

INSPECTORS REPORT
WASTE LICENCE REGISTER NUMBER W001

(1) Summary:

Name of Applicant	Kerry County Council
Facility Name(s)	North Kerry Landfill
Facility Address	Muingnaminane, Tralee, County Kerry
Description of Principal Activity	Specially engineered landfill
Quantity of waste (tpa)	25,000 -30,500 (maximum 40,000)
Environmental Impact Statement (EIS) Required	No. An EIS was, however, submitted by the applicant to the Minister for the Environment in support of an application for certification for development of the facility, on 31 December 1991.
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)	Not Applicable		
Article 14 (2) (b) (ii)	17 June 1997	14 August 1997	22 September 1997
Article 14 (2) (a)	02 October 1997		
Article 16	21 October 1997		21 November 1997
		06 January 1998	13 January 1998
	23 February 1998		31 March 1998

Applicant Address	County Secretary, Kerry County Council Aras an Chontae, Rathass, Tralee, Co. Kerry
Planning Permission Status and Date Granted (if appropriate)	Not Applicable
Planning Authority	Not Applicable
For Local Authority applicants, is the facility within its own functional area	Yes
Is the facility an existing facility	Yes, the EIS was certified by the Minister for the Environment on the 31 July 1992
Prescribed date for application	Prior to 01 May 1997
Date Application received	30 April 1997
For Certified Sites, Have Matters in the EIS relating to environmental pollution been considered as required by Article 21 of SI 133 of 1997	Yes
Location of Certificate in Application	Volume 1 Attachment B.4
Confidential Information Submitted	None
Location of Planning Documents in Application	Not Applicable
Location of EIS in Application	Volume 1 Section C

SITE VISITS:

DATE	PURPOSE	PERSONNEL	OBSERVATIONS
26/05/'97	Check Site Notice	T.O' Mahony	Site notice not in compliance with Articles 5 and 7
01/08/'97	Check Site Notice	T. O' Mahony	Site notice complied with Articles 5 and 7
10/11/'97	Observe site development work	T. O' Mahony	Liner was being installed by contractors in Phase 3

(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.	X	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.	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 this Schedule.	X	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 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.	X
10. Release of waste into a water body (including a seabed insertion).		10. Spreading of any waste on land with a consequential benefit for an agricultural activity or ecological system, including composting and other biological transformation processes.	X
11. Blending or mixture prior to submission to any activity referred to in this Schedule.	X	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 this Schedule.	X	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:

Third Schedule

Class 1: refers to the deposit of waste in landfill.

Class 2: leachate treatment may in the future to be undertaken at the facility.

Class 4: leachate is stored in a leachate storage lagoon at the facility.

Class 5: is the principal activity and refers to the placement of waste into lined cells.

Class 6: refers to the disposal of waste arising from composting proposals at the site.

Class 7: refers to leachate treatment as in Class 2 above.

Class 11: refers to the disposal of waste arising from the composting proposals as in Class 6 above.

Class 12: refers to the repackaging or baling of material deposited in the civic waste facility which may need to be disposed of.

Class 13: refers to the storage of materials deposited in the civic waste facility which may need to be disposed of.

Fourth Schedule

Class 2: refers to composting proposals.

Class 3: refers to a can recycling facility in the civic waste facility.

Class 4: refers to a glass recycling facility in the civic waste facility.

Class 9: refers to the future utilisation of landfill gas to generate electricity.

Class 10: refers to composting proposals.

Class 11: refers to the use of compost generated by composting proposals at the facility as landfill cover material.

Class 13: refers to the possible storage of paper or woodchips prior to use as a bulking agent in the composting proposals.

(3) Facility Location

A location plan showing the outline of the facility to which the application relates is provided in Appendix 1.

The facility, comprising some 17.5 hectares, is situated in a rural location some 11 kilometers to the north-east of Tralee, off the Tralee/Knocknagoshel Road. The nearest residential property is 0.5 km to the west of the site entrance adjacent to the approach road to the facility. The dominant landuse in the area is grazing pasture with a high concentration of coniferous forestry plantation on the peatland areas adjoining the facility. Peat continues to be harvested on a small scale by locals.

The facility is situated between the upper reaches of the Smearlagh and Lee catchments. Both catchments provide suitable spawning and nursery grounds for salmonids.

The geology of the area comprises a succession from the Devonian sandstones in the Slieve Mish Mountains to the south, through the Carboniferous limestones underlying the Vale of Tralee to the Namurian Shales of the Stack's Mountains to the southwest. Site specific geology as identified through site investigations indicate the following succession on site; peat (ranging in depth from 2-4m) overlying a layer of gravely clay with boulders which in turn overlies Namurian Bedrock consisting of various coloured shales and sandstones.

The aquifer which underlies the site is classified as being "*locally important moderately productive only in local zones (Class L1)*". There are no public water abstractions within 1km of the facility.

(4) Waste Types and Quantities

Total quantities and types of wastes accepted by the facility are shown below.

YEAR	NON-HAZARDOUS WASTE (tpa)	HAZARDOUS WASTE (tpa)	TOTAL ANNUAL QUANTITY OF WASTE (tpa)
1994	16,902 (03 May to 31 December)	Not Applicable	16,902
1995	23,505	Not Applicable	23,505
1996	24,557	Not Applicable	24,557
1997	28,396	Not Applicable	28,396
1998	30,410	Not Applicable	30,410 (projected)

The total quantities of waste “already deposited” at the facility and “to be deposited” are shown below.

	NON-HAZARDOUS WASTE (tonnes)	HAZARDOUS WASTE (tonnes)	TOTAL (tonnes)
“Already deposited”	93,360 (up to end of 1997)	Not Applicable	93,360
“To be deposited”	406,640	Not Applicable	500,000

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

Expected Life of Facility (years)	20 from 1994
Maximum Annual Tonnage (tpa)	40,000

(5) Facility Design

- **Facility Development**

The facility is developed on a phased basis as shown in Appendix 1 comprising a total of eight Phases. Each Phase comprises two cells of equal size separated by an intermediate clay bund. The development of Phase 1 (Cells 1 and 2) was completed in May 1994. Waste was first deposited at the facility on May 3 1994 with a total of 16,902 tonnes of waste deposited during the remainder of 1994. Waste permitted to be deposited on the site comprises solid non-hazardous household and compatible commercial and industrial waste. No animal wastes, liquid wastes or sludges are accepted at the facility. The facility is designed to operate for twenty years with a total of 500,000 tonnes of waste deposited during this period.

At the time of this application Phase 1 was filled, capped and restored and Phase 2 (Cells 3 and 4) was in the process of being filled. The construction for Phase 3 comprising Cells 5 and 6 commenced and has been completed during the Agency's consideration of the waste licence application. Each stage of the preparation/construction work for development as described above is subject to a Quality Assurance and Quality Control Procedure.

- **Infrastructure**

The boundary of the facility is delineated by a security fence which links into the gated entrance. The access road branches off the Tralee/Knocknagoshel Road to the entrance and also links to a forestry access road used by Coillte. Within the site there is a network of haul roads and an access road to the cells which facilitate the movement of vehicles within the site. The main infrastructure within the facility includes car park area, office, weighbridge, civic waste facility, wheelwash, leachate storage lagoon and waste inspection area, all of which are accessible from the main site entrance.

- **Liner System**

The liner for Phase 1 comprises a double HDPE membrane (each 2mm thick) separated by a 2mm geotextile drainage layer. This liner was placed on a 150mm layer of sharp sand which was placed on the base of the excavated cells (Cells 1 and 2).

For Phase 2, the landfill liner design was modified. The design of the cells for Phase 2 involves the placement of a 500mm clay layer on the excavated base and side slopes of the cells. The clay layer has a permeability of $< 1 \times 10^{-7} \text{ ms}^{-1}$. A 6mm geosynthetic clay (Bentomat Layer) liner followed by a 2mm HDPE liner has been placed on the engineered clay layer. This composite liner was designed so as to achieve a permeability equivalent to a 1m thickness of natural clay with a

permeability of $1 \times 10^{-9} \text{ ms}^{-1}$. The future development of the site is addressed in Condition 4.16 of the Proposed Decision.

- **Leachate Management**

All leachate generated in each cell drains by gravity through a network of collection pipes to a leachate collection manhole. Leachate is pumped from the manholes to the leachate storage lagoon prior to transport off site for treatment at either Castleisland or Ballybunion Waste Water Treatment Plants as provided for in Condition 4.18.3. The procedure for removal of leachate from the storage lagoon is specified in Condition 4.18.4 of the Proposed Decision.

Leachate Storage

Leachate is stored in a storage lagoon lined to a similar specification as the liner for Phase 1 development. The lagoon has a storage capacity of 1350m^3 with a 0.5m freeboard. Condition 4.18.7 of the Proposed Decision provides for the maintenance of a minimum freeboard of 0.5m in the leachate lagoon.

Leachate Recirculation

A leachate recirculation system incorporating a network of perforated pipes has been installed within the gas drainage layer immediately beneath the completed permanent capping system for Phase 1 of the landfill. This provides a facility for leachate to be pumped from either the cells or the leachate lagoon through the network of perforated pipes beneath the capped cells. Leachate recirculation reduces the net volume of leachate to be transported off-site as well as accelerating the biodegradation of the deposited waste in the completed cells. Condition 4.18.5 of the Proposed Decision requires a report on the operation and maintenance of the leachate recirculation system to be submitted to the Agency for agreement.

- **Landfill Gas Management**

The lining system restricts the lateral migration of landfill gas. Passive venting of landfill gas is facilitated by a network of vertical venting pipes. No active abstraction of landfill gas has been undertaken to date. A Landfill Gas Utilisation Study has been undertaken which concluded that there is potential for development of an electricity generation scheme. The necessary volumes of landfill gas for electricity generation are predicted to be generated in 2004. Condition 4.17.3 of the Proposed Decision requests details of proposals for an active landfill gas control system to be submitted to the Agency for agreement. Condition 4.17.4 requires the licensee to submit proposals for landfill gas utilisation to the Agency.

- **Capping System**

The capping system comprises a landfill gas collection zone (200mm thick) placed on top of the waste. On top of this a low permeability layer consisting of a Very Low Density Polyethylene Liner (VLDPE) (1mm thick) followed by a further 200mm of a granular drainage medium. A 1.0m thick layer of peaty topsoil completes the cover. To date Phase 1 of site development has been capped and restored in this manner. Condition 4.19.1 of the Proposed Decision specifies the temporary and permanent capping to be introduced on the completed cells. The above ground infrastructure associated with leachate and landfill gas management will be accommodated within the capping layer.

(6) Facility Operation/Management
--

The facility currently operates in accordance with a site specific Environmental Management and Monitoring Programme which defines the procedures for waste handling, waste acceptance and nuisance control.

In addition, to the above, the facility is operated in accordance with a settlement agreement dated 05 October 1993 made in the High Court (No. 27389P) between Kerry County Council and the Members of a local residents association. This Agreement specifies the types of wastes which are permitted to be disposed of at the facility as well as environmental management, monitoring and pollution control measures associated with the facility and the reporting of monitoring results to the local residents association. The agreement also sets out the improvements to be made by Kerry County Council to the local road network which have been introduced progressively by Kerry County Council.

- **Waste Acceptance Procedures**

Waste is delivered by local authority vehicles, private waste disposal contractors, the commercial sector and members of the public. All waste inputs are weighed and recorded and are directed to either the main tipping area, the public tipping area or the recycling facilities. All waste arriving at the facility is visually inspected to determine suitability for disposal. Waste which is found to be unacceptable for deposition by the operators of the facility is separated and immediately disposed of or recovered at an appropriate facility. This procedure is provided for in Condition 5.10 of the Proposed Decision.

- **Waste Handling**

Waste is deposited either at or near the working face from a ramp adjoining the edge of the current cell. Waste deposited in this manner is spread over the active tipping area using a steel wheeled landfill compactor. Private individuals arriving at the facility are directed to the public tipping area where waste material is transferred into the skips provided.

- **Nuisance Control**

The potential for litter from the working face escaping off-site is reduced by the provision of a movable netting system at the working face and by the boundary fence which are provided for in Condition 6.3 of the Proposed Decision. In the event that litter is deposited on the local road network adjacent to the site, such litter is removed as soon as is practicable. Daily patrolling of the facility, the boundary fence and the immediate site surroundings for litter, and the collection of any observed litter avoids litter giving rise to nuisance. Litter control is addressed in Conditions 6.2, 6.4 and 6.5 of the Proposed Decision. The application of a biodegradable daily cover (Enviro Landfill Cover) on the deposited waste reduces the potential for litter and vermin (including birds, rodents and flies) becoming a problem. The potential for odours to persist is also reduced by the application of daily cover. The use of the wheelwash provided at the facility reduces the potential for debris being deposited on the local road network.

Scavenging has not been an issue at the facility and is prohibited by Condition 5.6 of the Proposed Decision.

- **Hours of Operation**

The hours of operation of the site are from 08:30 - 17:00 Monday to Friday and 09:00 - 13:00 on Saturdays as specified in Condition 5.7 of the Proposed Decision.

(7) Restoration and Aftercare

It is proposed to restore the facility to heathland vegetation. Condition 8.1 requires a Restoration Plan for the site to be submitted to the Agency for agreement.

(8) Emissions to Air

Emissions to air include landfill gas and dust. In addition, there is potential in the future for emissions of landfill gas combustion products of. In the event of significant quantities of landfill gas being detected in the monitoring wells a perimeter monitoring programme will be initiated to map the distribution and concentration of landfill gas around the site. Proposals for monitoring of landfill gas migration have been requested in Condition 9.2 of the Proposed Decision.

Condition 4.17.1 of the Proposed Decision provides for management of landfill gas generated at the facility. Schedule E.1(i) specifies landfill gas monitoring to be undertaken at the site.

Emissions of dust are reduced by the compaction of waste and by the application of daily cover. Where dust is generated, particularly during dry windy conditions, a water tanker dampens the access and internal haul roads. Condition 7.4.1 sets a limit to dust levels at or beyond the site boundary.

(9) Emissions to Groundwater

An assessment of the groundwater vulnerability has indicated that in the event of leakage of leachate through the liner system it would take in the order of approximately 23 years for the leachate to reach the nearest potable groundwater well (the site water supply). This well is 200m downgradient of the cells and supplies water to the landfill. The groundwater is monitored by a network of boreholes. Schedule E.3 - Groundwater Monitoring of the Proposed Decision includes monitoring of groundwater to ensure that the integrity of the liner system has been maintained. Condition 10.9 of the Proposed Decision provides for immediate investigations in the event of any pollution being detected, as well as providing for the introduction of appropriate remediation measures following such an event. Conditions 3.1 and 3.2 of the Proposed Decision provide for the immediate notification of any such incident to the Agency.

(10) Noise Emissions

Machinery on site is the main source of noise. The gas operated bird scaring device is a significant source of impulsive noise which is used only when birds become a nuisance at the facility. The use of this device is restricted to the opening hours of the facility. Traffic associated with the facility contributes to noise levels at properties adjoining the approach road.

Background noise levels at the perimeter of the facility were measured at 37.2 dB(A). The operation of the facility resulted in noise levels rising to 52dB(A). The nearest properties are located some 500m to the west at which the noise levels arising from the facility are likely to be considerably lower than 52db(A). Condition 9.3 of the Proposed Decision requests that noise monitoring proposals be submitted for the nearest noise sensitive location. Noise associated predominantly with heavy traffic using the facility as measured at the facility entrance, was 56 db(A). Noise from traffic using the facility has been reduced due to an ongoing programme of road improvements to the approach road to the facility, the scope of which have been agreed with local residents.

Condition 7.4.2 of the Proposed Decision provides control over the levels of noise from the facility.

(11) Emissions to Sewer

There are no emissions to sewer.

(12) Emissions to Surface Water

There are no process emissions to surface water. Surface water run-off, however, discharges directly to a perimeter drain which flows around the boundary of Phase 1 -4 discharging ultimately to the headwaters of the Lee catchment. This drain also serves as a surface water and groundwater interception ditch directing these waters away from the landfill area.

Run-off from the waste inspection area is directed to a sump from where it can be either pumped to the leachate lagoon or the perimeter drainage ditches. A penstock control has been installed in the perimeter drainage ditch in the vicinity of the waste inspection area and the leachate storage lagoon. This enables run-off from these areas to be contained in the event of a spillage.

Based on ongoing monitoring data of water quality and macroinvertebrates within the receiving waters of the tributaries of the Lee and Smearlagh catchments there has been no adverse impact from the facility on the quality of the receiving waters. Monitoring of surface water as specified Schedule E.2(ii) of the Proposed Decision will provide a means for the detection of any deterioration of water quality in the Lee and Smearlagh watercourses. Condition 10.9 of the Proposed Decision provides for immediate investigations in the event of any pollution being detected, as well as providing for the introduction of appropriate remediation measures following such an event. Conditions 3.1 and 3.2 of the Proposed Decision provide for the immediate notification of any such incident to the Agency.

(13) Other Significant Environmental Impacts of the Development

None

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

There are no relevant adopted Plans for Kerry.

(15) Submissions/Complaints

No submissions or complaints were received by the Agency during the processing of the application.

Signed _____

Dated:

Name Tadhg O' Mahony

APPENDIX 1
LOCATION PLAN