

**INSPECTOR'S REPORT**  
**WASTE LICENCE REGISTER NUMBER 12-1**

**(1) Summary:**

This application is for a landfill facility accepting c. 200,000 tpa of household, commercial and industrial non-hazardous waste at the Kinsale Road Landfill Site, Cork. A construction and demolition facility is being set up at present and will accept and treat c.125,000 tpa of this waste type. This site is unlined at present and the licensee has proposed to install leachate collection and treatment systems. An area of former landfilling is also covered under the terms of the proposed decision. Active landfill gas extraction is presently occurring at the facility. Ultimately the site will be restored to an amenity parkland of c.50Ha within 3km of Cork City.

<b>Name of Applicant</b>	Cork Corporation
<b>Facility Name (s)</b>	Kinsale Road Landfill Site
<b>Facility Address</b>	South City Link Road, Cork
<b>Description of Principal Activity</b>	Deposit in or on land
<b>Quantity of waste (tpa)</b>	200,000
<b>Environmental Impact Statement Required</b>	Yes
<b>Number of Submissions Received</b>	2
<b>INSPECTOR'S RECOMMENDATION</b>	The proposed decision as submitted to the Board be approved.

Notices	Issue Date(s)	Reminder(s)	Response Date(s)
<b>Article 14 (2) (b) (i)</b>	Not Applicable		
<b>Article 14 (2) (b) (ii)</b>	26/11/97, 9/4/98, 23/6/98		26/1/98, 8/5/98, 10/7/98
<b>Article 14 (2) (a)</b>	24/8/98		
<b>Article 16</b>	24/8/98	5/1/99	28/10/98, 5/3/99, 28/4/99, 11/5/99

<b>Applicant Address</b>	City Hall, Cork
<b>For Local Authority applicants, is the facility within its own functional area</b>	Partly - Part of site is in functional area of Cork County Council. Planning Permission (S/98/1880) received on 14/7/98 for site development works, surface water and leachate management and continuation of use as landfill site
<b>Is the facility an existing facility:</b>	Yes.
<b>Prescribed date for application:</b>	1/10/97
<b>Date Application received:</b>	30/9/97
<b>Location of EIS in Application</b>	Three Volume Document (received 8/5/98)

#### **FACILITY VISITS:**

<b>DATE</b>	<b>PURPOSE</b>	<b>PERSONNEL</b>	<b>OBSERVATIONS</b>
13/10/97	Check site notice	B Donlon/Anne Butler	Site Notice complies with Art. 8. Also visit site.
13/2/98	Visit site and surrounds	B Donlon / J Brogan	Site Visit. Examine landscape proposals.
20/5/98	Check site notice	B Donlon	Check new site notice reflecting EIS requirement. Notice in compliance
2/9/98	Site Visit site and surrounds	B Donlon / T O' Mathuna	Site Visit. Meeting on site with Cork Corporation personnel.
1/2/99	Site Visit	B Donlon / S Duffy	Site visit - get explanation of the proposed leachate collection system. Meet with FTW and Cork Corp.
25/8/99	Site Visit	B Donlon	Meeting with new site engineer. Visit C+D facility and general site tour.

**(2) Class/Classes of Activity**

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

<b>Waste Management Act, 1996</b>			
<b>THIRD SCHEDULE Waste Disposal Activities</b>		<b>FOURTH SCHEDULE Waste Recovery Activities</b>	
1. Deposit on, in or under land (including landfill).	p	1. Solvent reclamation or regeneration.	
2. Land treatment, including biodegradation of liquid or sludge discards in soils.	X	2. Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes).	X
3. Deep injection of the soil, including injection of pumpable discards into wells, salt domes or naturally occurring repositories.		3. Recycling or reclamation of metals and metal compounds.	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.	X	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.	X	6. Recovery of components used for pollution abatement.	
7. Physico-chemical treatment not referred to elsewhere in this Schedule (including evaporation, drying and calcination) which results in final compounds or mixtures which are disposed of by means of any activity referred to in paragraphs 1 to 10 of this Schedule.	X	7. Recovery of components from catalysts.	
8. Incineration on land or at sea.		8. Oil re-refining or other re-uses of oil.	
9. Permanent storage, including emplacement of containers in a mine.		9. Use of any waste principally as a fuel or other means to generate energy.	
10. Release of waste into a water body (including a seabed insertion).		10. The treatment of any waste on land with a consequential benefit for an agricultural activity or ecological system,	X
11. Blending or mixture prior to submission to any activity referred to in a preceding paragraph of this Schedule.	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 a preceding paragraph of this Schedule.	X	12. Exchange of waste for submission to any activity referred to in a preceding paragraph of this Schedule.	X
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

The applicant described the classes as follows.

**Waste Management Act, 1996: Third Schedule**

Class 1. This refers to normal landfilling operations up to a maximum of 200,000 tpa in any one year.

Class 2. The disposal of non hazardous sludges at the facility. This activity is limited to maximum of 12,000 tonnes per annum.

Class 4. The construction and operation of leachate and stormwater retention ponds.

Class 5. The disposal of certain wastes in exceptional circumstances into lined discrete cells.

Class 6. Leachate recirculation, disposal of recycled reprocessed composted waste.

Class 7. The operation of the proposed leachate treatment plant.

Class 11. This activity refers to processing and mixing of construction/demolition waste prior to disposal at the landfill.

Class 12. Repackaging of waste in an accident/emergency situation.

Class 13. This activity refers to storage of waste such as construction and demolition waste prior to mixing, repackaging etc. This also refers to the checking and classification of waste arriving at the site before deposition. Emergency storage will be provided for this purpose.

**Waste Management Act, 1996: Fourth Schedule**

Class 2. Mulching, composting and treatment of appropriate wastes/sludges. This activity is limited to the trial composting of wastes accepted subject to a limit of 1000m<sup>3</sup> at any one time at the facility, subsequent to prior written approval by the Agency.

Class 3. The recycling, recovery of a number of metal and metal compounds at the construction and demolition facility and the civic waste facility.

Class 4. The recycling and/or reclamation of inorganic materials at the construction and demolition facility and the civic waste facility.

Class 10. The use of various suitable wastes as intermediate cover and in the closure/restoration stage of the landfill subject to the agreement of the Agency.

Class 11. This activity is limited to the use of processed wastes in roadways, drains etc. at the facility.

Class 12. The possible exchange of waste being delivered to the facility in exchange for processed waste subject to the agreement of the Agency

Class 13. The temporary storage of waste prior to inspection prior to recycling, recovery and/or reuse on-site.

**Activities recommended for licensing:**

It is recommended that the above activities, except Class 6 of the Third Schedule, be licensed subject to the conditions contained in the attached Proposed Decision.

**Activities refused for licensing:**

The licensee applied for Class 6 of the Third Schedule wherein they proposed (i) leachate recirculation, (ii) disposal of composted waste and (iii) other biological transformation process. The inspector recommends that this class of activity is refused for the following reasons. Leachate recirculation is not allowed under the terms of the attached PD as the site is unlined and there is adequate leachate retention and treatment capability at the site. No specific details were provided for composting or other biological transformation processes in the application.

<b>(3) Facility Location</b>
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**Appendix 1 contains a location drawing and a layout drawing showing the significant features of the facility.**

The facility is located at the South City Link Road, Cork in the townlands of Ballyphehane, Curraghconway and Incharsfield and is commonly known as the Kinsale Road Landfill site. The site occupies a large expanse(c. 66Ha) of low lying peat bog, bounded to the north and east by the Trabeg River, to the west by the South City Link Road and the South by the South Ring Road. In the past the Tramore River was the boundary dividing the northern Cork City Borough and the southern Cork County Area.

Landfilling areas under control of the applicant in the past have been identified. The areas in question is approximately 6 hectares most of which is on the opposite site of the South City Link Road from the existing landfill. The approximate age of filling is stated to be 20 to 34 years for the various areas outlined.

The applicant is required to submit a revised site plan incorporating these areas within the site boundary as it is a related waste operation (Condition 1.2).

The site has been operational since the early 1960's. The majority of the developments (commercial and residential) within 500 metres of the landfill site have occurred subsequent to the commencement of waste disposal operations.

The Douglas Estuary is a proposed Natural Heritage Area (NHA) and is a Special Protection Area (SPA) under the Birds Directive. The landfill site lies to the west of the Douglas Estuary (c.500 metres) but does not lie in a proposed NHA nor in the SPA.

<b>(4) Waste Types and Quantities</b>
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**The total quantity of waste deposited at the facility is shown below.**

	NON-HAZARDOUS WASTE	HAZARDOUS WASTE	TOTAL QUANTITY OF WASTE
<b>Already deposited</b>	2.0 million estimated	Not available	2.0 million estimated
<b>To be deposited</b>	0.75 million tonnes from October 1997	Nil	0.75 million tonnes from October 1997

### **(5) Activity Summary**

The facility is a municipal solid waste and non hazardous industrial waste disposal facility. The site (including former landfilling areas) is approx. 72 ha.

The facility accepts MSW deliveries from local authority and privately operated collection services. Liquid wastes are not accepted at the facility.

The facility is unlined and there is evidence of leachate discharging directly into the nearby water courses. There are requirements in the PD to install a leachate cut-off trench and to partially treat leachate on site prior to sewer discharge. Further details are outlined in Section 7 of this report.

The civic waste facility is located to the north of the main access road at present. There are plans to upgrade this facility and relocate to an area below the main access road. The licensee is required to install a temporary oil storage tank in the civic waste facility and to submit a report on decommissioning of the existing civic amenity facility.

### **(6) Facility Operation/Management**

- **Development;**

The waste licence application was accompanied by an EIS which dealt with continuation of landfilling to finished contour levels, restoration, construction of leachate collection system, leachate and stormwater retention ponds and conditioning plant, road infrastructure, civic amenity expansion and construction and demolition recycling facility. Approximately, half of the current landfilling area is in the functional area of Cork County Council. Consequently, planning permission for one stormwater retention pond, road infrastructure, leachate collection and restoration was sought and received from Cork County Council.

The overall proposal is to develop a parkland of approximately 50ha within 3km of Cork City and to provide an amenity area for the people of Cork.

- **Waste Acceptance Procedures**

The application proposes that household and commercial wastes are accepted, along with some industrial non-hazardous wastes and parks and cleansing waste.

Conditions 5.1 and 5.2 of the proposed decision restrict the waste types to be disposed of at the facility to household, commercial and industrial wastes. Hazardous wastes are prohibited. Condition 5.3 requires that all loads consisting primarily of construction and demolition waste shall be diverted to the construction and demolition facility for treatment.

Condition 5.9 requires submission of a proposal to characterise all industrial sludges/solids being accepted at the facility.

The civic waste facility is located to the north of the main access road which caters for waste oil collection, cooking oil, bottles and cans collection, textile collection, white goods, CFC extraction which is subject to Condition 4.14. Battery acceptance is a proposed activity whereas paper collection will be undertaken depending on market conditions. Proposals for the acceptance of additional wastes at this facility are required in Condition 4.14.5.

- **Waste Handling**

Wastes entering the facility are weighed at the weighbridge and brought to either the car tipping area, van tipping area or the working face of the operational cell. The applicant has indicated that landfilling for the remaining lifetime of the facility will be in seven distinctive phases in order to minimise environmental pollution and to maintain slope stability to ensure that the final contours proposed can be attained. Deposition of waste in phases is required in the proposed decision.

The proposed decision requires that comprehensive covering is instigated within three months of the date of grant of the licence (Condition 5.16).

Cement bound asbestos is accepted at the facility under strict conditions of double bagging from known customers. Monitoring is a requirement of the proposed decision (Schedule F.10).

- **Nuisance Control**

Potential nuisances are controlled by Condition 6. Condition 6.8 requires the licensee to make a proposal to the Agency dealing with bird and fly control. The use of daily cover, as required by Condition 5.16, also minimises the potential for odour nuisance, as well as the attraction of the facility to birds and vermin, nuisance caused by insects and litter problems.

Landfill gas odours will be controlled by combustion. Traffic using the site will use the wheel-wash to prevent the tracking of any materials onto the public road. Scavenging has occurred in the past. This will not be allowed at the facility and is prohibited by Condition 5.13.

- **Hours for Waste Acceptance**

The hours for waste acceptance are as follows:-  
8.00a.m. - 6.00 p.m. Monday to Friday

8.00a.m. - 5.00 p.m. Saturday  
7.00a.m. - 9.00 a.m. Sunday and Bank Holidays

## **(7) Facility Design**

- **Infrastructure;**

The boundary of the facility will be secured by a 2.4 metre galvanised steel palisade type fencing. Within the landfill there is a network of haul roads and access roads. A number of internal roads will be constructed to provide access within the site. These will be constructed using recycled construction and demolition waste materials where possible. The main infrastructure within the facility includes a car park area, offices, weighbridge, wheelwash, fuel storage tanks, civic waste facility and landfill gas utilisation plant. Improvements in infrastructure to incorporate new offices, new wheelwash, new fuel storage location, expansion to the civic waste facility have been proposed by the applicant.

The provision and maintenance of this infrastructure is required by *Condition 4 Site Infrastructure*.

An area (6.65ha) of completed landfill has been reserved for future waste recovery/recycling. The annual input of construction and demolition wastes is 125,000 tonnes. This material is required for the construction of the temporary road systems, daily intermediate cover material.

- **Leachate Management;**

At present, leachate is discharging from the facility without treatment to the nearby Tramore River. The water quality in this river is very poor (Q-rating of 2-3 upstream of active landfill, Q-rating of 1 downgradient of landfill). A requirement of the proposed decision is that discharges be significantly reduced. This is to be done by:-

- (a) leachate cut-off drains between the facility and the surface water catchments to prevent overland and sub-surface flow
- (b) active leachate pumping and off-site removal (c. 7 sump pumps at approximately 250m intervals to control leachate levels in the landfill)
- (c) installation of a temporary leachate retention pond (10,500m<sup>3</sup>)
- (d) capping and landscaping filled cells

These measures are considered essential in order to cause the operation of the facility to satisfy the criteria set down in s40(4) of the Waste Management Act 1996.

- **Landfill Gas Management;**

The primary gas control measure in completed sections of the landfill is an active abstraction and utilisation system. At present, c.100 active abstraction wells have been installed across the landfill. The extent of active gas abstraction system



collection pipework has been determined based on extensive gas pumping trials. Negative pressure is applied across the well fields via the fan pumps location in the utilisation compound.

The gas utilisation plant is operated under the AER Scheme by Irish Power Systems Limited (formerly Wimpey) by agreement with Cork Corporation. The plant consists of two Deutz MWM gas engines each of which has a maximum generating capacity of 1056kW. The average composition of gas burned in the engines is Methane 40-50%, Carbon Dioxide 20-30%, Oxygen 0-2%, nitrogen makes up the balance. The engines are fitted with a computerised performance monitoring system which is linked telemetrically to a central control office in Dublin. The engines are subject to routine maintenance programmes in accordance with manufacturers requirements.

In the operational areas, passive gas vents are installed progressively (at approx. 40m intervals) within the filling. When the levels of landfill gas is deemed to be sufficient they are connected to a collection system.

The nearest off-site structures are the Cork Corporation Half Moon Lane Garage and the ESB substation, located approximately 14m and 40m north of the site. The nearest residential property to the fill area is located 67m to the north-east of the landfill boundary in Heatherton estate.

The Trabeg River runs along the northern and eastern site boundary and forms an effective venting control measure. The leachate collection drain along the south-western, southern and eastern boundaries of the landfill will also serve as a barrier to off-site gas migration. There are over 20 landfill gas perimeter monitoring wells in the current landfilling area. Elevated methane and carbon dioxide levels were determined in a number of wells which the applicant states may be attributable to natural ground conditions. However, it is stated that gas is actively abstracted from these boreholes.

There is also evidence of elevated methane levels in the former landfill areas (Blackash Road side) and Cork Corporation and Irish Power Systems Limited are in discussions on how best to assess, quantify and to utilise the landfill gas (flare or link up to electricity generation).

- **Capping System;**

The following capping system is required in Condition 4.22.2 of the proposed decision: a 300mm gas collection layer, a minimum 600mm thick barrier clay layer with a permeability of  $10^{-9}$ m/s or equivalent, a 300mm free draining material, LDPE geomembrane, 850mm of protective soil, 150mm topsoil.

Reprocessed C+D waste material is proposed for use in the capping system as protective soil, free-draining material and in the gas collection layer. Under Condition 4.22.3 the applicant is requested to provide evidence that the reprocessed waste material is fit for the purpose that it is intended.

<b>(8) Restoration and Aftercare</b>
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It is proposed to restore the facility and to develop a parkland of approximately 50 ha within 3km of Cork City. The following are proposed: an active recreational area, events areas from 1-2 ha (for shows, circus, marathons, cycle races), terraced walk, level promenade area, rain gardens, wildflower grassland and marshland and perimeter screening of proposed civic amenity facility. A detailed landscape masterplan has been provided for the facility (Dwg No 30 Rev F). However, the applicant has not decided on the means to realign the existing overhead ESB wires. In addition, no details on the final landscape of the former landfilling areas were provided although there are proposals to partially convert this area into a park and ride facility. This will need to be carefully considered in light of the high methane readings recorded at site of this proposal.

Condition 8.1 requires the licensee to prepare and submit a restoration proposal for the entire site to the Agency for its agreement. The final profile of the facility is specified by Condition 8.2.

#### **(9) Hydrogeology**

The site is located in the Tramore River Valley. The Trabeg River, a tributary of the Tramore River, forms the northern and eastern site boundary. The Tramore River runs to the south of the landfill area. At present leachate and surface water from the site drains to the Trabeg and Tramore Rivers.

Much of the site is underlain by Waulsortian limestone bedrock. The limestone is highly fractured and is infilled with alluvial silts in the mid to southern section of the site. The south eastern section of the site is underlain by weathered siltstone/mudstone of the Kinsale formation. The Tramore River Valley has been infilled with gravels, alluvial silts and peats. The overburden ranges from 2-4 metres in thickness in the northern area to approximately 20 metres in the southern area.

The water bearing zones beneath the site include the gravels in the overburden, the weathered bedrock and the deeper unweathered rock. Above these units the peats and silty clays act as aquitards, limiting vertical movement of groundwater. The gravels are not continuous beneath the site. They appear to grade into gravelly clay in the central and southern areas of the site.

The gravels are considered to be a locally important aquifer. The weathered and fractured bedrock is part of a regionally important aquifer. The direction of groundwaters flow in the overburden and the bedrock is from north west to south east.

There is evidence of groundwater pollution in the northern part of the site and in the former landfill areas (Blackash Road Side). Mitigation measures such as installation of the leachate collection drain and capping/final restoration are proposed. There are no abstractors of groundwater for potable or production purposes downgradient of the

site, the risk presented by the landfill leachate after mitigation measures have been implemented will be greatly reduced.

Groundwater monitoring is required by Condition 9.1. The monitoring requested is at the normal frequency for perimeter groundwater monitoring boreholes. However, for the seven monitoring locations installed by the licensee immediately downgradient of the leachate collection drain the effectiveness of the leachate collection system which will be monitored on a weekly basis for water levels, ammonia, TOC and conductivity initially. This will be reduced following review of the initial results.

A report on the extent of groundwater contamination in the former landfill areas is required as part of the PD (Condition 4.20.2) including mitigation measures.

#### **(10) Emissions to Air**

Emissions to air include landfill gas, its combustion products and dust, suspended particles and small diameter particles (PM<sub>10</sub>).

Landfill gas is monitored at 21 locations around the landfill site on a monthly basis at present. Landfill gas at former landfill areas have also been monitored. There is active gas extraction at the main landfill area. Condition 7.1 sets emission limits for landfill gas detected in buildings and for dust deposition. Condition 7.6 sets trigger levels for landfill gas detected on or in the immediate vicinity of the facility.

Results from the dust, TSP and PM<sub>10</sub> monitoring performed to date indicate that the air quality is of a poor standard. All the PM<sub>10</sub> monitoring locations tested indicated that there was greater than 50 µg/m<sup>3</sup> which is the EU Air Quality standard as implemented in Directive 1999/30. Station 3 located at nearby residences downwind from the active landfilling area gave a reading of 88 µg/m<sup>3</sup>. The applicant proposed quarterly monitoring at three locations. However, these readings were obtained prior to start-up of the C&D facility and it is the inspectors view that a continuous monitor be installed at Station No 3 and quarterly monitoring be performed at three other locations.

Dust, TSP, PM<sub>10</sub>, odour, landfill gas monitoring requirements are established under Condition 9.1. Condition 10.6 - in conjunction with Condition 3.1 - requires further action, including investigations and remedial action to be taken if trigger levels or emission limits are exceeded.

One of the three dust monitoring locations were outside the normal dust trigger levels set in waste licences (350 mg/m<sup>2</sup>/d). Total suspended particulate monitoring (2 day sampling period) at locations at the eastern boundary and close to the active tipping area gave readings in excess of the Air Quality Standards for smoke (80/779/EEC).

Landfill gas management is required by Condition 4.21.  
 Dust control is required by Conditions 4.10, 5.7.4 and 6.6.

**Landfill gas combustion plant**

The plant has been operated on behalf of Cork Corporation by Irish Power Systems Limited (formerly Wimpey) for 3 years. No emission limits were set for the emissions from the facility by Cork Corporation. In the UK limits have not been set for these type of facilities to date but it is likely that under the IPPC Directive that limits will be set (Ian Higham, ETSU, personal communication).

However, TA Luft emission limits exist for internal combustion engines and cover particles, carbon monoxide, nitrogen oxides referenced to a volume oxygen content in the waste gas of 5%. In addition, TA Luft emission limits for gas flares cover the above parameters as well as organic compounds, inorganic acids (HCl, HF), and metals (Cd, Hg) and dioxins. In this PD the inspector sets limits for this type of facility based on the raw data and modelled data provided in the licence application and has reviewed the available literature for this type of facility.

One set of emissions from the existing landfill gas combustion plant were provided in the application. The results of air dispersion modelling (under worst case dispersion conditions) of the atmospheric emissions (NO<sub>x</sub>, SO<sub>2</sub> and CO) from this plant are shown in the table below. For reference the WHO guideline values and the EU Air Quality Directive values are also presented. It is apparent that under worst case scenario that NO<sub>x</sub> levels will be approx. 30% of the relevant guideline values, whereas SO<sub>2</sub> and CO are much less than 1% of the guideline values.

Compound	1 hr max predicted ground level concentration (µg/m <sup>3</sup> )	WHO Ambient Guideline Value <sup>Note 1</sup> (µg/m <sup>3</sup> )	EU Air Quality Directive 1999/30 <sup>Note1</sup> (µg/m <sup>3</sup> )
NO <sub>x</sub>	62	200	200
SO <sub>2</sub>	0.2	350	300
CO	41	30,000	-

Note 1 : Values quoted are the hourly maximum values.

The TA Luft emissions limits for internal combustion engines is set in Schedule G.

**Other Parameters (Organic/Inorganic)**

The applicant did not characterise organic substances being emitted from the plant. However, detailed analysis of the landfill gas entering the plant included the TA Luft Class I organics dichloromethane and tetrachloroethylene and several other organic substances. The total mass flow indicated that the total organics (excluding methane) entering the plant would be in the order of 0.05 kg/hr. Consequently, the normal TA Luft limits for Class I, II and III organics have been set in the PD.

There was no characterisation of inorganic acids in the inlet or the outlet gas from the landfill gas combustion plant. This is a requirement in the proposed decision. On the basis of the information supplied (modelling and volumetric throughput, my own literature studies of normal range of these substances) a limit of 50mg/m<sup>3</sup> for HCl at a mass emission threshold > 0.3 kg/h is set. This is the BATNEEC limit for the Asbestos Glass and Mineral sector. This will ensure that the ground level concentration (GLC) is less than 5% of the TA Luft IW2 value (which is the 98%ile of the maximum average hourly concentration).

Similarly, the BATNEEC limit for HF is 5 mg/m<sup>3</sup> at a mass emission threshold > 0.05 kg/h will ensure that the maximum GLC is well below the TA Luft IW2 value.

A complete characterisation of the landfill gas is required in the Proposed Decision (Condition 9.11). The range of parameters to be tested is to be agreed with the Agency.

#### **(11) Noise Emissions**

Background noise levels on the western boundary are elevated due to the close proximity of the South Link Road. Traffic using the facility and the operation of plant and machinery are the main sources of noise associated with the facility. Noise associated with external traffic is outside the scope of the licence. Noise monitoring at the facility is required by Condition 9.1. Condition 7.1 sets noise emissions limits for the facility.

#### **(12) Emissions to Sewer**

As part of the mitigation measures proposed to address the problem of leachate discharging to the Tramore River, the applicant proposed to collect and pre-treat the leachate prior to discharge to a combined sewer running along the southern perimeter of the site. The sewer line enters a holding tank in the Douglas Estuary where it is discharged on the ebb tide to maximise dilution. The sewer outfall will eventually be diverted to the Cork Wastewater treatment plant at Carrigrennan.

Sanitary authority consent in accordance with Section 52 of the Waste Management Act 1996 has been received from Cork County Council for the discharge and the PD has been drafted accordingly.

The licensee has indicated that there may be a requirement for the collection of dilute leachate / contaminated stormwater on a temporary basis prior to the completion of the capping. This dilute leachate may be present in volumes that would exceed the Section 52 Consent if discharged in the leachate discharge line. The requirement to discharge this dilute leachate also to sewer could be an option following the written agreement of the Sanitary Authority (Condition 7.10).

#### **(13) Emissions to Surface Water**

Analysis of water and sediment samples both upgradient and downgradient of the facility in the Tramore River and the Douglas Estuary indicate that there is some

pollution. It is evident that at present direct discharges of leachate to surface water is occurring at the southern boundary of the site.

There are proposals to install a leachate collection drain and pre-treat leachate prior to discharge via sewer line. There are also proposals to install a surface water collection system in the active and southern part of the site. This will discharge to a stormwater collection lagoon which will be continuously monitored by pH, conductivity and TOC. Depending on the water quality this will either discharge to a reed bed system or to foul sewer. There will be two reed beds in operation that will ultimately polish the stormwater to remove suspended solids prior to discharge to the Tramore River. This is covered in Conditions 4.18 and 9.5.

**(14) Other Significant Environmental Impacts of the Development**

None.

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

None

**(16) Submissions/Complaints**

There are 2 submissions made in respect of the application. These are dealt with in Appendix 2.

Signed: \_\_\_\_\_

Dr. Brian Donlon  
Inspector I

Dated: \_\_\_\_\_

**Appendix 2: Submissions**

**Submission received from Dan Boyle on 22/9/98**

The landfill is a source of much local controversy and is environmentally unsuitable. He states that landfilling has resulted in major difficulties in terms of methane and leachate build-up and that the adjoining Tramore River has been seriously polluted as a consequence. He requests that no further landfilling take place beyond December 31<sup>st</sup> 2000 and that the acceptance of asbestos waste be ceased forthwith.

**Response**

*The conditions in the PD regarding leachate, surface water and landfill gas management will significantly reduce the impact of these emissions on the environment. The profile of the facility is fixed by Condition 8.2 which also fixes the quantities of waste to be accepted and restricts the lifespan of the facility. A topographical survey is required within three months of the date of grant of licence and at six monthly intervals thereafter (Condition 9.13). Cement bound asbestos is accepted at the facility under strict conditions of double bagging from known customers. Monitoring is a requirement of the proposed decision (Schedule F.10).*

**Submission received from South Western Regional Fisheries Board (dated 25/8/99)**

1. Leachate Discharge to Tramore River

The Tramore River was considered in the past to be of some fishery importance holding small stocks of salmon, sea and brown trout. The SWRFB state that the leachate run-off from the landfill (and expansion and industrialisation of Cork City) has impacted on the nearby Tramore River. The SWRFB state that they have been in extensive discussion with Cork Corporation in relation to reducing the impact of leachate on the Tramore River. Agreement was reached in mid 1997 and the SWRFB request that the installation of the leachate cut-off drain and a connection with the Tramore Sewer of Cork County Council be implemented not later than 31<sup>st</sup> March 1999.

**Response**

*Detailed leachate management proposals have been covered in Condition 4.17. These include the installation of a leachate cut-off drain at the areas on the southern boundary of the facility which is most sensitive at the provision of a storage lagoon and a conditioning plant within four months of the date of grant of licence. The remainder of the leachate collection drain will be installed within twelve months of the date of grant of the licence (Condition 4.17.4 ). River realignment shall be proposed following discussions with the SWRFB (Condition 4.18.1).*

2. Surface Water Treatment

The SWRFB suggest that surface water run-off discharge via the proposed reed beds prior to discharge to the river (as distinct from that proposed in EIS Dwg. No. 3. Rev A) and that an automatic monitor be placed on all surface water points to assist early identification of contamination of surface waters if and as they occur.

**Response**

*An automatic monitor for the continuous monitoring of pH, TOC and conductivity is required on the inlet to the retention pond (Condition 7.8.1). An action programme outlining the response required in the event of contaminated waters reaching this retention pond is required under Condition 9.5. Discharge limits for suspended solids are set in Schedule G.6.*

3. Sediments of the Tramore River

Sediments of the Tramore River have been shown to be contaminated and these may have an influence on the re-establishment of an unpolluted aquatic biota. The SWRFB recommends that contaminated sediments be eliminated from interaction with the aquatic environment by being removed from the river channel or by being physically isolated from river bed sediments.

**Response**

*An assessment of the sediments from six locations in the Tramore River, upgradient and downgradient of the active landfill site and in the Douglas estuary was included as part of the waste licence application. It is apparent that even upstream of the existing landfill that the levels of copper, zinc and nickel are above the Dutch List Intervention Guidelines for soils/sediments.*

*The proposals for leachate management involve collection of the leachate, treatment of the leachate to remove methane and ultimate disposal via the Tramore River Valley Sewer. In the short term this will discharge into the Douglas Estuary during periods of maximum dilution. In the medium term the routing of the Tramore Valley Sewer to the new Carrigrennan Wastewater Treatment Plant will mean that the impacts of the landfill on the estuary will be minimised.*

*There are a number of industries operating upgradient of the landfill which may have been contributing to these elevated metals levels. In addition, the contribution from all the former landfilling areas may also be contributing to the elevated levels. A report on the extent of surface water and sediment contamination as a result of historical landfilling is required (Condition 4.20.2).*