

INSPECTORS REPORT

WASTE LICENCE REGISTER NUMBER 29-1

(1) Summary:

The facility consists of an existing municipal waste landfill in a peatland area. The current landfilling activities are in unlined cells. Any future development will be required to be in lined cells.

Name of Applicant	Offaly County Council
Facility Name (s)	Derryclure Landfill
Facility Address	Derryclure, Tullamore, Co. Offaly
Description of Principal Activity	Landfill
Quantity of waste (tpa)	40,000
Environmental Impact Statement Required	Yes
Number of Submissions Received	1
INSPECTOR'S RECOMMENDATION	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)	4 th June 1998 22 nd June 1998 17 th August 1998	Not applicable	13 th August 1998 11 th August 1998 17 th November 1998
Article 14 (2) (a)	20 th April 1999		
Article 16	Not applicable	Not applicable	Not applicable

Applicant Address	Courthouse, Tullamore, Co. Offaly
Planning Authority	OffalyCounty Council
For Local Authority applicants, is the facility within its own functional area	Yes
Is the facility an existing facility:	Yes
Prescribed date for application:	Prior to 1 st March 1998
Date Application received:	27 th February 1998
Location of EIS in Application	Two Volumes (1 and 2)

FACILITY VISITS:

DATE	PURPOSE	PERSONNEL	OBSERVATIONS
18/5/98	Site visit and notice check	MK	Art 8 compliance
14/12/98	Site visit and notice check	MK	Art 8 compliance following receipt of EIS

(2) Class/Classes of Activity

The class(es) of activities for which the applicant has applied are marked below. The principal activity is indicated by (P), other activities by (X).

Waste Management Act, 1996			
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.	X	2. Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes).	X
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.	X	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.	X
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.	X
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.	X	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.	X

Class description:

The applicant described the classes as follows;

Third Schedule;

- Class 1. Landfilling of non-hazardous waste**
- Class 2. Disposal of sewage sludge by means of discharge to ground from tankers**
- Class 7. Proposed dewatering/lime stabilisation of sludge**
- Class 13. Storage of inert fill for use as on-site cover and capping material**

Fourth Schedule;

- Class 2. Proposed composting**
- Class 10. Spreading of stabilised sewage sludge on land**
- Class 11. Use of inert waste as cover material**
- Class 13. Use of containers for the temporary storage of refrigerators - CFC degassed on-site on a monthly basis prior to on-site disposal- Aluminium cans and glass, batteries, oil and metal are located at the facility for storage on-site prior to collection for recycling**

Activities recommended for licensing:

It is recommended that all the above activities, be licensed subject to the condition contained in the attached Proposed Decision.

(3) Facility Location

Appendix 1 contains a location drawing and a layout drawing showing the significant features of the facility.

Derryclure landfill is located approximately 5 km from Tullamore on the Tullamore to Killeigh road (N80) (Drg. 1). The area is low lying and the landfill is located partially on cutaway peatland with some of the future areas being raised peatlands. The western side of landfill is bounded by pasture land.

The site has east-west drainage pattern which discharges ultimately to the Clodaigh river. The bedrock geology of the area is predominantly Lower Carboniferous Calp limestone which is overlain by a limestone till, some marl and peat which has been extracted for horticultural use by Bord na Mona. The bedrock is considered to be a locally important moderately productive aquifer with moderate to high vulnerability. The nearest sensitive receptor, a private dwelling, is approximately 420 m to the west of the boundary of the landfill. Two other occupied premises lie within 500m of the landfill boundary.

(4) Waste Types and Quantities

Expected life of the facility (in years)	3
Maximum Annual Tonnage	40,000

(5) Activity Summary

It is intended to continue landfilling of waste within the current area (Phase I) for the next 3 years. Only domestic, commercial, sewage sludge, construction and demolition, and industrial non-hazardous waste will be accepted at the landfill. The Phase I area of the landfill will be restored to a profile which is sensitively sloped and re-vegetated in order to minimise the visual intrusion of the development. There is no lining nor leachate collection system in operation at the site. Waste is currently being deposited directly onto peat which provides an element of attenuation and some restriction of lateral and vertical movement of leachate.

The application included a conceptual design proposal for cells adjacent to the current area of activity. However, I consider that the presence of a considerable depth of peat (approximately 4 m) raises significant questions as to the practicality of this proposal. Such development is excluded from the scope of the Proposed Decision (PD) and landfilling is to be restricted to that outlined in green in attached drawing (Drg. 2). Any landfilling outside this area would, in advance, be subject to a licence review and possibly an EIS.

Facilities for the storage of recyclables such as aluminium cans, batteries, oil, and metal are located at the public tipping area. The applicant is proposes to compost wastes at the facility (*Condition 5.15*). They also have proposed to stabilise sewage sludge which will then be spread on land (*Condition 5.14*). *Condition 5.16* requires proposals for the separation of the recyclable fraction from co-mingled wastes.

(6) Facility Operation/Management

- **Waste Acceptance Procedures**

Conditions 5.1 and 5.2 restrict the waste types to be disposed of at the facility to non-hazardous domestic, commercial, construction and demolition, industrial and sewage sludges. Hazardous, liquid, and industrial non-hazardous sludges are prohibited. All waste loads must be accompanied by a prepaid ticket which are available from Offaly County Council and local shopping outlets.. *Condition 5.5* requires the licensee to inspect the waste at the active tipping face, unless otherwise agreed in advance with the Agency. A record of all inspections shall be maintained.

- **Waste Handling**

Commercial and household delivery vehicles are weighed at the weighbridge and are directed to the active disposal area. Private cars are directed to the public tipping

area and sewage sludge tankers are directed to the sewage disposal area. *Condition 4.12* requires that details of the storage of fridges on site and procedures for the degassing of CFC's from these fridges be submitted to the Agency for its agreement. A recycling area is maintained on-site for the storage of aluminium cans, glass, oil, batteries and metal prior to collection for recycling.

- **Nuisance Control**

Potential nuisances are controlled by *Condition 6 Environmental Nuisances*. The use of daily cover, as required by *Condition 5.11*, minimises potential odour nuisance, the attraction for birds and vermin, nuisance caused by insects and litter problems. Vermin will also be controlled by appropriate baiting as set out in Attachment F7 of the application. Landfill gas and the odours associated with it will be controlled by *Condition 4.19* which requires proposals for utilisation of landfill gas and for the active collection and flaring of the gas for agreement of the Agency. Traffic using the site will use the wheel-wash to prevent the tracking of any materials onto the public road and daily inspection of the public highway shall be undertaken as outlined in Attachment F.5. Scavenging is not allowed at the facility and is prohibited by *Condition 5.8*.

- **Hours for Waste Acceptance**

Monday to Friday 8.00 to 17.45 inclusive; Saturdays 8.30 to 17.00 (March to October) and Monday to Saturday 8.30 to 17.00 inclusive (November to February) and excluding Bank Holidays. Any changes in these hours are subject to the prior written agreement of the Agency.

(7) Facility Design

- **Infrastructure;**

The boundary of the facility is delineated by perimeter drains and a two metre high fencing along the western boundary and a gate at the entrance road. Within the landfill there is an internal road which provides access to the active tipping area and a separate road to the car tipping area (Drg 2.). The main infrastructure within the facility includes a car park (5 spaces), offices, bottle bank, fridge container, equipment storage, weighbridge and a wheelwash. The provision of this infrastructure, and its maintenance is required by *Condition 4 Site Infrastructure*.

- **Liner System;**

In Phase I of the development there is no lining system in place with waste being deposited directly on cutaway peat. The peat provides some attenuation and retardation of lateral and vertical flow due to its low permeability. Any development outside the area where there has not been historic landfilling of waste is prohibited under the PD.

- **Leachate Management;**

Condition 4.18 require the applicant to assess and make proposals for leachate management for the protection of surface waters and groundwater including timescale, objectives and targets relating to discharges within a time period of six months.

- **Landfill Gas Management;**

Landfill gas is monitored on a monthly basis at 6 monitoring points which are located within the waste area and at the boundary between the waste area and the nearest dwelling. *Conditions 4.19.1 and 4.19.2* require the applicant to assess and make proposals for the flaring and utilisation of landfill gas within six and twelve months respectively. *Condition 9.2* requires that permanent gas monitoring be carried out in the site office.

- **Capping System;**

The proposed final cap is as follows;

- 100 mm regulation layer
- 100mm gas collection layer
- 400 mm low permeability layer
- 400 mm topsoil

Condition 5.11 requires daily capping to minimise nuisances.

(8) Restoration and Aftercare

It is proposed to revegetate the facility with an outer band of mixed conifer and deciduous trees which will provide a screen for future developments. The other sections will be grassed with perennial rye species. The final profile of the facility, its restoration and aftercare are controlled by *Condition 8 Restoration and Aftercare*.

(9) Hydrogeology

A hydrogeological investigation was carried out at the facility. Four boreholes were drilled upgradient, four downgradient and three cross gradient with the remainder within the facility itself. A detailed geophysical survey was also carried out to determine the lateral extent of the peat and subsoil layers beneath the waste.

The facility is underlain directly by a thin peat layer which ranges from approximately 1 to 5m in thickness. Beneath the peat is a gravelly silty clay layer which ranges from 10 to 40m thick. The Calp bedrock was encountered in MW-08B at 15m below ground level at the northern end of the facility. The Calp has been classified as being a locally

important aquifer and the type and thickness of the overlying subsoils classify the vulnerability as being high to moderate.

Waste is currently being placed directly onto peat which provides some attenuation of the leachate. The peat itself is predominantly made up of water which is an essential part of the peat structure as it is bound physically, chemically, colloiddally and osmotically. Due to all these factors only a small amount of the water is mobile. The monitoring boreholes, with the exception of MW-08B, all relate to the gravelly silty layer.

The monitoring results indicate that in general the groundwater quality is good. However, in all monitoring wells including the upgradient ones there are elevated levels of ammonia and in the case of MW-03S (6.1 mg/l), MW-04S (15.4 mg/l), MW-06S (13.2 mg/l) and MW-06D (12.4 mg/l) they are significantly higher than the MAC of 0.23 mg/l for drinking water. The two MW-06 wells are located upgradient of the current landfill operation but are in close proximity to the surface water drainage. Even MW-07S which is located away from the landfill area and the drainage system has elevated ammonia levels (3.8 mg/l). The applicant indicates that some of the high levels of ammonia are related to the possible conversion of complex organic compounds to ammonium and ammonia. As there are exceedances in the background monitoring wells the landfill cannot be the sole contributor of ammonia in the area.

Aside from the ammonia, the analytical results indicate elevated levels of barium above the MAC for upgradient and downgradient wells which may be due to the presence of barytes in the limestones. Manganese is elevated above the MAC for drinking waters in nine of the monitoring wells which includes upgradient and downgradient wells.

Iron is slightly elevated in MW-01D and MW-03S, while MW-03S and MW-04S have elevated potassium levels. These two wells are located within the waste area of the facility.

The results do not indicate a breach of the relevant standards. The analysis indicates that there is some localised contamination beneath the facility but that it does not appear to be moving off site. This may be due to the slow movement of water in the peat layer and its attenuating capacity. *Conditions 4.21 and 4.22* require proposals for groundwater and surface water management which will maintain the quality of the water in the vicinity of the landfill. Groundwater monitoring is required by *Condition 9.1*.

(10) Emissions to Air

Emissions to air include landfill gas and dust. Landfill gas monitoring has been carried out initially at 6 points around the site with an additional 6 monitoring points being added as part of the EIS. These are located outside the landfill site and will be used to monitor potential migration of landfill gas as required by *Condition 9.1* Dust monitoring was carried out at 6 points around the site with only location DM03 exceeding the dust deposition limit value of 350mg/m³. This is located in close proximity to the active face. Visual evidence also shows accumulation of fine peat particle which may be attributed to the peatland areas. The wind direction is generally

south westerly and the nearest receptors are therefore down wind of the site itself. *Condition 7.1* sets emission limits for landfill gas detected in buildings and for dust deposition. *Condition 7.5* sets trigger levels for landfill gas detected on or in the immediate vicinity of the facility. Landfill gas management is required by *Condition 4.19*. Dust control is required by *Condition 6.7 and 6.8*. Dust and landfill gas monitoring requirements are established under *Condition 9.1*. *Condition 10.7* requires further action, including investigations and remedial action to be taken if trigger levels or emission limits are exceeded.

(11) Noise Emissions

Two noise sources were identified on site (bulldozer and refuse trucks). Noise monitoring was carried out at four points at the boundary of the site (N1, N2, N3, N4) and at N5 (a distance of 280m from the boundary of the site) which is located between the nearest noise sensitive location (420m from the site) and the site boundary. The noise monitoring results taken during operational hours at location N5 is 54.2 $L_{eq}dB(A)$ (30 mins) are below the proposed emission limit values. The results at the same location after the close of business is 53.4 $L_{eq}dB(A)$ (30 mins) which is attributed to the road.

Noise emission limits are established by *Condition 7.1*. *Condition 7.4* requires that there shall be no clearly audible tonal component in noise emissions from the facility. Noise monitoring is required by *Condition 9.1*.

(12) Emissions to Sewer

There are no direct emissions to sewer. A septic tank, referred to by the applicant as a sewage treatment works, treats sewage arising on the facility.

(13) Emissions to Surface Water

Surface water movement is in a westerly direction towards the River Clodiagh which is considered to be an important salmonid river by the Shannon Fisheries Board. Seventeen locations within and outside the facility were sampled prior to submission of the application. Additional monitoring was carried out at seven locations as part of the EIS which was submitted in November 1998. This monitoring was focused on assessing the potential impact (chemical, biological and flow) on Charleville lake and ultimately the River Clodiagh. An assessment of the on-site sampling results indicate that the water in the drainage system within the site is significantly contaminated. The drainage system consists of shallow drains cut into the peat. A further study undertaken as part of the EIS indicates that the results at SW 1 (which is 20m downgradient of the confluence of all surface water draining from the site) indicates contamination and a biotic index of 2 (seriously polluted) (Drg. 1). However, the quality of the surface water at (SW5) (4.5 km downgradient of the landfill) is good with only nitrite exceeding the standard for salmonid waters. It also has a biotic index

of 3 (moderately polluted) which shows an improvement in quality. The water quality at SW5 is representative of the final stage of the stream originating from the landfill surface waters before it joins the River Clodiagh. The biotic index for the Clodiagh River itself shows that there is no deterioration in the biological quality of the Clodiagh River between the upgradient monitoring point (SW6) and downstream of the confluence with the stream (SW7). There is also no significant difference in chemical quality between these two locations

Condition 4.18 requires that a leachate management plan be submitted to the Agency within six months of date of grant of this licence which will provide for the protection of surface waters. *Condition 4.22* requires that a management plan for the control of surface water be submitted to the Agency. These two conditions provide for the future protection of the surface water in the vicinity of the site

(14) Other Significant Environmental Impacts of the Development

None.

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

No relevant waste management or air quality plans exist. The requirements of the Water Quality Management Plan for the Lower Shannon Catchment have been considered in the evaluation of this licence application.

(16) Submissions/Complaints

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 shows how these issues are dealt with in the proposed decision.

16.1 Summary of submissions

One submission was received from Maeve O'Callaghan dated 18th May 1999 on behalf of *Dúchas*: National Monuments and Historic Properties Section.

The submission concerned one issue relating to the archaeology of the site. They have submitted a report outlining requirements which the Agency should consider if granting a licence.

In general, they recommend that an archaeological consultant should be appointed to the project team and that prior to commencement of the development an intensive survey of the existing drains be carried out. In addition, they recommend that an archaeological monitoring programme be put in place for all peat removal and provision to be made for the excavation and conservation of such artefacts in the event

that archaeological material is found. *Condition 9.12* of the PD provides for the implementation of the above recommendations.

Signed: _____
Margaret Keegan

Dated: _____

APPENDIX 1

1. LOCATION DRAWING

2. LAYOUT DRAWING

APPENDIX 2

SUBMISSIONS