

INSPECTORS REPORT
WASTE LICENCE REGISTER NUMBER W028

(1) Summary:

Name of Applicant	Westmeath County Council
Facility Name(s)	Ballydonagh Landfill Site
Facility Address	Dublin Road, Athlone, Co. Westmeath
Description of Principal Activity	Specially engineered landfill, including separately lined cells which are capped and isolated from each other and the environment
Quantity of waste (tpa)	Up to 40,000 tpa
Environmental Impact Statement (EIS) Required	Yes
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) (i)			
Article 14 (2) (b) (ii)	09/04/98 05/06/98		12/05/98 06/07/98
Article 14 (2) (a)	08/10/98		
Article 16	27/10/98		27/11/98

Applicant Address	County Buildings, Mullingar, Co. Westmeath
Planning Permission Status and Date Granted (if appropriate)	Compliance with Article 10 of the Local Government (Planning and Development) Regulations.
Planning Authority	Westmeath Co. Co.
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.
For Certified Sites, Have Matters in the EIS relating to environmental pollution been considered as required by Article 21 of SI 133 of 1997	Not Applicable
Location of Certificate in Application	Not Applicable
Confidential Information Submitted	No
Location of Planning Documents in Application	Attachment B.4
Location of EIS in Application	As reply to Article 14(2)(b)(ii) notice of 5 th June 1998.

FACILITY VISITS:

DATE	PURPOSE	PERSONNEL	OBSERVATIONS
15/05/98	To inspect site notice and site visit	S.Duffy	In compliance with Art 8 of S.I.133 of 1997 as amended by S.I. 162 of 1998
20/07/98	To inspect site notice (including reference to EIS) and site visit	S. Duffy D. Howley	In compliance with Art 8 of S.I 133 of 1997 as amended by S.I. 162 of 1998

(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).

Waste Management Act, 1996			
THIRD SCHEDULE Waste Disposal Activities		FOURTH SCHEDULE Waste Recovery Activities	
1. Deposit on, in or under land (including landfill).	X	1. Solvent reclamation or regeneration.	
2. Land treatment, including biodegradation of liquid or sludge discards in soils.		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.	X
4. Surface impoundment, including placement of liquid or sludge discards into pits, ponds or lagoons.	X	4. Recycling or reclamation of other inorganic materials.	X
5. Specially engineered landfill, including placement into lined discrete cells which are capped and isolated from one another and the environment.	P	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 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 (including evaporation, drying and calcination).		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.	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 a preceding paragraph of 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:

Third Schedule:

The following descriptions of the activities proposed have been provided by the applicant.

Class 5: Principle Activity:

The deposit of waste into the cells in Phases I and II fall into this class. There is a combined total of 6 cells, each lined with a double liner.

Class 1:

The landfilling of waste in the lined cells.

Class 4:

Leachate stored in a lined underground holding tank and/or tanker on a temporary basis.

Class 13:

The existing facilities for deposit of waste delivered to site by private vehicles consist of skips and large containers into which the public can place their waste. The skips are then hauled to the active cell where the waste will be landfilled.

Fourth Schedule:

Class 2:

The receipt of green waste such as Christmas trees, paper and cardboard for recovery by an outside contractor, the composting of green yard wastes and recovery of leachate.

Class 3:

The collection and receipt of metal containers, scrap cars and white goods and the storage of same for recovery by a contractor.

Class 4:

The collection and receipt of glass, plastic containers etc. for recovery by a contractor.

Class 11:

The use of compost for soil enhancement.

Class 13:

The storage of all materials in the civic waste facility area.

(3) Facility Location

Appendix 1 contains a Site Location Map.

The facility is located 7 km east of Athlone town adjacent to the N6 Primary National Route from Galway to Dublin. The area is rural and there are 17 dwellings within a 500m radius of the site, 10 of which have wells. The immediate area around the site is mainly grassland with some grazing and the site is screened by a conifer plantation.

(4) Waste Types and Quantities

Total quantities and types of wastes accepted by the facility are shown below. See Table B.11.1 of application.

YEAR	NON-HAZARDOUS WASTE (tpa)	HAZARDOUS WASTE ^{note 1} (tpa)	TOTAL ANNUAL QUANTITY OF WASTE (tpa)
1997	19,000	minor quantities	19,000
1998	19,500	minor quantities	19,500
1999	28,500	—————	28,500

note 1: Condition 5.1 of the Proposed Decision (PD) prohibits the deposit of hazardous waste in the landfill.

The total quantities of waste deposited at the facility and the amount to be deposited prior to closure are shown below.

	NON-HAZARDOUS WASTE (tonnes)	HAZARDOUS WASTE (tonnes)	TOTALS (tonnes)
Already deposited	100,000	minor quantities	100,000
To be deposited	300,000	—————	300,000

The expected life of the facility and the expected maximum annual tonnage are indicated below.

Expected Life of Facility (years)	7.5
Maximum Annual Tonnage (tpa)	38,500

(5) Activity Summary

Non-hazardous waste is disposed of at the facility consisting mostly of household waste and commercial waste. There is a weighbridge and wheelwash in operation with a control hut and canteen for the operatives on site. There is a septic tank on site and the water supply on site is abstracted from an on-site borehole. Operatives bring water to the site for drinking. Leachate is transported off site to the Municipal Treatment Plant in Athlone. Gas is controlled by means of a gas flare. Birds are controlled by means of a bird scarer. Vermin are controlled by the placing of bait around the site. The civic waste facility at present consists of a skip into which the public can deposit waste. The skip is then brought to the working face of the operational cell. A public facility for tipping has been built but is not yet commissioned. The proposed civic amenity area containing recycling facilities is not yet in place. Waste oils and white goods (fridges etc.) will be accepted at this facility (see Conditions 4.9 and 4.10)

(6) Facility Operation/Management

• Waste Handling

Municipal, commercial and industrial wastes are accepted at the site in addition to sewage and industrial sludges. Vehicles bringing the waste to the site are weighed at the weighbridge and the waste is brought to the working face of the operational cell for disposal. Cells 3 and 4 are currently operational, see Appendix 2. Phase I consisted of cells 1 and 2 which are now closed and partially restored. Phase II consists of cells 3, 4, 5 and 6, all of which have been lined to receive waste.

• Waste Acceptance Procedures

The wastes types, annual averages and maxima to be deposited are listed below:

WASTE TYPE	TONNES PER ANNUM
Household	Average 11,000 Maximum 22,000
Commercial	Average 6,000 Maximum 12,000
Sewage Sludge	Average 666 Maximum 1,333
Construction and Demolition	Average 1,800 Maximum 3,600
Industrial Non-Hazardous Liquids	Average 333 Maximum 666
Industrial Non-Hazardous Sludges	Average 500 Maximum 1,000
Industrial Non-Hazardous Solids	Average 1,200 Maximum 2,400

Condition 5.11 and 5.12 require proposals to be submitted for the treatment of sewage sludge and the recovery of construction and demolition waste.

• Nuisance Control

Nuisances to be controlled at the landfill site are as follows:

a) Birds

There are two types of bird scarers in operation at the landfill. The first, which is used most often, is a gas-operated cannon which can be timed to let off a shot at regular pre-set intervals (e.g. every 90 seconds). It is mobile and its location is varied depending on where the working face of the landfill is at any one time. It seems to be effective. However, there is a problem with the noise emission from the scarer as shown in Table 11.1 of this report. Condition 6.10 provides for the control of birds as a nuisance.

The second type of scarer used at this site is a manually operated banger which is for use when the gas cannon is not operating and this is operated at the discretion of the site manager.

On occasion a specialist is employed to shoot a number of birds. This is a supervised activity to ensure that protected species are not damaged.

b) Fire

Measures to avoid fire at the site include the prohibition of the burning of waste on the site and the use of compactors which reduces the possibility of spontaneous combustion within the waste. There is a fire fighting main which is charged from a static fire fighting tank of volume 91 m³.

c) Litter

Temporary litter screen fencing (4.5m high) is erected around the area of active landfilling to contain any uncovered litter. The active area is to be covered on a daily basis (see Condition 5.10). There is a 2.4m chain link security fence around the site boundary which should catch any litter not otherwise caught. Routine litter patrols are conducted and Westmeath Co. Co. have undertaken to ensure that all vehicles entering the site will remain covered prior to tipping of the waste.

d) Odour

The primary sources of odour at the site are gases generated by the decomposition of the waste and malodorous materials received from time to time which are buried. There are three gas collection pipes currently directing the gas from Phase I to the gas flare for combustion. New gas pipes will be extended into Phase II under Specified Engineering Works (see Condition 4.16.2). The active cell is to be covered daily by soil which helps to contain odours (see Condition 5.10).

e) Roads

The road accessing the active tipping face is to be kept clear and clean (see Condition 4.4.1). The wheelwash at the landfill site is used by all vehicles upon leaving the facility (see Condition 4.12).

f) Traffic

The site is accessed directly by the N6 National Primary Road.

g) Vermin

Weekly and monthly baiting is carried out on the site and to date there have been no reports of any vermin problems.

- **Hours of Operation**

Monday to Friday 8.30am to 4.30pm and Saturday 10.00am to 3.00pm unless otherwise agreed with the Agency (see Condition 5.8).

(7) Facility Design

- **Infrastructure**

a) Site security

There are security gates at the entrance to the site. The site is 19.43 hectares in area. It is bordered by hedges along the east-west boundary and fenced around the rest of the site with a post and wire fence. The operational area is secured by a 2.4m high post and wire fence with 3 strands of barbed wire at the top.

b) Site roads

Access to the site is gained via a tar sprayed and chipped surfaced roadway. Inside the security gates, the public areas are paved in a reinforced 200mm thick concrete slab which is laid to ensure good drainage. The access roads to the cells and the haul roads are constructed with hard-core filling and surfaced with a layer of crushed stone. Access to the cells over the installed liner is achieved across approximately 600mm of rock material over two protective geotextile layers. The overall depth over the liner is 1.8 to 2m at the base of the cell and > 0.5m at the entrance to the cell.

c) Design of hard-standing areas

All hardstanding areas are specified as follows: 200mm thick Grade C30 concrete laid on 200mm of hard-core blended with 50mm of sand.

d) Weighbridge

There are plans to update the weighbridge which will fall under Condition 4.16.2 Specified Engineering Works.

e) Wheelwash

The wheel wash on site was completed during the construction of Phase I of the landfill and is constructed from reinforced concrete. The water supplying the wheelwash is obtained from an on-site borehole and is drawn by means of a submersible pump via a pressured main. The wastewater from the wheelwash is directed to the leachate collection chamber by means of a HDPE sewer from an overflow pipe located at the wheelwash. The wheelwash and sumps are cleared out from time to time and the resulting silt is landfilled.

f) Laboratory facilities

There are no laboratory facilities on site.

g) Fuel storage

There is a small container on the site for the storage of the following fuels: diesel (3 no.23 litre drums), oil (23 litres), transmission fluid (25 litres) , rat poison (9 kg) and insecticide (1 litre). A contractor comes on site to refuel the compactor when required which could be up to five times a week. The area containing the fuel is not bunded. Condition 4.15 requires a bunded fuel storage area to be constructed.

h) Waste quarantine

At present, the waste quarantine area is a large concrete slab. Condition 4.7 requires the waste quarantine area to be properly marked out and to be located away from the public amenity and tipping areas.

i) Waste inspection areas

Waste is inspected at the entrance to the landfill and at the working face of the operational cell. Condition 5.4 requires that the proper procedures be followed in the examination of waste and Condition 3.1 stipulates the recording of any occurrences.

j) Access

Signs direct all commercial vehicles and HGV's to the weighbridge before depositing the waste at the working face of the landfill and all non-commercial vehicles are similarly directed to the public facilities. It is proposed that a barrier control system using identification cards be introduced to control and record access to the site.

k) Sewerage and surface water drainage infrastructure

There is a septic tank on the site to which sewage from the canteen and toilet in the operators building is directed via a 150mm sewer. Roofs and paved areas drain to road gullies which are connected to the surface water sewer system.

l) Services

The site is serviced as follows:

- i) 3 phase electricity supply
- ii) Telephone line
- iii) Water pumped from an on-site boreholes
- iv) Fire-fighting main, charged from a static fire fighting tank of 91m³. The fire-fighting main is further charged from one of the on-site boreholes.

There is no potable water supply on site and the operators bring drinking water to the site for their own use. Westmeath Co. Co. are considering a connection to the mains water supply.

m) Plant sheds, garages and equipment compound

The only shed on the site is that used for fuel storage.

n) Site accommodation

There are two purpose built buildings on site

- i) site control hut and canteen
- ii) public facility building

The latter is not in use. It is designed to house four skips into which the public can deposit waste. It is proposed that a compactor be put in place and the waste be transported to the working face of the operational cell as required.

o) Civic waste facilities

At present there are no recycling bins on site. There is a public skip for use by the general public. However, the applicant plans to develop a civic waste facility to separate waste materials such as glass, plastic, cardboard, cans and textiles for collection by various contractors.

p) Any other recovery infrastructure

Waste oil will be accepted at the site and held in an oil holding container on the site as provided by Atlas Oil Laboratories Ltd. who will then recover the oil off site (see Condition 4.9).

- **Liner Details**

A double liner using two layers of 2mm thick welded High Density Poly Ethylene (HDPE) sheets was installed at this landfill site. These are separated by a 150mm sand layer in which is a 110mm diameter HDPE leachate detection pipe. The liner is protected by a geotextile material upon which a 350mm stone drainage layer is placed.

- **Leachate Management**

Leachate is extracted from the cells via 200mm diameter slotted HDPE pipe runs. The side slopes of the cells have a drainage layer through which leachate is collected. The collection pipes have been laid out at approximately 20 metre centres extending the full length of each cell and have been laid to a series of collection manholes located externally to the landfill area where the pipes can be inspected. Solid runs (as opposed to slotted) of HDPE pipes are used outside the landfill with sections being butt welded. These pipes were CCTV inspected and pressure tested. The collection manholes are lined. Daily inspections of the leachate tank are undertaken and the level noted. The leachate is tankered to the Municipal Waste Water Treatment Works at Golden Island, Athlone for treatment.

- **Landfill Gas Management**

Within the landfill area there are stone filled trenches that are extended in 2 metre increments as the active cell increases in height. These trenches are located at 20m intervals across the landfill area. Gas extraction wells are drilled and connected to an active venting and flaring system. There is an open automatic gas flare unit on the site. Condition 4.18.1 requires a proposal for upgrading the gas flare to a closed flare: the utilisation of the gas as an energy resource is to be considered under Condition 4.18.2.

- **Capping System**

The specification for the capping layer is as given in the waste licence application as follows:

- 150mm topsoil to be seeded at the rate of 45 Kg/ha on
- 600mm subsoil on
- 700mm of impermeable material on the existing clay bunds.

See Conditions 4.20.

(8) Restoration and Aftercare

There are two phases in the restoration of the landfill. To date Phase I of the site has been partially restored with the eastern part capped and seeded. However, the completion of the restoration of Phase I cannot be achieved until Phase II is ready to be capped as the two phases will be integrated and capped as one dome feature. The area of Phase I where this integration is to take place is poorly capped to date.

Condition 4.20.1 requires that a more satisfactory temporary cap be placed on Phase I until Phase II is ready for closure.

The site is to be restored to pasture land with an amount of landscape planting to be undertaken. The land will not be stocked but will become a habitat for native flora and fauna.

(9) Emissions to Air

Emissions to air include odour, dust and landfill gas.

Odour:

Monitoring of Volatile Organic Compounds and mercaptan and sulphide compounds was carried out on the site on 29/01/98 and 11/02/98 with samples collected at four locations on site and two locations off site (see figure C.1.1 of the application, locations A1 - A6 inclusive).

Most of the VOC concentrations are below the laboratory defined detection limit of 0.01µg. Those VOC's that were compared to 24-hour Occupational Exposure Limit (OEL) which is taken as 1/40 of the 8 hour OEL. In all cases where VOC's were detected, they are of negligible concentrations compared to their respective 24-hour OEL.

Dust:

Total dust emissions measured from 26/01/98 to 23/02/98 were shown to be acceptable with the exception of those measured at D4 where the level was 374 mg/m²/day (relative to 240 mg/m²/day as acceptable). Dust will be controlled under Condition 9.1 of the PD with the emission limit given in Schedule G.

Landfill Gas:

The composition (%V/V) of CH₄, CO₂ and O₂ is monitored regularly at the pipe manifold for the extraction wells. Additionally, ten gas monitoring stations around the perimeter of the site are to be installed within three months of the date of grant of the licence (see Condition 4.18.3) and will be monitored as per Condition 9.

(10) Hydrogeology

The bedrock geology is mainly argillaceous bioclastic limestones. The subsoils geology is mainly glacial outwash deposits and till. The Geological Survey of Ireland has produced an aquifer map for Co. Offaly which extends to within 6 kilometres of the facility. The applicant has extrapolated the bedrock aquifer status of the landfill site at Ballydonagh from this map to be a *poor aquifer*: -i.e. generally unproductive except for local zones. Yields from BH1, BH2 and BH3 confirm this but data is not available for the other boreholes. The glacial outwash deposits may provide a useful groundwater resource and should be classified as a *locally productive aquifer*.

The direction of flow of the groundwater is in a northerly direction and the bedrock and subsoils groundwater flow is hydraulically connected.

There is no evidence of contamination of the groundwater except at BH3. This borehole is located off-site and up gradient in cattle grazing land and the low quality of

water in this borehole is attributed to the ingress of contaminants from cattle poached ground.

Ten domestic wells are located within 500m of the landfill. One of these domestic wells is located down gradient within the zone of influence of the landfill. There have been no reports of pollution at this well. Groundwater monitoring including this domestic well is to be undertaken as specified in Condition 9.4. An alternative supply must be provided if necessary under Condition 4.17.

(11) Noise Emissions

The instantaneous Sound Pressure Level (SPL) from each emission source was measured and the results are shown in Table 11.1 below:

Table 11.1: Sound Pressure Levels

Emission Source	SPL dBA
Bird scarer	105.1
JCB 120 compactor	83.8
Hitachi EX 60 Excavator	89.4
Dustbin lorry	92.5
Skip lorries	83

A total of ten monitoring points will be monitored. Four monitoring locations have been identified around the boundary of the site. Five dwellings have been designated noise sensitive locations (NSLs) at which monitoring will be carried out. The tenth location is adjacent to the N6 National Primary Road and will be monitored for traffic noise.

There is a high level of background noise in the locality from the N6. For this reason no emission limits have been set for noise. Monitoring is to be carried out under Condition 9.1 of the PD.

(11) Emissions to Sewer

There are no emissions to sewer from this site. Leachate is transported from the site to the Waste Water Treatment Plant at Golden Island, Athlone.

(12) Emissions to Surface Waters

The only possible emissions to surface waters from the landfill site are from perimeter rainfall ditches which run south-north along the eastern and western edges of the site. There can be a build up of silt in these ditches. These ditches are connected to a drain which joins the only stream of note in the area. The stream runs virtually parallel with the N6 road. Three surface water monitoring points SW1 to SW3 are located at this

stream. The water quality at the stream was monitored and was found to be good indicating that there is no adverse impact on the stream from the landfill. Monitoring is to be undertaken at this stream on a quarterly basis to ensure that the quality does not decline (see Condition 9.6).

(13) Other Significant Environmental Impacts of the Development

None.

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

The following reports have been drawn up:

- Westmeath County Council, Waste Disposal Plan, 1984
- Westmeath County Council, Special Disposal Plan, 1989
- Westmeath County Council, County Development Plan, 1994

Signed _____

Dated:

Sara Duffy

APPENDIX 1
LOCATION PLAN

APPENDIX 2
SITE LAYOUT