INSPECTORS REPORT

Waste Licence Register Number:	146-1
Facility:	Knockharley Landfill,
Applicant:	Celtic Waste Limited
Inspectors Recommendation:	The licence to be granted subject to conditions.

(1) Introduction

This Application is in respect of a proposal by Celtic Waste Ltd. (CWL) to establish a landfill at a greenfield site at Knockharley, Co. Meath for the disposal of residual, non-hazardous household, commercial and industrial waste arising in north-east Leinster. The proposed development is located 7 km south of Slane and 17 km north of Ashbourne in the townlands of Knockharley, Flemingstown and Tuiterath Co. Meath. Meath County Council have obtained a Waste Licence, Reg. No. 103-1 on 15 February, 2001, for a site in Knockharley, but the site boundary and quantity of waste to be disposed for this application is not the same. CWL advised that they are prospective purchasers of the proposed site for Reg. No. 103-1. They have contractual options to purchase all the lands within the site boundary. The lands are currently owned by four different landowners.

The landfill will be designed to receive 180,000 tonnes of waste per annum for disposal and has an operating life of approximately 14 years. It is proposed to site the development on a 135 hectare greenfield site which would be accessed directly from the N2 National Primary road. The landfill footprint will be positioned in the centre of the land holding and will cover approximately 25 hectares of the site.

The existing land use is agricultural, with a mix of arable and pasture land. The landscape of the area is generally flat with some uplands to the north. The site lies in the upper reaches of the River Nanny catchment and drainage from the site flows into the Kentstown Stream which in turn flows into the Nanny above Balrath Cross Roads. The site is underlain by a poor aquifer, which has a moderate to low vulnerability. The development lands are generally flat and rise by some 20m from the south-east corner to the western property boundary.

There are 21 houses within 500 m of the landfill footprint and approximately 57 houses within 1km. It is proposed that an area, in which no waste will be deposited, of 250m will be maintained between the landfill footprint and the nearest residences. A 50m wide band inside the entire facility boundary will be planted with woodland. A 220 KV transmission line passes through the site from north to south and a Bord Gais line crosses the southern part of the facility outside the area to be landfilled.

The classes of activity applied for by the applicant are:

Waste Disposal Activities – Third Schedule
Class 1. Relates to landfilling of waste in lined cells that are on, in and under land.

Class 4. Relates to the use of a leachate lagoon for temporary storage prior to disposal off-site and the use of a surface water pond.
Class 5. *Principal Activity:* Relates to the disposal of waste in lined cells.
Class 6. Relates to possible future pre-treatment of leachate.
Class 13. Relates to provision of a waste quarantine area.

Waste Recovery Activities – Fourth Schedule
Class 4. Relates to the use of recycled construction and demolition waste as cover and / or construction material at the site.
Class 9. Relates to utilisation of landfill gas.
Class 11. Relates to the use of recycled construction and demolition waste on site.
Class 13. Relates to the storage of recycled construction and demolition waste prior to use.

The activities proposed to be allowed are as detailed above.
A location plan showing the outline of the facility to which the application relates and the facility layout is provided in Appendix 1.

Description of Principal Activity	Deposit on, in or under land in a specially engineered landfill.
Quantity of waste (tpa)	180,000 for disposal and 25,000 of C&D waste for restoration purposes.
Environmental Impact Statement (EIS) Required	Yes, In compliance with the Regulations.
Number of Valid Submissions Received	22
Date of Application	11 January 2001

SITE VISITS:

DATE	PURPOSE	PERSONNEL	OBSERVATIONS
26/02/01	Site notice compliance and inspection	B. Rooney	Site notices erected along the N2, CR384 and proposed entrances and at the side road to the north of the site.

(2) Facility Development

The associated infrastructure includes; weighbridges, wheelwash, sewerage and surface water infrastructure, leachate collection and storage systems, landfill gas collection and flaring systems as well as site accommodation. Infrastructure is controlled under *Condition 3* of the Proposed Decision.
The development of the facility will require the construction of a new private road from the N2 national primary road. The construction of this road is required prior to

construction of the facility (*Condition 3.5*). This access road will require an underpass to be constructed at the junction of the county road CR384. The licensee is required to consult with the roads authority on their proposal not to use the R150 road, as it passes by Kentstown school, or the county road CR384 (*Condition 3.5*).

The landfill is to be developed in seven phases, each phase consisting of a number of cells constructed at approximately two-year intervals. The development of these cells will be from south to north. The initial phase is approximately 488m distance from residences. This will allow planned additional screening in the buffer zone to the north of the waste disposal area to mature before active tipping occurs in the north of the facility.

Buffer Zone

The EIS states (Section 4.2.3.1) that 'there is a buffer of 100 metres from the waste disposal area to the site boundary and an additional buffer of 250 metres from the site boundary to the nearest residential property'. This was not found to be the case on examination of the Landfill Layout drawing, Dwg. No. 2000 –144- 01-01, Rev. A, provided with the application. It was found that while there was a buffer of 100m from the waste disposal area (landfill footprint) to the facility boundary there is a distance of approximately 11.25m from the facility boundary to the nearest occupied residential property. However, the recommended PD in *Condition 3.13* requires the provision of adequate buffer zones. These include; a Buffer Zone of a minimum of 100m between the landfill footprint (area being filled with waste) and the facility boundary and a minimum of 250m Buffer Zone to be maintained between the landfill footprint (area being filled with waste)_and any existing occupied dwelling.

Liner System

The recommended PD requires that all the cells within the landfill area, the surface water pond and the leachate storage lagoons must be lined. *Condition 3* details the specification for the lining of the cells of the landfill which is in accordance with the Landfill Directive 1999/31/EC. *Condition 3* also specifies the lining system for the leachate storage lagoons and for the surface water pond.

Leachate Management

Leachate will be collected by a network of slotted HDPE drainage pipes contained within the drainage layer of the liner of the landfill cells. Submersible pumps shall be located at the low points along each leachate header and the submersible pumps will be networked together to transfer the leachate to the leachate storage lagoons. The operation of the pumps will be on the basis of the depth of leachate in the cells. *Condition 5* controls the leachate level. A telemetry system (*Condition 3*) will monitor the depth of the leachate in each cell.

CWL propose tankering their leachate to Dundalk wastewater treatment plant for treatment. In reply to a Section 52 Consent request from the Agency, Louth County Council detailed that in principal they have no objection to the use of facilities at Dundalk waste water treatment plant for the processing of leachate from the facility.

However, as Louth County Council is entering into a 20 year agreement for the operation of the aforementioned waste water treatment plant they are not in a position presently to detail specific requirements that they may have. Hence, specific requirements in respect of the acceptance of leachate will have to be agreed at a later stage. *Condition 6.6* requires that the Licensee submit an agreement for leachate disposal, between the Licensee and the Sanitary Authority, to the Agency prior to accepting waste at the facility.

The Applicant applied under Class 6, Third Schedule, for the possible future biological pre-treatment of leachate prior to tankering off-site to a wastewater treatment plant. *Condition 5.15.1* requires that details must be submitted to the Agency for agreement prior to allowing such an activity to proceed.

The applicant has applied to re-circulate leachate under the cap and also interim re-circulation under temporary capping through a series of leachate re-circulation sumps and perforated pipes. The PD allows the re-circulation of leachate subject to *Condition 5* which allows re-circulation in lined, capped cells and subject to Agency agreement.

Capping System
Condition 4 details the final capping required for the landfill and Condition 5 requires filled cells to be permanently capped within twelve months of the cells being filled to the required level.

Restoration and Aftercare
The restoration plan is to reinstate the landfill area for agricultural purposes and the landscape to a rural character with agricultural fields, hedgerows and trees. *Condition 4.1* requires a detailed restoration and aftercare plan for the facility to ensure that the site is restored as proposed. The applicant submitted a map showing the proposed final contours to be 74mOD. This would mean that the finished height of the landfill would average 15m above existing levels. *Condition 4.2* sets the final profile at a maximum of 74mOD. There are a number of other Conditions to reduce the visual impact of the landfill. *Condition 3.18* requires the construction of a 5m height berm to the southern and south-western corner of the landfill. *Condition 5* requires a comprehensive landscaping programme of the site and stipulates that a 50m band of woodland be planted inside the entire facility boundary.

Nuisance Control
Measures to control possible nuisances at the proposed facility are specified in *Condition 7*. These include conditions on the control of litter, dust, birds and vermin. Odour is controlled under *Condition 5* by controlling the operations at the facility. Records are also required under *Condition 10.*

Fire Control
Fire control at the facility will be in accordance with the requirements of *Conditions 9.2 and 9.4.2. Condition 9.4.7* requires a risk assessment of the potential for accidents, emergencies and other incidents and their potential impact on the environment to be undertaken prior to the disposal of waste in the facility. The assessment is required to include recommendations to minimise the number of accidents, emergencies and incidents that might occur and to minimise the impacts of any such events on the environment.

(3) Waste Types and Quantities

The recommended Proposed Decision allows the facility to accept non-hazardous household, commercial and industrial waste for disposal as detailed in *Condition 1.4* and *Schedule A.* The facility can also accept construction and demolition waste, not for disposal but, for recovery i.e. to be used as daily cover, site construction and restoration purposes (*Condition 5*). *Condition 5* only allows waste to be accepted from holders of waste collection permits. Private individuals are not allowed to dispose waste at the facility. A civic waste facility is not proposed.
Condition 5 requires the licensee to submit waste acceptance procedures to the Agency for agreement prior to accepting waste at the facility and requires unacceptable waste to be stored in the waste quarantine area.
The recommended Proposed Decision does not allow the disposal of 5,000 tonnes of non-hazardous industrial sludge. However, this sludge can be treated and then it may be accepted as cover or capping material.
Condition 5 details how waste must be handled at the working face. *Condition 5* also has a number of Conditions regulating the operational controls at the facility.
Condition 11.3 requires the licensee to submit a report examining waste recovery options. This report will encourage the licensee to address waste prevention and minimisation measures as outlined in the Regional Waste Management Plan and in the Government's policy 'Changing Our Ways'.

The applicant applied for waste acceptance between 0800 – 1800 Monday to Saturday and for the facility to be operational 1 hour either side of the waste acceptance hours for pre-opening and post closure activity. However, it is proposed to locate this facility in a predominately rural area where there are 21 houses within 500m of the landfill footprint. Hence, it is proposed to limit the operational hours to 8.00 to 18.00 Monday to Friday inclusive and 9.00 to 17.00 on Saturdays and the waste acceptance hours to 8.30 to 17.30 Monday to Friday inclusive and 9.30 to 16.30 on Saturday (*Condition 1.6*). This is to ensure that the facility does not cause noise pollution at nearby sensitive buildings.

The applicant applied to dispose of 180,000 tonnes of waste per annum. However, the recommended Proposed Decision does not allow the disposal of 5000 tonnes of industrial sludge. Hence, Schedule A allows a total of 175,000 tonnes of waste to be disposed at the facility per annum. This comprises of 100,000 tonnes of household, 45,000 tonnes of commercial and 30,000 tonnes of industrial waste per annum. In

addition, Schedule A allows 25,000 tonnes of Construction and Demolition waste to be accepted for use as recovery material at the facility. Hence, the PD allows a total of 200,000 tonnes of waste to be accepted at this facility.

(4) Emissions to Air

Emissions to air from the facility include landfill gas, combustion products of landfill gas, dust and odours. The general wind direction is from a south-west to west direction.

Landfill gas

Initially the landfill gas will be managed by a passive gas venting network. An active landfill gas management system including an enclosed flare must be provided within six months of waste being disposed of at the facility. (Condition 3)

The recommended PD requires the 'licensee' to determine, if the utilisation of landfill gas as an energy source is feasible, on an annual basis, and if so it must be installed. (Condition 3)

Schedule C sets emission limit values for; the concentration of landfill gas measured in any building and for emissions from the landfill gas plant. Monitoring of landfill gas and the emissions from the landfill gas combustion plant are controlled by *Condition 8.1*. Landfill gas alarms are required in the site office and in any enclosed structure at the facility *(Condition 3)*. Trigger levels for landfill gases are set in *Condition 6.3*

Dust

A background dust deposition survey was carried out at five monitoring locations around the proposed facility. The results ranged from 38mg/m^2/day to 351mg/m^2/day. The results for AD2 at 351mg/m^2/day is in excess of the dust deposition limit of 350mg/m^2/day normally set in licences. However, it was explained that this monitoring location was in a tillage field that had been recently harvested. Dust emissions could arise during the construction, operation and restoration of the landfill. Hence, the PD requires mitigation measures from the commencement of construction at the site. These include; covering exposed faces during construction, daily and weekly waste cover, restoration measures as well as water spraying of potentially dusty roads. Schedule C Emission Limits sets an ELV of 350mg/m^2/day at or dust sensitive locations and Schedule D requires dust and PM_{10} monitoring. The monitoring locations have to be agreed with the Agency.

Odour

There are a number of Conditions controlling potential odour nuisance from the facility. These require good management practices, provision of a gas collection and flaring system, daily and intermediate cover and an adequate capping system. In particular *Condition 5* controls the working face and daily and intermediate cover,

Condition 6.2 requires the licensee to ensure that emissions do not result in significant impairment of, or significant interference with the environment beyond the facility boundary, *Condition 7.1* prohibits odours giving rise to a nuisance and *Condition 8* requires odour monitoring.

(5) Emissions to Groundwater

The regional geology indicates that the Knockharley site lies where Namurian aged sandstones and siltstones are enclosed by older Carboniferous limestones. The geological structure of the site has been determined from the results of 22 boreholes and 20 trial pits. These results show that the overburden varies in thickness from 12 to 21.5m across the site and consists of glacial till. The till layer has a low permeability in the range of $1x10^{-9}$m/sec to $8.1x10^{-11}$m/sec. The Geological Survey indicated in the Groundwater Protection Scheme for the county that the presence of the thick overburden cover at Knockharley gives a low vulnerability rating with regard to potential groundwater pollution (Geological Survey, 1998). The site has a poor aquifer overlain by a thick low permeability overburden. The groundwater direction in the bedrock is considered to be to the south discharging to the River Nanny.

Groundwater is protected by providing the infrastructure necessary to avoid any emission directly to it. In particular, *Condition 3* requires the infrastructure necessary to protect the groundwater among other conditions of the licence. *Condition 3, Schedules D.1* and *D.5* requires the installation and monitoring of groundwater to ensure it does not become polluted. In addition, *Condition 8* requires all private wells, (nineteen confirmed), within 1km of the landfill footprint to be monitored.

(6) Emissions to Surface Water

The Knockharley site lies within the Nanny River catchment. The surface drainage at the site flows eastwards around and through the development before turning to flow southwards to meet the Kentstown stream and the Nanny River above Balrath cross roads. The EPA Water Quality Report for the period 1995-1997 indicated that 75% of the Nanny channel length surveyed was moderately polluted. Some of the results of surface water samples taken as background values for the site indicated a poor water quality.

Sections of the on-site stream, referred to as the Knockharley Stream in the application, will be diverted around the footprint of the waste disposal area. In addition, there are sections of the Knockharley stream to the east and south east of the facility that would be venerable to pollution. Hence, the recommended PD requires the applicant to submit a pre-agreed proposal with the Eastern Regional Fisheries Board, to the Agency for agreement, on the diversion of the stream in these areas

Rainwater falling on un-developed parts of the site will discharge directly to surface water i.e. to the on-site stream. Precipitation falling on areas under construction or restored areas will be directed to an open swale which will be constructed around the perimeter of the landfill (*Condition 3*). This water will then discharge to the surface water pond which will act as a silt attenuation pond. The construction of this pond is covered by *Condition 3***.** The recommended PD requires that surface water from all roads, hardstanding areas and all areas of the facility where surface water is vunerable to pollution shall be diverted to the surface water pond for treatment (*Condition3*). All the potentially contaminated surface water from the facility will be directed into the surface water pond. The recommended PD also requires a Class I Full oil interceptor to be fitted on the inlet to the storm water pond. The outlet from the surface water pond will be fitted with an isolating penstock that will prevent surface water discharging to the Kentstown stream in the event that it is contaminated. *Condition 8* requires a continuous monitoring programme and the determination of trigger levels that would determine when the outlet from the surface water pond should be closed.
In addition, *Schedule C.4* sets limits on the surface water discharge from the surface water pond and *Condition 8* requires an annual biological assessment of the Kentstown stream and the Nanny River.

(7) Emissions to Sewer

There are no direct emissions to sewer from the facility. Leachate is proposed to be stored in a lagoon prior to being tankered off site to a Sanitary Authority Wastewater Treatment Plant, as proposed by the applicant and specified in *Conditions 5 and 6*. The quantity of leachate generated will vary from 2,273 m^3 in year 1 to a maximum of 25,074 m^3 in year 15. The applicant proposes to transport the leachate in 27 m^3 road tankers.

(8) Noise Emissions

The proposed landfill is situated in an agricultural area approximately 800m west of the N2 road. The predominate noise source in the vicinity of the proposed landfill is traffic noise from the N2 and from local country roads.
An assessment of the existing noise levels was carried out in the vicinity of the proposed landfill development in November and December 2000. Two locations were monitored NP1, to the north of the site and NP2 to the east of the site. The daytime $L(A)_{eq}$ at NP1 was 48 dB(A) while the night-time $L(A)_{eq}$ was found to be 30 dB(A). The $L(A)_{90,}$ which reflects the background noise level, was approximately 35 dB(A) for the daytime and 30 dB(A) for the night-time. While at NP2 the daytime $L(A)_{eq}$ was 55 dB(A). The $L(A)_{90}$ was approximately 44 dB(A) for the daytime and 39 dB(A) for the night-time.
Noise monitoring information from KTK landfill Reg. No. 81-1 as well as sound power levels for proposed site machinery were used for comparison purposes in estimating the likely noise emissions from traffic noise, site machinery and the gas

flare associated with the proposed landfill. The applicant states that it is likely that properties in close proximity to the proposed access road from the N2 may experience an increase of between 3 to 5 dB(A) in L $(A)_{eq}$ noise as a result of road traffic noise.

The PD contains a number of Conditions to mitigate against noise emissions from the facility. In particular *Condition 3.18* requires the provision of a 5m high perimeter berm (as proposed by the applicant), a 50m wide wood plantation, speed limits on internal site roads and silencing equipment on all on-site heavy machinery. *Schedule C* sets noise levels at noise sensitive locations and *Schedule D* requires biannual noise monitoring.

(9) Other Issues

The applicant has detailed that an area is being reserved for future biological treatment of pre-sorted organic waste that may become available on the implementation of waste management plans in the north Leinster area. Full details as to the option for biological treatment were not available. The applicant stated that details would be submitted to the Agency in advance of any proposal to implement any waste recovery option at Knockharley. It should be noted that this activity was not applied for and as such the carrying on for such an activity would require a review of the licence.

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

The County Meath Development Plan, adopted early 2001, addresses solid waste disposal and solid waste. One of the objectives is the provision of residual landfill capacity in the short, medium and long term at strategic suitable locations. It states that 'the existing facility at Basketstown is being replaced by a new sanitary landfill at Knockharley off the N2 road in the east of the County'

The Waste Management Plan for the North East Region was adopted on 3 August 2001. This plan proposes Knockharley as a site for a long term residual landfill for the region. The Plan sets regional recycling targets for 2014, which assume that thermal treatment is in place. The target for landfilling of waste is 18% and 43% for recycling by the year 2014.

Celtic Waste Ltd. state in their application that the Knockharley residual landfill facility complies with the type and scale of landfill described by the Government's 1998 policy statement on Waste Management 'Changing out Ways' and 'meets both national and regional objectives in providing a state of the art landfill for residual waste'

There are no relevant air quality or water quality management plans.

(11) Submissions

22 valid submissions were received in relation to the facility. I have had regard to the submissions in making my recommendation to the Board.

Below is a summary of the main concerns raised in the submissions. The specific details in some submissions are highlighted to give an overview of the concerns raised. Not all submissions are mentioned by name, however, all were considered.

ALL SUBMISSIONS BY GENERAL TOPIC HEADING

1.Water Pollution
The Eastern Regional Fisheries Board (ERFB) requested; that all works be carried out in accordance with the EIS in order to prevent any water pollution, no deleterious discharges to ground or surface water, adequate bunding, provision of storm and surface water filters and oil interceptor systems and regular chemical and biological watercourse monitoring. In addition, the ERFB detailed that a transport management plan should be in place for transporting waste and leachate and a firewater retention facility should be provided. The ERFB also required that they be contacted in cases of an accident or emergency.

The ERFB also included a letter, sent to Meath Co. Council in relation to Celtic Waste Ltd.'s planning application, as part of their submission. Additional requests relating to environmental matters included, prior consultation with the ERFB regarding any in river work detailed in page 4-33 of the EIS.

The North Eastern Health Board (NEHB) requested base line bacteriological and chemical analysis and well depth and a programme for on-going monitoring for private wells within 500m of the landfill. In addition, the applicant should indicate remedial measures in the event of a deterioration in the water quality of these wells. Fears were expressed as to who would ensure that it was safe to drink the water from private wells and who would monitor them. The NEHB lodged a second submission requesting that the applicant submit base line data for all private wells within a minimum of 500m of the landfill boundary. They questioned why the metal content of the drinking water was not examined and requested that the applicant discuss the potential impact of the development on water levels in the private wells in the vicinity of the site. The NEHB were also concerned that in the event of deterioration in the quality of the water in the private wells, was there an adequate water supply in the existing mains to cater for the increased number of dwellings and who would undertake payment for continuity of supply if charges were levied by the local authority. Duchas were concerned that no pollution from the landfill enter the surface or ground water and particular attention should be given to the stream flowing through the site, as this stream runs through Balnath Woods PNHA and is a tributary of the River Nanny – a prime salmonid river.

Response
It should be noted that there are no direct discharges of effluent to surface water or ground water from this facility. There are a number of conditions controlling the protection of surface and ground water. In particular, Condition 3 control discharges from the waste water treatment plant for treating waste water arising on site. Condition 3 also requires adequate bunding for all fuels and liquids held on site. Surface water management infrastructure including collection swales for contaminated surface water and a storm water pond along with an oil interceptor and cut off pen stock for treating contamination surface water are specified

in Condition 3.16. Prior to diverting the Knockharley stream that runs through the site the licensee is required to consult with the Eastern Regional Fisheries Board. Groundwater Management Infrastructure is required under Condition 3.17. The landfill has to be lined as specified in Condition 3.12 which is in accordance with the Landfill Directive 1999/31/EC. Conditions 3.14, 6.6 and 5 require that leachate is collected and tankered off-site to a waste water treatment plant. In addition the emissions to surface water are controlled by Condition 6.4 and Schedule C and emissions to ground water are controlled by Condition 6.5 prohibiting any direct discharge. Regular monitoring and reporting on surface water and ground water are required by Conditions 8 and Schedule D. Surface water and surface water monitoring frequency varies from weekly, monthly and annually.

In relation to private wells it should be noted that a survey was carried out on 57 properties within 1km of the landfill footprint on behalf of the applicant. It was identified that there are at least nineteen private wells within 1km of the landfill footprint. The PD requires that all private wells, subject to the agreement of the owner and as suggested by the applicant, within 1km of the landfill footprint be monitored for a range of parameters as detailed in Schedule D.5. In addition, Condition 9 requires that in the event that monitoring of these wells indicates that the facility is having a significant adverse effect on the quantity and quality of these water supplies then the licensee must provide and fund an alternative water supply.

2. Health Concerns

Concern was expressed that incineration ash would be deposited in this proposed landfill. The Boyne Valley & Newgrange Environmental Protection League (BVNEPL) refer to a report in "The Lancet" titled "Risk of congenital anomalies near hazardous waste landfill sites in Europe". It was detailed that this report shows significant increases in cancers within populations living within a 3km radius of super dumps similar to this proposal. The 160 pupil Kentstown National School playground is less than 600m from the "dump site" and it is felt that the health of the children especially respiratory sufferers, from flies, rats, airborne waste, odour, birds and carrion is not adequately addressed by the application and represents a long term risk to the children. Concern was expressed that the dust would aggravate asthmatics and cause an increase in asthmatics. It was expressed that the gas release would pose a health risk.

Response

Condition 1.5 of the PD prohibits the acceptance of hazardous waste at the facility. Such wastes will not be acceptable at this facility for disposal.

It should be noted that all the conditions of the PD require that this facility is constructed, operated, controlled and restored in accordance with BAT Standards and the Landfill Directive 1999/31/EC. The PD requires the construction of an engineered landfill and includes conditions for controls on waste, surface and groundwater, landfill lining, buffer zones, leachate, landfill gas, landfill combustion plant, noise as well as nuisances such as vermin, birds, flies, dust, litter and odour. Monitoring of all the potential emissions are required by Condition 8 and Schedule D to ensure that they meet the Conditions and emission limits set out in Schedule C of this PD. The whole thrust of the PD is to ensure that it does not cause environmental pollution and endanger human health.

The Lancet report referred to in one of the submissions relates principally to hazardous waste landfills. This proposed facility is prohibited from accepting hazardous waste. A relevant paper in relation to this facility is "The Health Effects of Controlled Landfill Sites – An Overview" L. Heasman (Proceedings Sardinia 1999, Seventh International Waste Management and Landfill Symposium). This report concluded that the extensive evidence available does not support any casual link between health effects studied and residences near landfill sites.

Condition 7 of the PD controls potential nuisances from the facility. It requires that any debris and deposited waste on the road network be removed without delay (Condition 7.2) and also requires that any loose litter or waste is removed immediately subject to agreement of land owners (Condition 7.3). There are a number of conditions in relation to controlling dust. The PD requires mitigation measures from the commencement of construction at the site. These measures include covering exposed faces during construction, (Condition 7.), daily and weekly waste cover (Condition 5), restoration measures (Condition 4) as well as water spraying of potentially dusty roads (Condition 7.). Schedule C Emission limits sets an ELV of 350mg/m^2/day at or outside site boundary locations. This is the limit set down in the TA Luft guideline (Technical Instructions on Air Quality Control) so as to protect against considerable disadvantage and substantial impairments. In addition, a trigger level for PM_{10} of 50µg/m^3 at any location on the boundary is stipulated in Condition 6. Schedule D requires dust and PM_{10}, monitoring. All these dust controls, particularly those for PM_{10} will ensure that the facility does not have a detrimental effect on the health of people.

Concerns were also expressed in relation to landfill gas. Landfill gas will initially be managed by a passive gas venting network that will be fitted with activated carbon filters. An active landfill gas management system plus an enclosed flare has to be provided within six months of waste being disposed of at the facility (Condition 3). These measures will ensure that gas is properly collected and vented to the atmosphere. Schedule C sets emission limits for emissions from the landfill gas plant. In addition, trigger levels for landfill gas are set in Condition 6. These measures will ensure that dangerous gas level, that could harm health, do not migrate off-site.

3. Waste Prevention

There was a general concern expressed that there was little encouragement or political will for prevention of waste. It was felt that the application fails to address the accepted hierarchy of waste prevention, waste minimisation and waste recycling. The application provides a vast over capacity in annual waste acceptance volume and does not encourage waste diversion to take place in Meath. The Boyne Valley & Newgrange Environmental Protection League (BVNEPL) contend that the applicant did not have due regard to the European Unions principles on waste management.

1. *The application is in contravention of the prevention principle in that it will provide over 4.9 times Meath's annual requirements for municipal waste disposal.*

2. *Producer responsibility and the polluter pays principle – the applicant fails to demonstrate a pricing structure for the operation of the landfill and it is not possible to ascertain how the polluter pays principle is proposed to operate at the "super dump".*

3. *The EU Landfill Directive 26 April 1999, Article 10 requires that all of the costs involved in setting up and operating a landfill site, including as far as possible the cost of the financial security or its equivalent referred to in Article 8(a) (iv), and the estimated costs of the closure and after-care of the site for a period of at least 30 years shall be covered by the price to be charged by the operator for disposal of waste in the site. It is contended that there is no evidence in the application of how the aforementioned can be achieved.*

4. *Precautionary Principal: BVNEPL state that the Agency must ensure and state that all precautions are taken to ensure the health, wellbeing, safety and financial investments are protected.*

5. *Proximity Principle – Dublin waste will be "dumped" in Meath in contravention of the proximity principal. It is stated that the application works against the EU general strategy on waste (1996) which sets out a preferred hierarchy of waste management options. BVNEPL argue that the quantity of waste to be handled at Knockharley may increase to same figure greatly in excess of 180,000 tonnes. Celtic Waste Ltd. operate another site at Kilcullen and the waste handled increased from 220,000 to 250,000 tonnes in less than 18 months – this is contrary to waste diversion strategies.*

Response

The Government's waste management policy "Changing our Ways" DOE 1998 is consistent with and is based on the EU hierarchy of waste management. The Government's policy on waste management envisaged the "rationalisation of municipal waste landfills, with progressive and sustained reductions in numbers, leading to an integrated network of 20 state of the art facilities incorporating energy recovery and high standards of environmental protection". The Knockharley residual landfill complies with the type and scale of landfill envisaged in "Changing our Ways". The Waste Management Plan for the North East Region was adopted on 3 August 2001. This plan sets regional recycling targets for 2014 which assume that thermal treatment is in place. The target for landfilling of waste is 18% and 43% for recycling by the year 2014 which assumes that thermal treatment is in place. However, thermal treatment was rejected in many of the initial regional waste management plans so interim solutions are required to meet the shortfall created by lack of other options. The regional plan has now been adopted. However, it will take time to educate people on prevention and minimisation of waste, to encourage maximum recovery and recycling at source and to provide extensive facilities for recycling. When all of these waste management structures are in place there will still be a residual fraction requiring disposal. The Regional Waste Management Plan identified a landfill at Knockharley as a key element in the future waste management of the region. The life of the Knockharley facility extends over the period to which the reduction targets of the plans relate. "Changing Our Ways" sets to "encourage and facilitate business involvement in the provision of waste management services".

The PD for this landfill, condition 11.3, requires a report examining waste recovery options. This report has to address methods to contribute to the advancement of the recovery targets stated in national and European waste policies.

4. Site Selection

Martin and Matilda Curran were concerned about the location of the landfill and about the site selection process. In particular, they are of the opinion that the map cannot prove that their dwelling is outside a 250m buffer zone, that their garden is 111m away from the landfill foot print, and no site selection process was carried out by Celtic Waste Ltd. They are worried that the size of the landfill is 67.9 acres i.e. 7 cells x 9.7 acres (size of each cell) rather than 62 acres. It is also contended that there are 20 houses within 300m and 2 within 250m rather than 21 houses within 500m as stated in the application. It was also expressed that planning within 15m of ESB powerlines in the north side of the site boundary should not be allowed. It appeared that the gas pipe line was located 30m from the storm water lagoon and 66m from the pipeline and it was questioned whether the pipe line should be 150m away from these facilities. Martin and Matilda Curran requested that Celtic Waste Ltd. enter into negotiations on re-location of their family. They are of the opinion that this facility will affect their quality of living, inhibit their plans for a house extension and improvements and feel that their garden will not be safe at 111m from the landfill footprint for their child to play in.

Response

The EIS stated that "there is a buffer of 100 metres from the waste disposal area to the site boundary and an additional buffer of 250 metres from the site boundary, to the nearest residential property. However, on examination of the landfill layout drawing No. 2000-144-01-01, Rev. A, it was found that while there was a buffer of 100m from the waste disposal area (landfill footprint) to the facility boundary there was a buffer of approximately 11.25m from the facility boundary to the nearest residential property (Mr & Mrs. Curran). However, Condition 3 of the PD requires a buffer zone of a minimum of 100m between the landfill footprint (area being filled with waste) and the facility boundary.

The PD requires in Condition 5 that a 50m band of woodland must be planted inside the entire facility boundary where it does not interfere with overhead powerlines. In relation to the gas pipeline, Condition 3 requires that the licensee consult with Bord Gais prior to any construction or development work within 100m of the pipeline. In addition, Condition 7 Nuisance Control contains a number of conditions to ensure that the facility will not give rise to nuisances beyond the facility boundary.

5.Waste Types / Waste Acceptance / Quantities

The North Eastern Health Board (NEHB) are of the opinion that the term "residual" should be defined outlining the main components and respective percentages of the various types of waste for landfilling. In addition, potential sources, supplies and storage of weekly cover material should be considered. A resident objected to the proposal on the basis of the quantity of 180,000 tonnes per annum to be handled. Concern was expressed that it would be difficult to monitor waste arriving from several other counties and that why should Meath be the dumping ground for surrounding counties. It was detailed that there is no effective mechanism to ensure that toxic waste, industrial waste and household hazardous waste will not be deposited in this landfill. BVNEPL state that the Agency has already granted a licence for this site, Reg. No. 103-1, limiting the waste volume to approximately 34% of that proposed

in this application. A number of residents are concerned that this proposed landfill will be used for the "dumping of toxic ash" from the proposed incinerator in Duleek.

Response
Condition 1.4 lists the types of waste that can be disposed of at the facility and these include municipal, commercial and industrial waste subject to the maximum quantities detailed in Schedule A. Schedule A details the quantities of each type of waste that can be accepted. The total quantity that can be accepted for disposal is 175,000 tonnes per annum. The PD does not allow the disposal of 5,000 tonnes of industrial sludge. In addition, Condition 1.5 prohibits hazardous wastes or liquid waste being disposed of at the facility. Hence, "toxic ash" from any incinerator cannot be disposed of at this landfill.

In relation to cover material, the interpretation defines, "Cover Material"and "Daily Cover" and Condition 5 further defines cover material.

Condition 5 requires the licences to submit procedures for the acceptance and handling of waste at the facility. These must be based in the Agency's draft manual on Waste Acceptance and include for the characterisation of waste in order to distinguish between inert, non-hazardous and hazardous waste. In addition, Condition 5.4 stipulates that all waste must be checked at the working face and any unsuitable or unacceptable waste has to be sent to the waste quarantine area for recovery or disposal at an appropriate facility.

It should be noted that this landfill is designed as a residual landfill for the North-East Region which includes the Counties of Meath, Louth, Cavan and Monaghan and as such would receive waste from more than County Meath.

The proposed facility complies with Article 10 of the Landfill Directive 1999/31/EC and the Government policy on waste "Changing Our Ways" and it complies with the Waste Management Plan for the North East Region. The proposed Knockharley Landfill is a regional landfill rather than one to cater for the disposal needs of just one county. It is designed to cater for residual waste from the North East Region. It is based on a regional plan that also proposes waste prevention, minimisation and alternative approaches to the disposal of waste where these are possible.

6. Infrastructure

a) Leachate

The NRHB requested that the applicant further address the issue of leachate treatment and questioned the capacity of the Navan waste water treatment plant to treat the leachate. It was expressed that further detail should be provided on the pre-treatment of leachate and that drawings of the cell units should be submitted with the provision of holding points in the event that the leachate pipework becomes clogged. The NEHB sent a second submission requesting a firm commitment from an authorised waste treatment plant operator that it can and will effectively treat the volumes and constituents in the leachate. They are also of the opinion that if on-site treatment facilities are required then it is important that specifications for same are supplied as part of the application.

a) Response
CWL propose tankering their leachate to Dundalk wastewater treatment plant for treatment. In reply to a Section 52 Consent request from the Agency Louth County Council detailed that in principal they have no objection to the use of facilities at Dundalk waste water treatment plant for the processing of leachate from the facility. However, as Louth County Council is entering into a 20 year agreement for the operation of the aforementioned waste water treatment plant they are not in a position presently to detail specific. Hence, specific requirements in respect of the acceptance of leachate will be agreed at a later stage. *Condition 6.* requires that the Licensee submit an agreement, between the Licensee and the Sanitary Authority, to the Agency prior to accepting waste at the facility.

b) Gas Collection System

The NEHB suggested that a maintenance programme and criteria should be established for the replacement of carbon filters in the gas vents.

b) Response
Condition 5 requires that all treatment/abatement and emission control equipment must be calibrated and maintained in accordance with the instructions issued by the manufacturer / supplier or installer. Written records of the calibrations and maintenance must be kept by the licensee. It should also be noted that an active landfill gas management system including an enclosed flare must be provided within six months of waste being disposed of at the facility (Condition 5).

c. Odour Nuisance

The NEHB questioned how odour nuisance would be prevented from the storage of leachate in the lagoon and it's transfer to tankers for removal off-site. BVNEPL believe that odour in the prevailing south-west wind will be deleterious to the image of the Boyne Valley.

c) Response
Condition 3 requires that all structures for the storage and/or treatment of leachate shall be fully enclosed except for inlet and outlet piping. In addition Condition 5 requires that leachate shall be disposed of by tankering off-site in fully enclosed road tankers. There are also a number of Conditions controlling potential odour nuisance from the facility. These require good management practices, provision of a gas collection and flaring system, daily and intermediate cover and an adequate capping system.

d) Waste Water Treatment System

It was requested that details and specifications should be supplied for the proposed waste water treatment system.

d) Response
Condition 3 requires the provision of a waste water treatment plant for domestic waste water arising on-site. The exact detail and specification of the waste water treatment plant may vary but the waste water will be ultimately treated off-site.

e) Truck Washing

Details were requested on the regime for truck washing including volume of water required, treatment and disposal of waste water on a daily basis and capacity oif settlement tanks and oil interceptors.

e) Response

Condition 3 requires that the wheel cleaner units are inspected on a daily basis and drained as required. The water from these units have to be pumped to the leachate lagoon and the leachate has to be sent off-site for treatment.

f) Noise

It was requested that the applicant address the potential tonal component in the noise generated from the gas flare and how this may impact on the nearest dwellings.

f) Response

Condition 6 requires that there shall be no clearly audible tonal component or impulsive component in the noise emissions from the facility at the facility boundary.

7. Traffic

Concern was expressed that this development would increase traffic. In particular, it is contended that the impact of traffic flow to the "super dump" from the greater Dublin area has not been assessed. There is concerns that there will be increased traffic on the roads surrounding the village and school.

Response

Condition 3 requires that the licensee consult with the roads authority on their proposal not to use the R150 road, which passes the local school, or the county road CR384 north and east of the facility. In addition, Condition 3 restricts the access to the N2 entrance for all vehicles using the facility.

8. Environmental Nuisances

It was expressed that the management system proposed by the applicant would not effectively reduce environmental nuisance impacts on the local environment. Concern was expressed that there would be significant dust emanating from the facility.

Response

Measures to control possible nuisances at the proposed facility are specified in *Condition 7*. These include conditions on the control of litter, dust, birds and vermin. Odour is controlled under *Condition 5* by controlling the operations at the facility. Records are also required under *Condition 10*. In relation to dust control the PD requires mitigation measures from the commencement of construction at the site. These include; covering exposed faces during construction, daily and weekly waste cover, restoration measures as well as water spraying of potentially dusty roads. Schedule C Emission Limits sets an ELV of 350mg/m^2/day at or outside site boundary locations and Schedule D requires dust and PM_{10} monitoring. The monitoring locations have to be agreed with the Agency.

9. Plans / Directives

Boyne Valley and Newgrange Environmental Protection League contend that the proposal is in contravention of the Meath County Council County Development Plan 1994 and current draft development plan in that the application is based on a North Leinster Regional dump. It is contended that the selection of the site was flawed reference – Council Directive 1999/31/EC of 24 April 1999 on the landfill of Waste, Annex 1, location – in that it did not take into consideration the Kenstown Draft Development Plan – year 2000 and a proposal by Meath County Council to build local authority houses. Hence, it is contended that the application should be rejected as it is based as inaccurate information. There is no evidence in the application of how the requirements of in particular Article 10 of the "Council Directive 1999/31/EC of 26th April 1999 on the landfill of waste" will be effectively implemented. There is a failure to meet the requirements in the Government policy "Changing our Ways".

Response

This landfill is based on the requirements and proposals set out in the North East Regional Waste Management Plan. The purpose of this plan is to provide a framework for the management of non-hazardous wastes in the North East Region in accordance with national and EU waste legislation and policy. This plan proposed a medium to long-term residual landfill at Knockharley.

Annex I of the Landfill Directive 1999/31/EC requires that the location of a landfill must take into consideration requirements relating to (a) the distance from the boundary of the site to residential and recreation areas, waterways, water bodies and other agricultural or urban site. The EIS covers all these areas as detailed in Sections 1, 2.5 Surface Water, 2.6 Groundwater / Hydrogeology, 2.8 Human Beings, 2.10 Landscape and Visual Aspects, 3.1 Site Design and Section 4 – Potential Impacts, Mitigation Measure and likely significant effects. In addition, the PD stipulates buffer zones in Condition 3 in which no waste shall be deposited.

10. Planning Issue

It is contended that the "actual dump site itself forms part of an area which Meath County Council deem over developed"

Response

This issue is not addressed here as the relevant authority to address this issue is Meath County Council.

11. Flora, Fauna & Woodland

It is contended that the flora, fauna and woodland at Flemingstown and Balrath, National Heritage Areas, would be destroyed by whole generations of large sea birds and other winged scavengers nesting in those woodlands. Duchas requested that any hedge or scrub which are outside the area of the landfill (i.e. outside the clay embankment) in particular those described as number 53, 55, 61, 62, 25 and 17 should be left insitu due to their high local ecological value and possible nesting area for the threatened yellow hammer. In addition, any drains associated with these hedgerows should be left unaltered. It was also requested that the local Duchas conservation ranges should be contacted before any work commences regarding the removal of the two badger setts. Duchas did not agree with using the storm water pond as a new location for smooth newts and frogs if these were found in existing ponds and the ERFB requested the creation of same artificial ponds for the common frog

rana temporaria. They requested a separate pond to be fed by the stream water. It was requested that this work should be carried out in consultation with Duchas. In addition, Duchas suggested that retaining some fields under arable land in the buffer to provide a habitat for finches, yellow hammer and sky larks. Removal of buildings and mature trees should be carried out under suitable supervision to ensure no bat roosts are present and that these are not nesting sites for barn owls.

Response
Condition 7 of the PD contains a number of conditions controlling potential nuisance including nuisances from birds from the facility. Condition 7.1 requires the licensee to ensure that birds do not give rise to nuisance at the facility or in the immediate area of the facility. In particular, Condition 7.6 stipulates that birds must be prevented from gathering or feeding at the facility and birds of prey or bird prevention techniques must be in place at the facility prior to waste being disposed at the landfill. In addition, Condition 7 requires that the licensee submit a report on the assessment of the effectiveness of bird control measures within six months of commencement of waste activities.

Condition 5.11 requires that the licensee submit a pre-agreed proposal with Duchas on the removal of hedgerow prior to carrying out site works. Condition 3 requires the licensee to submit to the Agency a pre-agreed proposal with Duchas on the relocation of badgers, frogs, newts, bats and barn owls within the facility.

12. Visual Intrusion

BVNEPL is of the opinion that the "proposed super dump", the waste, binds, waste vehicles and the waste mount will be a degrading view and eyesore along the main access route to the Boyne Valley.

Response
The landfill is sited so as to maximise the screening value of internal and boundary hedgerows. In addition, the final profile of the landfill is limited to 74 mOD (Condition 4.2). Condition 3 requires a 5m high perimeter screen to be constructed in the South and South West corner of the facility and a 3m high clay berm is required around the waste disposal cells (Condition 5). While Condition 5 also requires a 50m wide band of woodland to be planted inside the entire facility boundary.

13. Tourism

It is believed that Meath tourism will be severely adversely affected as a result of a proposed 180,000 "super dump". In addition, the impact of the "dump" on the pilgrims walk from Tara, (e.g. the Meath Diocesan Pilgrimage 2000 entailed 50,000 people converging on the hill of Slane) past the proposed "dump" has not been addressed.

Response
Condition 8 requires that the licensee seek the advice of Duchas prior to the development of any undisturbed area. In addition, the response under visual intrusion deals with the mitigation measures in relation to the visual aspects of the proposed facility.

14. General Issues

Six submissions objected to the proposed landfill at Knockharley but they stated no particular reason for their objections.

One submission requested that all submissions from the public in relation to Reg.No. 103 should be treated as submissions in relation to this facility.

a) Response
This is a separate application and while many similar issues are raised only those submissions made in respect of this application are considered here.

b) Monitoring
Fears were expressed that once a licence is granted for Knockharley Landfill that monitoring and some safety measures would be forgotten.

b) **Response**
Condition 8 of the PD details the monitoring requirements in relation to the facility. Emissions of landfill gas, dust, PM_{10}, noise, leachate, landfill gas flare and emission to surface water and ground have to be monitored. Schedule D specifies the locations, frequencies and parameters that must be monitored, while Schedule E details the frequency of recording and reporting requirements.

c) Farming
It is feared that the development has the potential to seriously impact on farming in the area by contamination of drinking water due to leakage from the site and by air borne pollution and contamination of crops and feed supplies.

c) Response
The PD requires that the facility is managed and operated to a standard that will not cause contamination of drinking water or air pollution and thus will not affect farming in the area. Condition 3 requires a buffer zone to be maintained around the landfill. This buffer zone will ensure that the licensee will be able to control nuisances within the boundary of the facility. Condition 3 details the lining system required for the landfill leachate storage lagoon and the surface water pond, while Condition 5 controls leachate management. In addition Condition 8 requires all private wells, within 1km of the landfill footprin, to be monitored.

Schedule C sets emission limit values for emission to air from the facility and trigger levels for emission of gas and PM_{10} are set in Condition 6.

d) E.I.S.

It is argued that there was no form of consultation with the local people during the compilation of the E.I.S.

d) Response
The EIS Regulations applicable to this application do not require consultation with people during its compilation.

Signed _____ **Dated:**

Inspector Breege Rooney

APPENDIX 1

LOCATION PLAN & SITE LAYOUT