

INSPECTORS REPORT

WASTE LICENCE REGISTER NUMBER 62-1

(1) Summary:

This application relates to an existing landfill facility for the disposal of household, commercial, and construction/demolition wastes.

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| Name of Applicant | Donegal County Council |
| Facility Name (s) | Churchtown Landfill |
| Facility Address | Churchtown Landfill, Churchtown, Lifford, Co. Donegal |
| Description of Principal Activity | Landfill |
| Quantity of waste (tpa) | 11,000t/a (inert waste) |
| Environmental Impact Statement Required | No |
| Number of Submissions Received | None |
| 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) (ii) | 23/4/99 | 9/6/99 | 17/6/99 |
| | 5/10/99 | | 20/10/99 |
| Article 14 (2) (a) | 27/10/99 | Not applicable | Not applicable |
| Article 16 | 23/4/99 | 9/6/99 | 17/6/99 |
| Article 17(1) | 9/7/99 | Not applicable | 9/8/99 |

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| Applicant Address | Donegal County Council, County House, Lifford. |
| Planning Authority | Donegal County 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 October 1998. |
| Date Application received: | 30 th September 1998. |

FACILITY VISITS:

| DATE | PURPOSE | PERSONNEL | OBSERVATIONS |
|-------------|----------------------------------|---------------------|-------------------------------------|
| 28/10/98 | Check site notice and site visit | Dr. Duncan Laurence | Site Notice complies with Article 8 |
| 13/4/99 | Site Visit | Peter Carey | Observe site surrounds |
| 1/9/99 | Site Visit | Peter Carey | Inspect site and surrounds |
| 30/11/99 | Site Visit | Peter Carey | Inspect site and surrounds |

(2) Activity Summary

Churchtown landfill has been operational since 1987 (an existing facility). The landfill is located in a rural area. Wastes accepted at the facility are household, commercial and construction/demolition wastes. It is an unlined site and is operated on the principle of dilution and dispersion of the leachate generated. Appendix 2 contains copies of photographs taken at the site.

The facility is situated on the flood plains of the River Finn which is a designated Salmonid Waters under the European Communities (Quality of Salmonid Waters) Regulations, 1988 (S.I. No. 293 of 1988). The River Finn delineates the boundary between the North of Ireland and the Republic of Ireland. The facility has no infrastructure to facilitate leachate collection, treatment or landfill gas management. Adjacent land drains discharge leachate and contaminated water into the River Finn. Monitoring results indicate elevated chemical parameters (e.g. BOD, ammonia) for samples taken from these drains. Surface water monitoring results submitted as part of the application do not indicate a deterioration in water quality in the River Finn downstream of the landfill.

The flood plain, including the landfill area, was flooded during October 1998. The Agency wrote to Donegal County Council following this, expressing concern that cell

construction was occurring in a manner which appeared to lack appropriate engineering to ensure containment of leachate. In April 1999 I observed waste being tipped into a cell containing water, a pipe was used to convey the leachate from the cell to an adjacent land drain.

The landfill overlies an aquifer, comprising of fluvio-glacial outwash deposits, which is considered locally important. The water table is situated at or slightly above the adjacent ground surface. The waste is in hydraulic continuity with the groundwater. There is evidence that the groundwater in the vicinity of the landfill is polluted as a result of the disposal activities and List 1/II substances have been detected in the groundwater. No measures are in place to prevent leachate entering the groundwater and in the absence of such measures there is the likelihood of further groundwater pollution.

The applicant proposes to operate the landfill facility for a further 5 to 6 years before closure. After closure the applicant intends to return the area to agricultural land.

The Proposed Decision (PD) recommends that only a limited quantity of inert waste be disposed of at the facility. The PD requires the applicant to cease the deposit of non-hazardous waste (other than inert waste) by landfilling at the facility on grant of the licence, and prohibits the recirculation of leachate. I consider that the carrying on of these activities would not comply with the requirements of Section 40(4) of the Waste Management Act, 1996. In coming to this conclusion I have had regard to the following matters:

- the requirements of the Groundwater Directive (80/68/EEC);
- evidence of existing groundwater pollution and the likelihood of further pollution;
- the vulnerability of the underlying aquifer and the River Finn to pollution;
- the likelihood of deterioration in water quality in the River Finn, a designated Salmonid Water;
- the unsuitability of the site for the continued landfilling of waste other than inert waste;
- the lack of leachate control measures; and
- the absence of a commitment to upgrade the facility to meet BATNEEC standards.

The waste activity, i.e. deposit of inert waste, set out in this PD by itself should satisfy the requirements of S40(4) of the Waste Management Act, 1996. However, the facility may cause environmental pollution since the site is located in a flood plain and the existing waste is in hydraulic continuity with groundwater.

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| (3) Class/Classes of Activity |
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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).

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| 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). | |
| 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. | X | 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. | | 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, | |
| 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. | |
| 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. | |

Class description. The applicant described the classes as follows.

Third Schedule:

Class 1: This is the principal activity on site and refers to the landfilling of waste at Churchtown.

Class 2: This relates to the proposed re-circulation of leachate on the site.

Class 4: This relates to the storage of leachate in the proposed sump at Churchtown.

Class 13: This activity refers to materials stored for recovery or recycling but ultimately landfilled due to lack of markets, contamination, etc.

Activities recommended for licensing:

It is recommended that all the above activities, except for *Class 2* of the Third Schedule *Land treatment, including biodegradation of liquid or sludge discards in soils*, be licensed

subject to the restrictions and conditions contained in the attached Proposed Decision. The Proposed Decision prohibits the carrying on of the Class 2 waste activity because such an activity would not comply with the requirements of Section 40(4) of the Waste Management Act, 1996. Class 4 of the Third Schedule has been licensed to provide the licensee scope in their proposal for the development of a leachate management system. Class 13 of the Third Schedule has been licensed to provide the licensee scope to temporarily store waste.

(4) Facility Location

Appendix 1 contains a site location map.

Churchtown Landfill occupies an area of approximately 9.7 hectares in the townland of Churchtown, near Lifford County Donegal. It is sited some 3km south west of Lifford and is situated immediately to the east of the N15, the main Lifford to Ballybofey Road. The landfill is located in a rural area. The site is accessed from the northern boundary of the site. The western and eastern boundaries around the site are primarily agricultural in nature.

A factory is located across the road from the landfill. Fourteen dwelling houses are located within 500m of the facility, four of which are located across the River Finn in Northern Ireland.

(5) Waste Types and Quantities

The total quantities and types of wastes accepted at the facility are shown below.

| YEAR | NON-HAZARDOUS WASTE (tpa) | HAZARDOUS WASTE (tpa) | TOTAL QUANTITY OF WASTE (tpa) |
|-------------|----------------------------------|------------------------------|--------------------------------------|
| 1996 | 12,600 | Not Applicable | 12,600 |
| 1997 | 9,000 | Not Applicable | 9,000 |
| 1998 | 11,000 | Not Applicable | 11,000 |
| 1999 | Not available | Not Applicable | Not available |

The applicant has sought a licence to accept 55,000 tonnes of waste prior to closure.

(6) Facility Operation/Management

- **Waste Acceptance / Handling Procedures**

The amount of inert waste to be deposited is limited by *Condition 8.1* to the amount required to bring the landfill to a level suitable for the capping and the restoration of the facility. *Condition 5.3* requires that procedures for waste acceptance are submitted to the Agency for agreement. All waste entering and leaving the facility must be recorded (*Condition 3.11*).

- **Nuisance Control**

Potential nuisances are controlled by *Condition 6 Environmental Nuisances*. *Condition 6.1* requires that weekly inspections are carried out and recorded. *Condition 4.15.1* requires that within three months all previously deposited waste must be covered by a temporary cover layer of at least 300mm. Within 3 months the licensee must have carried out a clean up of the general environs in the vicinity of the facility (*Condition 6.4*). Scavenging is not allowed at the facility and is prohibited by *Condition 5.6*.

- **Hours for Waste Acceptance**

Monday to Friday 08:30 to 17:00 inclusive and Saturdays 09:00 to 13:00 as sought by the applicant. Any changes in these hours are subject to the prior written agreement of the Agency.

(7) Facility Design

- **Infrastructure;**

The northern boundary of the facility is fenced with hedgerows/evergreen trees and a gate. The western and eastern boundaries consist of hedgerows which are in places reinforced by post and wire fencing. The site is bounded to the south by the River Finn. *Condition 4.3* requires a review of fencing around the facility and that all defects in the existing fencing are rectified. There is a site office (portacabin) at the facility.

- **Leachate Management;**

The site is unlined and the applicant has not proposed to carry out any future lining works. There are no technical precautions to prevent discharge of leachate to groundwater. The applicant proposes to continue operating the landfill on the principle of dilution and dispersal of the leachate and intends to minimise leachate generation by progressive capping.

The facility has no infrastructure to facilitate leachate collection, or treatment. Adjacent land drains and drainage pipes are used to convey leachate to the River Finn. Monitoring results indicate elevated chemical parameters (e.g. BOD, ammonia) for samples taken from the drains which drain to the River Finn. The waste is in hydraulic continuity with the groundwater and List I/II substances have been detected in the groundwater.

Results of samples taken at this site in 1996 showed that VOC's were detected (predominantly biphenyl and biphenyl oxide). The Agency took samples, of leachate and surface water, at this landfill on the 6th August 1997 from which both Biphenyl and Biphenyl ether were also detected. The Agency informed Donegal County Council of their findings in a letter dated 16th October 1997 and requested that Donegal County Council forward their plans for mitigating leachate discharges. Donegal County Council informed the Agency in their reply dated 12th November 1997 that their '*five year plan proposes puraflo treatment at this landfill (before 1999)*'. Toxicological surveys have also indicated problems with the leachate in terms of its effects on test organisms.

Condition 9.1 requires leachate monitoring. *Condition 4.12* requires the applicant to submit proposals for a leachate management system. The Proposed Decision also requires that the applicant submit proposals for the installation of a cap over the entire facility in order to limit leachate generation (*Condition 4.15.2*).

- **Landfill Gas Management;**

Landfill gas extraction or flaring is not carried out at the facility. Landfill gas is presently allowed to vent to atmosphere in an uncontrolled manner. *Condition 4.14* requires that a proposal for the installation of a gas recovery or flaring system be submitted to the Agency within six months.

- **Capping System;**

Condition 4.15.2 specifies that a proposal must be submitted for a capping system for the facility.

(8) Restoration and Aftercare

Condition 8.1 requires the applicant to submit a plan to the Agency for its agreement on restoration and aftercare.

(9) Hydrogeology

Four boreholes have been drilled at the facility, three (BH1 - BH3) of which go through waste. Standpipes are nested in these boreholes to allow sampling of the waste zone (i.e. leachate) and underlying strata. *Condition 4.11* requires monitoring boreholes to be installed up-gradient and down-gradient of the landfill.

The groundwater resource may be regarded as locally important with the aquifer comprising fluvio-glacial outwash deposits. Overburden appears to be at least 10m over bedrock. Drift deposits overlying the fluvio-glacial outwash deposits are generally thin (<1m) or absent and have been excavated under the landfill for bund construction. Groundwater flow is inclined under a shallow gradient towards the River Finn which represents the ultimate receptor for baseflow discharge. The waste is in hydraulic continuity with the groundwater and downward migration of contaminants

has locally impacted on groundwater quality. List I/II substances (monophenol, phosphorous, ammonia and nitrites, chromium, boron) have been found in the groundwater. Since the waste is in hydraulic continuity with the groundwater these may be regarded as direct discharges of List I/II substances to groundwater. Hence, this does not meet requirements of Council Directive on the protection of groundwater against pollution caused by certain dangerous substances(80/68/EEC). The PD therefore restricts waste disposal to inert waste only.

Proposals for the remediation of the existing groundwater contamination are required under *Condition 4.12*. Groundwater monitoring is required by *Condition 9.1*. *Condition 9.4* requires the applicant to submit proposals for the inclusion of any private well within 500m of the facility in the monitoring programme. *Schedule F (Tables F.4.2 and F.4.4)* specifies the groundwater analysis required.

(10) Emissions to Air

Emissions to air include landfill gas, odours and dust. Potential future emissions include the combustion products of landfill gas. *Condition 7.1* sets emission limits for landfill gas detected in buildings. *Condition 7.4* sets trigger levels for landfill gas detected on or in the immediate vicinity of the facility. Landfill gas monitoring requirements are set out in *Condition 9.1*.

Dust monitoring is required through *Condition 9.1*. *Condition 7.1* sets an emission limit for dust at the facility boundary.

(11) Noise Emissions

There are two main sources of noise at the facility (1) site machinery and (2) vehicles depositing waste. Noise monitoring was carried out at three noise sensitive locations, of which the nearest is 50m from the site entrance, during normal working hours at which there was no discernible site noise. Noise emission limits are established by *Condition 7.1*. Noise monitoring of the facility is required by *Condition 9.1*

(12) Emissions to Sewer

There are no emissions to sewer.

(13) Emissions to Surface Water

Land drains are used to convey leachate from the landfill to the River Finn. Results of water quality in a land drain have shown elevated levels for BOD (144mg/l), ammonia (70.1mg/l) and nitrite (0.188mg/l). Monitoring results (limited number of parameters reported on) for the River Finn, submitted as part of the application, show an increase

in certain parameters downstream of the landfill from that recorded upstream. However, the quality is still within the Salmonid water standards (SI No. 293 of 1988).

Condition 9.1 requires surface water monitoring. *Condition 9.3* requires an annual biological survey of the River Finn.

(14) Other Significant Environmental Impacts of the Development

None.

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

No relevant Waste Management Plan exists. No details were provided on Air Quality and Water Quality Plans, however, reference was made to the Foyle Water Quality Management Strategy Targets, this strategy has not yet been adopted as a plan.

(16) Submissions/Complaints

No submissions were received within the period specified in the waste licensing regulations. However, a letter was received on 9th August 1999 from the Environmental and Heritage Service, Department of Ireland, Northern Ireland in response to the Article 17 Notice dated 9th July 1999. They stated that proposals for the implementation of an Environmental Management Plan and for the restoration and closure of the site are noted and that they had no other comment on the application.

Signed: _____

Dated: _____

Peter Carey
Inspector, Environmental Management & Planning

APPENDIX 1

SITE LOCATION DRAWING

APPENDIX 2

Sample Photographs taken during Site Visits