end of the proposed extension area, through the other cells in a clockwise direction finishing in the final phase to the northeast.

I recommend the following activities be refused for the reasons set out in the table below. I have included this table under Part II of RD.

Class 2	Land treatment, including biodegradation of liquid or sludge discards in soils: Reason: The recirculation of leachate in the landfill requires Agency agreement and is an activity which falls under the Third Schedule, Class 5, and not this activity as was applied for.
Class 4	Surface impoundment, including placement of liquid or sludge discards into pits, ponds or lagoons: Reason: The existing landfill no longer has the infrastructure of surface impoundment, pits, ponds or lagoons. Leachate treatment/storage is specified in the licence and is a Third Schedule, Class 6 & 13, activity.

Compliance issues with the existing waste licence are discussed in Section 9 of this report. The main issue for compliance is the non-installation of a landfill gas flare.



In summary the proposed extension of Ballynacarrick Landfill will require:

- a revision of the facility boundary to include lands to the west as Area 3 to make way for the installation of four lined cells – this is acceptable as per requirements of Condition 1.2;
- diversion of the surface water course on the west side;
- the excavation and storage on site (for re-use) of shallow blanket peat and soft sediment (up to 76,5000m³) to make way for the new cells which are to be based on rockhead;
- the importation of BES enhanced soils for the mineral liner (500mm thick) – this is acceptable as per requirements of Condition 3.12.1, and the contingency to use non rounded aggregate for use in liner design due to source material limitations Conditions 3.12.1 & 3.12.4;
- requires the provision of a groundwater drainage blanket between rockhead and the base of the lining system;
- the maintenance of a leachate collection system including holding tank and arrangements for its disposal to Donegal Town WWTP, and the (future) provision of a new leachate treatment package plant to handle leachate prior to WWTP – acceptable as per requirements of Condition 3.13;
- the maintenance of the gas extraction system and the immediate provision of a new flare to be located in the south-eastern corner of the facility – acceptable as per requirements of Condition 3.14;
- the provision of a CWF to the front entrance of the landfill. – acceptable as per requirements of Condition 3.17;
- the restoration and aftercare of the revised landfill footprint with a final height of 104mOD – acceptable as per requirements of Condition 4.

Those items not already dealt with are discussed in the following section:

2. Operational Description

The applicant has applied for one new class of activity: Fourth Schedule Class 13, necessary to facilitate the planned Civic Waste Facility; and has proposed to delete Class 1 (Third Schedule) since the principle activity has been changed from Class 1 to Class 5 – to specially engineered landfill, and any future landfilling is into new lined cells. These proposals are acceptable and have been written into Part I of the RD. The facility had the option to compost in the previous licence but had no tonnage. The applicant wishes to keep this option. I have amended the *description* of Class 2 Fourth Schedule to allow for a max of 1000m³, and included it in Schedule B of the RD as an SEW.

At the landfill, it is planned to continue the acceptance of 21,000T of mainly municipal waste (including household and commercial sourced), 2,500T of industrial non-hazardous solids, and 500T of C&D waste per annum. Condition 5.2 implements the various requirements of the EU Landfill Directive. In addition, Condition 5.2.1 specifies all waste must be pre-treated as per the Landfill Directive. The applicant proposes to operate the landfill at the same hours as in the existing licence, Condition 1.5.

The proposal to handle miscellaneous hazardous waste items of <10 tonnes per annum at the CWF is acceptable.

Peat will be excavated to a depth of up to 1.5m over an area of 3.5 hectares to make way for the landfill extension, and this material (sizeable amount) will be stored at the existing landfill and allowed to drain. The peaty topsoil will ultimately be used as a

soil improver for the final restoration layer. Section 4.4 of this report considers the implications of peat storage on landfill operations.

Final capping is to be completed at Areas 1 and 2 within twelve months of the date of grant of this licence since both areas have been filled and represent a large proportion of the landfill (Condition 4.1). Any significant delay in providing the final cap will slow the installation of an active landfill gas collection network as required by Condition 3.14.

The Monitoring requirements for all media are set out in Condition 8 and Schedule D of the RD.

3. Use of Resources

Details of resource use appear in Attachment E5 of the application specifying diesel fuel (38,000L/annum), electricity (21,200kWh/annum), and water usage (100,000L/annum).

4. Emissions

The following concentrates on those operations or aspects of the facility that may have a significant impact on the environment:

4.1 Air

The estimated landfill gas quantities are specified in Attachment C2(b) of the application and are modelled (GasSim) at c. 3.7 million m³/annum up to year 2014, which would place Ballynacarrick landfill into the EPER¹ top 10 list of Irish landfills to be emitting methane² without recovery. The existing licence required the installation of a gas flare by June 2002, but this has yet to be done, and the facility is in continual non-compliance with this provision of the licence. In these circumstances Condition 3.14.2 has immediate effect.

4.2 Leachate Removal

All leachate and treated leachate is required to be tankered off-site to Donegal Town Waste Water Treatment Plant or an alternative agreed with the Agency.

4.3 Emissions to Surface Waters

It is proposed to divert a small stream, less than 1m wide and immediately downstream of the existing landfill to makeway for the extension, and divert the stream to the western boundary and integrate it with a new surfacewater cut-off drain to be excavated around the entire perimeter. The EIS considers there will be no impact to the stream infrastructure and ecosystem and further note the existing stream has a Q value of 1 (poor quality). The applicant states the management of leachate levels in existing cells and new stream diversion works will actually prevent the ongoing contamination and remediate the situation. These proposals are acceptable as Condition 3.15.

4.4 Emissions to ground/groundwater:

Underlying the landfill area in general is the following subsoil sequence – blanket peat – gravelly sand/clay till – limestone bedrock, as described in inspectors report on original licence application. Rockhead is very shallow ranging from 0.5m to 10m. There is high watertable in the peats. The landfill in the past was placed directly (unlined) onto the thin peat or occasional rock outcrop. The nearest borehole downgradient of the landfill lies 1.25km from the site in a quarry. Six new monitoring

¹ European Pollutant Emission Register, which was established by a Commission Decision of 17 July 2000. The EPER Decision is based on Article 15(3) of Council Directive 96/61/EC concerning integrated pollution prevention and control.

wells were installed in rock around the proposed extension during July 2002. Groundwater quality shows a localised ammonia impact in wells downgradient of the landfill. Four wells are included for the setting of trigger values Condition 6.4.3.

Two implications arising from the proposed extension works are:

Aquifer Vulnerability & Landfill liner Requirements

For the extension, the thin peats and alluvial deposits over the entire site area will largely be removed, and excavation of the rockhead in parts, will cause a groundwater vulnerability rating of Extreme (E) as no natural protection will be afforded over the site. The rock type underlying the site is provisionally assigned a resource protection rating by the GSI of 'LI' (Locally important aquifer considered to be moderately productive in local zones - Lower Ballyshannon Limestone Formation). The arising rating 'LI/E' (locally important aquifer with an Extreme vulnerability rating) is assigned an aquifer protection response of R2², indicating that the development of a landfill is acceptable, subject to certain conditions, which include giving special attention to:

- Checking for the presence of high permeability zones
- Wells downgradient
- Groundwater control requirements

The EIS (which includes computer modelling, using a *LandSim* package) considered these requirements to conclude that the site is suitable for development as an engineered landfill (as per Landfill Directive) and will not have any additional impact on groundwater quality. Solutions are set out in Section 6.10 – 6.16 of the EIS and specifies the mineral layer will be 0.5m thick BES clay overlying a 0.3m thick groundwater 'drainage blanket' which will intercept shallow groundwater at rockhead and divert it westwards to the cut-off drain. These aspects are satisfactory and are written as Condition 3.12, but the BES liner permeability has been increased to 10⁻¹¹ due to the extreme vulnerability and proximity to rockhead.

Excavation and Management of Soft Materials:

The excavation of peat and alluvial deposits within the proposed extension area will necessitate the stockpiling of the excavated material of up to 76,000m³ within the landfill footprint (Attachment D2e). The mitigation measures proposed include deposition of the material in stockpiles with graded banks be vegetated immediately to promote surface run-off and limiting the storage of topsoil in heaps no higher than 3m. My calculations suggest an area of c.2.5 ha of the landfill will need to be set-aside for such stockpiling. My assessment is that the applicant has not considered this matter fully since there is no discussion on the needs for such a large area of storage. Condition 4.6.2. specifies the location of any stockpiles should take account of sensitive receptors, i.e. stockpiles should be situated away from drains and other surface water drains. In particular consideration of hydroseeding etc is specified to ensure stable stockpiles. Overall the position of any stockpiles will need to be peripheral within the landfill footprint and should not be emplaced on previously filled cells, since these cells require final capping and gas extraction. My preference is that stockpiling occur outside any cells, or in the last cell of the extension awaiting construction.

5. Cultural Heritage, Habitats & Protected Species

There are no such heritage sites within 800m of the facility. Habitat is agricultural.

6. Waste Management, Air Quality and Water Quality Management Plans

Ballynacarrick Landfill is currently one of two licensed operational landfills within County Donegal accepting municipal wastes. There is an urgent need to develop new landfill capacity for the period beyond 2005. Donegal County Council carried out a site selection study, which identified two sites in the county for future development.

- Extension of the existing site at Ballynacarrick
- Development of a new landfill at Meenaboll

7. Environmental Impact Statement

I have examined and assessed the EIS and am satisfied that it complies with the requirements of the EIA and Licensing Regulations. The Agency responded to an enquiry from Aan Bord Pleanála on 12th May 2004.

8. Compliance with Directives/Regulations

Landfill Directive (LFD)

Since the receipt of application, the Waste Management (Licensing) Regulations 2004 (S.I. No. 395 of 2004) were issued which specify requirements in order to comply with the LFD. Article 12(1) of the regulations requires the application to be compliant with Annex 1 of the LFD, and requires such financial provision having regard to the provisions of Articles (7)(i) and (8)(a)(iv) of the LFD. LFD Annex 1 aspects in the application were compliant. The financial provision aspects are written into the RD as Conditions 12.2 & 12.3.

9. Compliance Record

Since the original licence was granted in April 2002 the Agency has issued seven non-compliances.

The Agency is particularly concerned over the lack of progress on the provision of a landfill gas management system (as detailed in site inspection OEE Report and Non Compliance 4 August 2004; see attached). Condition 3.14.2 seeks to address this issue.

10. Submissions

One submission was made in relation to this application:

Mr Harry Lloyd, Northern Regional Fisheries Board, Station Road, Ballyshannon, Co. Donegal received 15/12/2003

The Northern Regional Fisheries board observe that the leachate management and treatment system be installed and operated to best practice. The ongoing water pollution arising from the existing facility should be addressed as specified in the EIS Sections 10.86 – 10.88 and a wetland be incorporated downgradient if contamination of the watercourses continues, and that monitoring of the water quality at Durnesh Lough be carried out.

These are contingencies to be enacted if the poor quality water issue downgradient of the site sustains. However the new engineered cells and surface water collection system proposed (and diversion of stream) should remediate the issue. Nevertheless these contingencies are set out in the EIS by the applicant and hence have been written into the RD, as per Condition 9.4.5.

11. Charges

The charge in the original licence was set at €13,797. This is revised to €15,920, due largely to an increase in the Inspector daily fee.

12. Recommendation

Having assessed all the documentation, particulars and information submitted with this application I recommend that a revised licence be granted for Classes 5, 6 and 13 of the Third Schedule and Classes 2, 3, 4 and 13 of the Fourth Schedule. I further recommend that Classes 2 & 4 of the Third Schedule be refused for the reasons stated in Part II of the RD.

Signed

Malcolm Doak

SITE INSPECTION REPORT

For the Attention of:	Register Number	WL 24-1
Mr. Peadar McRory	Date of Inspection:	4 th August 2004
Senior Engineer, Environment Section	Inspection Reference	WL24-1/04/SI10CN
Donegal County Council	Number (IRN):	
County House		
Lifford		
Co. Donegal		
Facility: Ballynacarrick Landfill, Ballintra, Co. Donegal	Inspectors:	Mr. Caoimhín Nolan
		Dr. Michael Henry

Announced

Unannounced

This Site Inspection Report details the Agency's findings following an inspection of your facility on the above date.

NOTIFICATION OF NON-COMPLIANCE

You have been found to be in non-compliance with the conditions of the Licence as set out in this Site Inspection Report. You are required to undertake the corrective actions specified to close out the Non-Compliances and Observations raised in this Report or further enforcement action may be taken by the Agency.

In view of the above you are required to submit a schedule to the Agency by the 6th October 2004 detailing how the non-compliances and observations specified therein are to be rectified. Please quote the above Inspection Reference Number in any future correspondence in relation to this Report. If you have any further queries please contact Mr. Caoimhín Nolan at 094-9048444.

1. SITE INSPECTION AND ASSESSMENT

The Site Inspection commenced at 11:00 and the following were in attendance:

Representing Donegal County Council:

Mr. Donal Casey	Senior Executive Chemist
Ms. Julie McMahan	Executive Environmental Officer
Mr. Don Smith	Environmental Technician

Representing Kirk McClure Morton (Consulting Engineers):

Mr. Donal Doyle
Mr. Nigel Ruxton

Representing the Environmental Protection Agency:

Mr. Caoimhín Nolan	Inspector
Dr. Michael Henry	Inspector

Opening Meeting

Prior to conducting a site tour, an opening meeting was held on-site to discuss licence compliance issues, and in particular the progress made following the Agency's last audit of the facility on 31st May 2004. Ms. McMahon indicated that since the audit, the licensee had tightened up leachate management practices by increasing the frequency of tankering off-site and pumping leachate at chamber no. 5 from a lower level. Furthermore, future leachate management would be improved through the provision of a leachate interceptor toe-drain around the waste body (i.e. which was being capped), and the installation of a second 1,000m³ capacity leachate storage tank. The leachate toe-drain along the northern boundary of the facility would incorporate a surface water drain above it (i.e. physically separate from each other), and an additional 8m wide strip of land was due to be purchased by the licensee here to facilitate its construction. The leachate management and capping works were due to be completed by the end of September. The final capping works which were being carried out at the time of the site inspection would also reduce the generation of leachate.

In relation to landfill gas management, the licensee alluded to previous problems in getting the temporary flare started up and indicated that they had intended to re-set the temporary flare arrangement following completion of the final capping works. The licensee was also presently seeking tenders for the provision of a permanent gas collection and enclosed flaring system as part of the landfill extension works. The Agency indicated its dissatisfaction with the delays in providing a proper landfill gas management system and requested that immediate action be taken to investigate the suitability of the existing gas abstraction wells. The provision of a permanent landfill gas management system at the facility was a priority.

The licensee indicated that the quantity of waste accepted at the facility so far for 2004 was approximately 24,000 tonnes. The current licensed tonnage is 24,000 tpa and it was noted that the licensee had not applied for an increase in this tonnage as part of its current licence review application (i.e. which is currently being assessed by the Agency). Furthermore, only a very limited capacity remained in the present lined cell for the acceptance of waste for disposal. The licensee was advised to reconcile its waste acceptance tonnage figures by; a) applying to increase its licensed annual tonnage, or, b) restricting waste intake.

Site Tour

Following the opening meeting, a tour of the site was conducted and special attention was paid to the final capping works, landfill gas management, leachate management, litter control and waste disposal operations at the active tipping face.

General Comment

The licensee has made some progress in addressing the non-compliances and problems that were previously identified by the Agency during its audit of the facility on 31st May 2004, however further significant efforts are required. The Agency is particularly concerned over the lack of progress on the provision of a landfill gas management system. The licensee needs to prioritise work in this area and persist in overcoming any problems in securing a sufficient supply of gas to the flare. In this regard, the licensee was advised of further monitoring and testing that would assist in identifying problem areas in the gas collection field.

Leachate management at the facility is also of concern. The progress made by the licensee on this front since the audit (as detailed in the opening meeting section of this report) is noted by the Agency, however the licensee needs to ensure that leachate levels are consistently managed and maintained at low levels throughout the site. As well as preventing leachate breakouts and discharges to surface water, maintaining low levels of leachate within the waste is vital to ensure that a proper flow of landfill gas to the abstraction wells is possible.

New litter netting had been erected at the facility and it was noted during the site tour that scavenging birds were also absent.

The licensee was briefed on the Agency's reporting procedures and was advised that a Site Inspection Report would be issued. Finally, the licensee was thanked for the courteous and co-operative manner of the staff, and the assistance and co-operation extended during the inspection.

2. INSPECTION FINDINGS

Inspection Non-Compliances

The site inspection process is a random sample on a particular day of a facility's compliance with some of its licence conditions. Where a non-compliance against a particular condition has not been reported, this should not be construed to mean that there is full compliance with that condition of the licence.

The licensee was found to be in non-compliance with the requirements of the Licence in respect of the following on the day of the Inspection (Schedule and Condition numbers refer to the Licence):

1. A waste inspection and quarantine area was not provided at the facility.

This is a non-compliance with **Condition 4.7**.

Corrective Action Required

Construct and maintain a waste inspection and quarantine area at the facility.

2. Accumulated leachate/contaminated surface water was observed along the western boundary of the facility, and this was being allowed to discharge to surface water near the south-western corner of the facility.

This is a non-compliance with **Condition 4.14.1 (v)**.

Corrective Action Required

Collect any leachate/contaminated surface water which is currently being allowed to discharge to surface water. Complete the final capping, leachate toe-drain and surface water diversion works which are currently being carried out. Manage leachate levels in the waste body accordingly to prevent leachate breakouts towards the perimeter of the landfill body. Inform the Northern Regional Fisheries Board of what actions Donegal County Council are presently, and will be taking to address this issue.

3. Landfill gas was not being collected and flared at the facility, and a localised smell of landfill gas was also detected at the facility.

This is a non-compliance with **Condition 4.15.2**.

Corrective Action Required

A permanent landfill gas collection and (enclosed) flaring system should be provided as soon as possible. Pending the provision of this system, the temporary collection and flaring system should be commissioned. Any necessary pumping trials, monitoring and testing on the abstraction wells and collection system should be carried out immediately, and any remedial actions necessary to rectify problems should be undertaken immediately. All landfill gas abstraction wells should be labelled in-situ with a unique identification number to allow for their identification in the field.

Inspection Observations

While these observations do not constitute non-compliances with any condition of the Licence, they should be addressed or where relevant noted by the licensee in order to ensure compliance, improve environmental performance of the facility and provide

clarification on certain issues, as required. Where requested the actions taken and clarifications requested should be reported back to the Agency.

1. The leachate level in the storage tank was relatively low (i.e. compared to Agency's site inspection of 6/4/04) and the leachate was being aerated.

The licensee should continue to manage leachate levels properly at the facility through the regular tankering of leachate off-site, maintaining adequate capacity in the leachate storage tank and the regular pumping of leachate from collection sumps, abstraction wells and interceptor drains.

2. A strong flow of surface water was visible (i.e. via one of the inspection manholes) in the piped surface water drain running along the southern boundary of the facility (i.e. parallel to the public road), however no flow of water was evident into the lined settlement lagoon area located near the south-western corner of the facility.

The licensee should investigate the integrity of this surface water pipeline and repair any leaks immediately. The Agency notes that any leak in this pipeline could result in water entering the historic drainage network (i.e. contaminated with leachate) located beneath the landfill body.

3. The lined cell was almost filled to capacity.

The licensee should ensure that waste intake into the facility is managed to prevent over-filling of the lined cell.

3. Follow-Up Actions

The licensee shall take the actions required to close out the non-compliances and observations raised in this Site Inspection Report. These actions will be verified during subsequent Inspections.

Please quote the above Inspection Reference Number in any future correspondence in relation to this Report.

Report prepared by Inspector:

Date:

Mr. Caoimhín Nolan

24th September 2004
